LA-UR-19-20610
Approved for public release; distribution is unlimited.

Title: Semi-Annual Monitoring Report for Los Alamos National Laboratory, AI No. 856, Title V Operating Permit P100-R2M2 and P100-R2M3 for July 1 - December 31, 2018

Author(s): Carretti, Vincent Anthony

Intended for: Environmental Regulatory Document

Issued: 2019-02-26 (rev.1)

Disclaimer:
Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by Triad National Security, LLC for the National Nuclear Security Administration of U.S. Department of Energy under contract 89233218CNA000001. By approving this article, the publisher recognizes that the U.S. Government retains nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or to allow others to do so, for U.S. Government purposes. Los Alamos National Laboratory requests that the publisher identify this article as work performed under the auspices of the U.S. Department of Energy. Los Alamos National Laboratory strongly supports academic freedom and a researcher's right to publish; as an institution, however, the Laboratory does not endorse the viewpoint of a publication or guarantee its technical correctness.

Environmental Protection & Compliance Division
Environmental Compliance Programs (EPC-CP)
PO Box 1663, K490
Los Alamos, New Mexico 87545
(505) 667-0666

National Nuclear Security Administration
Los Alamos Field Office
3747 West Jemez Road, A316
Los Alamos, New Mexico, 87544
(505) 665-7314/Fax (505) 667-5948

Symbol: ESHQSS: 19-003
LA-UR: 19-20610
Locates Action No.: N/A
Date: FEB 12 2019

Ms. Kristina Sullivan
Compliance Reporting Manager
New Mexico Environment Department, Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505-1816

Subject: Semi-Annual Monitoring Report for Los Alamos National Laboratory, AI No. 856, Title V Operating Permit P100-R2M2 and P100-R2M3 for July 1 – December 31, 2018

Dear Kristina Sullivan:

Enclosed is Los Alamos National Laboratory's (LANL) Semi-Annual Monitoring Report for Operating permits P100-R2M2 and P100-R2M3 for the July 1 – December 31, 2018 reporting period.

The existing operating permit P100-R2M1 went through an administrative amendment which added Newport News Nuclear BWXT-Los Alamos, LLC (N3B) as an additional operator, along with Los Alamos National Security, LLC (LANS), and also changed the permittee to the Department of Energy- National Nuclear Security Administration (DOE-NNSA). P100-R2M2 was issued on May 7, 2018. Operating permit P100-R2M2 went through another administrative amendment which replaced LANS with Triad National Security, LLC as joint operator with N3B. P100-R2M3 was issued on October 17, 2018 and is the current permit number.

This Semi-Annual Monitoring Report covers the July 1 – December 31, 2018 (2018H2) reporting period. LANL is submitting one Semi-Annual Monitoring Report with attachments for the six month period, one Reporting Submittal Form, and two Title V Report Certification Forms. One Report Certification Form certifies P100-R2M2 for the period July 1 – October 16, 2018, and the second Report Certification Form certifies P100-R2M3 for the period October 17 – December 31, 2018, both are signed by the Department of Energy- National Nuclear Security Administration (DOE-NNSA) Responsible Official.

This submission is required by permit condition A109.A. of the Title V Operating Permit P100-R2M3, and is submitted within 45 days following December 31, 2018, the end of the six month reporting period. LANL's Air Quality Compliance team obtained approval from Ms. Carina Munoz-Dyer, Reports Group Staff Manager at the New Mexico Environment Department, Air Quality Bureau, to submit attachments to this report in E-files only without paper copies.

This Semi-Annual Monitoring Report includes:

1. Printed copies of:
    - Cover Letter and Reporting Submittal Form for P100-R2M2 (July 1 – October 16, 2018), and P100-R2M3 (October 17 – December 31, 2018) (Signed Originals)
    - Title V Report Certification Forms for P100-R2M2 (July 1 – October 16, 2018), and P100-R2M3 (October 17 – December 31, 2018) (Signed originals)
    - Title V Semi-Annual Monitoring Report for July 1– December 31, 2018 (2018H2)
        - Part 1 – Monitoring Activity Reporting Requirements
        - Part 2 – Deviation Summary Report
2. E-files of:
    - Cover Letter and Reporting Submittal Form for P100-R2M2 (July 1 – October 16, 2018), and P100-R2M3 (October 17 – December 31, 2018)
    - Title V Report Certification Forms for P100-R2M2 (July 1 – October 16, 2018), and P100-R2M3 (October 17 – December 31, 2018)
    - Title V Semi-Annual Monitoring Report for July 1– December 31, 2018 (2018H2)
        - Part 1 – Monitoring Activity Reporting Requirements
        - Part 2 – Deviation Summary Report
    - Monitoring Report Attachments A.607.A through A.1507.B

A deviation related to the control equipment for Boiler 1 (Unit TA-3-22-1) at the TA-3 Power Plant occurred during this certification period. On December 29, 2018 from approximately 2:00am – 9:30am, Boiler 1 (Unit TA-3-22-1) operated without the FGR fan operating. Upon identification of the FGR fan malfunction, Boiler 1 was immediately taken off-line and shutdown. Maintenance personnel were called in for emergency repairs. Boiler 1 was operating at less than 25% load from 2:00 am – 9:30am. Emissions were calculated using emission factors from stack test results conducted prior to installation of the FGR fans. Due to the low load and low gas flow rate during the time period of the FGR fan malfunction this deviation did not result in excess emissions above the allowed lb/hr limits in the Title V permit.

If you have any questions or comments regarding this submittal or would like to discuss the submittal in greater detail, please contact Adrienne Nash at (505) 665-5026 or Marjorie Stockton at (505) 665-3289.

Very truly yours,

Michael W. Hazen
Associate Lab Director

Very truly yours,

William S. Goodrum
Manager, Los Alamos Field office

MWH/WSG/MBS/VAC:jdm

Attachment(s): Attachment 1 Communication with NMED Regarding Electronic Attachments
Attachment 2 Semi-Annual Monitoring Report for Los Alamos National Laboratory, AI No. 856, Title V Operating Permit P100-R2M2 and P100-R2M3 for July 1 – December 2018

Copy: Adrienne L. Nash, LASO-MA-LS, adrienne.nash@nnsa.doe.gov, (E-File)
Silas DeRoma, LASO-OC, silas.deroma@nnsa.doe.gov, (E-File)
Erin O. Anderson, LASO-OC, (E-File)
Douglas Hintze, EM-LA, douglas.hintze@em.doe.gov, (E-File)
Paul Benjamin Underwood, EM-LA, ben.underwood@em.doe.gov, (E-File)
David Rhodes, EM-LA, david.rhodes@em.doe.gov, (E-File)
Hai Shen, EM-LA, hai.shen@em.doe.gov, (E-File)
Kelly J. Beierschmitt, DDOPS, beierschmitt@lanl.gov, (E-File)
Timothy A. Dolan, GC-ESH, tdolan@lanl.gov, (E-File)
Enrique Torres, EPC-DO, etorres@lanl.gov, (E-File)
Jennifer Payne, EPC-DO, jpayne@lanl.gov, (E-File)
Taunia Van Valkenburg, EPC-CP, tauniav@lanl.gov, (E-File)
Marjorie B. Stockton, EPC-CP, mstockton@lanl.gov, (E-File)
Vincent A. Carretti, EPC-CP, vcarretti@lanl.gov, (E-File)
Frazer Lockhart, N3B, (E-File)
Christian Maupin, N3B, (E-File)
Elizabeth Lowes, N3B, (E-File)
Dana Lindsay, N3B, (E-File)
EPC-CP Title V Permit File
EPC-CP Title V Monitoring Report File
EPC-CP Correspondence File
lasomailbox@nnsa.doe.gov, (E-File)
locatesteam@lanl.gov, (E-File)
aldeshqsscorrespondence@lanl.gov, (E-File)
epc-correspondence@lanl.gov, (E-File)
interface@lanl.gov, (E-File)

New Mexico Environment Department
Air Quality Bureau
Compliance and Enforcement Section
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505
Phone (505) 476-4300

Version 07.20.18

NMED USE ONLY	
TEMPO	

REPORTING SUBMITTAL FORM

NMED USE ONLY	
Staff	
Admin	

PLEASE NOTE: ® - Indicates required field

SECTION I - GENERAL COMPANY AND FACILITY INFORMATION

A. ® Company Name: Department of Energy, National Nuclear Security Administration			**D. ® Facility Name:** Los Alamos National Laboratory		
B.1 ® Company Address: 3747 West Jemez Road			**E.1 ® Facility Address:** P.O. Box 1663 MS J978		
B.2 ® City: Los Alamos	**B.3 ® State:** NM	**B.4 ® Zip:** 8 7 5 4 4	**E.2 ® City:** Los Alamos	**E.3 ® State:** NM	**E.4 ® Zip:** 87545
C.1 ® Company Environmental Contact: Adrienne L. Nash	**C.2 ® Title:** Program Manager		**F.1 ® Facility Contact:** Marjorie B. Stockton	**F.2 ® Title:** Acting Air Quality Compliance Team Leader	
C.3 ® Phone Number: (505) 665-5026	**C.4 ® Fax Number:** (505) 667-9998		**F.3 ® Phone Number:** (505) 665-3289	**F.4 ® Fax Number:** NA	
C.5 ® Email Address: adrienne.nash@nnsa.doe.gov			**F.5 ® Email Address:** mstockton@lanl.gov		
G. Responsible Official: (Title V only): William S. Goodrum	**H. Title:** Manager		**I. Phone Number:** (505) 667-5105	**J. Fax Number:** NA	

K. ® AI Number:	L. Title V Permit Number:	M. Title V Permit Issue Date:	N. NSR Permit Number:	O. NSR Permit Issue Date:
856	P100-R2M3 (See Section II.B.)	October 17, 2018	2195	Various

P. Reporting Period: From: July 1, 2018 To: December 31, 2018

Do NOT submit NSPS OOOO or OOOOa well completion or flowback notifications to the Air Quality Bureau. See https://www.env.nm.gov/air-quality/notices-and-faqs-for-compliance-and-enforcement/ for explanation.

SECTION II – TYPE OF SUBMITTAL (check one that applies)

A. ☐	Title V Annual Compliance Certification	Permit Condition(s):	Description:	
B. ☒	Title V Semi-Annual Monitoring Report	Permit Condition(s): A109.A	Description: LANL Semi-Annual Monitoring Report Operating Permits: P100-R2M2 and P100-R2M3 Issue Dates: May 7, 2018 and October 17, 2018 Reporting Period: July 1 - December 31, 2018	
C. ☐	NSPS Requirement (40CFR60)	Regulation:	Section(s):	Description:
D. ☐	MACT Requirement (40CFR63)	Regulation:	Section(s):	Description:
E. ☐	NMAC Requirement (20.2.xx) or NESHAP Requirement (40CFR61)	Regulation:	Section(s):	Description:
F. ☐	Permit or Notice of Intent (NOI) Requirement	Permit No.☐: or NOI No.☐:	Condition(s):	Description:
G. ☐	Requirement of an Enforcement Action	NOV No. ☐: or SFO No. ☐: or CD No. ☐: or Other ☐:	Section(s):	Description:

SECTION III - CERTIFICATION

After reasonable inquiry, I William S. Goodrum (Name of Certifier) certify that the information in this submittal is true, accurate and complete.

® Signature of Certifier:	® Title:	® Date	® Responsible Official for Title V?
	Manager		☒ Yes ☐ No

Reviewed By: _____ Date Reviewed: _____

Title V Report Certification Form

I. Report Type

☐ **Annual Compliance Certification**

☒ **Semi-Annual Monitoring Report**

☐ **Other Specify:**

II. Identifying Information

Facility Name: Los Alamos National Laboratory		
Facility Address: P.O. Box 1663, MS J978	State: NM	Zip: 87545
Responsible Official (RO): William S. Goodrum	Phone: (505) 667-5105	Fax: NA
RO Title: Manager, LASO	RO e-mail: steve.goodrum@nnsa.doe.gov	
Permit No.: P100-R2M2	Date Permit Issued: 5/7/2018	
Report Due Date (as required by the permit): 2/14/2019	Permit AI number: 856	
Time period covered by this Report: From: 7/1/2018	To: 10/16/2018	

III. Certification of Truth, Accuracy, and Completeness

I am the Responsible Official indicated above. I, (William S. Goodrum) certify that I meet the requirements of 20.2.70.7.AE NMAC. I certify that, based on information and belief formed after reasonable inquiry, the statements and information contained in the attached Title V report are true, accurate, and complete.

Signature: _____ Date: 2-11-19

Title V Report Certification Form

I. Report Type

☐ **Annual Compliance Certification**

☒ **Semi-Annual Monitoring Report**

☐ **Other Specify:**

II. Identifying Information

Facility Name: Los Alamos National Laboratory		
Facility Address: P.O. Box 1663, MS J978	State: NM	Zip: 87545
Responsible Official (RO): William S. Goodrum	Phone: (505) 667-5105	Fax: NA
RO Title: Manager, LASO	RO e-mail: steve.goodrum@nnsa.doe.gov	
Permit No.: P100-R2M3	Date Permit Issued: 10/17/2018	
Report Due Date (as required by the permit): 2/14/2019	Permit AI number: 856	
Time period covered by this Report: From: 10/17/2018	To: 12/31/2018	

III. Certification of Truth, Accuracy, and Completeness

I am the Responsible Official indicated above. I, (William S. Goodrum) certify that I meet the requirements of 20.2.70.7.AE NMAC. I certify that, based on information and belief formed after reasonable inquiry, the statements and information contained in the attached Title V report are true, accurate, and complete.

Signature _____ Date: 2-11-19

ATTACHMENT 1

Communication with NMED regarding electronic attachments

ESHQSS: 19-003

LA-UR-19-20610

Date: FEB 12 2019

From:	Munoz, Carina, NMENV
To:	Ramanathan, Brinda
Subject:	RE: Template for Los Alamos National Laboratory"s semi-annual monitoring report
Date:	Monday, July 3, 2017 9:22:48 AM

That will be okay. Just provide a CD with the attachments. And include this email with your submittal.

Thanks
Carina

Carina G. Munoz-Dyer
Reports Group Staff Manager
Compliance and Enforcement Section
NMED Air Quality Bureau
Ph. 505-476-4368

The Four-Way Test
Of the Things We Think, Say or Do:

1. Is it the **TRUTH**?
2. Is it **FAIR** to all concerned?
3. Will it build **GOODWILL** and **BETTER FRIENDSHIPS**?
4. WIll it be **BENEFICIAL** to all concerned?

From: Ramanathan, Brinda [mailto:brindar@lanl.gov]
Sent: Monday, July 03, 2017 9:20 AM
To: Munoz, Carina, NMENV <Carina.Munoz@state.nm.us>
Subject: RE: Template for Los Alamos National Laboratory's semi-annual monitoring report

Hi Carina,

Good morning.

Thank you for the forms.

I do have one question. LANL's monitoring report attachments are 1500-1700 pages long. The previous compliance manager, Renae Held allowed us to submit electronic files only for the attachments. Is this acceptable to you? We will submit paper copies for the submittal form, certification form and the report. We would like to avoid printing so many pages.

Let me know.

Thank you again for your help with this.

Brinda

From: Munoz, Carina, NMENV [mailto:Carina.Munoz@state.nm.us]
Sent: Monday, July 3, 2017 9:09 AM
To: Ramanathan, Brinda <brindar@lanl.gov>; aqb, Submittals, NMENV <Submittals.aqb@state.nm.us>
Subject: RE: Template for Los Alamos National Laboratory's semi-annual monitoring report
Importance: High

Brinda,

Here are the template for AI 856 – LANL Semi-Annual and ACC reports. The forms are a combined version that include TV Permit P100-R2 and R2M1. Please read the instructions on the first page of each form. Let me know if you have any questions.

Thanks
Carina

Carina G. Munoz-Dyer
Reports Group Staff Manager
Compliance and Enforcement Section
NMED Air Quality Bureau
Ph. 505-476-4368

The Four-Way Test
Of the Things We Think, Say or Do:

1. Is it the **TRUTH**?
2. Is it **FAIR** to all concerned?
3. Will it build **GOODWILL** and **BETTER FRIENDSHIPS**?
4. WIll it be **BENEFICIAL** to all concerned?

From: Ramanathan, Brinda [mailto:brindar@lanl.gov]
Sent: Wednesday, June 28, 2017 8:51 AM
To: Munoz, Carina, NMENV <Carina.Munoz@state.nm.us>
Subject: Template for Los Alamos National Laboratory's semi-annual monitoring report

Hi Carina,

We spoke a month ago about getting a new template for the semi-annual monitoring report for Title V permit P100-R2M1.
I was wondering if the template is available so that I can get started on the monitoring report.

The AI for LANL is AI856.

Until Feb 3, 2017 LANL operated under permit P100-R2.
On Feb 3, 2017, LANL was issued a permit modification P100-R2M1. The modification was for the addition of Evaporative Sprayers in Section A1500.

Would you kindly let me know if LANL has to submit two monitoring reports or one for the Jan 1–Jun 30, 2017 monitoring period?

I will follow up this e-mail with a phone call to you.

Thank you.

With best regards,

Brinda Ramanathan
Air Quality Compliance
505-665-8879
Los Alamos National Laboratory

ATTACHMENT 2

Semi-Annual Monitoring Report for Los Alamos National Laboratory, AI No. 856, Title V Operating Permit P100-R2M2 and P100-R2M3 for July 1–December 31, 2018

ESHQSS: 19-003

LA-UR-19-20610

Date: FEB 12 2019

Title V Semi-Annual Monitoring
for Permits P100-R2M2 & P100-R2M3

Title (TV) Permit Administration Amendment

On **October 17, 2018** NMED AQB issued an Administrative Amendment to Operating Permit **P100-R2M2**.

The Administrative Amendment **P100-R2M3** corrected the following:

- **The Department revises the information on page 1 of the permit as follows:**

  Operator names are changed to

  Triad National Security, LLC
  PO Box 1663 MS K491
  Los Alamos, NM 87545

  and

  Newport News Nuclear BWXT-Los Alamos, LLC
  600 Sixth Street
  Los Alamos, NM 87544

On **October 17, 2018** NMED AQB issued a letter that corrected the permit number for this Administrative Amendment from **P100-R2M2** to **P100-R2M3**.

For this Administrative Amendment **(P100-R2M3)**, the facility can use one Semi-Annual Form which will cover both TV Permits.

Although the facility is only required to submit one Semi-Annual Report, the facility shall submit **two (2)** separate TV Report Certification Forms. Each form shall list the corresponding TV Permit number, TV Permit Issue Date and Reporting Period under such TV Permit.

Please note that this is a one-time authorization. Submittal forms for future Administrative Revisions will be evaluated on a case by case basis.

This form can also be used for future submittals that cover only the **P100-R2M3** permit.

Title V Semi - Annual Monitoring Report
for Permits P100-R2M2 & P100-R2M3

Part 1 – Monitoring Activity Reporting Requirements

A Semi-Annual Report of monitoring activities is due within 45 days following the end of every 6-month reporting period. The six month reporting periods start on January 1st and July 1st of each year.

A responsible official (as defined in 20.2.70.7.AE NMAC) shall certify the accuracy, truth and completeness of every report and compliance certification submitted to the Department as required by this permit. These certifications shall be part of each document. (20.2.70.300.E NMAC)

Compliance Certification Reports, Semi-Annual monitoring reports, compliance schedule progress reports, and any other compliance status information required by this permit shall be certified by the responsible official and submitted to:

Manager, Compliance and Enforcement Section
New Mexico Environment Department
Air Quality Bureau
525 Camino De Los Marquez, Suite 1
Santa Fe, NM 87505-1816

B108 General Monitoring Requirements
(20.2.70. 302.A and C NMAC)

A. These requirements do not supersede or relax requirements of federal regulations.
B. The following monitoring and/or testing requirements shall be used to determine compliance with applicable requirements and emission limits. Any sampling, whether by portable analyzer or EPA reference method, that measures an emission rate over the applicable averaging period greater than an emission limit in this permit constitutes noncompliance with this permit. The Department may require, at its discretion, additional tests pursuant to EPA Reference Methods at any time, including when sampling by portable analyzer measures an emission rate greater than an emission limit in this permit; but such requirement shall not be construed as a determination that the sampling by portable analyzer does not establish noncompliance with this permit and shall not stay enforcement of such noncompliance based on the sampling by portable analyzer.
C. If the emission unit is shutdown at the time when periodic monitoring is due to be accomplished, the permittee is not required to restart the unit for the sole purpose of performing the monitoring. Using electronic or written mail, the permittee shall notify the Department's Enforcement Section of a delay in emission tests prior to the deadline for accomplishing the tests. Upon recommencing operation, the permittee shall submit any pertinent pre-test notification requirements set forth in the current version of the Department's Standard Operating Procedures For Use Of Portable Analyzers in Performance Test, and shall accomplish the monitoring.
D. The requirement for monitoring during any monitoring period is based on the percentage of time that the unit has operated. However, to invoke monitoring period exemptions at B108.D(2), hours of operation shall be monitored and recorded.
   (1) If the emission unit has operated for more than 25% of a monitoring period, then the permittee shall conduct monitoring during that period.
   (2) If the emission unit has operated for 25% or less of a monitoring period then the monitoring is not required. After two successive periods without monitoring, the permittee shall conduct monitoring during the next period regardless of the time operated during that period, except that for any monitoring period in which a unit has operated for less than 10% of the monitoring period, the period will not be considered as one of the two successive periods.
   (3) If invoking the monitoring period exemption in B108.D(2), the actual operating time of a unit shall not exceed the monitoring period required by this permit before the required monitoring is performed. For example, if the monitoring period is annual, the operating hours of the unit shall not exceed 8760 hours before monitoring is conducted. Regardless of the time that a unit actually operates, a minimum of one of each type of monitoring activity shall be conducted during the five year term of this permit.
E. The permittee is not required to report a deviation for any monitoring or testing in a Specific Condition if the deviation was authorized in this General Condition B108.
F. For all periodic monitoring events, except when a federal or state regulation is more stringent, three test runs shall be conducted at 90% or greater of the unit's capacity as stated in this permit, or in the permit application if not in the permit, and at additional loads when requested by the Department. If the 90% capacity cannot be achieved, the monitoring will be conducted at the maximum achievable load under prevailing operating conditions except when a federal or state regulation requires more restrictive test conditions. The load and the parameters used to calculate it shall be recorded to

document operating conditions and shall be included with the monitoring report.

G. When requested by the Department, the permittee shall provide schedules of testing and monitoring activities. Compliance tests from previous NSR and Title V permits may be re-imposed if it is deemed necessary by the Department to determine whether the source is in compliance with applicable regulations or permit conditions.

H. If monitoring is new or is in addition to monitoring imposed by an existing applicable requirement, it shall become effective 120 days after the date of permit issuance. For emission units that have not commenced operation, the associated new or additional monitoring shall not apply until 120 days after the units commence operation. All pre-existing monitoring requirements incorporated in this permit shall continue to apply from the date of permit issuance. All monitoring periods, unless stated otherwise in the specific permit condition or federal requirement, shall commence at the beginning of the 12 month reporting period as defined at condition A109.B.

B109 General Recordkeeping Requirements

(20.2.70.302.D NMAC)

A. The permittee shall maintain records to assure and verify compliance with the terms and conditions of this permit and any applicable requirements that become effective during the term of this permit. The minimum information to be included in these records is (20.2.70.302.D.1 NMAC):
   (1) equipment identification (include make, model and serial number for all tested equipment and emission controls);
   (2) date(s) and time(s) of sampling or measurements;
   (3) date(s) analyses were performed;
   (4) the company or entity that performed the analyses;
   (5) analytical or test methods used;
   (6) results of analyses or tests; and
   (7) operating conditions existing at the time of sampling or measurement.

B. The permittee shall keep records of all monitoring data, equipment calibration, maintenance, and inspections, Data Acquisition and Handling System (DAHS) if used, reports, and other supporting information required by this permit for at least five (5) years from the time the data was gathered or the reports written. Each record shall clearly identify the emissions unit and/or monitoring equipment, and the date the data was gathered. (20.2.70.302.D.2 NMAC)

C. If the permittee has applied and received approval for an alternative operating scenario, then the permittee shall maintain a log at the facility, which documents, contemporaneously with any change from one operating scenario to another, the scenario under which the facility is operating. (20.2.70.302.A.3 NMAC)

D. The permittee shall keep a record describing off permit changes made at this source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under this permit, and the emissions resulting from those changes. (20.2.70.302.I.2 NMAC)

E. Unless otherwise indicated by Specific Conditions, the permittee shall keep the following records for malfunction emissions and routine and predictable emissions during startup, shutdown, and scheduled maintenance (SSM):
   (1) The owner or operator of a source subject to a permit, shall establish and implement a plan to minimize emissions during routine or predictable startup, shutdown, and scheduled maintenance

through work practice standards and good air pollution control practices. This requirement shall not apply to any affected facility defined in and subject to an emissions standard and an equivalent plan under 40 CFR Part 60 (NSPS), 40 CFR Part 63 (MACT), or an equivalent plan under 20.2.72 NMAC - Construction Permits, 20.2.70 NMAC - Operating Permits, 20.2.74 NMAC - Permits - Prevention of Significant Deterioration (PSD), or 20.2.79 NMAC - Permits - Nonattainment Areas. (20.2.7.14.A NMAC) The permittee shall keep records of all sources subject to the plan to minimize emissions during routine or predictable SSM and shall record if the source is subject to an alternative plan and therefore, not subject to the plan requirements under 20.2.7.14.A NMAC.

(2) If the facility has allowable SSM emission limits in this permit, the permittee shall record all SSM events, including the date, the start time, the end time, a description of the event, and a description of the cause of the event. This record also shall include a copy of the manufacturer's, or equivalent, documentation showing that any maintenance qualified as scheduled. Scheduled maintenance is an activity that occurs at an established frequency pursuant to a written protocol published by the manufacturer or other reliable source. The authorization of allowable SSM emissions does not supersede any applicable federal or state standard. The most stringent requirement applies.

(3) If the facility has allowable malfunction emission limits in this permit, the permittee shall record all malfunction events to be applied against these limits. The permittee shall also include the date, the start time, the end time, and a description of the event. **Malfunction means** any sudden and unavoidable failure of air pollution control equipment or process equipment beyond the control of the owner or operator, including malfunction during startup or shutdown. A failure that is caused entirely or in part by poor maintenance, careless operation, or any other preventable equipment breakdown shall not be considered a malfunction. (20.2.7.7.E NMAC) The authorization of allowable malfunction emissions does not supersede any applicable federal or state standard. The most stringent requirement applies. This authorization only allows the permittee to avoid submitting reports under 20.2.7 NMAC for total annual emissions that are below the authorized malfunction emission limit.

(4) The owner or operator of a source shall meet the operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup or shutdown. (20.2.72.203.A(5) NMAC)

B110 General Reporting Requirements

(20.2.70.302.E NMAC)

A. Reports of required monitoring activities for this facility shall be submitted to the Department on the schedule in section A109. Monitoring and recordkeeping requirements that are not required by a NSPS or MACT shall be maintained on-site or (for unmanned sites) at the nearest company office, and summarized in the semi-annual reports, unless alternative reporting requirements are specified in the equipment specific requirements section of this permit.

B. Reports shall clearly identify the subject equipment showing the emission unit ID number according to this operating permit. In addition, all instances of deviations from permit requirements, including those that occur during emergencies, shall be clearly identified in the reports required by section

A109. (20.2.70.302.E.1 NMAC)

C. The permittee shall submit reports of all deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. These reports shall be submitted as follows:
   (1) Deviations resulting in excess emissions as defined in 20.2.7.7 NMAC (including those classified as emergencies as defined in section B114.A) shall be reported in accordance with the timelines specified by 20.2.7.110 NMAC and in the semi-annual reports required in section A109. (20.2.70.302.E.2 NMAC)
   (2) All other deviations shall be reported in the semi-annual reports required in section A109. (20.2.70.302.E.2 NMAC).

D. The permittee shall submit reports of excess emissions in accordance with 20.2.7.110.A NMAC.

E. Results of emission tests and monitoring for each pollutant (except opacity) shall be reported in pounds per hour (unless otherwise specified) and tons per year. Opacity shall be reported in percent. The number of significant figures corresponding to the full accuracy inherent in the testing instrument or Method test used to obtain the data shall be used to calculate and report test results in accordance with 20.2.1.116.B and C NMAC. Upon request by the Department, CEMS and other tabular data shall be submitted in editable, MS Excel format.

F. At such time as new units are installed as authorized by the applicable NSR Permit, the permittee shall fulfill the notification requirements in the NSR permit.

G. Periodic Emissions Test Reporting: The permittee shall report semi-annually a summary of the test results.

H. The permittee shall submit an emissions inventory for this facility annually. The emissions inventory shall be submitted by the later of April 1 or within 90 days after the Department makes such request. (20.2.73 NMAC and 20.2.70.302.A.1 NMAC)

I. Emissions trading within a facility (20.2.70.302.H.2 NMAC)
   (1) For each such change, the permittee shall provide written notification to the department and the administrator at least seven (7) days in advance of the proposed changes. Such notification shall state when the change will occur and shall describe the changes in emissions that will result and how these increases and decreases in emissions will comply with the terms and conditions of the permit.
   (2) The permittee and department shall attach each such notice to their copy of the relevant permit.

FACILITY SPECIFIC REQUIREMENTS:

A109 Facility: Reporting B. A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of pollutants NOx, CO, SO2, VOC, TSP, PM10, and PM2.5 shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.
Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.
☒ **Yes** **Date report submitted:** September 25, 2018 **Tracking Number:** SBR20180008
☐ **No** **Provide comments and identify any supporting documentation as an attachment.**
Comments: The Semi-Annual Emissions Report for January 1 - June 30, 2018, was submitted on September 25, 2018 within 90 days from the end of the reporting period as required by condition A109.A. The Semi-Annual Emissions Report for July 1 - December 31, 2018 is not due until 90 days following December 31, 2018, which is after the submission of this report.

EQUIPMENT SPECIFIC REQUIREMENTS:

A605 Fuel Requirements – Asphalt Production

A. Asphalt Plant Combustion Sources

Requirement: Combustion sources located at the asphalt plant shall combust only those fuels allowed under condition III.A.3 of the NSR Permit GCP-3-2195G.

Monitoring: N/A

Recordkeeping: The permittee shall meet the recordkeeping requirements of GCP-3 and maintain records in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: Pipeline quality natural gas is used at the asphalt plant and is allowed under condition III.A.3 of the NSR permit GCP-3-2195G.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: A109.A: This Semi-Annual Monitoring Report is submitted within 45 days allowed after the reporting period.

A109.B: The January 1 - June 30, 2018 Semi-Annual Emissions Report was submitted on September 25, 2018 (SBR No. 20180008) within the 90 days allowed. The July 1 - December 31, 2018 Semi-Annual Emissions Report for Operating Permit P100-R2M2 and P100-R2M3 is due 90 days following December 31, 2018, which is after the submission of this report.

A109.C: The 2018 Annual Compliance Certification Report for operating permit P100-R2M1, P100-R2M2, and P100-R2M3 (January 1 –December 31, 2018) will be submitted to NMED AQB and the U.S. Environmental Protection Agency (EPA) by January 30, 2019, within 30 days of December 31, 2018, the end of the 12-month reporting period.

All reporting requirements are completed and submitted in accordance with Section B110.

A607 Asphalt Production – Other

A. Asphalt Plant Baghouse – Differential Pressure

Requirement: The baghouse shall be equipped with a device to continually measure the pressure drop across the baghouse.

Monitoring: The permittee shall monitor the differential pressure (inches of water) across the filters by the use of a differential pressure gauge. Pressure gauge readings and the time period the rotary dryer drum operates shall be recorded by a datalogger each time the rotary dryer drum is operating. The pressure data shall confirm whether the filter(s) are operating within the unit's specifications.

Recordkeeping: The permittee shall manually record the baghouse pressure drop readings at least once each day the rotary drum dryer operates and maintain records of all baghouse differential pressure readings in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The baghouse is equipped with a magnehelic gauge connected to a data-logger to continually monitor the differential pressure across the baghouse.

Monitoring: The differential pressure data is used to confirm proper operation of the baghouse. The differential pressure is measured during rotary dryer drum operation as described below:

1. A datalogger records differential pressure readings every two minutes and transmits the pressure drop data through a leased phoneline to a remote terminal unit.
2. A chart recorder records differential pressure readings and serves as a backup when there is a problem with the remote data-transmission phone communication.
3. The asphalt plant operator manually records the differential pressure readings at each start-up and shut-down daily.

Recordkeeping: Recordkeeping conditions are met using a datalogger, backup chart recorder, and operator's differential pressure entries at the start and end of each operation daily. A backup chart recorder captured baghouse pressure drop data when the phone-line communciation did not work. The daily pressure drop data for days of plant operation and backup charts are located in ATTACHMENT A607.A. Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification is submitted on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A607 Asphalt Production – Other

B. Asphalt Plant Baghouse - Stack Height (Unit TA-60-BDM)

Requirement: The rotary dryer/baghouse exhaust stack shall be no less than 10 meters in height.

Monitoring: N/A

Recordkeeping: The permittee shall maintain records in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The height of the asphalt plant stack has been measured and is no less than 10 meters. The stack is a permanent structure attached to the baghouse fan outlet and its height does not change.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A607 Asphalt Production – Other

C. Asphalt Plant Baghouse – Opacity

Requirement: Visible emissions from the rotary dryer/baghouse exhaust stack shall not exhibit an opacity of 20% or greater averaged over a (6) minute period.

Monitoring: During periods of drum dryer operation, the permittee shall perform six (6) minute opacity readings on the rotary dryer/baghouse stack. Opacity readings shall be performed at least once per month during any month the drum dryer operates. The observations shall be conducted according to 40 CFR 60, Appendix A, Method 9.

Recordkeeping: The permittee shall maintain records of all opacity observations and in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement/Monitoring: LANL has certified visible emissions (opacity) readers on-site who perform monthly six (6) minute opacity readings using the procedures in 40 CFR Part 60, Appendix A, Reference Method 9 to determine compliance with the opacity limitation. No visible emissions exhibited an opacity of 20% or greater during this reporting period. Method 9 opacity reports for this certification period are provided in ATTACHMENT A607.C.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A607 Asphalt Production – Other

D. Asphalt Plant Baghouse – Fines Cleanout

Requirement: The permittee shall sequester or remove particulates collected by the control equipment to prevent wind-blown particulate emissions. Recycled baghouse fines shall be recycled into the drum mixer via a closed-loop system.

Monitoring: N/A

Recordkeeping: The permittee shall maintain records in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: Baghouse fines (particulates) are removed from the baghouse and cyclone by a screw conveyor. The removed fines are recycled into the asphalt production process via a closed loop system. Visible emissions from this system were not observed during this reporting period.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification is submitted on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A607 Asphalt Production – Other

E. Asphalt Plant Production Rate (Unit TA-60-BDM)

Requirement: To avoid Compliance Assurance Monitoring (CAM) requirements under 40 CFR 64, the asphalt plant shall limit uncontrolled potential PM emissions by limiting asphalt production to less than or equal to 6,000 tons per year.

Monitoring: The permittee shall monitor the total daily production rate.

Recordkeeping: The permittee shall calculate a weekly rolling, 12-month total production rate and maintain records in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The asphalt plant production rate did not exceed 6,000 tons per year.

Monitoring: Asphalt production is monitored and recorded on a daily basis. The weekly rolling 12-month total is calculated and compared to the production limit set in this permit condition. Asphalt production amount is recorded daily in an operation log. The asphalt production rate for this certification period did not exceed 6,000 tons per year. The daily operation logs and 12-month rolling totals are provided in ATTACHMENT A607.E.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification is submitted on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A607 Asphalt Production – Other

F. Asphalt Plant Operations – General

Requirement: The permittee shall:
1) Install, operate, and maintain equipment in accordance with standard operating procedures, and
2) equip and operate the asphalt processing equipment such as screens, conveyor belts, and conveyor transfer points with dust control systems to control particulate matter emissions, and
3) operate the Plant in accordance with NSR Permit GCP-3-2195G, Section III, A, B, C, D, E, F, and H.
4) Ensure that no visible emissions from the facility are observed crossing the perimeter of the restricted area for no more than 5 minutes during any 2 consecutive hours during facility operations.

Monitoring: The permittee shall perform all monitoring required under NSR Permit GCP-3-2195G.

Recordkeeping: The permittee shall maintain records of all standard operating procedures, records of all maintenance and/or replacement of dust control systems, and all records required under NSR Permit GCP-3-2195G, Section IV.B, and including records of actual hours of operation, records of all required monitoring, daily and weekly total asphalt production and the weekly rolling 12 month total production, number of haul truck trips daily including materials delivery and product, frequency of haul road sweeping, and copies of the applicant's proposed maintenance requirements and records demonstrating conformance with said requirements. The permittee shall maintain records of all compliance test results for total suspended particulates (TSP), particulate matter (PM10), nitrogen oxides, carbon monoxide, and records of all opacity/visible emissions observations performed.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement:
1) No new equipment was installed during this monitoring period. Operational and maintenance requirements are contained in internal plant procedures that are followed by plant operation staff.
2) Dust collection and control systems are in place on screens, conveyor belts, and transfer points to control particulate matter emissions.
3) The asphalt plant is operated in accordance with NSR Permit GCP-3-2195G, Section III A,B,C,D,E,F, and H.
4) Both EPA Reference Methods 9 and 22 are used at the plant to determine the extent of visible emissions. Fugitive dust emissions from the plant did not cross the property boundary or exceed the five (5) minute visible emissions limit during any two consecutive hours of operation. EPA Method 9 reports are in ATTACHMENT A607.C and EPA Method 22 reports are in ATTACHMENT A607.G.

Monitoring: Preventive maintenance records are included in ATTACHMENT A607.F.

Recordkeeping: Recordkeeping conditions are met using the following methods: Standard operating procedures are in place and available on site; maintenance and calibrations are performed annually. The maintenance inspection and calibration were completed between July 1 - December 31, 2018. The plant's operations logs contain the start time, stop time, daily and monthly hours of operation; asphalt production amounts; day when paved road was swept; and the number of truck trips. The rolling 12-month totals for production are calculated on the emissions calculation spreadsheet. The operation logs and rolling 12-month totals are provided in ATTACHMENT A607.E. Records located at the facility include fuel delivery tickets for fuel oil and asphalt oil, frequency of road sweeping, calibration procedures, and a procedure that outlines required maintenance.

All compliance test results have been provided to NMED and are available on site.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification is submitted on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A607 Asphalt Production – Other

G. Asphalt Plant Fugitive Dust

Requirement: Fugitive dust emissions from asphalt processing equipment, including the system used to recycle fabric filter fines, shall exhibit no more than five (5) minutes of visible emissions during any two consecutive hours. This condition does not apply to fugitive dust emissions from other support operations such as storage piles, front end loaders, or materials handling around the asphalt process equipment.

Monitoring: The permittee shall perform a Method 22 test at least once per month on all screens, conveyor drop points, and hoppers during the months the asphalt plant operates. The duration of the test shall be a minimum of ten (10) minutes. If visible emissions are observed for more than two (2) minutes, the Method 22 test shall continue for two (2) hours or until scheduled operation of the plant ends.

Recordkeeping: The permittee shall maintain records of all equipment standard operating procedures, records of all maintenance and/or replacement of dust control systems, results of all visible emissions observations, and all records required under NSR Permit GCP-3-2195G.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The asphalt plant did not emit fugitive dust that exceeded five (5) minutes of visible emissions during any two (2) consecutive hours in this reporting period.

Monitoring: EPA Method 22 tests are performed once per month when the plant operates. The EPA Method 22 readings for this monitoring period are provided in ATTACHMENT A607.G. LANL has certified visible emission (opacity) readers on-site who perform monthly ten (10) minute readings using 40 CFR Part 60, Appendix A, Reference Method 22 to determine compliance with the opacity limitation. No visible emissions exhibited an opacity of 20% or greater during this reporting period.

Recordkeeping: The standard operating procedure, maintenance and repair records, and visible emissions observations are maintained at the plant site. All other records required under the NSR permit are also available on site.

Reporting: Emissions and monitoring reports are submitted on a six-month basis, and compliance certification on an annual basis, in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A707 Other – Beryllium Activities

A. Operational Requirements – Beryllium Activities

Source	Operating Requirements	Process Limits	Control Equipment Requirements
Sigma Facility TA-3-66	Beryllium operations will consist of registered metallographic operations, electroplating /chemical milling, and relocated machining, and arc melting/casting sources.	None	Metallographic operations and electroplating /chemical milling operations shall be conducted in aqueous solution or lubricant bath. Emissions from machining and arc melting/casting operations shall be exhausted through a HEPA filtration system prior to entering the atmosphere.
Beryllium Technology Facility TA-3-141	The continuous emission monitor will be maintained in accordance with the Laboratory's quality program.	Beryllium processed by the facility will not exceed 10,000 pounds per calendar year. Beryllium processed by the facility will not exceed 1000 pounds per day.	All processes shall be exhausted through a HEPA filtration system prior to entering the atmosphere. Powder operations, other than closed glovebox operations, and machining operations, other than the processes used in metallographic preparation shall be exhausted through a cartridge filtration system then through the HEPA filtration system. Metallographic preparation activities shall be conducted in lubricating baths or equivalent. (NSR permit 634-M2)
Target Fabrication Facility TA-35-213	Beryllium operations will consist of only beryllium machining and associated cleanup activities.	None	All processes shall be exhausted through a HEPA filtration system prior to entering the atmosphere.
Plutonium Facility TA-55-PF4	Regulated beryllium activities will be ducted through the pollution	44 pounds of beryllium (20 kg) in any 24 hour period;	Weld cutting, weld dressing, metallography, and electric furnace operations shall be

	control equipment and out the north or south stack of PF-4. (NSR Permit 1081-M1-R3, Specific Condition 1.b., partial, revised) The electric furnace shall be enclosed in a glove box, have a maximum operating temperature of 1600 degrees centigrade, and an inside volume space less than 1.1 cubic feet. (NSR Permit 1081-M1-R6, Specific Condition 1.d., partial, revised)	1100 pounds/year (500 kg/year) using a rolling total. (NSR Permit 1081-M1-R3, Specific Condition 1.c.)	controlled with 4 HEPA filters with a control efficiency of 99.95% each. (NSR Permit 1081-M1-R1, Condition 3, partial, revised) The non-accessible filters shall be replaced when the pressure drop across the filter either falls to levels indicating filter breakthrough or increases to levels indicative of excessive loading. (NSR Permit 1081-M1-R1, Condition 3, partial, revised)

B. Emissions Monitoring Requirements – Beryllium Activities

Source	Monitoring Requirements
Sigma Facility TA-3-66	A log shall be maintained during operations, which shows the number of metallographic specimens used in the metallographic operation and the weight or volume of Be samples processed in the electroplating/chemical milling, machining, and arc melting/casting operations.
Beryllium Technology Facility TA-3-141	Facility exhaust stack will be equipped with a continuous emission monitor used to measure beryllium emissions. Cartridge and HEPA filters shall be equipped with differential pressure gauges that measure the differential pressure across the cartridge and HEPA filters while the exhaust fans are in operation. (NSR permit 634-M2)
Target Fabrication Facility TA-35-213	Records of the stack emission test results (see Condition 2 of NSR Permit No. 632) and other data needed to determine total emissions shall be retained at the source and made available for inspection by the Department.
Plutonium Facility TA-55-PF4	The HEPA filtration systems shall be equipped with a differential pressure gauge that measures the differential pressure (inches of water) across the HEPA filters while the exhaust fans are in operation. (NSR Permit 1081-M1-R3, Condition 11) Control efficiency shall be verified by daily HEPA filter pressure drop tests and annual HEPA filter challenge tests of accessible filters. (NSR Permit 1081-M1-R1, Condition 3, partial, revised)

	The furnace temperature shall be continuously monitored and the flow rate from the glove box containing the furnace shall be measured once during each metal melt operation. (NSR Permit 1081-M1-R6, Condition 11, revised)

C. Recordkeeping Requirements – Beryllium Activities

Source	Recordkeeping Requirements
Sigma Facility TA-3-66	Recordkeeping for this source is specified in Condition A707.B.
Beryllium Technology Facility TA-3-141	Generate and maintain beryllium inventory records to demonstrate compliance with the 10,000 pounds of beryllium per calendar year and the 1000 pounds of beryllium per day processing limit. Record pressure drop across the cartridge and HEPA filters once per day that the exhaust fans are in operation and the facility is occupied. Record control equipment maintenance and repair activities. (NSR permit 634-M2)
Target Fabrication Facility TA-35-213	Recordkeeping for this source is specified in Condition A707.B.
Plutonium Facility TA-55-PF4	Stack emission test results and facility operating parameters including a daily record of the pressure drop measured across each appropriate HEPA plenum filtration stage, when the exhaust fans are operating. (NSR Permit 1081-M1-R3, Condition 9, partial, revised) A copy of the annual HEPA test, a log of the daily pressure drop readings and a control equipment maintenance log shall be kept. This documentation shall be provided upon request. (NSR Permit 1081-M1-R1, Condition 3, partial, revised) A log of the filter replacement shall be kept and shall be made available to the Department personnel upon request. (NSR Permit 1081-M1-R1, Condition 3, partial, revised) The permittee shall keep records of the number and weight of classified parts processed during a 24-hour period and year using a rolling total. Records shall be made available to properly cleared Department personnel upon request. (NSR Permit 1081-M1-R3, Condition 9, partial, revised) The permittee shall for each use of the furnace record the following operating parameters: metal type, theoretical melting point of the metal, metal melt duration once melting is commenced, maximum furnace temperature and glove box flow rate.

	(NSR Permit 1081-M1-R6, Condition 9, partial, revised) A record of the furnace's internal volume shall be maintained at the facility. (NSR Permit 1081-M1-R6, Condition 9, partial, revised)

D. Reporting Requirements – Beryllium Activities

Source	**Reporting Requirements**
Sigma Facility TA-3-66	The permittee shall submit reports described in Section A109 and in accordance with Section B110.
Beryllium Technology Facility TA-3-141	Anticipated date of initial startup of each new or modified source not less than thirty (30) days prior to the date. Actual date of initial startup of each new or modified source within fifteen (15) days after the startup date. Provide the date when each new or modified emission source reaches the maximum production rate at which it will operate within fifteen (15) days after that date. Notify the Department within 60 days after each calendar quarter of the facility's compliance status with the permitted emission rate from the continuous monitoring system. Provide any data generated by activities described in the Quality Assurance Project Plan (QAPP) that will assist the Air Quality Bureau's Enforcement Section in determining the reliability of the methodology used for demonstrating compliance with the permitted emission rate within 45 days of such a request. The permittee shall submit reports described in Section A109 and in accordance with Section B110.
Target Fabrication Facility TA-35-213	The permittee shall submit reports described in Section A109 and in accordance with Section B110.
Plutonium Facility TA-55-PF4	Stack emission test results and facility operating parameters will be made available to Department personnel upon request. Reports may be required to be submitted to the Department if inspections of the source indicate noncompliance with this permit or as a means of determining compliance. The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☒ **Yes** **Date report submitted:** August 17, 2018; October 24, 2018 **Tracking Number:** SBR20180008; SBR20180011.

☐ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: A707.A Operational Requirements - Beryllium Activities:

TA-3-66 Metallographic operations and electroplating/chemical milling operations are conducted in aqueous solution or lubricant bath. Emissions from machining and arc melt/casting operations are exhausted through a HEPA filtration system prior to entering the atmosphere.

TA-3-141 The continuous emission monitor is maintained in accordance with LANL's quality program. Beryllium processing records are available on-site for inspection. No process limits were exceeded during this reporting period.

All processes are exhausted through a HEPA filtration system prior to entering the atmosphere. Powder operations, other than closed glovebox operations, and machining operations, other than the processes used in metallographic preparation, are exhausted through a cartridge filtration system and then through the HEPA filtration system. Metallographic preparations are conducted in lubricating baths or equivalent.

TA-35-213 All processes are exhausted through a HEPA filtration system prior to entering the atmosphere. Beryllium operations consist of only beryllium machining and associated cleanup activities.

TA-55-PF4 All beryllium activities are ducted through the facility's pollution control equipment and out the north or south stack of PF-4. Weld cutting, weld dressing, and metallography operations are controlled using four (4) HEPA filters with a control efficiency of 99.95% each. The non-accessible filter is replaced when the pressure differential across the filter indicates breakthrough or excessive loading.

No process limits were exceeded during this reporting period.

The electric furnace did not operate during this reporting period.

A707.B - Emissions Monitoring Requirements - Beryllium Activities:

TA-3-66 Log books are maintained for the number of metallographic specimens used in the metallographic operation and the weight or volume of samples processed in the electroplating/chemical milling, machining, and arc melting/casting operations. The log books are kept on-site and are available for inspection. Data from the log books are included in ATTACHMENT A707.B.a.

TA-3-141 The facility exhaust stack has a built-in sampling system used to continuously sample beryllium emissions. Cartridge and HEPA filters are equipped with differential pressure gauges that measure differential pressure when exhaust fans are operating.

TA-35-213 A copy of stack emission test results as well as other data needed to determine total emissions are retained at the source and are available for inspection. Log books documenting beryllium processing are on-site and are available for inspection. Data from the beryllium processing logs are included in ATTACHMENT A707.B.b.

TA-55-PF4 The HEPA filtration system contains a differential pressure gauge that measures differential pressure across the HEPA filters while the exhaust fans are in operation. The control efficiency is verified by daily HEPA filter pressure drop tests. Annual HEPA filter challenge tests are performed to verify filter control efficiency. The HEPA filter challenge test results are included in ATTACHMENT A707.C.b.

The electric furnace did not operate during this certification period.

A707.C Recordkeeping Requirements - Beryllium Activities:

TA-3-66 Recordkeeping for this source is specified in Condition A707.B.

TA-3-141 Inventory records are maintained to demonstrate compliance with beryllium process limits. Records of pressure drop across the cartridge and HEPA filters are performed daily when the exhaust fans are in operation and the facility is occupied. Control equipment maintenance and repair activities are recorded. HEPA filter differential pressure readings are included in ATTACHMENT A707.C.a.

TA-35-213 Recordkeeping for this source is specified in Condition A707.B.

TA-55-PF4 A copy of the stack emission test results are retained at the source and available for inspection. HEPA filter challenge tests are performed annually. Daily differential pressure readings are provided in ATTACHMENT A707.C.c. Filter replacement and control equipment maintenance and repair records are kept and available on site for inspection. Process records are available that contain the number and weight of classified parts processed during a 24-hour period and annual rolling total.

The electric furnace did not operate during this reporting period.

A707.D Reporting Requirements - Beryllium Activities:

For all beryllium sources, reports are submitted in accordance with permit conditions A109 and in accordance B110. For more information, see Section A605 in this report.
There were no new or modified emission sources during the reporting period.
TA-3-141 Quarterly beryllium reports, containing continuous monitoring system data from the Beryllium Technology Facility, are also submitted to NMED. Reports during this reporting period were submitted within 60 days following each calendar quarter. The reports were submitted on August 17, 2018 for 2018Q2 (SBR20180008) and October 24, 2018 for 2018Q3 (SBR20180011).

A805 Fuel Sulfur Requirements – External Combustion

A. All Boilers and Heaters (except Units RLUOB-BHW-1 through -4)

Requirement: All boilers and heaters, except Units RLUOB-BHW-1 through -4 and the Power Plant addressed in Section A1300 shall combust only natural gas containing no more than 2 grains of total sulfur per 100 dry standard cubic feet.

Monitoring: None.

Recordkeeping: The permittee shall demonstrate compliance with the natural gas limit on total sulfur content by maintaining records of a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, or fuel gas analysis, specifying the allowable limit or less. If fuel gas analysis is used, the analysis shall not be older than one year.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: A natural gas transportation contract is in place, and states that gas provided to LANL will be pipeline quality and contain no more than three quarters (3/4) grains of total sulfur per one hundred (100) dry standard cubic feet.

Recordkeeping: A copy of LANL's natural gas transportation contract is maintained on-site.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A805 Fuel Sulfur Requirements – External Combustion

B. Units RLUOB-BHW-1 through -4

Requirement: Units RLUOB-BHW-1 through -4 shall combust either natural gas containing no more than 2.0 grains of total sulfur per 100 dry standard cubic feet or No. 2 fuel oil containing no more than 0.5 wt% total sulfur. (NSR Permit 2195N-R2, Specific Condition 1.c.)

Monitoring: None.

Recordkeeping: The permittee shall demonstrate compliance with the natural gas limit and/or fuel oil limit on total sulfur content by maintaining records of a current, valid purchase contract, tariff sheet or transportation contract for the gaseous or liquid fuel, or fuel analysis, specifying the allowable limit or less. If a fuel analysis is used, the analysis shall not be older than one year. (NSR Permit 2195N-R2, Specific Condition 3.c., revised) Alternatively, compliance may be demonstrated by keeping a receipt or invoice from a commercial fuel supplier with each fuel delivery, which shall include the delivery date, the fuel type delivered, and amount of fuel delivered, and the maximum sulfur content of the fuel.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: A natural gas transportation contract is in place, and states that gas provided to LANL will be pipeline quality and contain no more than three quarters (3/4) grains of total sulfur per one hundred (100) dry standard cubic feet.

Fuel oil is under a purchase contract and only Ultra Low Sulfur Diesel (ULSD) is delivered to the facility. ULSD contains less than 0.0015 wt% total sulfur.

Recordkeeping: A copy of the transportation contract and purchase contract are maintained on-site. No fuel oil was purchased for the RLUOB boilers during this reporting period.

Reporting: Emissions and monitoring reports are submitted on a six-month basis, and compliance certification is submitted on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A806 20.2.61 NMAC Opacity – External Combustion

A. All Boilers and Heaters (except Units RLUOB-BHW-1 through -4)

Requirement: Exhaust emissions from these external combustion sources shall not exceed 20% opacity averaged over a 10-minute period.

Monitoring: Use of natural gas fuel meeting the requirement at Condition A805.A constitutes compliance with 20.2.61 NMAC unless opacity exceeds 20% averaged over a 10-minute period. When any visible emissions are observed during steady state operation and are determined to be not due to condensed water vapor only, opacity shall be measured over a 10-minute period, in accordance with the procedures at 40 CFR 60, Appendix A, Method 9 as required by 20.2.61.114 NMAC.

Recordkeeping: The permittee shall record dates of any opacity measurements and the corresponding opacity readings.

Reporting: The permittee shall report dates of any opacity measurements and the corresponding opacity readings. The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: LANL has certified visible emission readers on-site who perform observations using 40 CFR 60, Appendix A, Method 9 to determine compliance with the opacity limitation. No visible emissions were observed during steady state operations during this reporting period.

Monitoring: Use of natural gas for combustion meets the requirement at Condition A805.A.

Recordkeeping: A standard form is used for all opacity measurements. The form includes the date of measurement and opacity observed. Opacity readings were not required during this reporting period. See ATTACHMENT A806.A.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification is submitted on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A806 20.2.61 NMAC Opacity – External Combustion

B. Units RLUOB-BHW-1 through -4: Natural Gas-Fired

Requirement: Exhaust emissions from these external combustion sources shall not exceed 20% opacity averaged over a 10-minute period.

Monitoring: Use of natural gas fuel meeting the requirement at Condition A805.A constitutes compliance with 20.2.61 NMAC unless opacity exceeds 20% averaged over a 10-minute period. When any visible emissions are observed during steady state operation and are determined to be not due to condensed water vapor only, opacity shall be measured over a 10-minute period, in accordance with the procedures at 40 CFR 60, Appendix A, Method 9 as required by 20.2.61.114 NMAC.

Recordkeeping: The permittee shall record dates of any opacity measurements and the corresponding opacity readings.

Reporting: The permittee shall report dates of any opacity measurements and the corresponding opacity readings. The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: LANL has certified visible emission readers on-site who perform observations using 40 CFR 60, Appendix A, Method 9 to determine compliance with the opacity limitation. No visible emissions were observed during steady state operations during this reporting period.

Monitoring: The natural gas used by these units meets the requirement of Condition A805.A.

Recordkeeping: A standard form is used for all opacity measurements. The form includes the date of measurement and opacity observed. No opacity readings were required during this reporting period.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A806 20.2.61 NMAC Opacity – External Combustion

C. Units RLUOB-BHW-1 through -4: Fuel Oil-Fired

Requirement: Exhaust emissions from these external combustion sources shall not exceed 20% opacity averaged over a 10-minute period.

Monitoring: The permittee shall perform a least one (1) opacity observation each day that fuel oil is used to fire any of Units RLUOB-BHW-1 through -4. Opacity shall be measured over a 10-minute period, in accordance with the procedures at 40 CFR 60, Appendix A, Method 9 as required by 20.2.61.114 NMAC. (NSR Permit 2195N-R2, Specific Condition 3.d., revised)

Recordkeeping: The permittee shall record dates of any opacity measurements and the corresponding opacity readings. (NSR Permit 2195N-R2, Specific Condition 4.b., revised)

Reporting: The permittee shall report dates of any opacity measurements and the corresponding opacity readings. The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: LANL has certified visible emission readers on-site who perform observations using 40 CFR 60, Appendix A, Method 9 to determine compliance with the opacity limits.

Monitoring: No fuel oil was used in these units during this reporting period. No opacity measurements were taken during this reporting period.

Recordkeeping: The opacity form includes the date of measurement and opacity observed. No fuel oil was burned during this reporting period, and therefore, no opacity readings were taken and no records were generated. See ATTACHMENT A806.C. for details.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification submitted on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A807 Other – External Combustion

A. Natural Gas Fuel Usage (Sources listed in Table 800.A except RLUOB-BHW-1 through -4)

Requirement: The combined natural gas fuel usage shall be limited to 870 MMscf/y. This limitation shall apply to all boilers and heaters listed in Table 800.A except Units RLUOB-BHW-1 through -4, but including all other boilers and heaters at the Facility that qualify as Title V Insignificant Activities.

Monitoring: The permittee shall monitor the monthly total volumetric flow of natural gas to Units TA-55-6-BHW-1 and TA-55-6-BHW-2 through use of a totalizing flow meter.

Recordkeeping: The permittee shall:
1) Calculate the monthly rolling 12-month total natural gas fuel usage for the emission units listed in Table 800.A except Units RLUOB-BHW-1 through -4.
2) Calculate the actual emissions rate for the emission units listed in Table 800.A except Units RLUOB-BHW-1 through -4. The calculation shall be based on the actual fuel usage of Units equipped with individual flow meters and the Facility-Wide metered or estimated natural gas usage.
3) Calculate the semiannual and annual total emissions rate (tons/year) for this source category and compare them to the emission limits in Table 802.A. The permittee shall maintain records in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: For units listed under this permit condition, a 12-month rolling total of natural gas used is calculated and recorded each month. The rolling total is compared to the fuel use limit each month. Natural gas usage limits were not exceeded during this reporting period. Natural gas usage and rolling totals are provided in ATTACHMENT A807.A.

Monitoring: Units TA-55-6-BHW-1 and TA-55-6-BHW-2 have volumetric flow meters in place to monitor monthly natural gas use. Fuel use information for the TA-55 units listed in this condition is included in ATTACHMENT A807.A.

Recordkeeping:
1) Monthly rolling 12-month total natural gas fuel use is calculated for the permitted units.
2) The actual emission rate is calculated for the units listed in Table 800.A. This calculation uses actual fuel use data from individual unit flow meters and facility wide metered natural gas.
3) The emissions rate is calculated every six months and annually for this source category, and compared to the permit limits. Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A807 Other – External Combustion

B. Natural Gas and Fuel Oil Usage (Units RLUOB-BHW-1 through -4)

Requirement: The permittee shall comply with the emission limits in Table 802.B for each fuel type.

Monitoring: The permittee shall:
1) Monitor the monthly total volumetric flow of natural gas to Units RLUOB-BHW-1 through -4 using a totalizing flow meter. (NSR Permit 2195N-R2, Specific Condition 3.a., partial, revised)
2) Monitor the daily fuel oil consumption during which any of the 4 RLUOB boilers are fired with this fuel type. (NSR Permit 2195N-R2, Specific Condition 3.a, partial, revised)
3) Monitor the hours of operation for each boiler when fired on fuel oil and during non-emergency maintenance and readiness testing.

Recordkeeping: The permittee shall:
1) Calculate and record the annual fuel oil usage for Units RLUOB-BHW-1 through -4 as a daily rolling 365-day total.
2) Calculate and record the semiannual and calendar year total emissions rate (tons/year) for each fuel type and for the combination of both fuels compare to the emission limits in Table 802.B.
3) Record the annual hours of operation of each boiler when fired on fuel oil during non-emergency maintenance and readiness testing and compare to the limitation at Condition A804.B.
4) The permittee shall maintain records in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The initial compliance test was used to demonstrate compliance with the emission limits for natural gas use. Vendor data are also used to determine compliance with emission limits for fuel oil and natural gas. All concentrations and emission rates were below permitted limits in Table 802.B.

Monitoring:
1) A totalizing flow meter is in place and measures natural gas used by the RLUOB boilers. The natural gas fuel use data is provided in ATTACHMENT A807.A.
2) Daily fuel oil consumption is monitored by facility personnel using meter readings from each boiler. No fuel oil was burned during this reporting period. See ATTACHMENT A807.B for details.
3) The hours of operation of each boiler are recorded by facility personnel each time a boiler is run on fuel oil. The purpose of running the boilers is also recorded.

Recordkeeping:

1) Annual fuel oil usage is calculated and recorded on a daily rolling 365-day total. No fuel oil was burned during this reporting period.
2) The emissions rate is calculated on a six-month and annual basis for each fuel type and for both fuels combined. Emissions are compared to permit limits and data are provided to NMED in accordance with Permit condition A109.
3) Annual hours of operation for each boiler are recorded when fired on fuel oil during non-emergency use. The total hours are compared to the hour limit in permit condition A804.B. No fuel oil was used during this certification period and no records were generated.
4) Records are maintained and submitted in accordance with permit conditions A109 and B110.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A807 Other – External Combustion

C. 40 CFR 60, Subpart Dc (Units TA-55-6-BHW-1, TA-55-6-BHW-2, RLUOB-BHW-1 through -3)

Requirement: The units are subject to 40 CFR 60, Subpart Dc and the permittee shall comply with the following applicable requirements:

1. When combusting oil in the affected boilers, meet the 0.5 weight percent fuel sulfur standard in 40 CFR 60.42c(d). This standard applies at all times per §60.42c(i). The permittee shall demonstrate compliance per the requirements of §60.42c(h).

Monitoring: The permittee shall comply with the fuel supplier certification requirements in 40 CFR 60.46c(e). The permittee shall monitor fuel usage to meet the recordkeeping requirements of 40 CFR 60.48c(g).

Recordkeeping: The permittee shall comply with the recordkeeping requirements of 40 CFR 60.48c(c), (f) and (g) 40 CFR 60.7(b) and (f) and maintain the records according to §60.48c(i) except when records are required to be maintained for a longer time period in accordance with Section B109.

Reporting: The permittee shall comply with the initial notification requirements of 40 CFR 60.48c(a) and 40 CFR 60.7(a)(1), (a)(4) and (g) and the periodic reporting requirements of 40 CFR 60.48c(b), (d), (e)(11) and (f). Reports shall be submitted according to §60.48c(j). The reporting period may be modified to coincide with the Semi-Annual reporting period in Section A109. The permittee shall report in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: Units TA-55-6-BHW-1, TA-55-6-BHW-2, RLUOB-BHW-1, RLUOB-BHW-2, and RLUOB-BHW-3 meet the requirements of 40 CFR Part 60, Subparts A and Dc. Notification requirements were met through source startup notifications and initial permit applications.

Monitoring: The amount of fuel oil combusted is monitored and recorded on a monthly basis. Fuel sulfur requirements are tracked and addressed in a fuel oil purchase contract, delivery receipts, and the natural gas transportation contract. No fuel oil was purchased during this reporting period.

Recordkeeping: Fuel sulfur content information and fuel use records are maintained on site for at least five (5) years as required by the operating permit.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A807 Other – External Combustion

D. 40 CFR 60, Subpart Dc (New Unit RLUOB-BHW-4)

Requirement: This unit is subject to 40 CFR 60, Subpart Dc and the permittee shall comply with the following applicable requirements:

1. When combusting oil in the affected boilers, meet the 0.5 weight percent fuel sulfur standard in 40 CFR 60.42c(d), and (g). This standard applies at all times per §60.42c(i). The permittee shall demonstrate compliance per the requirements of §60.42c(h).
2. For new boiler RLUOB-BHW-4, the permittee shall demonstrate initial compliance with the SO2 standard through a certification from the fuel supplier per 40 CFR 60.44c(h).

Monitoring: The permittee shall comply with the fuel supplier certification requirements in 40 CFR 60.46c(e).
The permittee shall monitor fuel usage to meet the recordkeeping requirements of 40 CFR 60.48c(g).

Recordkeeping: The permittee shall comply with the recordkeeping requirements of 40 CFR 60.48c(c), (f) and (g) and 40 CFR 60.7(b) and (f) and maintain the records according to §60.48c(i) except when records are required to be maintained for a longer time period in accordance with Section B109.

Reporting: The permittee shall comply with the initial notification requirements of 40 CFR 60.48c(a) and 40 CFR 60.7(a)(1), (a)(3) and (g) and the periodic reporting requirements of 40 CFR 60.48c(b), (d), (e)(11) and (f). Reports shall be submitted according to §60.48c(j). The reporting period may be modified to coincide with the Semi-Annual reporting period in Section A109.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: LANL purchases only fuel oil with ultra low sulfur content; fuel oil was not used during this reporting period. See ATTACHMENT 807.C.& D. for details.

RLUOB-BHW-4 has not been installed. When installed, the requirements, monitoring, recordkeeping and reporting will be conducted in accordance with the requirements listed in the current permit.

A807 Other – External Combustion

E. Initial Compliance Testing (Units RLUOB-BHW-4)

Requirement: Initial compliance tests are required for boiler, Unit RLUOB-BHW-4. The tests shall be conducted for NOx and CO while burning natural gas fuel only. This condition applies only if boiler Unit RLUOB-BHW-4 is not an identical make and model to boiler units RLUOB-BHW-1 through -3. (NSR Permit 2195N-R2, Specific Condition 6.a., revised)

Monitoring: The permittee shall conduct EPA Method tests for CO and NOx within six (6) months of any new boiler start up. Method 19 may be used for determining stack flow rates. This requirement supersedes Condition B111.A(2). Initial compliance testing shall be conducted in accordance with Section B111.

Recordkeeping: The permittee shall maintain records in accordance with Section B109.

Reporting: The permittee shall report in accordance with Section B110 and Section B111.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: Unit RLUOB-BHW-4 has not been installed. Once installed, monitoring, recordkeeping and reporting will be conducted in accordance with the requirements listed in the current permit. See ATTACHMENT A807.E. for details.

A807 Other – External Combustion

F. Operational Inspection (Sources listed in Table 800.A)

Requirement: Compliance with the allowable emission limits in Table 802.A shall be demonstrated by performing periodic inspections to ensure proper operations.

Monitoring: The permittee shall conduct annual operational inspections to determine that the boilers are operating properly. The operational inspections shall include operational checks for indications of insufficient excess air, or too much excess combustion air. These operational checks shall include observation of common physical indications of improper combustion, including indications specified by the boiler manufacturer, and indications based on operational experience with these units.

Recordkeeping: The permittee shall maintain records of operational inspections, describing the results of all operational inspections noting chronologically any adjustments needed to bring the boilers into compliance. The permittee shall maintain records in accordance with Section B109.

Reporting: The permittee shall report in accordance with Section B110.

Within ninety (90) days of permit issuance, the permittee shall submit for Department approval a procedure which the permittee will use to carry out the operational inspections. The permittee may at any time submit revisions for Department approval.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement/Monitoring: LANL conducts annual operational inspections and preventive maintenance on the permitted boilers listed in the current permit.

Recordkeeping: The records of operational inspections and preventive maintenance are maintained in the compliance folders and e-files stored on air quality servers. Copies of annual inspections for 2018 are included in ATTACHMENT A807.F.

Reporting: LANL submitted a procedure that is used to carry out the operational inspections. This procedure was submitted to NMED AQB on May 13, 2015 within 90 days after permit issuance. No revisions are proposed to this procedure in this reporting period.

A907 Other – Chemical Usage

A. Emission calculations (Unit LANL-FW-CHEM)

Requirement: The permittee shall comply with the facility-wide VOC and HAP emission limits at Table 106.B.

Monitoring: The permittee shall monitor facility-wide chemical purchasing and site location using an electronic chemical tracking system. The quantity of chemicals that are vented to the atmosphere shall be estimated on a semi-annual basis, and categorized as VOC, HAP, or a combination of these categories.

Recordkeeping: The permittee shall record the quantity of total VOC emitted and the quantity of each individual and total HAPs on a semi-annual basis. These records shall be maintained in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110. With respect to individual HAPs, reports shall include any HAP emitted in a quantity greater than 0.5 tons per year.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: Facility-wide emissions did not exceed the VOC or HAP emission limits in Table 106.B.

Monitoring/Recordkeeping: Facility-wide chemical purchases are monitored using ChemDB, an electronic chemical tracking system. The chemical purchase information is used to calculate emissions. Chemical emission information is submitted to NMED every six months in accordance with permit condition A109.B. The semi-annual emissions report for January 1 - June 30, 2018 was submitted to NMED on September 25, 2018 (SBR20180008), within 90 days of the end of the reporting period. Records of chemical purchases for this monitoring period are provided in ATTACHMENT A907.A.

Reporting: Facility-wide VOC and HAPs emissions are calculated, recorded, and reported on a six-month basis in accordance with permit conditions A109.B, B109, and B110. The semi-annual emissions report includes individual HAPs emitted in a quantity greater than 0.5 tons per year.

A907 Other – Chemical Usage

B. Emission calculations (Unit RLUOB-CHEM)

Requirement: The permittee shall comply with the source-specific VOC emission limit at Table 902.A and the facility-wide VOC and HAP emission limits at Table 106.B. (NSR Permit 2195N-R2, Specific Condition 2.a., revised)

Monitoring: The permittee shall monitor chemical purchasing for the RLUOB-CHEM facility using an electronic chemical tracking system. The quantity of chemicals that are vented to the atmosphere shall be estimated on a monthly basis, and categorized as VOC, HAP, TAP, or a combination of these categories. (NSR Permit 2195N-R2, Specific Condition 4.c., revised)

Recordkeeping: The permittee shall record the quantity of total VOC and TAP, each individual HAP,and the total HAPs emitted on a monthly rolling, 12-month total basis. These records shall be maintained in accordance with Section B109. (NSR Permit 2195N-R2, Specific Condition 4.c., revised)

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110. With respect to individual HAPs, reports shall include any HAP emitted in a quantity greater than 0.5 tons per year.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: Source specific VOC and facility-wide VOC and HAP emissions are in compliance with emission limits set in Tables 902.A and 106.B in NSR Permit 2195N-R2.

Monitoring: Chemical purchasing for the RLUOB-CHEM facility are monitored using ChemDB, an electronic chemical tracking system. Records of chemical purchases for the reporting period are provided in ATTACHMENT A907.B.a. The quantities of chemicals that are vented to the atmosphere are estimated on a monthly basis and are categorized as VOC, HAP, TAP, or a combination of these categories. The quantities of chemicals for this reporting period are provided in ATTACHMENT A907.B.b.

Recordkeeping: The quantity of total VOC and TAP, individual HAP, and the total HAPs emitted are recorded on a monthly rolling, 12–month total basis. Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. The semi-annual emission report includes individual HAPs emitted in a quantity greater than 0.5 tons per year. For more information, see comments in Section A605 of this report.

A1007 Other – Degreasers

A. Operational Requirements (Degreasers)

Requirement: The permittee shall comply with the applicable requirements according to 40 CFR 63, Subpart T, including, but not limited to:

1) Ensure the degreaser is closed with a tight fitting cover whenever not in use, and
2) Maintain a freeboard ratio of 0.75 or greater, and
3) Collect and store all waste solvent and wipe rags in closed containers, and
4) Perform flushing within the freeboard area only, and
5) Allow cleaned parts to drip for 15 seconds or until dripping stops, and
6) Do not exceed the fill line on the solvent level, and
7) Wipe up spills immediately, and
8) Do not create observable splashing with agitation device, and
9) Ensure that the degreaser is not exposed to drafts greater than 40 meters/min, and
10) Do not clean sponges, fabric, wood, or paper.

Monitoring: The permittee shall monitor and record the amount of solvent added to the degreaser.

Recordkeeping: The permittee shall:

1) Calculate the actual emissions rate (pounds/month) of VOC and HAPs based on the quantity of solvent lost to evaporation on a monthly basis.
2) Calculate the semi-annual emissions rate (tons/year) for this source category and add to the facility-wide emission rates in Table 106.B.
3) Maintain records of the degreaser solvent content and quantity added and work practice checklists.
4) The permittee shall maintain records in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: An exemption notice was submitted on April 9, 2018 and was approved by NMED on May 8, 2018 for a non-halogenated solvent to be used in the degreaser. LANL intends to keep the flexibility to use the halogenated solvent in the future and therefore is continuing to comply with all permit requirements, regardless of which solvent is being used.

Requirement:

1) The degreaser is kept closed with a tight fitting cover when it is not being used.

2) A freeboard ratio of 0.75 or greater is maintained.

3) All waste solvent and solvent contaminated wipe rags are collected and stored in closed containers.

4) Flushing operations are performed only within the freeboard area.

5) Cleaned parts are allowed to drip for 15 seconds or until dripping stops.

6) The fill line has not been exceeded.

7) Spills are wiped up immediately.

8) Administrative controls are in place to prevent observable splashing with an agitation device.

9) The degreaser is located in a glove box with a set ventilation flow rate. Exhaust flows do not exceed 40 meters/min.

10) Sponges, fabric, wood, or paper are not cleaned in the degreaser.

Monitoring and Recordkeeping: A Degreaser Recordkeeping database is used to track the amount of degreaser solvent added, removed, and lost. This system is used to calculate emissions. The "Degreaser Solvent Usage" report for this period is provided in ATTACHMENT A1007.A.a.

1) The actual emission rate (pounds/month) of VOC and HAPs is automatically calculated by the database when data is entered on a monthly basis.

2) The semi-annual emissions (tons/year) are also calculated by the database. These emissions are included in the facility-wide totals.

3) Checklists for work practice standards have been completed for this reporting period. Records of solvent content and quantity added are maintained on site. A copy of the work practice checklists are provided in ATTACHMENT A1007.A.b.

4) Records for this source category are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1104 Operational Limitations – Internal Combustion

A. Hours of Operation and Emission Limits for Unit TA-33-G-1P

Requirements:
1) Unit TA-33-G-1P is limited to eight (8) hours of daily operation at full capacity. Operation shall occur between the hours of 7:00 AM and 5:00 PM. (NSR Permit 2195F-R4, Condition A1104.A)
2) Unit TA-33-G-1P is limited to the emissions limits stated in Table 1102.A. (NSR Permit 2195F-R4, Condition A1104.A)

Monitoring: The permittee shall monitor the time(s) of operation each day, and the daily and monthly rolling 12-month total hours of operation for Unit TA-33-G-1P using a non-resettable hour meter. Hours that do not represent hours the unit is operated at the TA-33 site may be monitored separately for subsequent subtraction from the daily and monthly rolling 12-month totals

Recordkeeping: The permittee shall maintain the following records and in accordance with Section B109:
1) The permittee shall keep records of the time(s) of operation each day, and the daily, monthly, and the monthly rolling 12-month total hours of operation of the genset listed above, as indicated on the non-resettable hour meter. The permittee may record and subtract hours of operation that do not represent operating hours at the TA-33 site.
2) The permittee shall calculate the annual emissions of all criteria and hazardous air pollutants from Unit TA-33-G-1P. The permittee may subtract emissions that are not the result of operations at TA-33.

Reporting: The permittee shall submit reports in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: Unit TA-33-G-1-P operated for a total of 16.3 hours during this reporting period. Emissions are lower than the limits stated in Table 1102.A. in NSR permit 2195F-R4.

Monitoring: The times of operations are monitored and the generator is equipped with a non-resettable hour meter. The purpose of equipment use at TA-33 and elsewhere are identified in the log sheet provided in ATTACHMENT A1104.A.

Recordkeeping: A log book is located in the trailer that contains the unit. The log book includes hours of operation recorded daily when the equipment operates. The monthly rolling 12-month total hours of operation are calculated in a spreadsheet. Operations at areas outside TA-33 are recorded.
The annual emissions of criteria and HAPs are calculated based on the hours of operation.

Reporting: Reports are submitted as required by permit conditions in accordance with Section B110.

A1104 Operational Limitations – Internal Combustion

B. Hours of Operation and Emission Limits for Units TA-33-G-2 through -4

Requirements:
1) Units TA-33-G-2 through -4 are authorized to operate 500 hours per generator per calendar year. (NSR Permit 2195P, Specific Condition 1.b.)
2) Units TA-33-G-2 through -4 shall each be certified to be in compliance with applicable non-road emission standards in 40 CFR 89. (NSR Permit 2195P, Specific Condition 1.c.)

Monitoring: The permittee shall monitor the total hours of operation for each genset, Units TA-33-G-2 through -4, using a non-resettable hour meter.

Recordkeeping: The permittee shall:
1) Record the total hours operation of the gensets listed above, as indicated on the non-resettable hour meter. (NSR Permit 2195P, Specific Condition 4.a., revised)
2) Calculate and record the semi-annual emissions of criteria and hazardous air pollutants from each genset, Units TA-33-G-2 through -4.
3) Maintain a copy of the engine certification to the applicable non road emission standards in 40 CFR 89. (NSR Permit 2195P, Specific Condition 4.c.)

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement/Monitoring: The operating hour readings are collected twice a year to verify the hour limit is not approached. The hour limits for these units were not exceeded during this reporting period. Hours of generator operation are provided in ATTACHMENT A1104.B.
The hour meters on these units are non-resettable.

Recordkeeping:
1) Equipment operating hours are recorded.
2) The emissions of regulated pollutants from Units TA-33-G-2, TA-33-G-3 and TA-33-G-4 are calculated and recorded semi-annually.
3) Certificates of compliance with applicable non-road emission standards are maintained on-site.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification is submitted on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1105 Fuel Sulfur Requirements – Internal Combustion

A. Fuel Sulfur Requirement for Unit TA-33-G-1P

Requirement: Unit TA-33-G-1P while in use at TA-33 shall combust only diesel fuel containing no more than 500 ppmw total sulfur.

Monitoring: None.

Recordkeeping: The permittee shall demonstrate compliance with the limit on total fuel sulfur content by maintaining records of a current, valid purchase contract, tariff sheet or transportation contract for the fuel, or fuel analysis, specifying the fuel grade and certification or allowable sulfur limit. If fuel analysis is used, the analysis shall not be older than one year. Alternatively, compliance may be demonstrated by keeping a receipt or invoice from a commercial fuel supplier with each fuel delivery, which shall include the delivery date, the fuel type delivered, and amount of fuel delivered, and the maximum sulfur content of the fuel.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: Only Ultra Low Sulfur Diesel (ULSD) is used at the facility. A purchase contract is in place to only purchase ULSD, which is less than 15 ppm sulfur.

Recordkeeping: A copy of the purchase contract is available on-site.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification is submitted on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1106 20.2.61 NMAC Opacity – Internal Combustion

A. CI-RICE - TA-33-G-1P, TA-33-G-2, TA-33-G-3, TA-33-G-4, RLUOB-GEN-1, RLUOB-GEN-2, RLUOB-GEN-3, TA-48-GEN-1, TA-55-GEN-1 TA-55-GEN-2 and TA-55-GEN-3

Requirement: Visible emissions from the stacks of the above listed sources shall not equal or exceed an opacity of 20 percent.

Monitoring: During steady state operation, opacity shall be measured over a 10-minute period in accordance with the procedures at 40 CFR 60, Appendix A, Method 9 as required by 20.2.61.114 NMAC. Opacity measurements shall be conducted on a quarterly basis per calendar year as qualified by the Section B108.D monitoring provisions. This requirement excludes Insignificant and Trivial Activities.

Recordkeeping: The permittee shall maintain records of all Method 9 observations, and in accordance with Section B109.

Reporting: The permittee shall report date, time, and results of all Method 9 observations. The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: No visible emissions were observed to exceed 20% opacity during this reporting period.

Monitoring: Opacity measurements were not required for generators in this reporting period. Section B108.D(2) of the permit allows for reduced frequency of opacity monitoring, if the unit operates less than 10% of the monitoring period (calendar quarter). The applicable CI-RICE units operated less than 10% of each monitoring period (less than 219 hours each quarter) during this reporting period. If the unit operates greater than 10% of the monitoring period, the unit will have an opacity observation performed on it, otherwise an opacity observation will be performed within five (5) years of the issuance date of the operating permit. See ATTACHMENT A1106.A.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1107 Other – Internal Combustion

A. 40 CFR 60, Subpart IIII (Emergency Generators Units RLUOB-GEN-1 through -3)

Requirement: The units are subject to 40 CFR 60, Subpart IIII and the permittee shall comply with the applicable emissions standards and fuel requirements in §60.4205(a), §60.4206 and §60.4207(b) and Table 1102.B. In addition the permittee shall follow the compliance requirements stated in §60.4211(a, b, and f) and the general provisions of 40 CFR 60 Subpart A as required in §60.4218.

Monitoring: None

Recordkeeping: The permittee shall maintain records in accordance with Section B109.

Reporting: The permittee shall comply with all applicable reporting requirements of 40 CFR 60, Subpart A as required in §60.4218 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The manufacturer's emissions certifications as required by §60.4205(a) are available on site.
Diesel sulfur requirements of 15 ppm are met by the LANL fuel oil contract specifying purchasing ULSD.
§60.4211 (a) (b) and (f) - Manufacturer's certifications for nonroad engines are on-site; non-emergency maintenance checks and readiness testing of such units is limited to 100 hours per year per §60.4211(f)(3).

Recordkeeping: Hours of non-emergency and emergency operation are recorded at the facility during generator operation. The units subject to this condition operated less than 100 hours to date on non-emergency maintenance and readiness checks in accordance with condition in §60.4211(f)(3).

Reporting: Hours of operations are reported in accordance with Section B110. See ATTACHMENT A1107.A. for operating records.

A1107 Other – Internal Combustion

B. 40 CFR 60, Subpart IIII (Emergency Generators Unit TA-48-GEN-1, TA-55-GEN-1 TA-55-GEN-2 and TA-55-GEN-3)

Requirement: The units are subject to 40 CFR 60, Subpart IIII and the permittee shall comply with the applicable emissions standards and fuel requirements in §60.4205(b), §60.4202(a)(2), §60.4206 and §60.4207(b) and Table 1102.B. In addition, the permittee shall follow the compliance requirements stated in §60.4211(a, c and f) and the general provisions of 40 CFR 60 Subpart A as required in §60.4218.

Monitoring: None

Recordkeeping: The permittee shall maintain records in accordance with Section B109.

Reporting: The permittee shall comply with all applicable reporting requirements of 40 CFR 60, Subpart A as required in §60.4218 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The manufacturer's emissions certifications as required by §60.4205(a) are available on site.
Diesel sulfur requirements of 15 ppm are met by the LANL fuel oil contract specifying purchasing ULSD.
§60.4211 (a) (b) and (f) - Manufacturer's certifications for non-road engine are on-site to demonstrate compliance with standards; non-emergency maintenance checks and readiness testing of such units are limited to 100 hours per year per §60.4211(f)(3).

Recordkeeping: Hours of non-emergency and emergency operation are recorded at the facility during generator operation. The units subject to this condition operated less than 100 hours to date on non-emergency maintenance and readiness checks.

Reporting: Hours of operations are reported in accordance with Section B110. See ATTACHMENT A1107.B.

A1204 Operational Limitations – Data Disintegrator

A. Operational Throughput Limitation (Unit Data Disintegrator)

Requirement: The Unit Data Disintegrator is limited processing no more than 25,000 boxes or 565 tons per year media. To avoid Compliance Assurance Monitoring (CAM) requirements under 40 CFR 64, the Data Disintegrator shall limit uncontrolled potential PM emissions by limiting media processing no more than 25,000 boxes or 565 tons per year.

Monitoring: The permittee shall perform the monitoring required in Condition A1207.A.

Recordkeeping: The permittee shall perform the recordkeeping required in Condition A1207.A.

Reporting: The permittee shall perform the reporting required in Condition A1207.A.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: A log is kept to ensure that no more than 25,000 boxes or 565 tons per year of media are processed.

Monitoring, recordkeeping and reporting are discussed in Condition A1207.A.

A1207 Other – Data Disintegrator

A. Emission calculations (Data Disintegrator)

Requirement: The permittee shall calculate Data Disintegrator emissions based on the records of the number of boxes of media that are destroyed.

Monitoring: The permittee shall monitor the quantity of media destroyed on a monthly basis. The total weight shall be based on a previously determined average box weight. This average weight determination shall be maintained as part of the records for this facility.

Recordkeeping: The permittee shall calculate the actual emissions rate (tons per reporting period) for the emission units listed in Table 1200.A on a semi-annual basis. The emission rate in tons per year shall be calculated by summing the emissions from the previous reporting period with the current period. Records shall be maintained in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: A log is kept to record the number of boxes of media destroyed monthly and is used to calculate emissions on a semi-annual basis.

Monitoring: The number of boxes destroyed is provided in ATTACHMENT A1207.A. The average box weight has been determined and is maintained as part of the facility records.

Recordkeeping: The actual emissions rate is calculated for the emission unit on a semi-annual basis and is included in the semi-annual emissions report. These records are maintained on-site. The emission rate in tons per year is calculated by summing the emissions from the previous reporting period with the current period. The emissions are compared to the allowable emissions for the unit. Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification submitted on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1207 Other – Data Disintegrator

B. Cyclone/Cloth Tube Filters (Data Disintegrator)

Requirement: The permittee shall perform regular maintenance and repair on the cyclone and cloth tube filter(s) per manufacturer's recommendations. (NSR Permit 2195H, Specific Condition 1.d.)

Monitoring: N/A

Recordkeeping: The permittee shall maintain adequate records on site to demonstrate compliance with manufacturer's recommended repair and maintenance schedules for the cyclone and the cloth tube filter(s). (NSR Permit 2195H, Specific Condition 4.a.) Records shall be maintained in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: Preventive maintenance and repair are performed on the data disintegrator cyclone and cloth tube filter(s) following manufacturer's recommendations.

Recordkeeping: Records of maintenance performed on the cyclone and cloth tube filter(s) are provided in ATTACHMENT A1207.B. Manufacturer recommended repair and maintenance information are also available on site. Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1207 Other – Data Disintegrator

C. Compliance Testing (Data Disintegrator)

Requirement: If upon notification by the Department, compliance testing is required, it shall be conducted in accordance with EPA Reference Methods 1 through 4, Method 5 for TSP, and conducted in accordance with 450 CFR 60, Appendix A. For combined TSP and PM10, testing shall be in accordance with 40 CFR 51, Appendix M, Method 201. Alternative test method(s) may be used if the Department approves the change. (NSR Permit 2195H, Specific Condition 6.b., revised)

Monitoring: N/A

Recordkeeping: The permittee shall maintain records in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: No compliance test was required or performed during this reporting period.

Recordkeeping: No tests were conducted and no records were generated during this reporting period.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification submitted on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1305 Fuel Sulfur Requirements – TA-3 Power Plant

A. Boilers (Units TA-3-22-1 through -3)

Requirement: External combustion sources at the TA-3 Power Plant shall combust only natural gas containing no more than 2 gr/100 scf total sulfur or No. 2 fuel oil containing no more than 0.05 wt% total sulfur. (NSR Permit 2195B-M2, Specific Condition A110.A)

Monitoring: N/A

Recordkeeping: The permittee shall demonstrate compliance with the limit on total fuel sulfur content by maintaining records of a current, valid purchase contract, tariff sheet or transportation contract for the gaseous or liquid fuel, or fuel analysis, specifying the fuel grade and certification or allowable sulfur limit. If fuel analysis is used, the analysis shall not be older than one year. Alternatively, compliance may be demonstrated by keeping a receipt or invoice from a commercial fuel supplier with each fuel delivery, which shall include the delivery date, the fuel type delivered, and amount of fuel delivered, and the maximum sulfur content of the fuel.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The natural gas transportation contract states that gas provided to LANL will be pipeline quality with total sulfur content of no more than three quarters (3/4) grains of total sulfur per one hundred (100) dry standard cubic feet.

Recordkeeping: Fuel oil is under a purchase contract and only Ultra Low Sulfur Diesel (ULSD) is delivered to the facility. ULSD contains less than 0.0015 wt% total sulfur. A copy of the transportation contract and purchase contract are kept on site. No fuel oil was purchased for the TA-3 power plant during this reporting period.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1305 Fuel Sulfur Requirements – TA-3 Power Plant

B. Combustion Turbine (Unit TA-3-22-CT-1)

Requirement: The combustion turbine at the TA-3 Power Plant shall combust only natural gas containing no greater than 2 gr/100 scf total sulfur. (NSR Permit 2195B-M2, Specific Condition A110.B)

Monitoring: N/A

Recordkeeping: The permittee shall demonstrate compliance with the limit on total fuel sulfur content by maintaining records of a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, or fuel analysis, specifying the fuel grade and certification or allowable sulfur limit. If fuel analysis is used, the analysis shall not be older than one year. (NSR Permit 2195B-M2, Specific Condition A110.B and 40 CFR 60.334(h))

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: This requirement is satisfied since the natural gas transportation contract states that gas provided to LANL will be pipeline quality with total sulfur content of no more than three quarters (3/4) grains of total sulfur per one hundred (100) dry standard cubic feet.

Recordkeeping: The transportation contract is kept on-site.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1306 20.2.61 NMAC Opacity – TA-3 Power Plant

A. Sources Combusting Natural Gas

Requirement: All combustion units shall not exceed 20% opacity. (NSR Permit 2195B-M2, Specific Condition A111.A)

Monitoring: Use of natural gas fuel meeting the requirement at Condition A1305.A or B constitutes compliance with 20.2.61 NMAC unless opacity exceeds 20% averaged over a 10-minute period. When any visible emissions are observed during steady state operation and are determined to be not due to condensed water vapor only, opacity shall be measured over a 10-minute period, in accordance with the procedures at 40 CFR 60, Appendix A, Method 9 as required by 20.2.61.114 NMAC.

Recordkeeping: The permittee shall record dates of any opacity measures and the corresponding opacity readings.

Reporting: The permittee shall report dates of any opacity measures and the corresponding opacity readings. The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: LANL has certified opacity readers on-site who perform opacity readings using 40 CFR 60, Appendix A, Method 9 to determine compliance with the opacity limitation. Use of natural gas fuel constitutes compliance with the 20% opacity limit.

Monitoring: Natural gas fuel meets the requirement specified in Condition A1305.A and B. No visible emissions were observed during steady state operation during this reporting period. See ATTACHMENT A1306.A. for details.

Recordkeeping: A standard form is used for all opacity measurements. The form includes the date of measurement and opacity observed. No opacity readings were required during this reporting period.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1306 20.2.61 NMAC Opacity – TA-3 Power Plant

B. Boilers Combusting No. 2 Fuel Oil

Requirement: All combustion units shall not exceed 20% opacity. (NSR Permit 2195B-M2, Specific Condition A111.B)

Monitoring: During steady state operation, opacity shall be measured over a 10-minute period in accordance with the procedures at 40 CFR 60, Appendix A, Method 9 as required by 20.2.61.114 NMAC. Opacity measurements shall be conducted on a quarterly basis per calendar year whenever the boiler(s) are operational during the monitoring period. This requirement is subject to the monitoring provisions of Condition B108.D.

Recordkeeping: The permittee shall maintain records of all Method 9 observations, and in accordance with Section B109.

Reporting: The permittee shall report date, time, and results of all Method 9 observations. The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: This requirement is satisfied by having certified opacity readers on-site who perform opacity readings using 40 CFR 60, Appendix A, Method 9 to determine compliance with the opacity limitation. Fuel oil was not used during this reporting period. The opacity limit was not exceeded during this reporting period.

Monitoring: Opacity is read at least once per quarter when boilers are combusting fuel oil and when required by monitoring provisions in condition B108.D. Opacity readings are measured over a 10-minute period and in accordance with 40 CFR 60, Appendix A, Method 9. A standard form is used for all opacity measurements. The form includes the date of measurement and opacity observed. Fuel oil was not used during this monitoring period, and no opacity readings required. See ATTACHMENT A1306.B for details.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1307 Other – TA-3 Power Plant

A. Emission calculations (TA-3 Power Plant)

Requirement: The permittee shall comply with the hourly and annual emission limits at Table1302.A. and Conditions A1302.B, C, and D for the combustion turbine and boilers. The boiler annual emission limit shall be expressed as the combined emissions from all 3 boilers. (NSR Permit 2195B-M2, Specific Condition A801.A)

Monitoring: The permittee shall perform the following calculations on a monthly basis:
1) Calculate the average hourly emissions rates (pph) for each emissions unit based on the monthly total fuel consumption and monthly actual hours of operation.
2) Calculate the actual annual emissions rates (tpy) for all emissions units based on the monthly rolling 12-month total fuel consumption and the monthly rolling 12-month total hours of operation.
3) All NOx emission rates for the boilers shall also be calculated in terms of lb/MMBtu heat input.
(NSR Permit 2195B-M2, Specific Condition A801.A)

Recordkeeping: The permittee shall maintain records in accordance with Section B109.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: All emissions calculations required by this section are performed for the emission units listed. The emission units did not exceed the hourly or annual emission limits.

Monitoring: Emissions spreadsheets are in place that calculate all required emissions and are used for monitoring and reporting purposes. The average hourly emission rates and actual annual emission rates are included in the spreadsheet. Emission rates are provided in ATTACHMENT A1307.A.
Condition A1307.A.3.-The units are based on the emission factor for NOx (lbs/MMscf), which is converted to lbs/MMBtu by dividing by 1020 (standard number of MMBtu in an MMscf). The NOx emission rate is a constant of 0.057 lbs/MMBtu unless the Btu value of the fuel changes significantly.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1307 Other – TA-3 Power Plant

B. Fuel Usage (Boilers, Units TA-3-22-1 through -3)

Requirement: Combined boiler operation shall not consume more than 1000 MMscf of natural gas and no more than 500,000 gallons of No. 2 fuel oil in any 12-month period. Volumetric natural gas fuel flow shall be measured using gas flowmeters installed on the natural gas fuel inlet to each respective unit (3 separate gas flowmeters). Fuel oil usage shall be measured using a single inventory meter located at a storage tank that is dedicated for use by the TA-3 power plant boilers. (NSR Permit 2195B-M2, Specific Condition A803.A, revised)

Monitoring: The liquid fuel flow rate shall be continuously monitored whenever liquid fuel is combusted. The natural gas fuel flow rate for each boiler shall be continuously monitored whenever natural gas is combusted. The hours of operation of each boiler shall be continuously monitored. (NSR Permit 2195B-M2, Specific Condition A803.A, revised)

Recordkeeping: The permittee shall record the monthly total of liquid fuel (gallons) for all boilers combined and gaseous fuel (scf) for each boiler on a monthly basis, to include a monthly total. Annual fuel usage shall be calculated and recorded on a monthly rolling 12-month total basis. The permittee shall record the hours of operation of each boiler on a monthly basis, to include a monthly total. The record shall include the monthly rolling 12-month total hours of operation for all 3 boilers combined. The permittee shall maintain records in accordance with Section B109. (NSR Permit 2195B-M2, Specific Conditon A803.A, revised)

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The combined boiler natural gas use did not exceed 1,000 MMscf or 500,000 gallons of No. 2 fuel oil in any 12-month period. All fuel use data are tracked monthly in a spreadsheet used for emission calculations.

Monitoring: Natural gas fuel meters are in place on each of the boilers. Fuel oil is measured using an inventory meter on the storage tank. Both natural gas and fuel oil are continuously monitored when being combusted. A monthly and 12-month rolling total of both natural gas and fuel oil use are recorded and reviewed monthly to verify usage does not exceed allowable limits. The monthly and 12-month rolling totals for each fuel are provided in ATTACHMENT 1307.B.

Recordkeeping: Total hours of operation of each boiler are recorded monthly and included in a monthly rolling 12-month total hours for all boilers combined. Hours of operation of each boiler are continuously monitored. This data is collected monthly from the power plant operations staff. Monthly and 12 month

rolling hours are provided in ATTACHMENT A.1307.B. Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1307 Other – TA-3 Power Plant

C. Fuel Usage (Combustion Turbine, Unit TA-2-22-CT-1)

Requirement: The combustion turbine shall not consume more than 1400 MMscf of natural gas in any 12-month period. Volumetric flow shall be measured using a gas fuel flowmeter installed on the fuel inlet of the combustion turbine. (NSR Permit 2195B-M2, Specific Condition A802.A)

Monitoring: The natural gas fuel flow rate for the combustion turbine shall be continuously monitored whenever natural gas is combusted. (NSR Permit 2195B-M2, Specific Condition A802.A)

Recordkeeping: The permittee shall record the daily total of gaseous fuel (scf) for the turbine on a monthly basis, to include a monthly total. Annual fuel usage shall be calculated and recorded on a monthly rolling 12-month total basis. The permittee shall record the daily hours of operation of the combustion turbine on a monthly basis, to include a monthly total. The record shall include the monthly total hours and monthly rolling 12-month total hours of operation. The permittee shall maintain records in accordance with Section B109. (NSR Permit 2195B-M2, Specific Condition A802.A)

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: A 12-month rolling total for natural gas use is maintained and reviewed to verify usage does not exceed 1400 MMscf. The daily and monthly total fuel use is collected and recorded monthly in a spreadsheet used for calculating emissions. The monthly and 12-month rolling natural gas total is provided in ATTACHMENT A1307.C.

Monitoring: The natural gas flowmeter is installed on the turbine inlet. The fuel flowmeter continuously measures natural gas being delivered to the combustion turbine.

Recordkeeping: Daily hours of operation are also collected monthly and entered into the spreadsheet. A 12-month rolling total hours of operation is calculated using this information. Rolling total hours are provided in ATTACHMENT A1307.C. Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1307 Other – TA-3 Power Plant

D. Load Requirement (Combustion Turbine, Unit TA-3-22-CT-1)

Requirement: The combustion turbine shall be operated at no less than 80% and no greater than 100% load as determined by the manufacturer's supplied algorithm, except for minimal periods during startup and shutdown conditions. The permittee shall follow the manufacturer's recommended startup/shutdown procedures in order to minimize the duration of these events. (NSR Permit 2195B-M2, Specific Condition A802.B)

Monitoring: The operating load of the combustion turbine shall be monitored once daily during normal operations of that unit. (NSR Permit 2195B-M2, Specific Condition A802.B)

Recordkeeping: The permittee shall record the daily monitored operating load for the combustion turbine. The permittee shall maintain a record of the manufacturer's recommended startup/shutdown procedure and the manufacturer's criteria for the determination of turbine load. The permittee shall maintain a record for each startup/shutdown or malfunction event for the combustion turbine. The record shall include the date, the start/end time and duration for each event, which is defined as the length of time the combustion turbine is operating at less than 80% or greater than 100% load. For any malfunction event, the record shall also include the nature of the malfunction and any corrective action taken. The permittee shall maintain records in accordance with Section B109. (NSR Permit 2195B-M2, Specific Condition A802.B)

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The combustion turbine load was maintained between 80% and 100% during this certification period. Load range is calculated by the turbine operating system and is manually recorded during each operation.

Startup/shutdown procedures are in place and are followed by the unit operators.

Monitoring: Load range is calculated by the turbine operating system and is manually recorded each hour during operation. Daily operating logs showing the turbine output/load are provided in ATTACHMENT A.1307.D. Startup/shutdown procedures are followed by the unit operators.

The load is recorded at least once daily during normal operations. This data is collected in the daily operating log. Startup/shutdown procedures are in place and are followed by the unit operators.
Each time the unit is started or shut down, the data is entered into a daily operating log, which is maintained on-site. The record includes the date, start/end times, and duration.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1307 Other – TA-3 Power Plant

E. Control Device Operation (Boilers, Units TA-3-22-1 through -3)

Requirement: Each boiler (Units TA-3-22-1 through -3) shall only be operated with a properly operating flue gas recirculation fan (Units F-1 through -3, respectively). Any malfunction of the flue gas recirculation system during boiler operation may be subject to the excess emissions requirements of 20.2.7 NMAC. (NSR Permit 2195B-M2, Specific Condition A803.B)

Monitoring: The flue gas recirculating fans shall be inspected for proper operation and maintenance once during each calendar month that the unit was operating. (NSR Permit 2195B-M2, Specific Condition A803.B)

Recordkeeping: The permittee shall record all inspections of the flue gas recirculating fans and any event during which a fan malfunctions. The record shall include the date, time, name of operator conducting the inspection, and any discrepancies noted. For malfunction events, the record shall also include the nature and duration of the malfunction, and any corrective action taken. The permittee shall maintain records in accordance with Section B109. (NSR Permit 2195B-M2, Specific Condition A803.B)

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: On December 29, 2018 from approximately 2:00am-9:30am, Boiler 1 (Unit TA-3-22-1) operated without the FGR fan operating. Upon identification of the FGR fan malfunction, Boiler 1 was immediately taken off-line and shutdown. Maintenance personnel were called in for emergency repairs.

Boiler 1 was operating at less than 25% load from 2:00 am – 9:30am. Emissions were calculated using emission factors from stack test results conducted prior to installation of the FGR fans. Due to the low load and low gas flow rate during the time period of the FGR fan malfunction this deviation did not result in excess emissions above the allowed lb/hr limits in the Title V permit.

While units TA-22-2 and TA-22-3 were operating, the associated Flue Gas Recirculation (FGR) fan was on at all times. A fan speed indicator is located on the control panel in the operator control room. This fan speed is monitored and recorded during boiler operation.

Monitoring: The FGR fans are inspected for proper operation and maintenance each month the unit is operating. Inspection forms are provided in ATTACHMENT A1307.E.

Recordkeeping: All inspections of the flue gas recirculating fans were recorded.

The FGR fan for Boiler 1 (TA-3-22-1) had a malfunction which resulted in a deviation during this certification period. The malfunction was recorded in the operator's log, which included the date, time, name of operator, duration, nature, and corrective actions taken.

All inspection records contain the required data found in this section. Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1307 Other – TA-3 Power Plant

F. Control Device Operation (Combustion Turbine, Unit TA-3-22-CT-1)

Requirement: The combustion turbine shall be equipped with Rolls-Royce Dry Low Emissions (DLE) control technology (pre-mix, lean-burn series staged combustion system) to control NOx emissions. (NSR Permit 2195B-M2, Specific Condition A802.C)

Monitoring: N/A

Recordkeeping: The permittee shall maintain a record of the DLE system associated with the combustion turbine. The permittee shall maintain records in accordance with Section B109. (NSR Permit 2195B-M2, Specific Condition A802.C)

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The Dry Low Emissions (DLE) control technology is an integral part of the combustion turbine design. The DLE control was evaluated during unit start-up and determined to be working as designed. Manufacturer data are available on the DLE system.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109 and B110. For more information, see comments in Section A605 of this report.

A1307 Other – TA-3 Power Plant

G. 40 CFR 60, Subparts A and GG (Combustion Turbine, Unit TA-3-22-CT-1)

Requirement: The combustion turbine is subject to 40 CFR 60, Subpart GG and the permittee shall comply with the applicable requirements of 40 CFR 60, Subpart A and Subpart GG. (NSR Permit 2195B-M2, Specific Condition A802.D)

Monitoring: The permittee shall comply with the monitoring and testing requirements of 40 CFR 60.334 and 60.335. (NSR Permit 2195B-M2, Specific Condition A802.D)

Recordkeeping: The permittee shall comply with the recordkeeping requirements of 40 CFR 60.334 and 40 CFR 60.7. (NSR Permit 2195B-M1-R2, Specific Condition A802.D)

Reporting: The permittee shall comply with the reporting requirements of 40 CFR 60.7. (NSR Permit 2195B-M1-R2, Specific Condition A802.D)

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The combustion turbine is in compliance with 40 CFR Part 60 Subpart A and 40 CFR Part 60 Subpart GG.

Monitoring: The combustion turbine is in compliance with the monitoring and test requirements of 40 CFR 60.334 and 60.335.

Recordkeeping: The combustion turbine is in compliance with the monitoring, notification, and record keeping requirements of 40 CFR 60.334 and 40 CFR 60.7.

Reporting: The combustion turbine is in compliance with the reporting requirements of 40 CFR 60.7.

A1307 Other – TA-3 Power Plant

H. Periodic Emissions Tests (Combustion Turbine, Unit TA-3-22-CT-1)

Requirement: The permittee shall comply with the allowable emission limits at Table A1302.A, including the NOx ppmv limitation. (NSR Permit 2195B-M2, Specific Condition A802.E)

Monitoring: The permittee shall test using a portable analyzer or EPA Reference Methods subject to the requirements and limitations of Section B108, General Monitoring Requirements. For periodic testing of NOx and CO emissions tests shall be carried out as described below.

Test results that demonstrate compliance with the NOx and CO emission limits shall also be considered to demonstrate compliance with the VOC emission limits.

(1) The test period shall be annually, based on a calendar year.
(2) The tests shall continue based on the existing testing schedule.
(3) All subsequent monitoring shall occur in each succeeding monitoring period. No two monitoring events shall occur closer together in time than 25% of a monitoring period.
(4) The permittee shall follow the General Testing Procedures of Section B111.
(5) Performance testing required by 40 CFR 60, Subpart GG or 40 CFR 60, Subpart KKKK may be used to satisfy these periodic testing requirements if they meet the requirements of this condition and are completed during the specified monitoring period.

Recordkeeping: The permittee shall maintain records in accordance with Section B109. The permittee shall also record the results of the periodic emissions tests, including the turbine's fuel flow rate and horsepower at the time of the test, and the type of fuel fired (natural gas, field gas, etc.).

If a combustion analyzer is used to measure excess air in the exhaust gas, records shall be kept of the make and model of the instrument and instrument calibration data. If an ORSAT apparatus or other gas absorption analyzer is used, the permittee shall record all calibration results.

The permittee shall also keep records of all raw data used to determine exhaust gas flow and of all calculations used to determine flow rates and mass emissions rates.

Reporting: The permittee shall report in accordance with Section B109, B110, and B111.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: The facility is in compliance with the allowable limits as demonstrated in the monitoring and reporting sections below.

Monitoring: An annual emission stack was last conducted on December 16, 2014; the test results demonstrated that the actual emissions were less than the allowable emissions. The next test is scheduled for January 10, 2019. No additional stack testing is required this reporting period. See ATTACHMENT A1307.H. for details. The last test was performed as required following the monitoring requirements of Section B108 and general testing procedures found in Section B111. Test results from the test demonstrate compliance with NOx and CO emission limits. No limits were exceeded.

The tests are performed annually if required, or at a frequency as specified in General Condition B108.D based on the percentage of time the unit has operated. Records of periodic emissions test include all data required by this section.
A combustion analyzer is used for this periodic emissions test. Instrument and calibration data are included in the final test report. An ORSAT or other similar gas absorption analyzer is not used.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: Raw data, and calculations used, are included in the test report. Emission and monitoring reports are submitted on a six-month basis and compliance certification on an annual basis in accordance with permit conditions A109, B110, and B111. For more information, see comments in Section A605 of this report.

A1407 Other – Open Burning

A. Operational

Requirement: The permittee shall comply with the applicable requirements of 20.2.60 NMAC and 20.2.65 NMAC, including, but not limited to:

1) Prior to initiating a burn consisting of vegetative material, the permittee shall submit to the Department a sampling and analysis plan and upon approval conduct representative sampling of the intended burn material and analyze samples for radionuclides, target analyte list (TAL) inorganic elements, polychlorinated biphenyls (PCBs), and high explosives (HE); and

2) The permittee shall submit to the Department a background concentration report for the contaminants listed in Condition A1407.A, Requirement (1). The report shall indicate locations where background concentrations were taken and compare sample results with background concentrations of the constituents; and

3) The permittee shall not burn vegetative material which includes any contaminant above the relevant background concentration; and

4) Upon receiving Department approval, the permittee shall conduct public notification in a display ad in at least four newspapers: Los Alamos Monitor, Rio Grande Sun, Santa Fe New Mexican, and the Albuquerque Journal, no less than 21 days in advance of a planned burn.

Monitoring: The permittee shall monitor all open burning as required by Department regulation or burn approval.

Recordkeeping: The permittee shall maintain records of all sampling and analysis plans and any representative sampling conducted. Records shall be kept in accordance with Section B109.

Reporting: The permittee shall submit reports as outlined in the Condition 1407.A Requirements, as described in Section A109, and in accordance with Section B110.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: No open burning occurred during this reporting period. See ATTACHMENT A1407.A. for details.

A1507 Evaporative Sprayers–Work Practice Standards

A. Operational Requirements (Evaporative Sprayers)

Requirement: Compliance with the allowable emission limits in Table 106.B shall be demonstrated by calculating the annual total HAPs emissions in tons per year. The emissions shall be calculated based on the most recent water analysis and hours of operation for the evaporative sprayers.

Monitoring: The permittee shall conduct an analysis of the basin water, including analytical results (water concentrations) for all HAPs and TAPs, at the Sanitary Effluent Reclamation Facility (SERF) every two years beginning no later than calendar year 2018. The permittee shall monitor the hours of operation for each sprayer.

Recordkeeping: The permittee shall record a monthly rolling, 12-month total of HAPs emissions based on the sum of emissions from all the evaporative sprayers. The emission factors for the HAPs shall be based on the values from the most recent water analysis.

Reporting: The permittee shall submit reports described in Section A109 and in accordance with Section B111. An electronic copy of the required water analysis including analytical results (water concentrations) for all HAPs, TAPs, and the total dissolved solids (TDS) shall be sent to AQB with the Semi-annual Monitoring Report specified in A109.A for any year in which the water sampling is conducted.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Water spray evaporators TA-60-EVAP-4 and 5 were installed and began operation on August 28, 2018 during this certification period.

Requirement: The facility is in compliance with the allowable emissions limits as demonstrated in the monitoring, recordkeeping and reporting sections below. The most recent water analysis results and hours of operation are used to calculate the emissions.

Monitoring: Monitoring is based on analytical results of water from the SERF basins every two years. See ATTACHMENT A1507.A.a. for details. The hours of operation are monitored and tabulated. See ATTACHMENT A1507.A.b. for details.

Recordkeeping: Records are kept on-site and include the sum of emissions from all the evaporative sprayers. The emission factors are based on the values from the most recent water analysis.

Reporting: Reporting is done in accordance with the Title V requirements specified in Section A109.A and Section B111. Water analysis results will be included in the semi-annual monitoring report for any year in which the water sampling is conducted. Basin water sampling was conducted in June of 2018. See ATTACHMENT A1507.A.a. for details.

A1507 Evaporative Sprayers–Work Practice Standards

B. Maintenance and Repair Requirements

Requirement: Compliance with the allowable emission limits in Table 106.A shall be demonstrated by properly maintaining and repairing the units.

Monitoring: Maintenance and repair shall meet the minimum manufacturer's or permittee's recommended maintenance schedule. Activities that involve maintenance, adjustment, replacement, or repair of functional components with the potential to affect the operation of an emission unit shall be documented as they occur.

Recordkeeping: The permittee shall maintain records in accordance with Section B109, including records of maintenance and repairs activities and a copy of the manufacturer's or permittee's recommended maintenance schedule.

Reporting: The permittee shall maintain records in accordance with Section B109, including records of maintenance and repairs activities and a copy of the manufacturer's or permittee's recommended maintenance schedule.

Has this reporting requirement been met during this reporting period with a separate report submittal? Answer Yes or No below.

☐ **Yes** **Date report submitted:** **Tracking Number:**

☒ **No** **Provide comments and identify any supporting documentation as an attachment.**

Comments: Requirement: Compliance with the allowable emissions limits is demonstrated by properly maintaining and repairing the units.

Monitoring: Equipment maintenance and repair are conducted in accordance with the manufacturer's recommended schedule and LANL procedures, and documented in Table 106.A. See ATTACHMENT A1507.B. for work practice standards and maintenance and repair records.

Recordkeeping: Records are maintained in accordance with Section B109. Maintenance and repair records are kept on-site, and include maintenance and repairs activities, and the maintenance schedule.

Reporting: Reporting is done in accordance with the Title V requirements specified in Section B109.

Part 2

Deviation Summary Report

1. Were any deviations reported to the Air Quality Bureau during this reporting period? If NO, answer question 2 below. If YES, complete the "Summary of Deviations Previously Reported" table below, then answer question	☐ **Yes** ☒ **No**

SUMMARY OF DEVIATIONS PREVIOUSLY REPORTED		
Unit # and description	Date deviation reported	Tracking Number

2. Are there any deviations not yet reported? If No, no further information is required on the Deviation Summary Report. If Yes, answer question 3 below and enter the required information in the Deviation Summary Table.	☒ **Yes** ☐ **No**
3. Did any of the deviations result in excess emissions? For deviations resulting in excess emissions a completed Excess Emission Form for each deviation must be attached to this report.	☐ **Yes** ☒ **No**

Deviation Summary Table for deviations not yet reported.

No.	Applicable Requirement (Include Rule Citation)	Emission Unit ID(s)	Cause of Deviation	Corrective Action Taken
1	A1307.E	TA-3-22-1 Boiler	On December 29, 2018 from approximately 2:00am-9:30am, Boiler 1 (Unit TA-3-22-1) operated without the FGR fan operating. Upon identification of the FGR fan malfunction, Boiler 1 was immediately taken off-line and shutdown. Maintenance personnel were called in for emergency repairs. Boiler 1 was operating at less than 25% load from 2:00 am – 9:30am. Emissions were calculated using emission factors from stack test results conducted prior to installation of the FGR fans. Due to the low load and low gas flow rate during the time period of the FGR fan malfunction this deviation did not result in excess emissions above the allowed lb/hr limits in the Title V permit.	When the problem was identified the boiler was taken off-line and shutdown. Maintenance personnel were called in for emergency repairs. The Startup/Shutdown Procedure for operating the Boilers is being reviewed to ensure it clearly includes the requirement that the FGR fans are operating at all times when boilers are on. All plant operators will be retrained to this procedure.
2				
3				
4				
5				

Deviation Summary Table (cont.)

	Deviation Started	Deviation Ended				Did you attach an excess emission form?

No.	Date	Time	Date	Time	Pollutant	Monitoring Method	Amount of Emissions	
1	12/29/2018	2:00 AM	12/29/2018	9:30 AM	CO, NOx	Daily Log Sheets	No Excess Emissions	☐ **Yes** ☒ **No**
2								☐ **Yes** ☐ **No**
3								☐ **Yes** ☐ **No**
4								☐ **Yes** ☐ **No**
5								☐ **Yes** ☐ **No**

AI 856 | Los Alamos National Laboratory

Operating Permit P100-R2M2 & P100-R2M3

Monitoring Period July 1–December 31, 2018

ATTACHMENT A607.A.	Asphalt Plant – Differential Pressure Records
ATTACHMENT A607.C.	Asphalt Plant – Method 9 Opacity Reports
ATTACHMENT A607.E.	Asphalt Plant – Daily Operation Log and 12-Month Rolling Production
ATTACHMENT A607.F.	Asphalt Plant – Maintenance and Delivery Records
ATTACHMENT A607.G.	Asphalt Plant – Method 22 Opacity Reports
ATTACHMENT A707.B.a.	Beryllium – TA-03-0066 Beryllium Logs
ATTACHMENT A707.B.b.	Beryllium – TA-35-0213 Beryllium Operating Log
ATTACHMENT A707.C.a.	Beryllium – TA-03-0141 Beryllium HEPA Filter Differential Pressure Readings
ATTACHMENT A707.C.b.	Beryllium – TA-55-PF4 Annual HEPA Filter Challenge Test Reports
ATTACHMENT A707.C.c.	Beryllium – TA-55-PF4 HEPA Filtration Differential Pressure Readings
ATTACHMENT A806.A.	External Combustion – 20.2.61 NMAC Opacity
ATTACHMENT A806.C.	External Combustion – 20.2.61 NMAC Opacity – Units RLUOB-BHWs Fuel Oil-Fired
ATTACHMENT A807.A.	External Combustion – Natural Gas Usage and Rolling 12-Month Total
ATTACHMENT A807.B.	External Combustion – RLUOB Natural Gas and Fuel Oil Usage
ATTACHMENT A807.C. & D.	External Combustion – Fuel Oil Sulfur Content
ATTACHMENT A807.E.	External Combustion – Initial Compliance Testing (Unit RLUOB-BHW-4)
ATTACHMENT A807.F.	External Combustion – Operational Boiler Inspection
ATTACHMENT A907.A.	Chemical Usage – Chemical Purchases (From ChemDB)
ATTACHMENT A907.B.a.	Chemical Usage – RLUOB-CHEM Chemical Purchases (From ChemDB)
ATTACHMENT A907.B.b.	Chemical Usage – RLUOB-CHEM Chemical Quantity Total
ATTACHMENT A1007.A.a.	Degreaser – Degreaser Solvent Usage (From Tracking Database)
ATTACHMENT A1007.A.b.	Degreaser – Completed Work Practice Checklists
ATTACHMENT A1104.A.	Internal Combustion – TA-33-G-1P Daily Operating Logs
ATTACHMENT A1104.B.	Internal Combustion – Permitted Generator Hours of Operation
ATTACHMENT A1106.A.	Internal Combustion – Method 9 Opacity Reports

ATTACHMENT A1107.A. Internal Combustion – Operating Records for RLUOB Generators

ATTACHMENT A1107.B. Internal Combustion – Operating Records for Permitted Emergency Generators

ATTACHMENT A1207.A. Data Disintegrator – Operating Logs

ATTACHMENT A1207.B. Data Disintegrator – Maintenance Performed

ATTACHMENT A1306.A. TA-03 Power Plant – Opacity for Sources Combusting Natural Gas

ATTACHMENT A1306.B. TA-03 Power Plant – Opacity for Boilers Combusting No. 2 Fuel Oil

ATTACHMENT A1307.A. TA-03 Power Plant – Emission Rate Calculations

ATTACHMENT A1307.B. TA-03 Power Plant – Boiler Fuel Use and Hours of Operation

ATTACHMENT A1307.C. TA-03 Power Plant – Turbine Fuel Use and Hours of Operation

ATTACHMENT A1307.D. TA-03 Power Plant – Turbine Operating Logs

ATTACHMENT A1307.E. TA-03 Power Plant – FGR Fan Inspection and Maintenance

ATTACHMENT A1307.H. TA-03 Power Plant – Combustion Turbine Emission Stack Test Report

ATTACHMENT A1407.A. Open Burning

ATTACHMENT A1507.A.a. Evaporative Sprayers – Analytical Data for Basin Water

ATTACHMENT A1507.A.b. Evaporative Sprayers – Hours of Operation

ATTACHMENT A1507.B. Evaporative Sprayers – Maintenance and Repair Requirements

ATTACHMENT A607.A.

Asphalt Plant

Differential Pressure Records

2-Jul-18	6:00:00	0.00
2-Jul-18	6:02:00	0.00
2-Jul-18	6:04:00	0.00
2-Jul-18	6:06:00	0.00
2-Jul-18	6:08:00	0.00
2-Jul-18	6:10:00	0.00
2-Jul-18	6:12:00	0.00
2-Jul-18	6:14:00	0.00
2-Jul-18	6:16:00	0.00
2-Jul-18	6:18:00	0.00
2-Jul-18	6:20:00	0.00
2-Jul-18	6:22:00	0.00
2-Jul-18	6:24:00	0.00
2-Jul-18	6:26:00	0.00
2-Jul-18	6:28:00	0.00
2-Jul-18	6:30:00	0.00
2-Jul-18	6:32:00	0.00
2-Jul-18	6:34:00	0.00
2-Jul-18	6:36:00	0.10
2-Jul-18	6:38:00	0.10
2-Jul-18	6:40:00	0.10
2-Jul-18	6:42:00	0.10
2-Jul-18	6:44:00	0.10
2-Jul-18	6:46:00	0.00
2-Jul-18	6:48:00	0.00
2-Jul-18	6:50:00	0.00
2-Jul-18	6:52:00	0.00
2-Jul-18	6:54:00	0.00
2-Jul-18	6:56:00	0.00
2-Jul-18	6:58:00	0.00
2-Jul-18	7:00:00	0.00
2-Jul-18	7:02:00	0.00
2-Jul-18	7:04:00	0.00
2-Jul-18	7:06:00	0.10
2-Jul-18	7:08:00	0.10
2-Jul-18	7:10:00	0.10
2-Jul-18	7:12:00	0.10
2-Jul-18	7:14:00	0.10
2-Jul-18	7:16:00	0.10
2-Jul-18	7:18:00	0.10
2-Jul-18	7:20:00	0.10
2-Jul-18	7:22:00	0.10
2-Jul-18	7:24:00	0.10
2-Jul-18	7:26:00	0.00
2-Jul-18	7:28:00	0.00
2-Jul-18	7:30:00	0.00
2-Jul-18	7:32:00	0.00

2-Jul-18	7:34:00	0.00
2-Jul-18	7:36:00	0.10
2-Jul-18	7:38:00	0.10
2-Jul-18	7:40:00	0.10
2-Jul-18	7:42:00	0.10
2-Jul-18	7:44:00	0.10
2-Jul-18	7:46:00	0.10
2-Jul-18	7:48:00	0.10
2-Jul-18	7:50:00	0.10
2-Jul-18	7:52:00	0.10
2-Jul-18	7:54:00	0.10
2-Jul-18	7:56:00	0.10
2-Jul-18	7:58:00	0.10
2-Jul-18	8:00:00	0.10
2-Jul-18	8:02:00	0.10
2-Jul-18	8:04:00	0.10
2-Jul-18	8:06:00	0.10
2-Jul-18	8:08:00	0.10
2-Jul-18	8:10:00	0.10
2-Jul-18	8:12:00	0.10
2-Jul-18	8:14:00	0.10
2-Jul-18	8:16:00	0.10
2-Jul-18	8:18:00	0.10
2-Jul-18	8:20:00	0.10
2-Jul-18	8:22:00	0.10
2-Jul-18	8:24:00	0.10
2-Jul-18	8:26:00	0.10
2-Jul-18	8:28:00	0.10
2-Jul-18	8:30:00	0.10
2-Jul-18	8:32:00	0.40
2-Jul-18	8:34:00	0.40
2-Jul-18	8:36:00	0.70
2-Jul-18	8:38:00	1.00
2-Jul-18	8:40:00	1.00
2-Jul-18	8:42:00	1.00
2-Jul-18	8:44:00	1.00
2-Jul-18	8:46:00	1.00
2-Jul-18	8:48:00	1.00
2-Jul-18	8:50:00	1.00
2-Jul-18	8:52:00	0.00
2-Jul-18	8:54:00	0.00
2-Jul-18	8:56:00	0.00
2-Jul-18	8:58:00	0.40
2-Jul-18	9:00:00	0.40
2-Jul-18	9:02:00	0.40
2-Jul-18	9:04:00	0.70
2-Jul-18	9:06:00	0.70

2-Jul-18	9:08:00	0.70
2-Jul-18	9:10:00	0.70
2-Jul-18	9:12:00	0.50
2-Jul-18	9:14:00	0.50
2-Jul-18	9:16:00	0.30
2-Jul-18	9:18:00	0.00
2-Jul-18	9:20:00	0.00
2-Jul-18	9:22:00	0.40
2-Jul-18	9:24:00	0.40
2-Jul-18	9:26:00	0.40
2-Jul-18	9:28:00	0.40
2-Jul-18	9:30:00	0.00
2-Jul-18	9:32:00	0.00
2-Jul-18	9:34:00	0.00
2-Jul-18	9:36:00	0.00
2-Jul-18	9:38:00	0.00
2-Jul-18	9:40:00	0.40
2-Jul-18	9:42:00	0.00
2-Jul-18	9:44:00	0.00
2-Jul-18	9:46:00	0.40
2-Jul-18	9:48:00	0.40
2-Jul-18	9:50:00	0.40
2-Jul-18	9:52:00	0.00
2-Jul-18	9:54:00	0.00
2-Jul-18	9:56:00	0.00
2-Jul-18	9:58:00	0.00
2-Jul-18	10:00:00	0.00
2-Jul-18	10:02:00	0.00
2-Jul-18	10:04:00	0.00
2-Jul-18	10:06:00	0.00
2-Jul-18	10:08:00	0.00
2-Jul-18	10:10:00	0.00
2-Jul-18	10:12:00	0.00
2-Jul-18	10:14:00	0.00
2-Jul-18	10:16:00	0.00
2-Jul-18	10:18:00	0.00
2-Jul-18	10:20:00	0.00
2-Jul-18	10:22:00	0.20
2-Jul-18	10:24:00	0.40
2-Jul-18	10:26:00	0.40
2-Jul-18	10:28:00	0.40
2-Jul-18	10:30:00	0.40
2-Jul-18	10:32:00	0.40
2-Jul-18	10:34:00	0.30
2-Jul-18	10:36:00	0.30
2-Jul-18	10:38:00	0.30
2-Jul-18	10:40:00	0.00

2-Jul-18	10:42:00	0.00
2-Jul-18	10:44:00	0.00
2-Jul-18	10:46:00	0.00
2-Jul-18	10:48:00	0.00
2-Jul-18	10:50:00	0.20
2-Jul-18	10:52:00	0.40
2-Jul-18	10:54:00	0.40
2-Jul-18	10:56:00	0.00
2-Jul-18	10:58:00	0.00
2-Jul-18	11:00:00	0.00
2-Jul-18	11:02:00	0.00
2-Jul-18	11:04:00	0.00
2-Jul-18	11:06:00	0.10
2-Jul-18	11:08:00	0.10
2-Jul-18	11:10:00	0.10
2-Jul-18	11:12:00	0.10
2-Jul-18	11:14:00	0.00
2-Jul-18	11:16:00	0.00
2-Jul-18	11:18:00	0.40
2-Jul-18	11:20:00	0.40
2-Jul-18	11:22:00	0.40
2-Jul-18	11:24:00	0.40
2-Jul-18	11:26:00	0.40
2-Jul-18	11:28:00	0.20
2-Jul-18	11:30:00	0.20
2-Jul-18	11:32:00	0.00
2-Jul-18	11:34:00	0.00
2-Jul-18	11:36:00	0.00
2-Jul-18	11:38:00	0.00
2-Jul-18	11:40:00	0.00
2-Jul-18	11:42:00	0.20
2-Jul-18	11:44:00	0.20
2-Jul-18	11:46:00	0.20
2-Jul-18	11:48:00	0.20
2-Jul-18	11:50:00	0.20
2-Jul-18	11:52:00	0.00
2-Jul-18	11:54:00	0.40
2-Jul-18	11:56:00	0.00
2-Jul-18	11:58:00	0.00
2-Jul-18	12:00:00	0.00
2-Jul-18	12:02:00	0.00
2-Jul-18	12:04:00	0.00
2-Jul-18	12:06:00	0.00
2-Jul-18	12:08:00	0.00
2-Jul-18	12:10:00	0.00
2-Jul-18	12:12:00	0.00
2-Jul-18	12:14:00	0.00

2-Jul-18	12:16:00	0.00
2-Jul-18	12:18:00	0.00
2-Jul-18	12:20:00	0.00
2-Jul-18	12:22:00	0.00
2-Jul-18	12:24:00	0.00
2-Jul-18	12:26:00	0.00
2-Jul-18	12:28:00	0.00
2-Jul-18	12:30:00	0.00
2-Jul-18	12:32:00	0.00
2-Jul-18	12:34:00	0.00
2-Jul-18	12:36:00	0.00
2-Jul-18	12:38:00	0.00
2-Jul-18	12:40:00	5.70
2-Jul-18	12:42:00	5.70
2-Jul-18	12:44:00	5.30
2-Jul-18	12:46:00	5.00
2-Jul-18	12:48:00	5.00
2-Jul-18	12:50:00	4.70
2-Jul-18	12:52:00	4.40
2-Jul-18	12:54:00	3.80
2-Jul-18	12:56:00	3.50
2-Jul-18	12:58:00	3.50
2-Jul-18	13:00:00	3.80
2-Jul-18	13:02:00	4.40
2-Jul-18	13:04:00	4.10
2-Jul-18	13:06:00	4.10
2-Jul-18	13:08:00	4.10
2-Jul-18	13:10:00	3.50
2-Jul-18	13:12:00	3.50
2-Jul-18	13:14:00	3.50
2-Jul-18	13:16:00	3.50
2-Jul-18	13:18:00	3.50
2-Jul-18	13:20:00	3.80
2-Jul-18	13:22:00	3.50
2-Jul-18	13:24:00	3.50
2-Jul-18	13:26:00	3.50
2-Jul-18	13:28:00	3.50
2-Jul-18	13:30:00	1.60
2-Jul-18	13:32:00	0.10
2-Jul-18	13:34:00	0.10
2-Jul-18	13:36:00	0.10
2-Jul-18	13:38:00	0.10
2-Jul-18	13:40:00	0.10
2-Jul-18	13:42:00	0.00
2-Jul-18	13:44:00	0.00
2-Jul-18	13:46:00	0.00
2-Jul-18	13:48:00	0.00

2-Jul-18	13:50:00	0.00
2-Jul-18	13:52:00	0.00
2-Jul-18	13:54:00	0.00
2-Jul-18	13:56:00	0.00
2-Jul-18	13:58:00	0.00
2-Jul-18	14:00:00	0.00
2-Jul-18	14:02:00	0.00
2-Jul-18	14:04:00	0.00
2-Jul-18	14:06:00	0.00
2-Jul-18	14:08:00	0.00
2-Jul-18	14:10:00	0.00
2-Jul-18	14:12:00	0.00
2-Jul-18	14:14:00	0.00
2-Jul-18	14:16:00	0.00
2-Jul-18	14:18:00	0.00
2-Jul-18	14:20:00	0.00
2-Jul-18	14:22:00	0.00
2-Jul-18	14:24:00	0.00
2-Jul-18	14:26:00	0.00
2-Jul-18	14:28:00	0.00
2-Jul-18	14:30:00	0.00
2-Jul-18	14:32:00	0.00
2-Jul-18	14:34:00	0.00
2-Jul-18	14:36:00	0.00
2-Jul-18	14:38:00	0.00
2-Jul-18	14:40:00	0.00
2-Jul-18	14:42:00	0.00
2-Jul-18	14:44:00	0.00
2-Jul-18	14:46:00	0.00
2-Jul-18	14:48:00	0.00
2-Jul-18	14:50:00	0.00
2-Jul-18	14:52:00	0.00
2-Jul-18	14:54:00	0.00
2-Jul-18	14:56:00	0.00
2-Jul-18	14:58:00	0.00
2-Jul-18	15:00:00	0.00
2-Jul-18	15:02:00	0.20
2-Jul-18	15:04:00	0.20
2-Jul-18	15:06:00	0.20
2-Jul-18	15:08:00	0.20
2-Jul-18	15:10:00	0.20
2-Jul-18	15:12:00	0.20
2-Jul-18	15:14:00	0.20
2-Jul-18	15:16:00	0.20
2-Jul-18	15:18:00	0.20
2-Jul-18	15:20:00	0.20
2-Jul-18	15:22:00	0.20

2-Jul-18	15:24:00	0.20
2-Jul-18	15:26:00	0.20
2-Jul-18	15:28:00	0.20
2-Jul-18	15:30:00	0.20
2-Jul-18	15:32:00	0.20
2-Jul-18	15:34:00	0.20
2-Jul-18	15:36:00	0.20
2-Jul-18	15:38:00	0.20
2-Jul-18	15:40:00	0.00
2-Jul-18	15:42:00	0.00
2-Jul-18	15:44:00	0.00
2-Jul-18	15:46:00	0.00
2-Jul-18	15:48:00	0.00
2-Jul-18	15:50:00	0.00
2-Jul-18	15:52:00	0.00
2-Jul-18	15:54:00	0.00
2-Jul-18	15:56:00	0.00
2-Jul-18	15:58:00	0.00
2-Jul-18	16:00:00	0.00
2-Jul-18	16:02:00	0.10
2-Jul-18	16:04:00	0.10
2-Jul-18	16:06:00	0.10
2-Jul-18	16:08:00	0.10
2-Jul-18	16:10:00	0.10
2-Jul-18	16:12:00	0.10
2-Jul-18	16:14:00	0.10
2-Jul-18	16:16:00	0.10
2-Jul-18	16:18:00	0.10
2-Jul-18	16:20:00	0.10
2-Jul-18	16:22:00	0.10
2-Jul-18	16:24:00	0.10
2-Jul-18	16:26:00	0.10
2-Jul-18	16:28:00	0.10
2-Jul-18	16:30:00	0.10
2-Jul-18	16:32:00	0.10
2-Jul-18	16:34:00	0.10
2-Jul-18	16:36:00	0.10
2-Jul-18	16:38:00	0.10
2-Jul-18	16:40:00	0.10
2-Jul-18	16:42:00	0.10
2-Jul-18	16:44:00	0.10
2-Jul-18	16:46:00	0.10
2-Jul-18	16:48:00	0.10
2-Jul-18	16:50:00	0.10
2-Jul-18	16:52:00	0.00
2-Jul-18	16:54:00	0.00
2-Jul-18	16:56:00	0.00

2-Jul-18	16:58:00	0.00
2-Jul-18	17:00:00	0.00
2-Jul-18	17:02:00	0.00
2-Jul-18	17:04:00	0.00
2-Jul-18	17:06:00	0.00
2-Jul-18	17:08:00	0.00
2-Jul-18	17:10:00	0.00
2-Jul-18	17:12:00	0.00
2-Jul-18	17:14:00	0.00
2-Jul-18	17:16:00	0.00
2-Jul-18	17:18:00	0.00
2-Jul-18	17:20:00	0.00
2-Jul-18	17:22:00	0.00
2-Jul-18	17:24:00	0.00
2-Jul-18	17:26:00	0.00
2-Jul-18	17:28:00	0.00
2-Jul-18	17:30:00	0.00
2-Jul-18	17:32:00	0.10
2-Jul-18	17:34:00	0.10
2-Jul-18	17:36:00	0.10
2-Jul-18	17:38:00	0.10
2-Jul-18	17:40:00	0.10
2-Jul-18	17:42:00	0.00
2-Jul-18	17:44:00	0.00
2-Jul-18	17:46:00	0.00
2-Jul-18	17:48:00	0.00
2-Jul-18	17:50:00	0.00
2-Jul-18	17:52:00	0.10
2-Jul-18	17:54:00	0.10
2-Jul-18	17:56:00	0.10
2-Jul-18	17:58:00	0.10
2-Jul-18	18:00:00	0.10
2-Jul-18	18:02:00	0.10
2-Jul-18	18:04:00	0.10
2-Jul-18	18:06:00	0.10
2-Jul-18	18:08:00	0.10
2-Jul-18	18:10:00	0.10
2-Jul-18	18:12:00	0.00
2-Jul-18	18:14:00	0.00
2-Jul-18	18:16:00	0.00
2-Jul-18	18:18:00	0.00
2-Jul-18	18:20:00	0.00
2-Jul-18	18:22:00	0.00
2-Jul-18	18:24:00	0.00
2-Jul-18	18:26:00	0.00
2-Jul-18	18:28:00	0.00
2-Jul-18	18:30:00	0.00

2-Jul-18	18:32:00	0.00
2-Jul-18	18:34:00	0.00
2-Jul-18	18:36:00	0.00
2-Jul-18	18:38:00	0.00
2-Jul-18	18:40:00	0.00
2-Jul-18	18:42:00	0.00
2-Jul-18	18:44:00	0.00
2-Jul-18	18:46:00	0.00
2-Jul-18	18:48:00	0.00
2-Jul-18	18:50:00	0.00
2-Jul-18	18:52:00	0.00
2-Jul-18	18:54:00	0.00
2-Jul-18	18:56:00	0.00
2-Jul-18	18:58:00	0.00
2-Jul-18	19:00:00	0.00
3-Jul-18	6:00:00	0.00
3-Jul-18	6:02:00	0.00
3-Jul-18	6:04:00	0.00
3-Jul-18	6:06:00	0.00
3-Jul-18	6:08:00	0.00
3-Jul-18	6:10:00	0.00
3-Jul-18	6:12:00	0.00
3-Jul-18	6:14:00	0.00
3-Jul-18	6:16:00	0.00
3-Jul-18	6:18:00	0.00
3-Jul-18	6:20:00	0.00
3-Jul-18	6:22:00	0.00
3-Jul-18	6:24:00	0.00
3-Jul-18	6:26:00	0.00
3-Jul-18	6:28:00	0.00
3-Jul-18	6:30:00	0.00
3-Jul-18	6:32:00	0.00
3-Jul-18	6:34:00	0.00
3-Jul-18	6:36:00	0.00
3-Jul-18	6:38:00	0.00
3-Jul-18	6:40:00	0.00
3-Jul-18	6:42:00	0.00
3-Jul-18	6:44:00	0.00
3-Jul-18	6:46:00	0.00
3-Jul-18	6:48:00	0.00
3-Jul-18	6:50:00	0.00
3-Jul-18	6:52:00	0.00
3-Jul-18	6:54:00	0.00
3-Jul-18	6:56:00	0.00
3-Jul-18	6:58:00	0.00
3-Jul-18	7:00:00	0.00
3-Jul-18	7:02:00	0.00

3-Jul-18	7:04:00	0.00
3-Jul-18	7:06:00	0.00
3-Jul-18	7:08:00	0.00
3-Jul-18	7:10:00	0.00
3-Jul-18	7:12:00	0.10
3-Jul-18	7:14:00	0.10
3-Jul-18	7:16:00	0.10
3-Jul-18	7:18:00	0.10
3-Jul-18	7:20:00	0.10
3-Jul-18	7:22:00	0.00
3-Jul-18	7:24:00	0.00
3-Jul-18	7:26:00	0.00
3-Jul-18	7:28:00	0.00
3-Jul-18	7:30:00	0.00
3-Jul-18	7:32:00	0.00
3-Jul-18	7:34:00	0.00
3-Jul-18	7:36:00	0.00
3-Jul-18	7:38:00	0.00
3-Jul-18	7:40:00	0.00
3-Jul-18	7:42:00	0.10
3-Jul-18	7:44:00	0.10
3-Jul-18	7:46:00	0.10
3-Jul-18	7:48:00	0.10
3-Jul-18	7:50:00	0.10
3-Jul-18	7:52:00	0.10
3-Jul-18	7:54:00	0.10
3-Jul-18	7:56:00	0.10
3-Jul-18	7:58:00	0.10
3-Jul-18	8:00:00	0.10
3-Jul-18	8:02:00	0.10
3-Jul-18	8:04:00	0.10
3-Jul-18	8:06:00	0.10
3-Jul-18	8:08:00	0.10
3-Jul-18	8:10:00	0.10
3-Jul-18	8:12:00	0.10
3-Jul-18	8:14:00	0.10
3-Jul-18	8:16:00	0.10
3-Jul-18	8:18:00	0.10
3-Jul-18	8:20:00	0.10
3-Jul-18	8:22:00	0.10
3-Jul-18	8:24:00	0.10
3-Jul-18	8:26:00	0.10
3-Jul-18	8:28:00	0.10
3-Jul-18	8:30:00	0.10
3-Jul-18	8:32:00	0.30
3-Jul-18	8:34:00	0.40
3-Jul-18	8:36:00	0.70

3-Jul-18	8:38:00	1.00
3-Jul-18	8:40:00	1.00
3-Jul-18	8:42:00	1.00
3-Jul-18	8:44:00	1.00
3-Jul-18	8:46:00	1.00
3-Jul-18	8:48:00	0.80
3-Jul-18	8:50:00	0.70
3-Jul-18	8:52:00	0.70
3-Jul-18	8:54:00	0.70
3-Jul-18	8:56:00	0.70
3-Jul-18	8:58:00	0.70
3-Jul-18	9:00:00	0.70
3-Jul-18	9:02:00	0.70
3-Jul-18	9:04:00	0.40
3-Jul-18	9:06:00	0.40
3-Jul-18	9:08:00	0.40
3-Jul-18	9:10:00	0.40
3-Jul-18	9:12:00	0.10
3-Jul-18	9:14:00	0.10
3-Jul-18	9:16:00	0.10
3-Jul-18	9:18:00	0.10
3-Jul-18	9:20:00	0.10
3-Jul-18	9:22:00	0.40
3-Jul-18	9:24:00	0.40
3-Jul-18	9:26:00	0.40
3-Jul-18	9:28:00	0.10
3-Jul-18	9:30:00	0.10
3-Jul-18	9:32:00	0.10
3-Jul-18	9:34:00	0.10
3-Jul-18	9:36:00	0.10
3-Jul-18	9:38:00	0.00
3-Jul-18	9:40:00	0.00
3-Jul-18	9:42:00	0.00
3-Jul-18	9:44:00	0.00
3-Jul-18	9:46:00	0.00
3-Jul-18	9:48:00	0.00
3-Jul-18	9:50:00	0.00
3-Jul-18	9:52:00	0.00
3-Jul-18	9:54:00	0.00
3-Jul-18	9:56:00	0.00
3-Jul-18	9:58:00	0.10
3-Jul-18	10:00:00	0.10
3-Jul-18	10:02:00	0.40
3-Jul-18	10:04:00	0.40
3-Jul-18	10:06:00	0.70
3-Jul-18	10:08:00	0.70
3-Jul-18	10:10:00	0.10

3-Jul-18	10:12:00	0.10
3-Jul-18	10:14:00	0.10
3-Jul-18	10:16:00	0.10
3-Jul-18	10:18:00	0.10
3-Jul-18	10:20:00	0.00
3-Jul-18	10:22:00	0.00
3-Jul-18	10:24:00	0.00
3-Jul-18	10:26:00	0.00
3-Jul-18	10:28:00	0.00
3-Jul-18	10:30:00	0.30
3-Jul-18	10:32:00	0.30
3-Jul-18	10:34:00	0.30
3-Jul-18	10:36:00	0.30
3-Jul-18	10:38:00	0.30
3-Jul-18	10:40:00	0.40
3-Jul-18	10:42:00	0.40
3-Jul-18	10:44:00	0.40
3-Jul-18	10:46:00	0.40
3-Jul-18	10:48:00	0.40
3-Jul-18	10:50:00	0.50
3-Jul-18	10:52:00	0.70
3-Jul-18	10:54:00	0.40
3-Jul-18	10:56:00	0.40
3-Jul-18	10:58:00	0.70
3-Jul-18	11:00:00	0.70
3-Jul-18	11:02:00	0.10
3-Jul-18	11:04:00	0.10
3-Jul-18	11:06:00	0.10
3-Jul-18	11:08:00	0.10
3-Jul-18	11:10:00	0.10
3-Jul-18	11:12:00	0.00
3-Jul-18	11:14:00	0.00
3-Jul-18	11:16:00	0.00
3-Jul-18	11:18:00	0.00
3-Jul-18	11:20:00	0.00
3-Jul-18	11:22:00	0.00
3-Jul-18	11:24:00	0.00
3-Jul-18	11:26:00	0.00
3-Jul-18	11:28:00	0.00
3-Jul-18	11:30:00	0.00
3-Jul-18	11:32:00	0.70
3-Jul-18	11:34:00	1.00
3-Jul-18	11:36:00	1.00
3-Jul-18	11:38:00	1.00
3-Jul-18	11:40:00	1.40
3-Jul-18	11:42:00	1.40
3-Jul-18	11:44:00	1.00

3-Jul-18	11:46:00	0.70
3-Jul-18	11:48:00	0.40
3-Jul-18	11:50:00	0.40
3-Jul-18	11:52:00	0.10
3-Jul-18	11:54:00	0.10
3-Jul-18	11:56:00	0.10
3-Jul-18	11:58:00	0.10
3-Jul-18	12:00:00	0.10
3-Jul-18	12:02:00	0.00
3-Jul-18	12:04:00	0.00
3-Jul-18	12:06:00	0.00
3-Jul-18	12:08:00	0.00
3-Jul-18	12:10:00	0.00
3-Jul-18	12:12:00	0.00
3-Jul-18	12:14:00	0.40
3-Jul-18	12:16:00	0.40
3-Jul-18	12:18:00	0.10
3-Jul-18	12:20:00	0.10
3-Jul-18	12:22:00	0.10
3-Jul-18	12:24:00	0.40
3-Jul-18	12:26:00	0.40
3-Jul-18	12:28:00	0.40
3-Jul-18	12:30:00	0.40
3-Jul-18	12:32:00	0.40
3-Jul-18	12:34:00	0.60
3-Jul-18	12:36:00	0.60
3-Jul-18	12:38:00	0.60
3-Jul-18	12:40:00	0.60
3-Jul-18	12:42:00	0.60
3-Jul-18	12:44:00	0.40
3-Jul-18	12:46:00	0.10
3-Jul-18	12:48:00	5.10
3-Jul-18	12:50:00	3.80
3-Jul-18	12:52:00	3.80
3-Jul-18	12:54:00	3.80
3-Jul-18	12:56:00	4.30
3-Jul-18	12:58:00	4.30
3-Jul-18	13:00:00	3.50
3-Jul-18	13:02:00	3.50
3-Jul-18	13:04:00	3.50
3-Jul-18	13:06:00	3.50
3-Jul-18	13:08:00	3.50
3-Jul-18	13:10:00	3.80
3-Jul-18	13:12:00	4.10
3-Jul-18	13:14:00	4.10
3-Jul-18	13:16:00	4.10
3-Jul-18	13:18:00	3.80

3-Jul-18	13:20:00	3.80
3-Jul-18	13:22:00	3.80
3-Jul-18	13:24:00	3.20
3-Jul-18	13:26:00	2.90
3-Jul-18	13:28:00	2.60
3-Jul-18	13:30:00	2.30
3-Jul-18	13:32:00	2.60
3-Jul-18	13:34:00	3.50
3-Jul-18	13:36:00	3.80
3-Jul-18	13:38:00	3.80
3-Jul-18	13:40:00	3.80
3-Jul-18	13:42:00	3.80
3-Jul-18	13:44:00	3.80
3-Jul-18	13:46:00	3.90
3-Jul-18	13:48:00	0.10
3-Jul-18	13:50:00	0.10
3-Jul-18	13:52:00	0.10
3-Jul-18	13:54:00	0.10
3-Jul-18	13:56:00	0.10
3-Jul-18	13:58:00	0.00
3-Jul-18	14:00:00	0.00
3-Jul-18	14:02:00	0.00
3-Jul-18	14:04:00	0.00
3-Jul-18	14:06:00	0.00
3-Jul-18	14:08:00	0.00
3-Jul-18	14:10:00	0.00
3-Jul-18	14:12:00	0.00
3-Jul-18	14:14:00	0.00
3-Jul-18	14:16:00	0.00
3-Jul-18	14:18:00	0.00
3-Jul-18	14:20:00	0.00
3-Jul-18	14:22:00	0.00
3-Jul-18	14:24:00	0.00
3-Jul-18	14:26:00	0.00
3-Jul-18	14:28:00	0.00
3-Jul-18	14:30:00	0.00
3-Jul-18	14:32:00	0.00
3-Jul-18	14:34:00	0.00
3-Jul-18	14:36:00	0.00
3-Jul-18	14:38:00	0.00
3-Jul-18	14:40:00	0.00
3-Jul-18	14:42:00	0.00
3-Jul-18	14:44:00	0.00
3-Jul-18	14:46:00	0.00
3-Jul-18	14:48:00	0.20
3-Jul-18	14:50:00	0.20
3-Jul-18	14:52:00	0.20

3-Jul-18	14:54:00	0.20
3-Jul-18	14:56:00	0.20
3-Jul-18	14:58:00	0.20
3-Jul-18	15:00:00	0.00
3-Jul-18	15:02:00	0.10
3-Jul-18	15:04:00	0.10
3-Jul-18	15:06:00	0.10
3-Jul-18	15:08:00	0.10
3-Jul-18	15:10:00	0.10
3-Jul-18	15:12:00	0.20
3-Jul-18	15:14:00	0.20
3-Jul-18	15:16:00	0.20
3-Jul-18	15:18:00	0.20
3-Jul-18	15:20:00	0.20
3-Jul-18	15:22:00	0.00
3-Jul-18	15:24:00	0.00
3-Jul-18	15:26:00	0.00
3-Jul-18	15:28:00	0.00
3-Jul-18	15:30:00	0.00
3-Jul-18	15:32:00	0.00
3-Jul-18	15:34:00	0.00
3-Jul-18	15:36:00	0.00
3-Jul-18	15:38:00	0.00
3-Jul-18	15:40:00	0.00
3-Jul-18	15:42:00	0.00
3-Jul-18	15:44:00	0.00
3-Jul-18	15:46:00	0.00
3-Jul-18	15:48:00	0.00
3-Jul-18	15:50:00	0.20
3-Jul-18	15:52:00	0.20
3-Jul-18	15:54:00	0.20
3-Jul-18	15:56:00	0.20
3-Jul-18	15:58:00	0.20
3-Jul-18	16:00:00	0.10
3-Jul-18	16:02:00	0.10
3-Jul-18	16:04:00	0.10
3-Jul-18	16:06:00	0.10
3-Jul-18	16:08:00	0.10
3-Jul-18	16:10:00	0.00
3-Jul-18	16:12:00	0.00
3-Jul-18	16:14:00	0.00
3-Jul-18	16:16:00	0.00
3-Jul-18	16:18:00	0.00
3-Jul-18	16:20:00	0.00
3-Jul-18	16:22:00	0.00
3-Jul-18	16:24:00	0.00
3-Jul-18	16:26:00	0.00

3-Jul-18	16:28:00	0.00
3-Jul-18	16:30:00	0.00
3-Jul-18	16:32:00	0.00
3-Jul-18	16:34:00	0.00
3-Jul-18	16:36:00	0.00
3-Jul-18	16:38:00	0.00
3-Jul-18	16:40:00	0.00
3-Jul-18	16:42:00	0.00
3-Jul-18	16:44:00	0.00
3-Jul-18	16:46:00	0.00
3-Jul-18	16:48:00	0.00
3-Jul-18	16:50:00	0.20
3-Jul-18	16:52:00	0.20
3-Jul-18	16:54:00	0.20
3-Jul-18	16:56:00	0.20
3-Jul-18	16:58:00	0.20
3-Jul-18	17:00:00	0.10
3-Jul-18	17:02:00	0.10
3-Jul-18	17:04:00	0.10
3-Jul-18	17:06:00	0.10
3-Jul-18	17:08:00	0.10
3-Jul-18	17:10:00	0.00
3-Jul-18	17:12:00	0.00
3-Jul-18	17:14:00	0.00
3-Jul-18	17:16:00	0.00
3-Jul-18	17:18:00	0.00
3-Jul-18	17:20:00	0.00
3-Jul-18	17:22:00	0.00
3-Jul-18	17:24:00	0.00
3-Jul-18	17:26:00	0.00
3-Jul-18	17:28:00	0.00
3-Jul-18	17:30:00	0.00
3-Jul-18	17:32:00	0.00
3-Jul-18	17:34:00	0.00
3-Jul-18	17:36:00	0.00
3-Jul-18	17:38:00	0.00
3-Jul-18	17:40:00	0.00
3-Jul-18	17:42:00	0.00
3-Jul-18	17:44:00	0.00
3-Jul-18	17:46:00	0.00
3-Jul-18	17:48:00	0.00
3-Jul-18	17:50:00	0.10
3-Jul-18	17:52:00	0.10
3-Jul-18	17:54:00	0.10
3-Jul-18	17:56:00	0.10
3-Jul-18	17:58:00	0.10
3-Jul-18	18:00:00	0.00

3-Jul-18	18:02:00	0.00
3-Jul-18	18:04:00	0.00
3-Jul-18	18:06:00	0.00
3-Jul-18	18:08:00	0.00
3-Jul-18	18:10:00	0.00
3-Jul-18	18:12:00	0.00
3-Jul-18	18:14:00	0.00
3-Jul-18	18:16:00	0.00
3-Jul-18	18:18:00	0.00
3-Jul-18	18:20:00	0.00
3-Jul-18	18:22:00	0.00
3-Jul-18	18:24:00	0.00
3-Jul-18	18:26:00	0.00
3-Jul-18	18:28:00	0.00
3-Jul-18	18:30:00	0.00
3-Jul-18	18:32:00	0.00
3-Jul-18	18:34:00	0.00
3-Jul-18	18:36:00	0.00
3-Jul-18	18:38:00	0.00
3-Jul-18	18:40:00	0.00
3-Jul-18	18:42:00	0.00
3-Jul-18	18:44:00	0.00
3-Jul-18	18:46:00	0.00
3-Jul-18	18:48:00	0.00
3-Jul-18	18:50:00	0.00
3-Jul-18	18:52:00	0.00
3-Jul-18	18:54:00	0.00
3-Jul-18	18:56:00	0.00
3-Jul-18	18:58:00	0.10
3-Jul-18	19:00:00	0.10
5-Jul-18	6:00:00	0.00
5-Jul-18	6:02:00	0.00
5-Jul-18	6:04:00	0.00
5-Jul-18	6:06:00	0.00
5-Jul-18	6:08:00	0.00
5-Jul-18	6:10:00	0.00
5-Jul-18	6:12:00	0.00
5-Jul-18	6:14:00	0.00
5-Jul-18	6:16:00	0.00
5-Jul-18	6:18:00	0.00
5-Jul-18	6:20:00	0.00
5-Jul-18	6:22:00	0.00
5-Jul-18	6:24:00	0.00
5-Jul-18	6:26:00	0.00
5-Jul-18	6:28:00	0.00
5-Jul-18	6:30:00	0.00
5-Jul-18	6:32:00	0.00

5-Jul-18	6:34:00	0.00
5-Jul-18	6:36:00	0.00
5-Jul-18	6:38:00	0.00
5-Jul-18	6:40:00	0.00
5-Jul-18	6:42:00	0.00
5-Jul-18	6:44:00	0.00
5-Jul-18	6:46:00	0.00
5-Jul-18	6:48:00	0.00
5-Jul-18	6:50:00	0.10
5-Jul-18	6:52:00	0.10
5-Jul-18	6:54:00	0.10
5-Jul-18	6:56:00	0.10
5-Jul-18	6:58:00	0.10
5-Jul-18	7:00:00	0.10
5-Jul-18	7:02:00	0.10
5-Jul-18	7:04:00	0.10
5-Jul-18	7:06:00	0.10
5-Jul-18	7:08:00	0.10
5-Jul-18	7:10:00	0.10
5-Jul-18	7:12:00	0.10
5-Jul-18	7:14:00	0.10
5-Jul-18	7:16:00	0.10
5-Jul-18	7:18:00	0.10
5-Jul-18	7:20:00	0.10
5-Jul-18	7:22:00	0.10
5-Jul-18	7:24:00	0.10
5-Jul-18	7:26:00	0.10
5-Jul-18	7:28:00	0.10
5-Jul-18	7:30:00	0.10
5-Jul-18	7:32:00	0.00
5-Jul-18	7:34:00	0.00
5-Jul-18	7:36:00	0.00
5-Jul-18	7:38:00	0.00
5-Jul-18	7:40:00	0.00
5-Jul-18	7:42:00	0.00
5-Jul-18	7:44:00	0.00
5-Jul-18	7:46:00	0.00
5-Jul-18	7:48:00	0.00
5-Jul-18	7:50:00	0.00
5-Jul-18	7:52:00	0.00
5-Jul-18	7:54:00	0.00
5-Jul-18	7:56:00	0.00
5-Jul-18	7:58:00	0.00
5-Jul-18	8:00:00	0.10
5-Jul-18	8:02:00	0.10
5-Jul-18	8:04:00	0.10
5-Jul-18	8:06:00	0.10

5-Jul-18	8:08:00	0.10
5-Jul-18	8:10:00	0.20
5-Jul-18	8:12:00	0.20
5-Jul-18	8:14:00	0.20
5-Jul-18	8:16:00	0.20
5-Jul-18	8:18:00	0.20
5-Jul-18	8:20:00	0.10
5-Jul-18	8:22:00	0.10
5-Jul-18	8:24:00	0.10
5-Jul-18	8:26:00	0.10
5-Jul-18	8:28:00	0.10
5-Jul-18	8:30:00	0.10
5-Jul-18	8:32:00	0.20
5-Jul-18	8:34:00	0.50
5-Jul-18	8:36:00	0.80
5-Jul-18	8:38:00	0.80
5-Jul-18	8:40:00	0.80
5-Jul-18	8:42:00	0.80
5-Jul-18	8:44:00	0.80
5-Jul-18	8:46:00	0.70
5-Jul-18	8:48:00	0.50
5-Jul-18	8:50:00	0.50
5-Jul-18	8:52:00	0.50
5-Jul-18	8:54:00	0.50
5-Jul-18	8:56:00	0.50
5-Jul-18	8:58:00	0.50
5-Jul-18	9:00:00	0.20
5-Jul-18	9:02:00	0.20
5-Jul-18	9:04:00	0.20
5-Jul-18	9:06:00	0.20
5-Jul-18	9:08:00	0.20
5-Jul-18	9:10:00	0.20
5-Jul-18	9:12:00	0.10
5-Jul-18	9:14:00	0.10
5-Jul-18	9:16:00	0.10
5-Jul-18	9:18:00	0.10
5-Jul-18	9:20:00	0.10
5-Jul-18	9:22:00	0.00
5-Jul-18	9:24:00	0.00
5-Jul-18	9:26:00	6.10
5-Jul-18	9:28:00	5.10
5-Jul-18	9:30:00	5.10
5-Jul-18	9:32:00	5.10
5-Jul-18	9:34:00	4.80
5-Jul-18	9:36:00	0.20
5-Jul-18	9:38:00	0.00
5-Jul-18	9:40:00	0.00

5-Jul-18	9:42:00	0.00
5-Jul-18	9:44:00	0.00
5-Jul-18	9:46:00	0.20
5-Jul-18	9:48:00	0.50
5-Jul-18	9:50:00	0.50
5-Jul-18	9:52:00	0.50
5-Jul-18	9:54:00	0.20
5-Jul-18	9:56:00	0.20
5-Jul-18	9:58:00	0.00
5-Jul-18	10:00:00	0.00
5-Jul-18	10:02:00	0.00
5-Jul-18	10:04:00	0.00
5-Jul-18	10:06:00	0.20
5-Jul-18	10:08:00	0.20
5-Jul-18	10:10:00	0.20
5-Jul-18	10:12:00	0.20
5-Jul-18	10:14:00	0.20
5-Jul-18	10:16:00	0.10
5-Jul-18	10:18:00	0.10
5-Jul-18	10:20:00	0.00
5-Jul-18	10:22:00	0.00
5-Jul-18	10:24:00	0.00
5-Jul-18	10:26:00	0.00
5-Jul-18	10:28:00	0.00
5-Jul-18	10:30:00	0.00
5-Jul-18	10:32:00	0.00
5-Jul-18	10:34:00	0.00
5-Jul-18	10:36:00	0.00
5-Jul-18	10:38:00	0.00
5-Jul-18	10:40:00	0.00
5-Jul-18	10:42:00	0.20
5-Jul-18	10:44:00	0.20
5-Jul-18	10:46:00	0.20
5-Jul-18	10:48:00	0.20
5-Jul-18	10:50:00	0.50
5-Jul-18	10:52:00	0.50
5-Jul-18	10:54:00	0.50
5-Jul-18	10:56:00	0.50
5-Jul-18	10:58:00	0.50
5-Jul-18	11:00:00	0.50
5-Jul-18	11:02:00	0.50
5-Jul-18	11:04:00	0.50
5-Jul-18	11:06:00	0.50
5-Jul-18	11:08:00	0.20
5-Jul-18	11:10:00	0.20
5-Jul-18	11:12:00	0.20
5-Jul-18	11:14:00	0.00

5-Jul-18	11:16:00	0.20
5-Jul-18	11:18:00	0.20
5-Jul-18	11:20:00	0.20
5-Jul-18	11:22:00	0.20
5-Jul-18	11:24:00	0.00
5-Jul-18	11:26:00	0.00
5-Jul-18	11:28:00	0.00
5-Jul-18	11:30:00	0.00
5-Jul-18	11:32:00	0.20
5-Jul-18	11:34:00	0.00
5-Jul-18	11:36:00	0.20
5-Jul-18	11:38:00	0.20
5-Jul-18	11:40:00	0.00
5-Jul-18	11:42:00	0.00
5-Jul-18	11:44:00	0.00
5-Jul-18	11:46:00	0.20
5-Jul-18	11:48:00	0.20
5-Jul-18	11:50:00	0.50
5-Jul-18	11:52:00	0.50
5-Jul-18	11:54:00	0.50
5-Jul-18	11:56:00	0.50
5-Jul-18	11:58:00	0.00
5-Jul-18	12:00:00	0.00
5-Jul-18	12:02:00	0.00
5-Jul-18	12:04:00	0.00
5-Jul-18	12:06:00	0.00
5-Jul-18	12:08:00	0.00
5-Jul-18	12:10:00	0.00
5-Jul-18	12:12:00	0.00
5-Jul-18	12:14:00	0.00
5-Jul-18	12:16:00	0.20
5-Jul-18	12:18:00	0.20
5-Jul-18	12:20:00	0.00
5-Jul-18	12:22:00	0.00
5-Jul-18	12:24:00	0.00
5-Jul-18	12:26:00	0.00
5-Jul-18	12:28:00	4.80
5-Jul-18	12:30:00	4.50
5-Jul-18	12:32:00	4.50
5-Jul-18	12:34:00	4.50
5-Jul-18	12:36:00	4.50
5-Jul-18	12:38:00	4.50
5-Jul-18	12:40:00	4.30
5-Jul-18	12:42:00	4.30
5-Jul-18	12:44:00	4.30
5-Jul-18	12:46:00	4.30
5-Jul-18	12:48:00	4.30

5-Jul-18	12:50:00	4.70
5-Jul-18	12:52:00	4.70
5-Jul-18	12:54:00	4.70
5-Jul-18	12:56:00	3.90
5-Jul-18	12:58:00	3.90
5-Jul-18	13:00:00	3.60
5-Jul-18	13:02:00	3.30
5-Jul-18	13:04:00	3.30
5-Jul-18	13:06:00	3.30
5-Jul-18	13:08:00	3.00
5-Jul-18	13:10:00	3.00
5-Jul-18	13:12:00	3.00
5-Jul-18	13:14:00	3.30
5-Jul-18	13:16:00	3.60
5-Jul-18	13:18:00	3.60
5-Jul-18	13:20:00	3.60
5-Jul-18	13:22:00	0.00
5-Jul-18	13:24:00	0.00
5-Jul-18	13:26:00	0.00
5-Jul-18	13:28:00	0.00
5-Jul-18	13:30:00	0.00
5-Jul-18	13:32:00	0.10
5-Jul-18	13:34:00	0.10
5-Jul-18	13:36:00	0.20
5-Jul-18	13:38:00	0.20
5-Jul-18	13:40:00	0.20
5-Jul-18	13:42:00	0.20
5-Jul-18	13:44:00	0.20
5-Jul-18	13:46:00	0.10
5-Jul-18	13:48:00	0.10
5-Jul-18	13:50:00	0.10
5-Jul-18	13:52:00	0.10
5-Jul-18	13:54:00	0.10
5-Jul-18	13:56:00	0.10
5-Jul-18	13:58:00	0.10
5-Jul-18	14:00:00	0.10
5-Jul-18	14:02:00	0.10
5-Jul-18	14:04:00	0.10
5-Jul-18	14:06:00	0.20
5-Jul-18	14:08:00	0.20
5-Jul-18	14:10:00	0.20
5-Jul-18	14:12:00	0.20
5-Jul-18	14:14:00	0.20
5-Jul-18	14:16:00	0.20
5-Jul-18	14:18:00	0.20
5-Jul-18	14:20:00	0.20
5-Jul-18	14:22:00	0.20

5-Jul-18	14:24:00	0.20
5-Jul-18	14:26:00	0.10
5-Jul-18	14:28:00	0.10
5-Jul-18	14:30:00	0.10
5-Jul-18	14:32:00	0.10
5-Jul-18	14:34:00	0.10
5-Jul-18	14:36:00	0.20
5-Jul-18	14:38:00	0.20
5-Jul-18	14:40:00	0.20
5-Jul-18	14:42:00	0.20
5-Jul-18	14:44:00	0.20
5-Jul-18	14:46:00	0.10
5-Jul-18	14:48:00	0.10
5-Jul-18	14:50:00	0.10
5-Jul-18	14:52:00	0.10
5-Jul-18	14:54:00	0.10
5-Jul-18	14:56:00	0.20
5-Jul-18	14:58:00	0.20
5-Jul-18	15:00:00	0.20
5-Jul-18	15:02:00	0.20
5-Jul-18	15:04:00	0.20
5-Jul-18	15:06:00	0.10
5-Jul-18	15:08:00	0.10
5-Jul-18	15:10:00	0.10
5-Jul-18	15:12:00	0.10
5-Jul-18	15:14:00	0.10
5-Jul-18	15:16:00	0.10
5-Jul-18	15:18:00	0.10
5-Jul-18	15:20:00	0.10
5-Jul-18	15:22:00	0.10
5-Jul-18	15:24:00	0.10
5-Jul-18	15:26:00	0.20
5-Jul-18	15:28:00	0.20
5-Jul-18	15:30:00	0.20
5-Jul-18	15:32:00	0.20
5-Jul-18	15:34:00	0.20
5-Jul-18	15:36:00	0.20
5-Jul-18	15:38:00	0.20
5-Jul-18	15:40:00	0.20
5-Jul-18	15:42:00	0.20
5-Jul-18	15:44:00	0.20
5-Jul-18	15:46:00	0.10
5-Jul-18	15:48:00	0.10
5-Jul-18	15:50:00	0.10
5-Jul-18	15:52:00	0.10
5-Jul-18	15:54:00	0.10
5-Jul-18	15:56:00	0.20

5-Jul-18	15:58:00	0.20
5-Jul-18	16:00:00	0.20
5-Jul-18	16:02:00	0.20
5-Jul-18	16:04:00	0.20
5-Jul-18	16:06:00	0.00
5-Jul-18	16:08:00	0.00
5-Jul-18	16:10:00	0.00
5-Jul-18	16:12:00	0.00
5-Jul-18	16:14:00	0.00
5-Jul-18	16:16:00	0.00
5-Jul-18	16:18:00	0.00
5-Jul-18	16:20:00	0.00
5-Jul-18	16:22:00	0.00
5-Jul-18	16:24:00	0.00
5-Jul-18	16:26:00	0.00
5-Jul-18	16:28:00	0.00
5-Jul-18	16:30:00	0.00
5-Jul-18	16:32:00	0.00
5-Jul-18	16:34:00	0.00
5-Jul-18	16:36:00	0.00
5-Jul-18	16:38:00	0.00
5-Jul-18	16:40:00	0.10
5-Jul-18	16:42:00	0.20
5-Jul-18	16:44:00	0.20
5-Jul-18	16:46:00	0.20
5-Jul-18	16:48:00	0.20
5-Jul-18	16:50:00	0.20
5-Jul-18	16:52:00	0.10
5-Jul-18	16:54:00	0.10
5-Jul-18	16:56:00	0.10
5-Jul-18	16:58:00	0.10
5-Jul-18	17:00:00	0.10
5-Jul-18	17:02:00	0.00
5-Jul-18	17:04:00	0.00
5-Jul-18	17:06:00	0.00
5-Jul-18	17:08:00	0.00
5-Jul-18	17:10:00	0.00
5-Jul-18	17:12:00	0.00
5-Jul-18	17:14:00	0.00
5-Jul-18	17:16:00	0.00
5-Jul-18	17:18:00	0.00
5-Jul-18	17:20:00	0.00
5-Jul-18	17:22:00	0.00
5-Jul-18	17:24:00	0.00
5-Jul-18	17:26:00	0.00
5-Jul-18	17:28:00	0.00
5-Jul-18	17:30:00	0.00

5-Jul-18	17:32:00	0.00
5-Jul-18	17:34:00	0.00
5-Jul-18	17:36:00	0.00
5-Jul-18	17:38:00	0.00
5-Jul-18	17:40:00	0.00
5-Jul-18	17:42:00	0.00
5-Jul-18	17:44:00	0.00
5-Jul-18	17:46:00	0.00
5-Jul-18	17:48:00	0.00
5-Jul-18	17:50:00	0.00
5-Jul-18	17:52:00	0.00
5-Jul-18	17:54:00	0.00
5-Jul-18	17:56:00	0.00
5-Jul-18	17:58:00	0.00
5-Jul-18	18:00:00	0.00
5-Jul-18	18:02:00	0.00
5-Jul-18	18:04:00	0.00
5-Jul-18	18:06:00	0.00
5-Jul-18	18:08:00	0.00
5-Jul-18	18:10:00	0.00
5-Jul-18	18:12:00	0.00
5-Jul-18	18:14:00	0.00
5-Jul-18	18:16:00	0.00
5-Jul-18	18:18:00	0.00
5-Jul-18	18:20:00	0.10
5-Jul-18	18:22:00	0.10
5-Jul-18	18:24:00	0.10
5-Jul-18	18:26:00	0.10
5-Jul-18	18:28:00	0.10
5-Jul-18	18:30:00	0.00
5-Jul-18	18:32:00	0.00
5-Jul-18	18:34:00	0.00
5-Jul-18	18:36:00	0.00
5-Jul-18	18:38:00	0.00
5-Jul-18	18:40:00	0.00
5-Jul-18	18:42:00	0.00
5-Jul-18	18:44:00	0.00
5-Jul-18	18:46:00	0.00
5-Jul-18	18:48:00	0.00
5-Jul-18	18:50:00	0.00
5-Jul-18	18:52:00	0.00
5-Jul-18	18:54:00	0.00
5-Jul-18	18:56:00	0.00
5-Jul-18	18:58:00	0.00
5-Jul-18	19:00:00	0.00
23-Jul-18	6:00:00	0.00
23-Jul-18	6:02:00	0.00

23-Jul-18	6:04:00	0.00
23-Jul-18	6:06:00	0.00
23-Jul-18	6:08:00	0.00
23-Jul-18	6:10:00	0.00
23-Jul-18	6:12:00	0.00
23-Jul-18	6:14:00	0.00
23-Jul-18	6:16:00	0.00
23-Jul-18	6:18:00	0.00
23-Jul-18	6:20:00	0.00
23-Jul-18	6:22:00	0.00
23-Jul-18	6:24:00	0.00
23-Jul-18	6:26:00	0.00
23-Jul-18	6:28:00	0.00
23-Jul-18	6:30:00	0.00
23-Jul-18	6:32:00	0.00
23-Jul-18	6:34:00	0.00
23-Jul-18	6:36:00	0.00
23-Jul-18	6:38:00	0.00
23-Jul-18	6:40:00	0.00
23-Jul-18	6:42:00	0.00
23-Jul-18	6:44:00	0.00
23-Jul-18	6:46:00	0.00
23-Jul-18	6:48:00	0.00
23-Jul-18	6:50:00	0.00
23-Jul-18	6:52:00	0.00
23-Jul-18	6:54:00	0.00
23-Jul-18	6:56:00	0.00
23-Jul-18	6:58:00	0.00
23-Jul-18	7:00:00	0.00
23-Jul-18	7:02:00	0.00
23-Jul-18	7:04:00	0.00
23-Jul-18	7:06:00	0.00
23-Jul-18	7:08:00	0.00
23-Jul-18	7:10:00	0.10
23-Jul-18	7:12:00	0.10
23-Jul-18	7:14:00	0.10
23-Jul-18	7:16:00	0.10
23-Jul-18	7:18:00	0.10
23-Jul-18	7:20:00	0.10
23-Jul-18	7:22:00	0.10
23-Jul-18	7:24:00	0.10
23-Jul-18	7:26:00	0.10
23-Jul-18	7:28:00	0.10
23-Jul-18	7:30:00	0.00
23-Jul-18	7:32:00	0.00
23-Jul-18	7:34:00	0.00
23-Jul-18	7:36:00	0.00

23-Jul-18	7:38:00	0.00
23-Jul-18	7:40:00	0.00
23-Jul-18	7:42:00	0.00
23-Jul-18	7:44:00	0.00
23-Jul-18	7:46:00	0.00
23-Jul-18	7:48:00	0.00
23-Jul-18	7:50:00	0.10
23-Jul-18	7:52:00	0.10
23-Jul-18	7:54:00	0.10
23-Jul-18	7:56:00	0.10
23-Jul-18	7:58:00	0.10
23-Jul-18	8:00:00	0.10
23-Jul-18	8:02:00	0.10
23-Jul-18	8:04:00	0.10
23-Jul-18	8:06:00	0.10
23-Jul-18	8:08:00	0.10
23-Jul-18	8:10:00	0.00
23-Jul-18	8:12:00	0.00
23-Jul-18	8:14:00	0.00
23-Jul-18	8:16:00	0.00
23-Jul-18	8:18:00	0.00
23-Jul-18	8:20:00	0.10
23-Jul-18	8:22:00	0.10
23-Jul-18	8:24:00	0.20
23-Jul-18	8:26:00	0.20
23-Jul-18	8:28:00	0.50
23-Jul-18	8:30:00	0.80
23-Jul-18	8:32:00	0.80
23-Jul-18	8:34:00	1.10
23-Jul-18	8:36:00	1.10
23-Jul-18	8:38:00	1.10
23-Jul-18	8:40:00	1.10
23-Jul-18	8:42:00	0.80
23-Jul-18	8:44:00	0.50
23-Jul-18	8:46:00	0.50
23-Jul-18	8:48:00	0.50
23-Jul-18	8:50:00	0.50
23-Jul-18	8:52:00	0.50
23-Jul-18	8:54:00	0.40
23-Jul-18	8:56:00	0.40
23-Jul-18	8:58:00	0.40
23-Jul-18	9:00:00	0.20
23-Jul-18	9:02:00	0.20
23-Jul-18	9:04:00	0.20
23-Jul-18	9:06:00	0.20
23-Jul-18	9:08:00	0.20
23-Jul-18	9:10:00	0.20

23-Jul-18	9:12:00	0.20
23-Jul-18	9:14:00	0.20
23-Jul-18	9:16:00	0.20
23-Jul-18	9:18:00	0.30
23-Jul-18	9:20:00	0.30
23-Jul-18	9:22:00	0.30
23-Jul-18	9:24:00	0.30
23-Jul-18	9:26:00	0.30
23-Jul-18	9:28:00	0.30
23-Jul-18	9:30:00	0.50
23-Jul-18	9:32:00	0.50
23-Jul-18	9:34:00	0.50
23-Jul-18	9:36:00	0.50
23-Jul-18	9:38:00	0.00
23-Jul-18	9:40:00	0.00
23-Jul-18	9:42:00	0.00
23-Jul-18	9:44:00	0.00
23-Jul-18	9:46:00	0.00
23-Jul-18	9:48:00	0.10
23-Jul-18	9:50:00	0.10
23-Jul-18	9:52:00	0.10
23-Jul-18	9:54:00	0.10
23-Jul-18	9:56:00	0.10
23-Jul-18	9:58:00	0.00
23-Jul-18	10:00:00	0.00
23-Jul-18	10:02:00	0.00
23-Jul-18	10:04:00	0.00
23-Jul-18	10:06:00	0.00
23-Jul-18	10:08:00	0.00
23-Jul-18	10:10:00	0.00
23-Jul-18	10:12:00	0.00
23-Jul-18	10:14:00	0.00
23-Jul-18	10:16:00	0.00
23-Jul-18	10:18:00	0.00
23-Jul-18	10:20:00	0.00
23-Jul-18	10:22:00	0.20
23-Jul-18	10:24:00	0.20
23-Jul-18	10:26:00	0.00
23-Jul-18	10:28:00	0.00
23-Jul-18	10:30:00	0.00
23-Jul-18	10:32:00	0.00
23-Jul-18	10:34:00	0.00
23-Jul-18	10:36:00	0.00
23-Jul-18	10:38:00	0.00
23-Jul-18	10:40:00	0.00
23-Jul-18	10:42:00	0.00
23-Jul-18	10:44:00	0.00

23-Jul-18	10:46:00	0.10
23-Jul-18	10:48:00	0.20
23-Jul-18	10:50:00	0.20
23-Jul-18	10:52:00	0.50
23-Jul-18	10:54:00	0.20
23-Jul-18	10:56:00	0.20
23-Jul-18	10:58:00	0.20
23-Jul-18	11:00:00	0.20
23-Jul-18	11:02:00	0.20
23-Jul-18	11:04:00	0.20
23-Jul-18	11:06:00	0.20
23-Jul-18	11:08:00	0.20
23-Jul-18	11:10:00	0.20
23-Jul-18	11:12:00	0.50
23-Jul-18	11:14:00	0.50
23-Jul-18	11:16:00	0.20
23-Jul-18	11:18:00	0.20
23-Jul-18	11:20:00	0.00
23-Jul-18	11:22:00	0.20
23-Jul-18	11:24:00	0.20
23-Jul-18	11:26:00	0.00
23-Jul-18	11:28:00	0.00
23-Jul-18	11:30:00	0.00
23-Jul-18	11:32:00	0.00
23-Jul-18	11:34:00	0.00
23-Jul-18	11:36:00	0.00
23-Jul-18	11:38:00	0.10
23-Jul-18	11:40:00	0.10
23-Jul-18	11:42:00	0.10
23-Jul-18	11:44:00	0.10
23-Jul-18	11:46:00	0.10
23-Jul-18	11:48:00	0.00
23-Jul-18	11:50:00	0.00
23-Jul-18	11:52:00	0.00
23-Jul-18	11:54:00	0.00
23-Jul-18	11:56:00	0.00
23-Jul-18	11:58:00	0.00
23-Jul-18	12:00:00	0.20
23-Jul-18	12:02:00	0.50
23-Jul-18	12:04:00	0.20
23-Jul-18	12:06:00	0.00
23-Jul-18	12:08:00	0.00
23-Jul-18	12:10:00	0.00
23-Jul-18	12:12:00	0.00
23-Jul-18	12:14:00	0.00
23-Jul-18	12:16:00	0.20
23-Jul-18	12:18:00	0.00

23-Jul-18	12:20:00	0.00
23-Jul-18	12:22:00	0.20
23-Jul-18	12:24:00	0.20
23-Jul-18	12:26:00	0.20
23-Jul-18	12:28:00	0.20
23-Jul-18	12:30:00	0.20
23-Jul-18	12:32:00	0.20
23-Jul-18	12:34:00	0.20
23-Jul-18	12:36:00	0.20
23-Jul-18	12:38:00	0.20
23-Jul-18	12:40:00	0.10
23-Jul-18	12:42:00	5.50
23-Jul-18	12:44:00	4.60
23-Jul-18	12:46:00	4.00
23-Jul-18	12:48:00	3.40
23-Jul-18	12:50:00	3.40
23-Jul-18	12:52:00	3.40
23-Jul-18	12:54:00	3.40
23-Jul-18	12:56:00	3.70
23-Jul-18	12:58:00	3.70
23-Jul-18	13:00:00	3.70
23-Jul-18	13:02:00	3.70
23-Jul-18	13:04:00	3.70
23-Jul-18	13:06:00	3.60
23-Jul-18	13:08:00	0.00
23-Jul-18	13:10:00	0.00
23-Jul-18	13:12:00	0.00
23-Jul-18	13:14:00	0.00
23-Jul-18	13:16:00	0.00
23-Jul-18	13:18:00	0.00
23-Jul-18	13:20:00	0.00
23-Jul-18	13:22:00	0.00
23-Jul-18	13:24:00	0.00
23-Jul-18	13:26:00	0.00
23-Jul-18	13:28:00	0.00
23-Jul-18	13:30:00	0.00
23-Jul-18	13:32:00	0.00
23-Jul-18	13:34:00	0.00
23-Jul-18	13:36:00	0.00
23-Jul-18	13:38:00	0.00
23-Jul-18	13:40:00	0.00
23-Jul-18	13:42:00	0.00
23-Jul-18	13:44:00	0.00
23-Jul-18	13:46:00	0.00
23-Jul-18	13:48:00	0.00
23-Jul-18	13:50:00	0.00
23-Jul-18	13:52:00	0.00

23-Jul-18	13:54:00	0.00
23-Jul-18	13:56:00	0.00
23-Jul-18	13:58:00	0.00
23-Jul-18	14:00:00	0.00
23-Jul-18	14:02:00	0.00
23-Jul-18	14:04:00	0.00
23-Jul-18	14:06:00	0.00
23-Jul-18	14:08:00	0.00
23-Jul-18	14:10:00	0.00
23-Jul-18	14:12:00	0.00
23-Jul-18	14:14:00	0.00
23-Jul-18	14:16:00	0.00
23-Jul-18	14:18:00	0.00
23-Jul-18	14:20:00	0.00
23-Jul-18	14:22:00	0.00
23-Jul-18	14:24:00	0.00
23-Jul-18	14:26:00	0.00
23-Jul-18	14:28:00	0.00
23-Jul-18	14:30:00	0.00
23-Jul-18	14:32:00	0.00
23-Jul-18	14:34:00	0.00
23-Jul-18	14:36:00	0.00
23-Jul-18	14:38:00	0.00
23-Jul-18	14:40:00	0.00
23-Jul-18	14:42:00	0.00
23-Jul-18	14:44:00	0.00
23-Jul-18	14:46:00	0.00
23-Jul-18	14:48:00	0.00
23-Jul-18	14:50:00	0.00
23-Jul-18	14:52:00	0.00
23-Jul-18	14:54:00	0.00
23-Jul-18	14:56:00	0.00
23-Jul-18	14:58:00	0.00
23-Jul-18	15:00:00	0.00
23-Jul-18	15:02:00	0.00
23-Jul-18	15:04:00	0.00
23-Jul-18	15:06:00	0.00
23-Jul-18	15:08:00	0.00
23-Jul-18	15:10:00	0.00
23-Jul-18	15:12:00	0.00
23-Jul-18	15:14:00	0.00
23-Jul-18	15:16:00	0.00
23-Jul-18	15:18:00	0.00
23-Jul-18	15:20:00	0.30
23-Jul-18	15:22:00	0.30
23-Jul-18	15:24:00	0.30
23-Jul-18	15:26:00	0.30

23-Jul-18	15:28:00	0.30
23-Jul-18	15:30:00	0.30
23-Jul-18	15:32:00	0.30
23-Jul-18	15:34:00	0.30
23-Jul-18	15:36:00	0.30
23-Jul-18	15:38:00	0.30
23-Jul-18	15:40:00	0.10
23-Jul-18	15:42:00	0.10
23-Jul-18	15:44:00	0.10
23-Jul-18	15:46:00	0.00
23-Jul-18	15:48:00	0.00
23-Jul-18	15:50:00	0.00
23-Jul-18	15:52:00	0.00
23-Jul-18	15:54:00	0.00
23-Jul-18	15:56:00	0.00
23-Jul-18	15:58:00	0.00
23-Jul-18	16:00:00	0.00
23-Jul-18	16:02:00	0.00
23-Jul-18	16:04:00	0.00
23-Jul-18	16:06:00	0.00
23-Jul-18	16:08:00	0.00
23-Jul-18	16:10:00	0.00
23-Jul-18	16:12:00	0.00
23-Jul-18	16:14:00	0.00
23-Jul-18	16:16:00	0.00
23-Jul-18	16:18:00	0.00
23-Jul-18	16:20:00	0.00
23-Jul-18	16:22:00	0.00
23-Jul-18	16:24:00	0.00
23-Jul-18	16:26:00	0.00
23-Jul-18	16:28:00	0.00
23-Jul-18	16:30:00	0.00
23-Jul-18	16:32:00	0.00
23-Jul-18	16:34:00	0.00
23-Jul-18	16:36:00	0.00
23-Jul-18	16:38:00	0.00
23-Jul-18	16:40:00	0.00
23-Jul-18	16:42:00	0.00
23-Jul-18	16:44:00	0.00
23-Jul-18	16:46:00	0.00
23-Jul-18	16:48:00	0.00
23-Jul-18	16:50:00	0.00
23-Jul-18	16:52:00	0.00
23-Jul-18	16:54:00	0.00
23-Jul-18	16:56:00	0.00
23-Jul-18	16:58:00	0.00
23-Jul-18	17:00:00	0.00

23-Jul-18	17:02:00	0.00
23-Jul-18	17:04:00	0.00
23-Jul-18	17:06:00	0.00
23-Jul-18	17:08:00	0.00
23-Jul-18	17:10:00	0.00
23-Jul-18	17:12:00	0.00
23-Jul-18	17:14:00	0.00
23-Jul-18	17:16:00	0.00
23-Jul-18	17:18:00	0.00
23-Jul-18	17:20:00	0.00
23-Jul-18	17:22:00	0.00
23-Jul-18	17:24:00	0.00
23-Jul-18	17:26:00	0.00
23-Jul-18	17:28:00	0.00
23-Jul-18	17:30:00	0.00
23-Jul-18	17:32:00	0.00
23-Jul-18	17:34:00	0.00
23-Jul-18	17:36:00	0.00
23-Jul-18	17:38:00	0.00
23-Jul-18	17:40:00	0.00
23-Jul-18	17:42:00	0.00
23-Jul-18	17:44:00	0.00
23-Jul-18	17:46:00	0.00
23-Jul-18	17:48:00	0.00
23-Jul-18	17:50:00	0.00
23-Jul-18	17:52:00	0.00
23-Jul-18	17:54:00	0.00
23-Jul-18	17:56:00	0.00
23-Jul-18	17:58:00	0.00
23-Jul-18	18:00:00	0.00
23-Jul-18	18:02:00	0.00
23-Jul-18	18:04:00	0.00
23-Jul-18	18:06:00	0.00
23-Jul-18	18:08:00	0.00
23-Jul-18	18:10:00	0.00
23-Jul-18	18:12:00	0.00
23-Jul-18	18:14:00	0.00
23-Jul-18	18:16:00	0.00
23-Jul-18	18:18:00	0.00
23-Jul-18	18:20:00	0.00
23-Jul-18	18:22:00	0.00
23-Jul-18	18:24:00	0.00
23-Jul-18	18:26:00	0.00
23-Jul-18	18:28:00	0.00
23-Jul-18	18:30:00	0.00
23-Jul-18	18:32:00	0.00
23-Jul-18	18:34:00	0.00

23-Jul-18	18:36:00	0.00
23-Jul-18	18:38:00	0.00
23-Jul-18	18:40:00	0.00
23-Jul-18	18:42:00	0.00
23-Jul-18	18:44:00	0.00
23-Jul-18	18:46:00	0.00
23-Jul-18	18:48:00	0.00
23-Jul-18	18:50:00	0.00
23-Jul-18	18:52:00	0.00
23-Jul-18	18:54:00	0.00
23-Jul-18	18:56:00	0.00
23-Jul-18	18:58:00	0.00
23-Jul-18	19:00:00	0.00
24-Jul-18	6:00:00	0.00
24-Jul-18	6:02:00	0.00
24-Jul-18	6:04:00	0.00
24-Jul-18	6:06:00	0.00
24-Jul-18	6:08:00	0.00
24-Jul-18	6:10:00	0.00
24-Jul-18	6:12:00	0.00
24-Jul-18	6:14:00	0.00
24-Jul-18	6:16:00	0.00
24-Jul-18	6:18:00	0.00
24-Jul-18	6:20:00	0.00
24-Jul-18	6:22:00	0.00
24-Jul-18	6:24:00	0.00
24-Jul-18	6:26:00	0.00
24-Jul-18	6:28:00	0.00
24-Jul-18	6:30:00	0.00
24-Jul-18	6:32:00	0.00
24-Jul-18	6:34:00	0.00
24-Jul-18	6:36:00	0.00
24-Jul-18	6:38:00	0.00
24-Jul-18	6:40:00	0.00
24-Jul-18	6:42:00	0.00
24-Jul-18	6:44:00	0.00
24-Jul-18	6:46:00	0.10
24-Jul-18	6:48:00	0.10
24-Jul-18	6:50:00	0.10
24-Jul-18	6:52:00	0.10
24-Jul-18	6:54:00	0.10
24-Jul-18	6:56:00	0.10
24-Jul-18	6:58:00	0.10
24-Jul-18	7:00:00	0.10
24-Jul-18	7:02:00	0.10
24-Jul-18	7:04:00	0.10
24-Jul-18	7:06:00	0.10

24-Jul-18	7:08:00	0.10
24-Jul-18	7:10:00	0.10
24-Jul-18	7:12:00	0.10
24-Jul-18	7:14:00	0.10
24-Jul-18	7:16:00	0.10
24-Jul-18	7:18:00	0.00
24-Jul-18	7:20:00	0.00
24-Jul-18	7:22:00	0.00
24-Jul-18	7:24:00	0.00
24-Jul-18	7:26:00	0.00
24-Jul-18	7:28:00	0.00
24-Jul-18	7:30:00	0.00
24-Jul-18	7:32:00	0.00
24-Jul-18	7:34:00	0.00
24-Jul-18	7:36:00	0.00
24-Jul-18	7:38:00	0.00
24-Jul-18	7:40:00	0.00
24-Jul-18	7:42:00	0.00
24-Jul-18	7:44:00	0.00
24-Jul-18	7:46:00	0.00
24-Jul-18	7:48:00	0.00
24-Jul-18	7:50:00	0.00
24-Jul-18	7:52:00	0.00
24-Jul-18	7:54:00	0.00
24-Jul-18	7:56:00	0.00
24-Jul-18	7:58:00	0.00
24-Jul-18	8:00:00	0.00
24-Jul-18	8:02:00	0.00
24-Jul-18	8:04:00	0.00
24-Jul-18	8:06:00	0.00
24-Jul-18	8:08:00	0.10
24-Jul-18	8:10:00	0.10
24-Jul-18	8:12:00	0.10
24-Jul-18	8:14:00	0.10
24-Jul-18	8:16:00	0.10
24-Jul-18	8:18:00	0.10
24-Jul-18	8:20:00	0.10
24-Jul-18	8:22:00	0.10
24-Jul-18	8:24:00	0.30
24-Jul-18	8:26:00	0.60
24-Jul-18	8:28:00	0.60
24-Jul-18	8:30:00	0.90
24-Jul-18	8:32:00	0.90
24-Jul-18	8:34:00	0.90
24-Jul-18	8:36:00	0.90
24-Jul-18	8:38:00	0.90
24-Jul-18	8:40:00	0.80

24-Jul-18	8:42:00	0.80
24-Jul-18	8:44:00	0.60
24-Jul-18	8:46:00	0.60
24-Jul-18	8:48:00	0.60
24-Jul-18	8:50:00	0.60
24-Jul-18	8:52:00	0.30
24-Jul-18	8:54:00	0.30
24-Jul-18	8:56:00	0.30
24-Jul-18	8:58:00	0.30
24-Jul-18	9:00:00	0.30
24-Jul-18	9:02:00	0.20
24-Jul-18	9:04:00	0.20
24-Jul-18	9:06:00	0.20
24-Jul-18	9:08:00	0.20
24-Jul-18	9:10:00	0.20
24-Jul-18	9:12:00	0.20
24-Jul-18	9:14:00	0.20
24-Jul-18	9:16:00	0.20
24-Jul-18	9:18:00	0.20
24-Jul-18	9:20:00	0.20
24-Jul-18	9:22:00	0.10
24-Jul-18	9:24:00	0.10
24-Jul-18	9:26:00	0.10
24-Jul-18	9:28:00	0.00
24-Jul-18	9:30:00	0.00
24-Jul-18	9:32:00	0.00
24-Jul-18	9:34:00	0.30
24-Jul-18	9:36:00	0.30
24-Jul-18	9:38:00	0.30
24-Jul-18	9:40:00	0.00
24-Jul-18	9:42:00	0.00
24-Jul-18	9:44:00	0.00
24-Jul-18	9:46:00	0.00
24-Jul-18	9:48:00	0.00
24-Jul-18	9:50:00	0.00
24-Jul-18	9:52:00	0.00
24-Jul-18	9:54:00	0.00
24-Jul-18	9:56:00	0.00
24-Jul-18	9:58:00	0.00
24-Jul-18	10:00:00	0.00
24-Jul-18	10:02:00	0.00
24-Jul-18	10:04:00	0.00
24-Jul-18	10:06:00	5.60
24-Jul-18	10:08:00	4.90
24-Jul-18	10:10:00	4.60
24-Jul-18	10:12:00	4.00
24-Jul-18	10:14:00	3.70

24-Jul-18	10:16:00	3.70
24-Jul-18	10:18:00	3.70
24-Jul-18	10:20:00	3.70
24-Jul-18	10:22:00	3.70
24-Jul-18	10:24:00	3.50
24-Jul-18	10:26:00	3.50
24-Jul-18	10:28:00	3.50
24-Jul-18	10:30:00	3.50
24-Jul-18	10:32:00	3.50
24-Jul-18	10:34:00	3.80
24-Jul-18	10:36:00	3.80
24-Jul-18	10:38:00	3.80
24-Jul-18	10:40:00	3.80
24-Jul-18	10:42:00	4.00
24-Jul-18	10:44:00	4.00
24-Jul-18	10:46:00	4.00
24-Jul-18	10:48:00	4.00
24-Jul-18	10:50:00	0.00
24-Jul-18	10:52:00	0.00
24-Jul-18	10:54:00	0.00
24-Jul-18	10:56:00	0.00
24-Jul-18	10:58:00	0.00
24-Jul-18	11:00:00	0.30
24-Jul-18	11:02:00	0.30
24-Jul-18	11:04:00	0.30
24-Jul-18	11:06:00	0.30
24-Jul-18	11:08:00	0.30
24-Jul-18	11:10:00	0.00
24-Jul-18	11:12:00	0.00
24-Jul-18	11:14:00	0.00
24-Jul-18	11:16:00	0.60
24-Jul-18	11:18:00	0.60
24-Jul-18	11:20:00	0.60
24-Jul-18	11:22:00	0.60
24-Jul-18	11:24:00	0.60
24-Jul-18	11:26:00	0.90
24-Jul-18	11:28:00	0.90
24-Jul-18	11:30:00	0.90
24-Jul-18	11:32:00	0.90
24-Jul-18	11:34:00	0.90
24-Jul-18	11:36:00	0.50
24-Jul-18	11:38:00	0.50
24-Jul-18	11:40:00	0.50
24-Jul-18	11:42:00	0.50
24-Jul-18	11:44:00	0.30
24-Jul-18	11:46:00	0.00
24-Jul-18	11:48:00	0.00

24-Jul-18	11:50:00	0.00
24-Jul-18	11:52:00	0.00
24-Jul-18	11:54:00	0.00
24-Jul-18	11:56:00	0.00
24-Jul-18	11:58:00	0.00
24-Jul-18	12:00:00	0.00
24-Jul-18	12:02:00	0.00
24-Jul-18	12:04:00	0.00
24-Jul-18	12:06:00	0.30
24-Jul-18	12:08:00	0.30
24-Jul-18	12:10:00	0.00
24-Jul-18	12:12:00	0.00
24-Jul-18	12:14:00	0.00
24-Jul-18	12:16:00	0.00
24-Jul-18	12:18:00	0.00
24-Jul-18	12:20:00	0.00
24-Jul-18	12:22:00	0.00
24-Jul-18	12:24:00	0.00
24-Jul-18	12:26:00	0.00
24-Jul-18	12:28:00	0.00
24-Jul-18	12:30:00	0.00
24-Jul-18	12:32:00	0.00
24-Jul-18	12:34:00	0.30
24-Jul-18	12:36:00	0.30
24-Jul-18	12:38:00	0.00
24-Jul-18	12:40:00	0.00
24-Jul-18	12:42:00	0.00
24-Jul-18	12:44:00	0.00
24-Jul-18	12:46:00	0.00
24-Jul-18	12:48:00	0.10
24-Jul-18	12:50:00	0.10
24-Jul-18	12:52:00	0.10
24-Jul-18	12:54:00	0.10
24-Jul-18	12:56:00	0.30
24-Jul-18	12:58:00	0.30
24-Jul-18	13:00:00	0.30
24-Jul-18	13:02:00	0.30
24-Jul-18	13:04:00	0.30
24-Jul-18	13:06:00	0.00
24-Jul-18	13:08:00	0.00
24-Jul-18	13:10:00	0.00
24-Jul-18	13:12:00	0.00
24-Jul-18	13:14:00	0.00
24-Jul-18	13:16:00	0.00
24-Jul-18	13:18:00	0.00
24-Jul-18	13:20:00	0.00
24-Jul-18	13:22:00	0.00

24-Jul-18	13:24:00	0.00
24-Jul-18	13:26:00	0.00
24-Jul-18	13:28:00	0.00
24-Jul-18	13:30:00	0.00
24-Jul-18	13:32:00	0.00
24-Jul-18	13:34:00	0.00
24-Jul-18	13:36:00	0.00
24-Jul-18	13:38:00	0.00
24-Jul-18	13:40:00	0.00
24-Jul-18	13:42:00	0.00
24-Jul-18	13:44:00	0.00
24-Jul-18	13:46:00	0.00
24-Jul-18	13:48:00	0.00
24-Jul-18	13:50:00	0.00
24-Jul-18	13:52:00	0.00
24-Jul-18	13:54:00	0.00
24-Jul-18	13:56:00	0.00
24-Jul-18	13:58:00	0.00
24-Jul-18	14:00:00	0.00
24-Jul-18	14:02:00	0.00
24-Jul-18	14:04:00	0.00
24-Jul-18	14:06:00	0.00
24-Jul-18	14:08:00	0.00
24-Jul-18	14:10:00	0.00
24-Jul-18	14:12:00	0.00
24-Jul-18	14:14:00	0.00
24-Jul-18	14:16:00	0.00
24-Jul-18	14:18:00	0.00
24-Jul-18	14:20:00	0.00
24-Jul-18	14:22:00	0.00
24-Jul-18	14:24:00	0.00
24-Jul-18	14:26:00	0.00
24-Jul-18	14:28:00	0.00
24-Jul-18	14:30:00	0.00
24-Jul-18	14:32:00	0.00
24-Jul-18	14:34:00	0.00
24-Jul-18	14:36:00	0.20
24-Jul-18	14:38:00	0.20
24-Jul-18	14:40:00	0.20
24-Jul-18	14:42:00	0.20
24-Jul-18	14:44:00	0.20
24-Jul-18	14:46:00	0.00
24-Jul-18	14:48:00	0.00
24-Jul-18	14:50:00	0.00
24-Jul-18	14:52:00	0.00
24-Jul-18	14:54:00	0.00
24-Jul-18	14:56:00	0.00

24-Jul-18	14:58:00	0.10
24-Jul-18	15:00:00	0.10
24-Jul-18	15:02:00	0.10
24-Jul-18	15:04:00	0.10
24-Jul-18	15:06:00	0.10
24-Jul-18	15:08:00	0.00
24-Jul-18	15:10:00	0.00
24-Jul-18	15:12:00	0.00
24-Jul-18	15:14:00	0.00
24-Jul-18	15:16:00	0.00
24-Jul-18	15:18:00	0.00
24-Jul-18	15:20:00	0.00
24-Jul-18	15:22:00	0.00
24-Jul-18	15:24:00	0.00
24-Jul-18	15:26:00	0.00
24-Jul-18	15:28:00	0.00
24-Jul-18	15:30:00	0.00
24-Jul-18	15:32:00	0.00
24-Jul-18	15:34:00	0.00
24-Jul-18	15:36:00	0.00
24-Jul-18	15:38:00	0.00
24-Jul-18	15:40:00	0.00
24-Jul-18	15:42:00	0.00
24-Jul-18	15:44:00	0.00
24-Jul-18	15:46:00	0.00
24-Jul-18	15:48:00	0.00
24-Jul-18	15:50:00	0.00
24-Jul-18	15:52:00	0.00
24-Jul-18	15:54:00	0.00
24-Jul-18	15:56:00	0.00
24-Jul-18	15:58:00	0.00
24-Jul-18	16:00:00	0.00
24-Jul-18	16:02:00	0.00
24-Jul-18	16:04:00	0.00
24-Jul-18	16:06:00	0.00
24-Jul-18	16:08:00	0.00
24-Jul-18	16:10:00	0.00
24-Jul-18	16:12:00	0.00
24-Jul-18	16:14:00	0.00
24-Jul-18	16:16:00	0.00
24-Jul-18	16:18:00	0.00
24-Jul-18	16:20:00	0.00
24-Jul-18	16:22:00	0.00
24-Jul-18	16:24:00	0.00
24-Jul-18	16:26:00	0.00
24-Jul-18	16:28:00	0.00
24-Jul-18	16:30:00	0.00

24-Jul-18	16:32:00	0.00
24-Jul-18	16:34:00	0.00
24-Jul-18	16:36:00	0.00
24-Jul-18	16:38:00	0.00
24-Jul-18	16:40:00	0.00
24-Jul-18	16:42:00	0.00
24-Jul-18	16:44:00	0.00
24-Jul-18	16:46:00	0.00
24-Jul-18	16:48:00	0.00
24-Jul-18	16:50:00	0.00
24-Jul-18	16:52:00	0.00
24-Jul-18	16:54:00	0.00
24-Jul-18	16:56:00	0.00
24-Jul-18	16:58:00	0.00
24-Jul-18	17:00:00	0.00
24-Jul-18	17:02:00	0.00
24-Jul-18	17:04:00	0.00
24-Jul-18	17:06:00	0.00
24-Jul-18	17:08:00	0.00
24-Jul-18	17:10:00	0.00
24-Jul-18	17:12:00	0.00
24-Jul-18	17:14:00	0.00
24-Jul-18	17:16:00	0.00
24-Jul-18	17:18:00	0.10
24-Jul-18	17:20:00	0.10
24-Jul-18	17:22:00	0.10
24-Jul-18	17:24:00	0.10
24-Jul-18	17:26:00	0.10
24-Jul-18	17:28:00	0.20
24-Jul-18	17:30:00	0.20
24-Jul-18	17:32:00	0.20
24-Jul-18	17:34:00	0.20
24-Jul-18	17:36:00	0.20
24-Jul-18	17:38:00	0.30
24-Jul-18	17:40:00	0.30
24-Jul-18	17:42:00	0.30
24-Jul-18	17:44:00	0.30
24-Jul-18	17:46:00	0.30
24-Jul-18	17:48:00	0.20
24-Jul-18	17:50:00	0.20
24-Jul-18	17:52:00	0.20
24-Jul-18	17:54:00	0.20
24-Jul-18	17:56:00	0.20
24-Jul-18	17:58:00	0.10
24-Jul-18	18:00:00	0.10
24-Jul-18	18:02:00	0.10
24-Jul-18	18:04:00	0.10

24-Jul-18	18:06:00	0.10
24-Jul-18	18:08:00	0.00
24-Jul-18	18:10:00	0.00
24-Jul-18	18:12:00	0.00
24-Jul-18	18:14:00	0.00
24-Jul-18	18:16:00	0.00
24-Jul-18	18:18:00	0.00
24-Jul-18	18:20:00	0.00
24-Jul-18	18:22:00	0.00
24-Jul-18	18:24:00	0.00
24-Jul-18	18:26:00	0.00
24-Jul-18	18:28:00	0.00
24-Jul-18	18:30:00	0.00
24-Jul-18	18:32:00	0.00
24-Jul-18	18:34:00	0.00
24-Jul-18	18:36:00	0.00
24-Jul-18	18:38:00	0.00
24-Jul-18	18:40:00	0.00
24-Jul-18	18:42:00	0.00
24-Jul-18	18:44:00	0.00
24-Jul-18	18:46:00	0.00
24-Jul-18	18:48:00	0.00
24-Jul-18	18:50:00	0.00
24-Jul-18	18:52:00	0.00
24-Jul-18	18:54:00	0.00
24-Jul-18	18:56:00	0.00
24-Jul-18	18:58:00	0.00
24-Jul-18	19:00:00	0.00
27-Jul-18	6:00:00	0.00
27-Jul-18	6:02:00	0.00
27-Jul-18	6:04:00	0.00
27-Jul-18	6:06:00	0.00
27-Jul-18	6:08:00	0.00
27-Jul-18	6:10:00	0.00
27-Jul-18	6:12:00	0.00
27-Jul-18	6:14:00	0.00
27-Jul-18	6:16:00	0.00
27-Jul-18	6:18:00	0.00
27-Jul-18	6:20:00	0.00
27-Jul-18	6:22:00	0.00
27-Jul-18	6:24:00	0.00
27-Jul-18	6:26:00	0.00
27-Jul-18	6:28:00	0.00
27-Jul-18	6:30:00	0.00
27-Jul-18	6:32:00	0.00
27-Jul-18	6:34:00	0.00
27-Jul-18	6:36:00	0.00

27-Jul-18	6:38:00	0.00
27-Jul-18	6:40:00	0.00
27-Jul-18	6:42:00	0.00
27-Jul-18	6:44:00	0.00
27-Jul-18	6:46:00	0.00
27-Jul-18	6:48:00	0.00
27-Jul-18	6:50:00	0.00
27-Jul-18	6:52:00	0.00
27-Jul-18	6:54:00	0.00
27-Jul-18	6:56:00	0.00
27-Jul-18	6:58:00	0.00
27-Jul-18	7:00:00	0.00
27-Jul-18	7:02:00	0.00
27-Jul-18	7:04:00	0.00
27-Jul-18	7:06:00	0.00
27-Jul-18	7:08:00	0.00
27-Jul-18	7:10:00	0.00
27-Jul-18	7:12:00	0.00
27-Jul-18	7:14:00	0.00
27-Jul-18	7:16:00	0.00
27-Jul-18	7:18:00	0.00
27-Jul-18	7:20:00	0.00
27-Jul-18	7:22:00	0.00
27-Jul-18	7:24:00	0.10
27-Jul-18	7:26:00	0.10
27-Jul-18	7:28:00	0.10
27-Jul-18	7:30:00	0.10
27-Jul-18	7:32:00	0.10
27-Jul-18	7:34:00	0.10
27-Jul-18	7:36:00	0.10
27-Jul-18	7:38:00	0.10
27-Jul-18	7:40:00	0.10
27-Jul-18	7:42:00	0.10
27-Jul-18	7:44:00	0.10
27-Jul-18	7:46:00	0.10
27-Jul-18	7:48:00	0.10
27-Jul-18	7:50:00	0.10
27-Jul-18	7:52:00	0.10
27-Jul-18	7:54:00	0.10
27-Jul-18	7:56:00	0.10
27-Jul-18	7:58:00	0.10
27-Jul-18	8:00:00	0.10
27-Jul-18	8:02:00	0.10
27-Jul-18	8:04:00	0.10
27-Jul-18	8:06:00	0.10
27-Jul-18	8:08:00	0.10
27-Jul-18	8:10:00	0.10

27-Jul-18	8:12:00	0.10
27-Jul-18	8:14:00	0.00
27-Jul-18	8:16:00	0.00
27-Jul-18	8:18:00	0.00
27-Jul-18	8:20:00	0.00
27-Jul-18	8:22:00	0.00
27-Jul-18	8:24:00	0.20
27-Jul-18	8:26:00	0.20
27-Jul-18	8:28:00	0.30
27-Jul-18	8:30:00	0.60
27-Jul-18	8:32:00	0.60
27-Jul-18	8:34:00	0.60
27-Jul-18	8:36:00	0.60
27-Jul-18	8:38:00	0.90
27-Jul-18	8:40:00	0.60
27-Jul-18	8:42:00	0.60
27-Jul-18	8:44:00	0.60
27-Jul-18	8:46:00	0.30
27-Jul-18	8:48:00	0.30
27-Jul-18	8:50:00	0.30
27-Jul-18	8:52:00	0.30
27-Jul-18	8:54:00	0.30
27-Jul-18	8:56:00	0.20
27-Jul-18	8:58:00	0.20
27-Jul-18	9:00:00	0.20
27-Jul-18	9:02:00	0.20
27-Jul-18	9:04:00	0.20
27-Jul-18	9:06:00	0.00
27-Jul-18	9:08:00	0.00
27-Jul-18	9:10:00	0.00
27-Jul-18	9:12:00	0.00
27-Jul-18	9:14:00	0.20
27-Jul-18	9:16:00	0.20
27-Jul-18	9:18:00	0.20
27-Jul-18	9:20:00	0.30
27-Jul-18	9:22:00	0.00
27-Jul-18	9:24:00	0.00
27-Jul-18	9:26:00	0.00
27-Jul-18	9:28:00	0.00
27-Jul-18	9:30:00	0.00
27-Jul-18	9:32:00	0.00
27-Jul-18	9:34:00	0.00
27-Jul-18	9:36:00	0.00
27-Jul-18	9:38:00	0.00
27-Jul-18	9:40:00	0.00
27-Jul-18	9:42:00	0.00
27-Jul-18	9:44:00	0.00

27-Jul-18	9:46:00	0.00
27-Jul-18	9:48:00	0.00
27-Jul-18	9:50:00	0.00
27-Jul-18	9:52:00	0.00
27-Jul-18	9:54:00	0.00
27-Jul-18	9:56:00	0.00
27-Jul-18	9:58:00	0.00
27-Jul-18	10:00:00	0.00
27-Jul-18	10:02:00	0.00
27-Jul-18	10:04:00	0.00
27-Jul-18	10:06:00	0.00
27-Jul-18	10:08:00	0.00
27-Jul-18	10:10:00	0.00
27-Jul-18	10:12:00	0.10
27-Jul-18	10:14:00	0.10
27-Jul-18	10:16:00	0.10
27-Jul-18	10:18:00	0.10
27-Jul-18	10:20:00	0.10
27-Jul-18	10:22:00	0.20
27-Jul-18	10:24:00	0.20
27-Jul-18	10:26:00	0.20
27-Jul-18	10:28:00	0.30
27-Jul-18	10:30:00	0.00
27-Jul-18	10:32:00	0.00
27-Jul-18	10:34:00	0.00
27-Jul-18	10:36:00	0.90
27-Jul-18	10:38:00	4.60
27-Jul-18	10:40:00	4.20
27-Jul-18	10:42:00	4.00
27-Jul-18	10:44:00	3.70
27-Jul-18	10:46:00	3.70
27-Jul-18	10:48:00	3.70
27-Jul-18	10:50:00	3.70
27-Jul-18	10:52:00	3.70
27-Jul-18	10:54:00	4.10
27-Jul-18	10:56:00	4.10
27-Jul-18	10:58:00	4.10
27-Jul-18	11:00:00	4.10
27-Jul-18	11:02:00	4.10
27-Jul-18	11:04:00	3.70
27-Jul-18	11:06:00	3.70
27-Jul-18	11:08:00	4.10
27-Jul-18	11:10:00	0.10
27-Jul-18	11:12:00	0.10
27-Jul-18	11:14:00	0.10
27-Jul-18	11:16:00	0.10
27-Jul-18	11:18:00	0.40

27-Jul-18	11:20:00	0.70
27-Jul-18	11:22:00	0.70
27-Jul-18	11:24:00	0.40
27-Jul-18	11:26:00	0.10
27-Jul-18	11:28:00	0.10
27-Jul-18	11:30:00	0.10
27-Jul-18	11:32:00	0.10
27-Jul-18	11:34:00	0.40
27-Jul-18	11:36:00	0.40
27-Jul-18	11:38:00	0.40
27-Jul-18	11:40:00	0.10
27-Jul-18	11:42:00	0.10
27-Jul-18	11:44:00	0.10
27-Jul-18	11:46:00	0.10
27-Jul-18	11:48:00	0.10
27-Jul-18	11:50:00	0.20
27-Jul-18	11:52:00	0.40
27-Jul-18	11:54:00	0.40
27-Jul-18	11:56:00	0.40
27-Jul-18	11:58:00	0.40
27-Jul-18	12:00:00	0.00
27-Jul-18	12:02:00	0.00
27-Jul-18	12:04:00	0.00
27-Jul-18	12:06:00	0.00
27-Jul-18	12:08:00	0.00
27-Jul-18	12:10:00	0.00
27-Jul-18	12:12:00	0.00
27-Jul-18	12:14:00	0.00
27-Jul-18	12:16:00	0.00
27-Jul-18	12:18:00	0.00
27-Jul-18	12:20:00	0.30
27-Jul-18	12:22:00	0.40
27-Jul-18	12:24:00	0.10
27-Jul-18	12:26:00	0.10
27-Jul-18	12:28:00	0.10
27-Jul-18	12:30:00	0.10
27-Jul-18	12:32:00	0.10
27-Jul-18	12:34:00	0.20
27-Jul-18	12:36:00	0.20
27-Jul-18	12:38:00	0.20
27-Jul-18	12:40:00	0.20
27-Jul-18	12:42:00	0.20
27-Jul-18	12:44:00	0.00
27-Jul-18	12:46:00	0.00
27-Jul-18	12:48:00	0.00
27-Jul-18	12:50:00	0.00
27-Jul-18	12:52:00	0.00

27-Jul-18	12:54:00	0.00
27-Jul-18	12:56:00	0.00
27-Jul-18	12:58:00	0.40
27-Jul-18	13:00:00	0.40
27-Jul-18	13:02:00	0.00
27-Jul-18	13:04:00	0.00
27-Jul-18	13:06:00	0.00
27-Jul-18	13:08:00	0.00
27-Jul-18	13:10:00	0.00
27-Jul-18	13:12:00	0.00
27-Jul-18	13:14:00	0.00
27-Jul-18	13:16:00	0.00
27-Jul-18	13:18:00	0.00
27-Jul-18	13:20:00	0.00
27-Jul-18	13:22:00	0.40
27-Jul-18	13:24:00	0.70
27-Jul-18	13:26:00	0.70
27-Jul-18	13:28:00	0.40
27-Jul-18	13:30:00	0.10
27-Jul-18	13:32:00	0.10
27-Jul-18	13:34:00	0.10
27-Jul-18	13:36:00	0.10
27-Jul-18	13:38:00	0.10
27-Jul-18	13:40:00	0.00
27-Jul-18	13:42:00	0.00
27-Jul-18	13:44:00	0.00
27-Jul-18	13:46:00	0.00
27-Jul-18	13:48:00	0.00
27-Jul-18	13:50:00	0.00
27-Jul-18	13:52:00	0.00
27-Jul-18	13:54:00	0.00
27-Jul-18	13:56:00	0.00
27-Jul-18	13:58:00	0.00
27-Jul-18	14:00:00	0.00
27-Jul-18	14:02:00	0.00
27-Jul-18	14:04:00	0.00
27-Jul-18	14:06:00	0.00
27-Jul-18	14:08:00	0.00
27-Jul-18	14:10:00	0.00
27-Jul-18	14:12:00	0.00
27-Jul-18	14:14:00	0.00
27-Jul-18	14:16:00	0.00
27-Jul-18	14:18:00	0.00
27-Jul-18	14:20:00	0.00
27-Jul-18	14:22:00	0.00
27-Jul-18	14:24:00	0.00
27-Jul-18	14:26:00	0.00

27-Jul-18	14:28:00	0.00
27-Jul-18	14:30:00	0.00
27-Jul-18	14:32:00	0.00
27-Jul-18	14:34:00	0.00
27-Jul-18	14:36:00	0.00
27-Jul-18	14:38:00	0.00
27-Jul-18	14:40:00	0.00
27-Jul-18	14:42:00	0.00
27-Jul-18	14:44:00	0.00
27-Jul-18	14:46:00	0.00
27-Jul-18	14:48:00	0.00
27-Jul-18	14:50:00	0.00
27-Jul-18	14:52:00	0.00
27-Jul-18	14:54:00	0.00
27-Jul-18	14:56:00	0.00
27-Jul-18	14:58:00	0.00
27-Jul-18	15:00:00	0.00
27-Jul-18	15:02:00	0.00
27-Jul-18	15:04:00	0.00
27-Jul-18	15:06:00	0.00
27-Jul-18	15:08:00	0.00
27-Jul-18	15:10:00	0.00
27-Jul-18	15:12:00	0.00
27-Jul-18	15:14:00	0.00
27-Jul-18	15:16:00	0.00
27-Jul-18	15:18:00	0.00
27-Jul-18	15:20:00	0.00
27-Jul-18	15:22:00	0.00
27-Jul-18	15:24:00	0.00
27-Jul-18	15:26:00	0.00
27-Jul-18	15:28:00	0.00
27-Jul-18	15:30:00	0.00
27-Jul-18	15:32:00	0.00
27-Jul-18	15:34:00	0.00
27-Jul-18	15:36:00	0.00
27-Jul-18	15:38:00	0.00
27-Jul-18	15:40:00	0.00
27-Jul-18	15:42:00	0.00
27-Jul-18	15:44:00	0.00
27-Jul-18	15:46:00	0.00
27-Jul-18	15:48:00	0.00
27-Jul-18	15:50:00	0.00
27-Jul-18	15:52:00	0.00
27-Jul-18	15:54:00	0.00
27-Jul-18	15:56:00	0.00
27-Jul-18	15:58:00	0.00
27-Jul-18	16:00:00	0.20

27-Jul-18	16:02:00	0.20
27-Jul-18	16:04:00	0.20
27-Jul-18	16:06:00	0.20
27-Jul-18	16:08:00	0.20
27-Jul-18	16:10:00	0.30
27-Jul-18	16:12:00	0.30
27-Jul-18	16:14:00	0.30
27-Jul-18	16:16:00	0.30
27-Jul-18	16:18:00	0.30
27-Jul-18	16:20:00	0.20
27-Jul-18	16:22:00	0.20
27-Jul-18	16:24:00	0.20
27-Jul-18	16:26:00	0.20
27-Jul-18	16:28:00	0.20
27-Jul-18	16:30:00	0.10
27-Jul-18	16:32:00	0.10
27-Jul-18	16:34:00	0.10
27-Jul-18	16:36:00	0.10
27-Jul-18	16:38:00	0.10
27-Jul-18	16:40:00	0.10
27-Jul-18	16:42:00	0.10
27-Jul-18	16:44:00	0.10
27-Jul-18	16:46:00	0.10
27-Jul-18	16:48:00	0.10
27-Jul-18	16:50:00	0.10
27-Jul-18	16:52:00	0.10
27-Jul-18	16:54:00	0.10
27-Jul-18	16:56:00	0.10
27-Jul-18	16:58:00	0.10
27-Jul-18	17:00:00	0.00
27-Jul-18	17:02:00	0.00
27-Jul-18	17:04:00	0.00
27-Jul-18	17:06:00	0.00
27-Jul-18	17:08:00	0.00
27-Jul-18	17:10:00	0.00
27-Jul-18	17:12:00	0.00
27-Jul-18	17:14:00	0.00
27-Jul-18	17:16:00	0.00
27-Jul-18	17:18:00	0.00
27-Jul-18	17:20:00	0.00
27-Jul-18	17:22:00	0.00
27-Jul-18	17:24:00	0.00
27-Jul-18	17:26:00	0.00
27-Jul-18	17:28:00	0.00
27-Jul-18	17:30:00	0.10
27-Jul-18	17:32:00	0.10
27-Jul-18	17:34:00	0.10

27-Jul-18	17:36:00	0.10
27-Jul-18	17:38:00	0.10
27-Jul-18	17:40:00	0.10
27-Jul-18	17:42:00	0.10
27-Jul-18	17:44:00	0.10
27-Jul-18	17:46:00	0.10
27-Jul-18	17:48:00	0.10
27-Jul-18	17:50:00	0.00
27-Jul-18	17:52:00	0.00
27-Jul-18	17:54:00	0.00
27-Jul-18	17:56:00	0.00
27-Jul-18	17:58:00	0.00
27-Jul-18	18:00:00	0.00
27-Jul-18	18:02:00	0.00
27-Jul-18	18:04:00	0.00
27-Jul-18	18:06:00	0.00
27-Jul-18	18:08:00	0.00
27-Jul-18	18:10:00	0.00
27-Jul-18	18:12:00	0.00
27-Jul-18	18:14:00	0.00
27-Jul-18	18:16:00	0.00
27-Jul-18	18:18:00	0.00
27-Jul-18	18:20:00	0.00
27-Jul-18	18:22:00	0.00
27-Jul-18	18:24:00	0.00
27-Jul-18	18:26:00	0.00
27-Jul-18	18:28:00	0.00
27-Jul-18	18:30:00	0.00
27-Jul-18	18:32:00	0.00
27-Jul-18	18:34:00	0.00
27-Jul-18	18:36:00	0.00
27-Jul-18	18:38:00	0.00
27-Jul-18	18:40:00	0.00
27-Jul-18	18:42:00	0.00
27-Jul-18	18:44:00	0.00
27-Jul-18	18:46:00	0.00
27-Jul-18	18:48:00	0.00
27-Jul-18	18:50:00	0.00
27-Jul-18	18:52:00	0.00
27-Jul-18	18:54:00	0.00
27-Jul-18	18:56:00	0.00
27-Jul-18	18:58:00	0.00
27-Jul-18	19:00:00	0.00

3-Aug-18	6:00:00	0.00
3-Aug-18	6:02:00	0.00
3-Aug-18	6:04:00	0.00
3-Aug-18	6:06:00	0.00
3-Aug-18	6:08:00	0.00
3-Aug-18	6:10:00	0.00
3-Aug-18	6:12:00	0.00
3-Aug-18	6:14:00	0.00
3-Aug-18	6:16:00	0.00
3-Aug-18	6:18:00	0.00
3-Aug-18	6:20:00	0.00
3-Aug-18	6:22:00	0.00
3-Aug-18	6:24:00	0.00
3-Aug-18	6:26:00	0.00
3-Aug-18	6:28:00	0.00
3-Aug-18	6:30:00	0.00
3-Aug-18	6:32:00	0.00
3-Aug-18	6:34:00	0.00
3-Aug-18	6:36:00	0.00
3-Aug-18	6:38:00	0.00
3-Aug-18	6:40:00	0.00
3-Aug-18	6:42:00	0.00
3-Aug-18	6:44:00	0.00
3-Aug-18	6:46:00	0.00
3-Aug-18	6:48:00	0.00
3-Aug-18	6:50:00	0.00
3-Aug-18	6:52:00	0.00
3-Aug-18	6:54:00	0.00
3-Aug-18	6:56:00	0.00
3-Aug-18	6:58:00	0.00
3-Aug-18	7:00:00	0.00
3-Aug-18	7:02:00	0.00
3-Aug-18	7:04:00	0.00
3-Aug-18	7:06:00	0.00
3-Aug-18	7:08:00	0.00
3-Aug-18	7:10:00	0.00
3-Aug-18	7:12:00	0.00
3-Aug-18	7:14:00	0.00
3-Aug-18	7:16:00	0.00
3-Aug-18	7:18:00	0.00
3-Aug-18	7:20:00	0.00
3-Aug-18	7:22:00	0.00
3-Aug-18	7:24:00	0.00
3-Aug-18	7:26:00	0.00
3-Aug-18	7:28:00	0.10
3-Aug-18	7:30:00	0.10
3-Aug-18	7:32:00	0.10

3-Aug-18	7:34:00	0.10
3-Aug-18	7:36:00	0.10
3-Aug-18	7:38:00	0.00
3-Aug-18	7:40:00	0.00
3-Aug-18	7:42:00	0.00
3-Aug-18	7:44:00	0.00
3-Aug-18	7:46:00	0.00
3-Aug-18	7:48:00	0.10
3-Aug-18	7:50:00	0.10
3-Aug-18	7:52:00	0.10
3-Aug-18	7:54:00	0.10
3-Aug-18	7:56:00	0.10
3-Aug-18	7:58:00	0.00
3-Aug-18	8:00:00	0.00
3-Aug-18	8:02:00	0.00
3-Aug-18	8:04:00	0.00
3-Aug-18	8:06:00	0.00
3-Aug-18	8:08:00	0.00
3-Aug-18	8:10:00	0.00
3-Aug-18	8:12:00	0.00
3-Aug-18	8:14:00	0.00
3-Aug-18	8:16:00	0.00
3-Aug-18	8:18:00	0.20
3-Aug-18	8:20:00	0.20
3-Aug-18	8:22:00	0.20
3-Aug-18	8:24:00	0.20
3-Aug-18	8:26:00	0.20
3-Aug-18	8:28:00	0.30
3-Aug-18	8:30:00	0.40
3-Aug-18	8:32:00	0.40
3-Aug-18	8:34:00	0.40
3-Aug-18	8:36:00	0.40
3-Aug-18	8:38:00	0.40
3-Aug-18	8:40:00	0.20
3-Aug-18	8:42:00	0.10
3-Aug-18	8:44:00	0.10
3-Aug-18	8:46:00	0.10
3-Aug-18	8:48:00	0.40
3-Aug-18	8:50:00	0.70
3-Aug-18	8:52:00	1.00
3-Aug-18	8:54:00	1.00
3-Aug-18	8:56:00	1.00
3-Aug-18	8:58:00	1.00
3-Aug-18	9:00:00	1.00
3-Aug-18	9:02:00	0.80
3-Aug-18	9:04:00	0.80
3-Aug-18	9:06:00	0.70

3-Aug-18	9:08:00	0.00
3-Aug-18	9:10:00	0.00
3-Aug-18	9:12:00	0.00
3-Aug-18	9:14:00	0.00
3-Aug-18	9:16:00	0.00
3-Aug-18	9:18:00	0.00
3-Aug-18	9:20:00	0.00
3-Aug-18	9:22:00	0.00
3-Aug-18	9:24:00	0.00
3-Aug-18	9:26:00	0.00
3-Aug-18	9:28:00	0.00
3-Aug-18	9:30:00	0.00
3-Aug-18	9:32:00	0.00
3-Aug-18	9:34:00	0.00
3-Aug-18	9:36:00	0.00
3-Aug-18	9:38:00	0.00
3-Aug-18	9:40:00	0.00
3-Aug-18	9:42:00	0.00
3-Aug-18	9:44:00	0.00
3-Aug-18	9:46:00	0.00
3-Aug-18	9:48:00	0.30
3-Aug-18	9:50:00	0.30
3-Aug-18	9:52:00	0.30
3-Aug-18	9:54:00	0.30
3-Aug-18	9:56:00	0.30
3-Aug-18	9:58:00	0.80
3-Aug-18	10:00:00	5.30
3-Aug-18	10:02:00	4.50
3-Aug-18	10:04:00	4.40
3-Aug-18	10:06:00	4.40
3-Aug-18	10:08:00	4.40
3-Aug-18	10:10:00	4.40
3-Aug-18	10:12:00	4.10
3-Aug-18	10:14:00	4.10
3-Aug-18	10:16:00	4.10
3-Aug-18	10:18:00	4.10
3-Aug-18	10:20:00	4.10
3-Aug-18	10:22:00	3.80
3-Aug-18	10:24:00	3.80
3-Aug-18	10:26:00	3.80
3-Aug-18	10:28:00	3.80
3-Aug-18	10:30:00	3.80
3-Aug-18	10:32:00	3.80
3-Aug-18	10:34:00	3.90
3-Aug-18	10:36:00	3.90
3-Aug-18	10:38:00	3.90
3-Aug-18	10:40:00	3.90

3-Aug-18	10:42:00	4.10
3-Aug-18	10:44:00	4.10
3-Aug-18	10:46:00	3.80
3-Aug-18	10:48:00	3.80
3-Aug-18	10:50:00	0.10
3-Aug-18	10:52:00	0.10
3-Aug-18	10:54:00	0.10
3-Aug-18	10:56:00	0.10
3-Aug-18	10:58:00	0.10
3-Aug-18	11:00:00	0.10
3-Aug-18	11:02:00	0.10
3-Aug-18	11:04:00	0.10
3-Aug-18	11:06:00	0.10
3-Aug-18	11:08:00	0.10
3-Aug-18	11:10:00	0.70
3-Aug-18	11:12:00	0.70
3-Aug-18	11:14:00	0.70
3-Aug-18	11:16:00	0.40
3-Aug-18	11:18:00	0.40
3-Aug-18	11:20:00	0.40
3-Aug-18	11:22:00	0.40
3-Aug-18	11:24:00	0.10
3-Aug-18	11:26:00	0.10
3-Aug-18	11:28:00	0.10
3-Aug-18	11:30:00	0.10
3-Aug-18	11:32:00	0.10
3-Aug-18	11:34:00	0.00
3-Aug-18	11:36:00	0.00
3-Aug-18	11:38:00	0.00
3-Aug-18	11:40:00	0.00
3-Aug-18	11:42:00	0.00
3-Aug-18	11:44:00	0.00
3-Aug-18	11:46:00	0.00
3-Aug-18	11:48:00	0.00
3-Aug-18	11:50:00	0.40
3-Aug-18	11:52:00	0.40
3-Aug-18	11:54:00	0.10
3-Aug-18	11:56:00	0.10
3-Aug-18	11:58:00	0.10
3-Aug-18	12:00:00	0.10
3-Aug-18	12:02:00	0.10
3-Aug-18	12:04:00	0.00
3-Aug-18	12:06:00	0.00
3-Aug-18	12:08:00	0.40
3-Aug-18	12:10:00	0.10
3-Aug-18	12:12:00	0.10
3-Aug-18	12:14:00	0.10

3-Aug-18	12:16:00	0.10
3-Aug-18	12:18:00	0.40
3-Aug-18	12:20:00	0.10
3-Aug-18	12:22:00	0.10
3-Aug-18	12:24:00	0.10
3-Aug-18	12:26:00	0.10
3-Aug-18	12:28:00	0.10
3-Aug-18	12:30:00	0.00
3-Aug-18	12:32:00	0.00
3-Aug-18	12:34:00	0.00
3-Aug-18	12:36:00	0.00
3-Aug-18	12:38:00	0.00
3-Aug-18	12:40:00	0.00
3-Aug-18	12:42:00	0.00
3-Aug-18	12:44:00	0.00
3-Aug-18	12:46:00	0.00
3-Aug-18	12:48:00	0.00
3-Aug-18	12:50:00	0.00
3-Aug-18	12:52:00	0.00
3-Aug-18	12:54:00	0.00
3-Aug-18	12:56:00	0.40
3-Aug-18	12:58:00	0.70
3-Aug-18	13:00:00	1.00
3-Aug-18	13:02:00	1.30
3-Aug-18	13:04:00	1.00
3-Aug-18	13:06:00	0.70
3-Aug-18	13:08:00	0.70
3-Aug-18	13:10:00	0.10
3-Aug-18	13:12:00	0.10
3-Aug-18	13:14:00	0.10
3-Aug-18	13:16:00	0.10
3-Aug-18	13:18:00	0.40
3-Aug-18	13:20:00	0.70
3-Aug-18	13:22:00	0.70
3-Aug-18	13:24:00	0.70
3-Aug-18	13:26:00	0.70
3-Aug-18	13:28:00	0.10
3-Aug-18	13:30:00	0.10
3-Aug-18	13:32:00	0.10
3-Aug-18	13:34:00	0.10
3-Aug-18	13:36:00	0.10
3-Aug-18	13:38:00	0.00
3-Aug-18	13:40:00	0.00
3-Aug-18	13:42:00	0.00
3-Aug-18	13:44:00	0.00
3-Aug-18	13:46:00	0.00
3-Aug-18	13:48:00	0.00

3-Aug-18	13:50:00	0.00
3-Aug-18	13:52:00	0.00
3-Aug-18	13:54:00	0.00
3-Aug-18	13:56:00	0.00
3-Aug-18	13:58:00	0.00
3-Aug-18	14:00:00	0.00
3-Aug-18	14:02:00	0.00
3-Aug-18	14:04:00	0.00
3-Aug-18	14:06:00	0.00
3-Aug-18	14:08:00	0.00
3-Aug-18	14:10:00	0.00
3-Aug-18	14:12:00	0.00
3-Aug-18	14:14:00	0.00
3-Aug-18	14:16:00	0.00
3-Aug-18	14:18:00	0.00
3-Aug-18	14:20:00	0.00
3-Aug-18	14:22:00	0.00
3-Aug-18	14:24:00	0.00
3-Aug-18	14:26:00	0.00
3-Aug-18	14:28:00	0.20
3-Aug-18	14:30:00	0.20
3-Aug-18	14:32:00	0.20
3-Aug-18	14:34:00	0.20
3-Aug-18	14:36:00	0.20
3-Aug-18	14:38:00	0.40
3-Aug-18	14:40:00	0.40
3-Aug-18	14:42:00	0.40
3-Aug-18	14:44:00	0.40
3-Aug-18	14:46:00	0.40
3-Aug-18	14:48:00	0.30
3-Aug-18	14:50:00	0.30
3-Aug-18	14:52:00	0.30
3-Aug-18	14:54:00	0.30
3-Aug-18	14:56:00	0.30
3-Aug-18	14:58:00	0.20
3-Aug-18	15:00:00	0.20
3-Aug-18	15:02:00	0.20
3-Aug-18	15:04:00	0.20
3-Aug-18	15:06:00	0.20
3-Aug-18	15:08:00	0.10
3-Aug-18	15:10:00	0.10
3-Aug-18	15:12:00	0.10
3-Aug-18	15:14:00	0.10
3-Aug-18	15:16:00	0.10
3-Aug-18	15:18:00	0.20
3-Aug-18	15:20:00	0.20
3-Aug-18	15:22:00	0.20

3-Aug-18	15:24:00	0.20
3-Aug-18	15:26:00	0.10
3-Aug-18	15:28:00	0.10
3-Aug-18	15:30:00	0.10
3-Aug-18	15:32:00	0.10
3-Aug-18	15:34:00	0.10
3-Aug-18	15:36:00	0.10
3-Aug-18	15:38:00	0.10
3-Aug-18	15:40:00	0.10
3-Aug-18	15:42:00	0.10
3-Aug-18	15:44:00	0.10
3-Aug-18	15:46:00	0.00
3-Aug-18	15:48:00	0.00
3-Aug-18	15:50:00	0.00
3-Aug-18	15:52:00	0.00
3-Aug-18	15:54:00	0.00
3-Aug-18	15:56:00	0.10
3-Aug-18	15:58:00	0.10
3-Aug-18	16:00:00	0.10
3-Aug-18	16:02:00	0.10
3-Aug-18	16:04:00	0.10
3-Aug-18	16:06:00	0.00
3-Aug-18	16:08:00	0.00
3-Aug-18	16:10:00	0.00
3-Aug-18	16:12:00	0.00
3-Aug-18	16:14:00	0.00
3-Aug-18	16:16:00	0.10
3-Aug-18	16:18:00	0.10
3-Aug-18	16:20:00	0.10
3-Aug-18	16:22:00	0.10
3-Aug-18	16:24:00	0.10
3-Aug-18	16:26:00	0.10
3-Aug-18	16:28:00	0.10
3-Aug-18	16:30:00	0.10
3-Aug-18	16:32:00	0.10
3-Aug-18	16:34:00	0.10
3-Aug-18	16:36:00	0.20
3-Aug-18	16:38:00	0.20
3-Aug-18	16:40:00	0.20
3-Aug-18	16:42:00	0.20
3-Aug-18	16:44:00	0.20
3-Aug-18	16:46:00	0.20
3-Aug-18	16:48:00	0.20
3-Aug-18	16:50:00	0.20
3-Aug-18	16:52:00	0.20
3-Aug-18	16:54:00	0.20
3-Aug-18	16:56:00	0.10

3-Aug-18	16:58:00	0.10
3-Aug-18	17:00:00	0.10
3-Aug-18	17:02:00	0.10
3-Aug-18	17:04:00	0.10
3-Aug-18	17:06:00	0.10
3-Aug-18	17:08:00	0.10
3-Aug-18	17:10:00	0.10
3-Aug-18	17:12:00	0.10
3-Aug-18	17:14:00	0.10
3-Aug-18	17:16:00	0.10
3-Aug-18	17:18:00	0.10
3-Aug-18	17:20:00	0.10
3-Aug-18	17:22:00	0.10
3-Aug-18	17:24:00	0.10
3-Aug-18	17:26:00	0.00
3-Aug-18	17:28:00	0.00
3-Aug-18	17:30:00	0.00
3-Aug-18	17:32:00	0.00
3-Aug-18	17:34:00	0.00
3-Aug-18	17:36:00	0.00
3-Aug-18	17:38:00	0.00
3-Aug-18	17:40:00	0.00
3-Aug-18	17:42:00	0.00
3-Aug-18	17:44:00	0.00
3-Aug-18	17:46:00	0.00
3-Aug-18	17:48:00	0.00
3-Aug-18	17:50:00	0.00
3-Aug-18	17:52:00	0.00
3-Aug-18	17:54:00	0.00
3-Aug-18	17:56:00	0.00
3-Aug-18	17:58:00	0.00
3-Aug-18	18:00:00	0.00
3-Aug-18	18:02:00	0.00
3-Aug-18	18:04:00	0.00
3-Aug-18	18:06:00	0.10
3-Aug-18	18:08:00	0.10
3-Aug-18	18:10:00	0.10
3-Aug-18	18:12:00	0.10
3-Aug-18	18:14:00	0.10
3-Aug-18	18:16:00	0.10
3-Aug-18	18:18:00	0.10
3-Aug-18	18:20:00	0.10
3-Aug-18	18:22:00	0.10
3-Aug-18	18:24:00	0.10
3-Aug-18	18:26:00	0.00
3-Aug-18	18:28:00	0.00
3-Aug-18	18:30:00	0.00

3-Aug-18	18:32:00	0.00
3-Aug-18	18:34:00	0.00
3-Aug-18	18:36:00	0.00
3-Aug-18	18:38:00	0.00
3-Aug-18	18:40:00	0.00
3-Aug-18	18:42:00	0.00
3-Aug-18	18:44:00	0.00
3-Aug-18	18:46:00	0.00
3-Aug-18	18:48:00	0.00
3-Aug-18	18:50:00	0.00
3-Aug-18	18:52:00	0.00
3-Aug-18	18:54:00	0.00
3-Aug-18	18:56:00	0.00
3-Aug-18	18:58:00	0.00
3-Aug-18	19:00:00	0.00
21-Aug-18	6:00:00	0.00
21-Aug-18	6:02:00	0.00
21-Aug-18	6:04:00	0.00
21-Aug-18	6:06:00	0.00
21-Aug-18	6:08:00	0.00
21-Aug-18	6:10:00	0.00
21-Aug-18	6:12:00	0.00
21-Aug-18	6:14:00	0.00
21-Aug-18	6:16:00	0.00
21-Aug-18	6:18:00	0.00
21-Aug-18	6:20:00	0.00
21-Aug-18	6:22:00	0.00
21-Aug-18	6:24:00	0.00
21-Aug-18	6:26:00	0.00
21-Aug-18	6:28:00	0.00
21-Aug-18	6:30:00	0.00
21-Aug-18	6:32:00	0.00
21-Aug-18	6:34:00	0.00
21-Aug-18	6:36:00	0.00
21-Aug-18	6:38:00	0.00
21-Aug-18	6:40:00	0.00
21-Aug-18	6:42:00	0.00
21-Aug-18	6:44:00	0.00
21-Aug-18	6:46:00	0.00
21-Aug-18	6:48:00	0.00
21-Aug-18	6:50:00	0.00
21-Aug-18	6:52:00	0.00
21-Aug-18	6:54:00	0.00
21-Aug-18	6:56:00	0.10
21-Aug-18	6:58:00	0.10
21-Aug-18	7:00:00	0.10
21-Aug-18	7:02:00	0.10

21-Aug-18	7:04:00	0.10
21-Aug-18	7:06:00	0.00
21-Aug-18	7:08:00	0.00
21-Aug-18	7:10:00	0.00
21-Aug-18	7:12:00	0.00
21-Aug-18	7:14:00	0.00
21-Aug-18	7:16:00	0.00
21-Aug-18	7:18:00	0.00
21-Aug-18	7:20:00	0.00
21-Aug-18	7:22:00	0.00
21-Aug-18	7:24:00	0.00
21-Aug-18	7:26:00	0.00
21-Aug-18	7:28:00	0.00
21-Aug-18	7:30:00	0.00
21-Aug-18	7:32:00	0.00
21-Aug-18	7:34:00	0.00
21-Aug-18	7:36:00	0.00
21-Aug-18	7:38:00	0.00
21-Aug-18	7:40:00	0.00
21-Aug-18	7:42:00	0.00
21-Aug-18	7:44:00	0.00
21-Aug-18	7:46:00	0.00
21-Aug-18	7:48:00	0.00
21-Aug-18	7:50:00	0.00
21-Aug-18	7:52:00	0.00
21-Aug-18	7:54:00	0.00
21-Aug-18	7:56:00	0.00
21-Aug-18	7:58:00	0.00
21-Aug-18	8:00:00	0.00
21-Aug-18	8:02:00	0.00
21-Aug-18	8:04:00	0.00
21-Aug-18	8:06:00	0.10
21-Aug-18	8:08:00	0.10
21-Aug-18	8:10:00	0.10
21-Aug-18	8:12:00	0.10
21-Aug-18	8:14:00	0.10
21-Aug-18	8:16:00	0.10
21-Aug-18	8:18:00	0.10
21-Aug-18	8:20:00	0.10
21-Aug-18	8:22:00	0.10
21-Aug-18	8:24:00	0.10
21-Aug-18	8:26:00	0.20
21-Aug-18	8:28:00	0.20
21-Aug-18	8:30:00	0.20
21-Aug-18	8:32:00	0.20
21-Aug-18	8:34:00	0.20
21-Aug-18	8:36:00	0.20

21-Aug-18	8:38:00	0.20
21-Aug-18	8:40:00	0.20
21-Aug-18	8:42:00	0.20
21-Aug-18	8:44:00	0.20
21-Aug-18	8:46:00	0.20
21-Aug-18	8:48:00	0.40
21-Aug-18	8:50:00	0.40
21-Aug-18	8:52:00	0.40
21-Aug-18	8:54:00	0.40
21-Aug-18	8:56:00	0.40
21-Aug-18	8:58:00	0.40
21-Aug-18	9:00:00	0.40
21-Aug-18	9:02:00	0.40
21-Aug-18	9:04:00	0.40
21-Aug-18	9:06:00	0.10
21-Aug-18	9:08:00	0.10
21-Aug-18	9:10:00	0.10
21-Aug-18	9:12:00	0.10
21-Aug-18	9:14:00	0.10
21-Aug-18	9:16:00	0.00
21-Aug-18	9:18:00	0.00
21-Aug-18	9:20:00	0.00
21-Aug-18	9:22:00	0.00
21-Aug-18	9:24:00	0.00
21-Aug-18	9:26:00	0.10
21-Aug-18	9:28:00	0.10
21-Aug-18	9:30:00	0.10
21-Aug-18	9:32:00	0.40
21-Aug-18	9:34:00	6.00
21-Aug-18	9:36:00	5.00
21-Aug-18	9:38:00	4.40
21-Aug-18	9:40:00	4.10
21-Aug-18	9:42:00	3.80
21-Aug-18	9:44:00	3.80
21-Aug-18	9:46:00	3.80
21-Aug-18	9:48:00	3.80
21-Aug-18	9:50:00	3.80
21-Aug-18	9:52:00	3.80
21-Aug-18	9:54:00	3.80
21-Aug-18	9:56:00	3.80
21-Aug-18	9:58:00	3.80
21-Aug-18	10:00:00	3.80
21-Aug-18	10:02:00	3.60
21-Aug-18	10:04:00	3.60
21-Aug-18	10:06:00	3.60
21-Aug-18	10:08:00	3.60
21-Aug-18	10:10:00	3.60

21-Aug-18	10:12:00	3.80
21-Aug-18	10:14:00	0.60
21-Aug-18	10:16:00	0.10
21-Aug-18	10:18:00	0.10
21-Aug-18	10:20:00	0.10
21-Aug-18	10:22:00	0.10
21-Aug-18	10:24:00	0.00
21-Aug-18	10:26:00	0.00
21-Aug-18	10:28:00	0.00
21-Aug-18	10:30:00	0.00
21-Aug-18	10:32:00	0.00
21-Aug-18	10:34:00	0.20
21-Aug-18	10:36:00	0.20
21-Aug-18	10:38:00	0.20
21-Aug-18	10:40:00	0.20
21-Aug-18	10:42:00	0.20
21-Aug-18	10:44:00	0.10
21-Aug-18	10:46:00	0.10
21-Aug-18	10:48:00	0.10
21-Aug-18	10:50:00	0.10
21-Aug-18	10:52:00	0.10
21-Aug-18	10:54:00	0.40
21-Aug-18	10:56:00	0.40
21-Aug-18	10:58:00	0.40
21-Aug-18	11:00:00	0.40
21-Aug-18	11:02:00	0.40
21-Aug-18	11:04:00	0.40
21-Aug-18	11:06:00	0.40
21-Aug-18	11:08:00	0.40
21-Aug-18	11:10:00	0.40
21-Aug-18	11:12:00	0.10
21-Aug-18	11:14:00	0.10
21-Aug-18	11:16:00	0.10
21-Aug-18	11:18:00	0.10
21-Aug-18	11:20:00	0.10
21-Aug-18	11:22:00	0.20
21-Aug-18	11:24:00	0.20
21-Aug-18	11:26:00	0.20
21-Aug-18	11:28:00	0.20
21-Aug-18	11:30:00	0.20
21-Aug-18	11:32:00	0.00
21-Aug-18	11:34:00	0.00
21-Aug-18	11:36:00	0.00
21-Aug-18	11:38:00	0.00
21-Aug-18	11:40:00	0.00
21-Aug-18	11:42:00	0.40
21-Aug-18	11:44:00	0.40

21-Aug-18	11:46:00	0.40
21-Aug-18	11:48:00	0.40
21-Aug-18	11:50:00	0.40
21-Aug-18	11:52:00	0.30
21-Aug-18	11:54:00	0.10
21-Aug-18	11:56:00	0.10
21-Aug-18	11:58:00	0.10
21-Aug-18	12:00:00	0.10
21-Aug-18	12:02:00	0.10
21-Aug-18	12:04:00	0.20
21-Aug-18	12:06:00	0.20
21-Aug-18	12:08:00	0.20
21-Aug-18	12:10:00	0.20
21-Aug-18	12:12:00	0.20
21-Aug-18	12:14:00	0.00
21-Aug-18	12:16:00	0.00
21-Aug-18	12:18:00	0.00
21-Aug-18	12:20:00	0.00
21-Aug-18	12:22:00	0.00
21-Aug-18	12:24:00	0.40
21-Aug-18	12:26:00	0.40
21-Aug-18	12:28:00	0.40
21-Aug-18	12:30:00	0.40
21-Aug-18	12:32:00	0.40
21-Aug-18	12:34:00	0.00
21-Aug-18	12:36:00	0.00
21-Aug-18	12:38:00	0.00
21-Aug-18	12:40:00	0.00
21-Aug-18	12:42:00	0.00
21-Aug-18	12:44:00	0.00
21-Aug-18	12:46:00	0.00
21-Aug-18	12:48:00	0.00
21-Aug-18	12:50:00	0.00
21-Aug-18	12:52:00	0.00
21-Aug-18	12:54:00	0.00
21-Aug-18	12:56:00	0.00
21-Aug-18	12:58:00	0.00
21-Aug-18	13:00:00	0.00
21-Aug-18	13:02:00	0.00
21-Aug-18	13:04:00	0.00
21-Aug-18	13:06:00	0.00
21-Aug-18	13:08:00	0.00
21-Aug-18	13:10:00	0.00
21-Aug-18	13:12:00	0.00
21-Aug-18	13:14:00	0.40
21-Aug-18	13:16:00	0.40
21-Aug-18	13:18:00	0.10

21-Aug-18	13:20:00	0.10
21-Aug-18	13:22:00	0.10
21-Aug-18	13:24:00	0.10
21-Aug-18	13:26:00	0.40
21-Aug-18	13:28:00	0.10
21-Aug-18	13:30:00	0.10
21-Aug-18	13:32:00	0.10
21-Aug-18	13:34:00	0.10
21-Aug-18	13:36:00	0.10
21-Aug-18	13:38:00	0.00
21-Aug-18	13:40:00	0.00
21-Aug-18	13:42:00	0.00
21-Aug-18	13:44:00	0.00
21-Aug-18	13:46:00	0.00
21-Aug-18	13:48:00	0.00
21-Aug-18	13:50:00	0.00
21-Aug-18	13:52:00	0.00
21-Aug-18	13:54:00	0.00
21-Aug-18	13:56:00	0.00
21-Aug-18	13:58:00	0.00
21-Aug-18	14:00:00	0.00
21-Aug-18	14:02:00	0.00
21-Aug-18	14:04:00	0.00
21-Aug-18	14:06:00	0.00
21-Aug-18	14:08:00	0.00
21-Aug-18	14:10:00	0.00
21-Aug-18	14:12:00	0.00
21-Aug-18	14:14:00	0.00
21-Aug-18	14:16:00	0.00
21-Aug-18	14:18:00	0.00
21-Aug-18	14:20:00	0.00
21-Aug-18	14:22:00	0.00
21-Aug-18	14:24:00	0.00
21-Aug-18	14:26:00	0.00
21-Aug-18	14:28:00	0.00
21-Aug-18	14:30:00	0.00
21-Aug-18	14:32:00	0.00
21-Aug-18	14:34:00	0.00
21-Aug-18	14:36:00	0.00
21-Aug-18	14:38:00	0.00
21-Aug-18	14:40:00	0.00
21-Aug-18	14:42:00	0.00
21-Aug-18	14:44:00	0.00
21-Aug-18	14:46:00	0.00
21-Aug-18	14:48:00	0.20
21-Aug-18	14:50:00	0.20
21-Aug-18	14:52:00	0.20

21-Aug-18	14:54:00	0.20
21-Aug-18	14:56:00	0.20
21-Aug-18	14:58:00	0.00
21-Aug-18	15:00:00	0.00
21-Aug-18	15:02:00	0.00
21-Aug-18	15:04:00	0.00
21-Aug-18	15:06:00	0.00
21-Aug-18	15:08:00	0.20
21-Aug-18	15:10:00	0.20
21-Aug-18	15:12:00	0.20
21-Aug-18	15:14:00	0.20
21-Aug-18	15:16:00	0.20
21-Aug-18	15:18:00	0.00
21-Aug-18	15:20:00	0.00
21-Aug-18	15:22:00	0.00
21-Aug-18	15:24:00	0.00
21-Aug-18	15:26:00	0.00
21-Aug-18	15:28:00	0.00
21-Aug-18	15:30:00	0.00
21-Aug-18	15:32:00	0.00
21-Aug-18	15:34:00	0.00
21-Aug-18	15:36:00	0.00
21-Aug-18	15:38:00	0.00
21-Aug-18	15:40:00	0.00
21-Aug-18	15:42:00	0.00
21-Aug-18	15:44:00	0.00
21-Aug-18	15:46:00	0.00
21-Aug-18	15:48:00	0.00
21-Aug-18	15:50:00	0.00
21-Aug-18	15:52:00	0.00
21-Aug-18	15:54:00	0.00
21-Aug-18	15:56:00	0.00
21-Aug-18	15:58:00	0.00
21-Aug-18	16:00:00	0.00
21-Aug-18	16:02:00	0.00
21-Aug-18	16:04:00	0.00
21-Aug-18	16:06:00	0.00
21-Aug-18	16:08:00	0.00
21-Aug-18	16:10:00	0.00
21-Aug-18	16:12:00	0.00
21-Aug-18	16:14:00	0.00
21-Aug-18	16:16:00	0.00
21-Aug-18	16:18:00	0.00
21-Aug-18	16:20:00	0.00
21-Aug-18	16:22:00	0.00
21-Aug-18	16:24:00	0.00
21-Aug-18	16:26:00	0.00

21-Aug-18	16:28:00	0.00
21-Aug-18	16:30:00	0.00
21-Aug-18	16:32:00	0.00
21-Aug-18	16:34:00	0.00
21-Aug-18	16:36:00	0.00
21-Aug-18	16:38:00	0.00
21-Aug-18	16:40:00	0.00
21-Aug-18	16:42:00	0.00
21-Aug-18	16:44:00	0.00
21-Aug-18	16:46:00	0.00
21-Aug-18	16:48:00	0.00
21-Aug-18	16:50:00	0.00
21-Aug-18	16:52:00	0.00
21-Aug-18	16:54:00	0.00
21-Aug-18	16:56:00	0.00
21-Aug-18	16:58:00	0.00
21-Aug-18	17:00:00	0.00
21-Aug-18	17:02:00	0.00
21-Aug-18	17:04:00	0.00
21-Aug-18	17:06:00	0.00
21-Aug-18	17:08:00	0.00
21-Aug-18	17:10:00	0.00
21-Aug-18	17:12:00	0.00
21-Aug-18	17:14:00	0.00
21-Aug-18	17:16:00	0.00
21-Aug-18	17:18:00	0.00
21-Aug-18	17:20:00	0.00
21-Aug-18	17:22:00	0.00
21-Aug-18	17:24:00	0.00
21-Aug-18	17:26:00	0.00
21-Aug-18	17:28:00	0.00
21-Aug-18	17:30:00	0.00
21-Aug-18	17:32:00	0.00
21-Aug-18	17:34:00	0.00
21-Aug-18	17:36:00	0.00
21-Aug-18	17:38:00	0.00
21-Aug-18	17:40:00	0.00
21-Aug-18	17:42:00	0.00
21-Aug-18	17:44:00	0.00
21-Aug-18	17:46:00	0.00
21-Aug-18	17:48:00	0.10
21-Aug-18	17:50:00	0.10
21-Aug-18	17:52:00	0.10
21-Aug-18	17:54:00	0.10
21-Aug-18	17:56:00	0.10
21-Aug-18	17:58:00	0.10
21-Aug-18	18:00:00	0.00

21-Aug-18	18:02:00	0.00
21-Aug-18	18:04:00	0.00
21-Aug-18	18:06:00	0.00
21-Aug-18	18:08:00	0.00
21-Aug-18	18:10:00	0.00
21-Aug-18	18:12:00	0.00
21-Aug-18	18:14:00	0.00
21-Aug-18	18:16:00	0.00
21-Aug-18	18:18:00	0.00
21-Aug-18	18:20:00	0.00
21-Aug-18	18:22:00	0.00
21-Aug-18	18:24:00	0.00
21-Aug-18	18:26:00	0.00
21-Aug-18	18:28:00	0.00
21-Aug-18	18:30:00	0.00
21-Aug-18	18:32:00	0.00
21-Aug-18	18:34:00	0.00
21-Aug-18	18:36:00	0.00
21-Aug-18	18:38:00	0.00
21-Aug-18	18:40:00	0.00
21-Aug-18	18:42:00	0.00
21-Aug-18	18:44:00	0.00
21-Aug-18	18:46:00	0.00
21-Aug-18	18:48:00	0.00
21-Aug-18	18:50:00	0.00
21-Aug-18	18:52:00	0.00
21-Aug-18	18:54:00	0.00
21-Aug-18	18:56:00	0.00
21-Aug-18	18:58:00	0.00
21-Aug-18	19:00:00	0.00
22-Aug-18	6:00:00	0.00
22-Aug-18	6:02:00	0.00
22-Aug-18	6:04:00	0.00
22-Aug-18	6:06:00	0.00
22-Aug-18	6:08:00	0.00
22-Aug-18	6:10:00	0.00
22-Aug-18	6:12:00	0.00
22-Aug-18	6:14:00	0.00
22-Aug-18	6:16:00	0.00
22-Aug-18	6:18:00	0.00
22-Aug-18	6:20:00	0.00
22-Aug-18	6:22:00	0.00
22-Aug-18	6:24:00	0.00
22-Aug-18	6:26:00	0.00
22-Aug-18	6:28:00	0.00
22-Aug-18	6:30:00	0.00
22-Aug-18	6:32:00	0.00

22-Aug-18	6:34:00	0.00
22-Aug-18	6:36:00	0.00
22-Aug-18	6:38:00	0.00
22-Aug-18	6:40:00	0.00
22-Aug-18	6:42:00	0.00
22-Aug-18	6:44:00	0.00
22-Aug-18	6:46:00	0.00
22-Aug-18	6:48:00	0.00
22-Aug-18	6:50:00	0.00
22-Aug-18	6:52:00	0.00
22-Aug-18	6:54:00	0.00
22-Aug-18	6:56:00	0.00
22-Aug-18	6:58:00	0.00
22-Aug-18	7:00:00	0.00
22-Aug-18	7:02:00	0.00
22-Aug-18	7:04:00	0.00
22-Aug-18	7:06:00	0.00
22-Aug-18	7:08:00	0.00
22-Aug-18	7:10:00	0.00
22-Aug-18	7:12:00	0.00
22-Aug-18	7:14:00	0.00
22-Aug-18	7:16:00	0.00
22-Aug-18	7:18:00	0.00
22-Aug-18	7:20:00	0.00
22-Aug-18	7:22:00	0.00
22-Aug-18	7:24:00	0.00
22-Aug-18	7:26:00	0.00
22-Aug-18	7:28:00	0.00
22-Aug-18	7:30:00	0.00
22-Aug-18	7:32:00	0.00
22-Aug-18	7:34:00	0.00
22-Aug-18	7:36:00	0.00
22-Aug-18	7:38:00	0.00
22-Aug-18	7:40:00	0.00
22-Aug-18	7:42:00	0.00
22-Aug-18	7:44:00	0.00
22-Aug-18	7:46:00	0.00
22-Aug-18	7:48:00	0.00
22-Aug-18	7:50:00	0.00
22-Aug-18	7:52:00	0.00
22-Aug-18	7:54:00	0.00
22-Aug-18	7:56:00	0.00
22-Aug-18	7:58:00	0.00
22-Aug-18	8:00:00	0.00
22-Aug-18	8:02:00	0.00
22-Aug-18	8:04:00	0.00
22-Aug-18	8:06:00	0.00

22-Aug-18	8:08:00	0.00
22-Aug-18	8:10:00	0.00
22-Aug-18	8:12:00	0.00
22-Aug-18	8:14:00	0.00
22-Aug-18	8:16:00	0.00
22-Aug-18	8:18:00	0.00
22-Aug-18	8:20:00	0.00
22-Aug-18	8:22:00	0.00
22-Aug-18	8:24:00	0.00
22-Aug-18	8:26:00	0.00
22-Aug-18	8:28:00	0.00
22-Aug-18	8:30:00	0.00
22-Aug-18	8:32:00	0.00
22-Aug-18	8:34:00	0.00
22-Aug-18	8:36:00	0.00
22-Aug-18	8:38:00	0.00
22-Aug-18	8:40:00	0.00
22-Aug-18	8:42:00	0.00
22-Aug-18	8:44:00	0.00
22-Aug-18	8:46:00	0.00
22-Aug-18	8:48:00	0.00
22-Aug-18	8:50:00	0.10
22-Aug-18	8:52:00	0.10
22-Aug-18	8:54:00	0.10
22-Aug-18	8:56:00	0.10
22-Aug-18	8:58:00	0.10
22-Aug-18	9:00:00	0.10
22-Aug-18	9:02:00	0.10
22-Aug-18	9:04:00	0.10
22-Aug-18	9:06:00	0.10
22-Aug-18	9:08:00	0.10
22-Aug-18	9:10:00	0.10
22-Aug-18	9:12:00	0.10
22-Aug-18	9:14:00	0.10
22-Aug-18	9:16:00	0.10
22-Aug-18	9:18:00	0.10
22-Aug-18	9:20:00	0.10
22-Aug-18	9:22:00	0.10
22-Aug-18	9:24:00	0.10
22-Aug-18	9:26:00	6.10
22-Aug-18	9:28:00	5.40
22-Aug-18	9:30:00	4.50
22-Aug-18	9:32:00	4.20
22-Aug-18	9:34:00	4.20
22-Aug-18	9:36:00	3.90
22-Aug-18	9:38:00	3.90
22-Aug-18	9:40:00	3.90

22-Aug-18	9:42:00	3.90
22-Aug-18	9:44:00	3.90
22-Aug-18	9:46:00	4.00
22-Aug-18	9:48:00	4.00
22-Aug-18	9:50:00	4.00
22-Aug-18	9:52:00	4.00
22-Aug-18	9:54:00	4.00
22-Aug-18	9:56:00	4.00
22-Aug-18	9:58:00	4.00
22-Aug-18	10:00:00	4.00
22-Aug-18	10:02:00	4.00
22-Aug-18	10:04:00	4.00
22-Aug-18	10:06:00	3.70
22-Aug-18	10:08:00	3.70
22-Aug-18	10:10:00	3.60
22-Aug-18	10:12:00	3.60
22-Aug-18	10:14:00	3.30
22-Aug-18	10:16:00	3.30
22-Aug-18	10:18:00	3.30
22-Aug-18	10:20:00	3.30
22-Aug-18	10:22:00	3.30
22-Aug-18	10:24:00	3.50
22-Aug-18	10:26:00	3.60
22-Aug-18	10:28:00	3.60
22-Aug-18	10:30:00	3.60
22-Aug-18	10:32:00	3.60
22-Aug-18	10:34:00	0.00
22-Aug-18	10:36:00	0.00
22-Aug-18	10:38:00	0.00
22-Aug-18	10:40:00	0.00
22-Aug-18	10:42:00	0.00
22-Aug-18	10:44:00	0.00
22-Aug-18	10:46:00	0.00
22-Aug-18	10:48:00	0.00
22-Aug-18	10:50:00	0.00
22-Aug-18	10:52:00	0.00
22-Aug-18	10:54:00	0.00
22-Aug-18	10:56:00	0.00
22-Aug-18	10:58:00	0.00
22-Aug-18	11:00:00	0.00
22-Aug-18	11:02:00	0.00
22-Aug-18	11:04:00	0.00
22-Aug-18	11:06:00	0.00
22-Aug-18	11:08:00	0.00
22-Aug-18	11:10:00	0.00
22-Aug-18	11:12:00	0.00
22-Aug-18	11:14:00	0.00

22-Aug-18	11:16:00	0.00
22-Aug-18	11:18:00	0.00
22-Aug-18	11:20:00	0.00
22-Aug-18	11:22:00	0.00
22-Aug-18	11:24:00	0.10
22-Aug-18	11:26:00	0.10
22-Aug-18	11:28:00	0.10
22-Aug-18	11:30:00	0.10
22-Aug-18	11:32:00	0.10
22-Aug-18	11:34:00	5.80
22-Aug-18	11:36:00	5.10
22-Aug-18	11:38:00	4.50
22-Aug-18	11:40:00	4.20
22-Aug-18	11:42:00	4.20
22-Aug-18	11:44:00	4.20
22-Aug-18	11:46:00	4.20
22-Aug-18	11:48:00	3.90
22-Aug-18	11:50:00	3.90
22-Aug-18	11:52:00	3.90
22-Aug-18	11:54:00	3.90
22-Aug-18	11:56:00	3.90
22-Aug-18	11:58:00	3.80
22-Aug-18	12:00:00	3.80
22-Aug-18	12:02:00	3.80
22-Aug-18	12:04:00	0.00
22-Aug-18	12:06:00	0.00
22-Aug-18	12:08:00	0.20
22-Aug-18	12:10:00	0.50
22-Aug-18	12:12:00	0.20
22-Aug-18	12:14:00	0.20
22-Aug-18	12:16:00	0.00
22-Aug-18	12:18:00	0.00
22-Aug-18	12:20:00	0.00
22-Aug-18	12:22:00	0.00
22-Aug-18	12:24:00	0.00
22-Aug-18	12:26:00	0.10
22-Aug-18	12:28:00	0.10
22-Aug-18	12:30:00	0.20
22-Aug-18	12:32:00	0.20
22-Aug-18	12:34:00	0.20
22-Aug-18	12:36:00	0.20
22-Aug-18	12:38:00	0.20
22-Aug-18	12:40:00	0.00
22-Aug-18	12:42:00	0.00
22-Aug-18	12:44:00	0.00
22-Aug-18	12:46:00	0.00
22-Aug-18	12:48:00	0.00

22-Aug-18	12:50:00	0.10
22-Aug-18	12:52:00	0.10
22-Aug-18	12:54:00	0.10
22-Aug-18	12:56:00	0.50
22-Aug-18	12:58:00	0.50
22-Aug-18	13:00:00	0.50
22-Aug-18	13:02:00	0.50
22-Aug-18	13:04:00	0.50
22-Aug-18	13:06:00	0.40
22-Aug-18	13:08:00	0.00
22-Aug-18	13:10:00	0.00
22-Aug-18	13:12:00	0.00
22-Aug-18	13:14:00	0.00
22-Aug-18	13:16:00	0.00
22-Aug-18	13:18:00	0.00
22-Aug-18	13:20:00	0.00
22-Aug-18	13:22:00	0.00
22-Aug-18	13:24:00	0.00
22-Aug-18	13:26:00	0.00
22-Aug-18	13:28:00	0.00
22-Aug-18	13:30:00	0.00
22-Aug-18	13:32:00	0.00
22-Aug-18	13:34:00	0.00
22-Aug-18	13:36:00	0.00
22-Aug-18	13:38:00	0.00
22-Aug-18	13:40:00	0.00
22-Aug-18	13:42:00	0.00
22-Aug-18	13:44:00	0.00
22-Aug-18	13:46:00	0.00
22-Aug-18	13:48:00	0.20
22-Aug-18	13:50:00	0.20
22-Aug-18	13:52:00	0.20
22-Aug-18	13:54:00	0.20
22-Aug-18	13:56:00	0.20
22-Aug-18	13:58:00	0.20
22-Aug-18	14:00:00	0.20
22-Aug-18	14:02:00	0.20
22-Aug-18	14:04:00	0.20
22-Aug-18	14:06:00	0.20
22-Aug-18	14:08:00	0.20
22-Aug-18	14:10:00	0.30
22-Aug-18	14:12:00	0.30
22-Aug-18	14:14:00	0.30
22-Aug-18	14:16:00	0.30
22-Aug-18	14:18:00	0.00
22-Aug-18	14:20:00	0.00
22-Aug-18	14:22:00	0.00

22-Aug-18	14:24:00	0.00
22-Aug-18	14:26:00	0.00
22-Aug-18	14:28:00	0.00
22-Aug-18	14:30:00	0.00
22-Aug-18	14:32:00	0.00
22-Aug-18	14:34:00	0.00
22-Aug-18	14:36:00	0.00
22-Aug-18	14:38:00	0.00
22-Aug-18	14:40:00	0.00
22-Aug-18	14:42:00	0.00
22-Aug-18	14:44:00	0.00
22-Aug-18	14:46:00	0.00
22-Aug-18	14:48:00	0.00
22-Aug-18	14:50:00	0.00
22-Aug-18	14:52:00	0.00
22-Aug-18	14:54:00	0.00
22-Aug-18	14:56:00	0.00
22-Aug-18	14:58:00	0.00
22-Aug-18	15:00:00	0.00
22-Aug-18	15:02:00	0.00
22-Aug-18	15:04:00	0.00
22-Aug-18	15:06:00	0.00
22-Aug-18	15:08:00	0.00
22-Aug-18	15:10:00	0.00
22-Aug-18	15:12:00	0.00
22-Aug-18	15:14:00	0.00
22-Aug-18	15:16:00	0.00
22-Aug-18	15:18:00	0.00
22-Aug-18	15:20:00	0.10
22-Aug-18	15:22:00	0.10
22-Aug-18	15:24:00	0.10
22-Aug-18	15:26:00	0.10
22-Aug-18	15:28:00	0.10
22-Aug-18	15:30:00	0.10
22-Aug-18	15:32:00	0.10
22-Aug-18	15:34:00	0.10
22-Aug-18	15:36:00	0.10
22-Aug-18	15:38:00	0.10
22-Aug-18	15:40:00	0.00
22-Aug-18	15:42:00	0.00
22-Aug-18	15:44:00	0.00
22-Aug-18	15:46:00	0.00
22-Aug-18	15:48:00	0.00
22-Aug-18	15:50:00	0.10
22-Aug-18	15:52:00	0.10
22-Aug-18	15:54:00	0.10
22-Aug-18	15:56:00	0.10

22-Aug-18	15:58:00	0.10
22-Aug-18	16:00:00	0.00
22-Aug-18	16:02:00	0.00
22-Aug-18	16:04:00	0.00
22-Aug-18	16:06:00	0.00
22-Aug-18	16:08:00	0.00
22-Aug-18	16:10:00	0.00
22-Aug-18	16:12:00	0.00
22-Aug-18	16:14:00	0.00
22-Aug-18	16:16:00	0.00
22-Aug-18	16:18:00	0.00
22-Aug-18	16:20:00	0.00
22-Aug-18	16:22:00	0.00
22-Aug-18	16:24:00	0.00
22-Aug-18	16:26:00	0.00
22-Aug-18	16:28:00	0.00
22-Aug-18	16:30:00	0.00
22-Aug-18	16:32:00	0.00
22-Aug-18	16:34:00	0.00
22-Aug-18	16:36:00	0.00
22-Aug-18	16:38:00	0.00
22-Aug-18	16:40:00	0.00
22-Aug-18	16:42:00	0.00
22-Aug-18	16:44:00	0.00
22-Aug-18	16:46:00	0.00
22-Aug-18	16:48:00	0.00
22-Aug-18	16:50:00	0.00
22-Aug-18	16:52:00	0.00
22-Aug-18	16:54:00	0.00
22-Aug-18	16:56:00	0.00
22-Aug-18	16:58:00	0.00
22-Aug-18	17:00:00	0.00
22-Aug-18	17:02:00	0.00
22-Aug-18	17:04:00	0.00
22-Aug-18	17:06:00	0.00
22-Aug-18	17:08:00	0.00
22-Aug-18	17:10:00	0.00
22-Aug-18	17:12:00	0.00
22-Aug-18	17:14:00	0.00
22-Aug-18	17:16:00	0.00
22-Aug-18	17:18:00	0.00
22-Aug-18	17:20:00	0.00
22-Aug-18	17:22:00	0.00
22-Aug-18	17:24:00	0.00
22-Aug-18	17:26:00	0.00
22-Aug-18	17:28:00	0.00
22-Aug-18	17:30:00	0.00

22-Aug-18	17:32:00	0.00
22-Aug-18	17:34:00	0.00
22-Aug-18	17:36:00	0.00
22-Aug-18	17:38:00	0.00
22-Aug-18	17:40:00	0.00
22-Aug-18	17:42:00	0.00
22-Aug-18	17:44:00	0.00
22-Aug-18	17:46:00	0.00
22-Aug-18	17:48:00	0.00
22-Aug-18	17:50:00	0.00
22-Aug-18	17:52:00	0.00
22-Aug-18	17:54:00	0.00
22-Aug-18	17:56:00	0.00
22-Aug-18	17:58:00	0.00
22-Aug-18	18:00:00	0.00
22-Aug-18	18:02:00	0.00
22-Aug-18	18:04:00	0.00
22-Aug-18	18:06:00	0.00
22-Aug-18	18:08:00	0.00
22-Aug-18	18:10:00	0.00
22-Aug-18	18:12:00	0.00
22-Aug-18	18:14:00	0.00
22-Aug-18	18:16:00	0.00
22-Aug-18	18:18:00	0.00
22-Aug-18	18:20:00	0.00
22-Aug-18	18:22:00	0.00
22-Aug-18	18:24:00	0.00
22-Aug-18	18:26:00	0.00
22-Aug-18	18:28:00	0.00
22-Aug-18	18:30:00	0.00
22-Aug-18	18:32:00	0.00
22-Aug-18	18:34:00	0.00
22-Aug-18	18:36:00	0.00
22-Aug-18	18:38:00	0.00
22-Aug-18	18:40:00	0.00
22-Aug-18	18:42:00	0.00
22-Aug-18	18:44:00	0.00
22-Aug-18	18:46:00	0.00
22-Aug-18	18:48:00	0.00
22-Aug-18	18:50:00	0.00
22-Aug-18	18:52:00	0.00
22-Aug-18	18:54:00	0.00
22-Aug-18	18:56:00	0.00
22-Aug-18	18:58:00	0.00
22-Aug-18	19:00:00	0.00
24-Aug-18	6:00:00	0.00
24-Aug-18	6:02:00	0.00

24-Aug-18	6:04:00	0.00
24-Aug-18	6:06:00	0.00
24-Aug-18	6:08:00	0.00
24-Aug-18	6:10:00	0.00
24-Aug-18	6:12:00	0.00
24-Aug-18	6:14:00	0.00
24-Aug-18	6:16:00	0.00
24-Aug-18	6:18:00	0.00
24-Aug-18	6:20:00	0.00
24-Aug-18	6:22:00	0.00
24-Aug-18	6:24:00	0.00
24-Aug-18	6:26:00	0.00
24-Aug-18	6:28:00	0.00
24-Aug-18	6:30:00	0.00
24-Aug-18	6:32:00	0.00
24-Aug-18	6:34:00	0.00
24-Aug-18	6:36:00	0.00
24-Aug-18	6:38:00	0.00
24-Aug-18	6:40:00	0.00
24-Aug-18	6:42:00	0.00
24-Aug-18	6:44:00	0.00
24-Aug-18	6:46:00	0.00
24-Aug-18	6:48:00	0.00
24-Aug-18	6:50:00	0.00
24-Aug-18	6:52:00	0.00
24-Aug-18	6:54:00	0.00
24-Aug-18	6:56:00	0.00
24-Aug-18	6:58:00	0.00
24-Aug-18	7:00:00	0.00
24-Aug-18	7:02:00	0.00
24-Aug-18	7:04:00	0.00
24-Aug-18	7:06:00	0.00
24-Aug-18	7:08:00	0.00
24-Aug-18	7:10:00	0.00
24-Aug-18	7:12:00	0.00
24-Aug-18	7:14:00	0.10
24-Aug-18	7:16:00	0.10
24-Aug-18	7:18:00	0.10
24-Aug-18	7:20:00	0.10
24-Aug-18	7:22:00	0.10
24-Aug-18	7:24:00	0.10
24-Aug-18	7:26:00	0.10
24-Aug-18	7:28:00	0.10
24-Aug-18	7:30:00	0.10
24-Aug-18	7:32:00	0.10
24-Aug-18	7:34:00	0.10
24-Aug-18	7:36:00	0.00

24-Aug-18	7:38:00	0.00
24-Aug-18	7:40:00	0.00
24-Aug-18	7:42:00	0.00
24-Aug-18	7:44:00	0.10
24-Aug-18	7:46:00	0.10
24-Aug-18	7:48:00	0.10
24-Aug-18	7:50:00	0.10
24-Aug-18	7:52:00	0.10
24-Aug-18	7:54:00	0.10
24-Aug-18	7:56:00	0.10
24-Aug-18	7:58:00	0.10
24-Aug-18	8:00:00	0.10
24-Aug-18	8:02:00	0.10
24-Aug-18	8:04:00	0.10
24-Aug-18	8:06:00	0.10
24-Aug-18	8:08:00	0.10
24-Aug-18	8:10:00	0.10
24-Aug-18	8:12:00	0.10
24-Aug-18	8:14:00	0.10
24-Aug-18	8:16:00	0.10
24-Aug-18	8:18:00	0.10
24-Aug-18	8:20:00	0.10
24-Aug-18	8:22:00	0.10
24-Aug-18	8:24:00	0.00
24-Aug-18	8:26:00	0.00
24-Aug-18	8:28:00	0.00
24-Aug-18	8:30:00	0.00
24-Aug-18	8:32:00	0.00
24-Aug-18	8:34:00	0.00
24-Aug-18	8:36:00	0.00
24-Aug-18	8:38:00	0.00
24-Aug-18	8:40:00	0.00
24-Aug-18	8:42:00	0.00
24-Aug-18	8:44:00	0.00
24-Aug-18	8:46:00	0.10
24-Aug-18	8:48:00	0.10
24-Aug-18	8:50:00	0.20
24-Aug-18	8:52:00	0.50
24-Aug-18	8:54:00	0.50
24-Aug-18	8:56:00	0.50
24-Aug-18	8:58:00	0.50
24-Aug-18	9:00:00	0.50
24-Aug-18	9:02:00	0.50
24-Aug-18	9:04:00	0.50
24-Aug-18	9:06:00	0.50
24-Aug-18	9:08:00	0.50
24-Aug-18	9:10:00	0.50

24-Aug-18	9:12:00	0.70
24-Aug-18	9:14:00	0.70
24-Aug-18	9:16:00	0.70
24-Aug-18	9:18:00	0.70
24-Aug-18	9:20:00	0.00
24-Aug-18	9:22:00	0.00
24-Aug-18	9:24:00	0.00
24-Aug-18	9:26:00	0.00
24-Aug-18	9:28:00	0.00
24-Aug-18	9:30:00	0.00
24-Aug-18	9:32:00	0.00
24-Aug-18	9:34:00	0.00
24-Aug-18	9:36:00	0.00
24-Aug-18	9:38:00	0.00
24-Aug-18	9:40:00	0.00
24-Aug-18	9:42:00	0.20
24-Aug-18	9:44:00	0.20
24-Aug-18	9:46:00	0.20
24-Aug-18	9:48:00	0.20
24-Aug-18	9:50:00	0.20
24-Aug-18	9:52:00	0.40
24-Aug-18	9:54:00	0.40
24-Aug-18	9:56:00	0.40
24-Aug-18	9:58:00	0.00
24-Aug-18	10:00:00	0.00
24-Aug-18	10:02:00	0.00
24-Aug-18	10:04:00	0.00
24-Aug-18	10:06:00	0.00
24-Aug-18	10:08:00	0.00
24-Aug-18	10:10:00	0.00
24-Aug-18	10:12:00	0.00
24-Aug-18	10:14:00	0.20
24-Aug-18	10:16:00	0.20
24-Aug-18	10:18:00	0.50
24-Aug-18	10:20:00	0.50
24-Aug-18	10:22:00	0.50
24-Aug-18	10:24:00	0.50
24-Aug-18	10:26:00	0.20
24-Aug-18	10:28:00	0.20
24-Aug-18	10:30:00	0.20
24-Aug-18	10:32:00	0.20
24-Aug-18	10:34:00	0.20
24-Aug-18	10:36:00	0.50
24-Aug-18	10:38:00	0.50
24-Aug-18	10:40:00	0.20
24-Aug-18	10:42:00	0.20
24-Aug-18	10:44:00	0.20

24-Aug-18	10:46:00	0.20
24-Aug-18	10:48:00	0.50
24-Aug-18	10:50:00	0.50
24-Aug-18	10:52:00	0.50
24-Aug-18	10:54:00	0.20
24-Aug-18	10:56:00	0.20
24-Aug-18	10:58:00	0.20
24-Aug-18	11:00:00	0.20
24-Aug-18	11:02:00	0.20
24-Aug-18	11:04:00	0.10
24-Aug-18	11:06:00	0.10
24-Aug-18	11:08:00	2.80
24-Aug-18	11:10:00	5.50
24-Aug-18	11:12:00	5.20
24-Aug-18	11:14:00	4.50
24-Aug-18	11:16:00	4.50
24-Aug-18	11:18:00	4.20
24-Aug-18	11:20:00	4.20
24-Aug-18	11:22:00	3.90
24-Aug-18	11:24:00	3.90
24-Aug-18	11:26:00	3.90
24-Aug-18	11:28:00	3.90
24-Aug-18	11:30:00	3.90
24-Aug-18	11:32:00	4.20
24-Aug-18	11:34:00	4.20
24-Aug-18	11:36:00	4.20
24-Aug-18	11:38:00	4.20
24-Aug-18	11:40:00	4.20
24-Aug-18	11:42:00	3.90
24-Aug-18	11:44:00	3.60
24-Aug-18	11:46:00	3.00
24-Aug-18	11:48:00	3.00
24-Aug-18	11:50:00	3.00
24-Aug-18	11:52:00	3.00
24-Aug-18	11:54:00	3.00
24-Aug-18	11:56:00	3.60
24-Aug-18	11:58:00	2.30
24-Aug-18	12:00:00	0.00
24-Aug-18	12:02:00	0.00
24-Aug-18	12:04:00	0.30
24-Aug-18	12:06:00	0.30
24-Aug-18	12:08:00	0.30
24-Aug-18	12:10:00	0.60
24-Aug-18	12:12:00	0.60
24-Aug-18	12:14:00	0.60
24-Aug-18	12:16:00	0.20
24-Aug-18	12:18:00	0.20

24-Aug-18	12:20:00	0.00
24-Aug-18	12:22:00	0.00
24-Aug-18	12:24:00	0.00
24-Aug-18	12:26:00	0.00
24-Aug-18	12:28:00	0.00
24-Aug-18	12:30:00	0.00
24-Aug-18	12:32:00	0.00
24-Aug-18	12:34:00	0.00
24-Aug-18	12:36:00	0.00
24-Aug-18	12:38:00	0.00
24-Aug-18	12:40:00	0.00
24-Aug-18	12:42:00	0.00
24-Aug-18	12:44:00	0.00
24-Aug-18	12:46:00	0.00
24-Aug-18	12:48:00	0.00
24-Aug-18	12:50:00	0.00
24-Aug-18	12:52:00	0.00
24-Aug-18	12:54:00	0.00
24-Aug-18	12:56:00	0.00
24-Aug-18	12:58:00	0.00
24-Aug-18	13:00:00	0.30
24-Aug-18	13:02:00	0.30
24-Aug-18	13:04:00	0.00
24-Aug-18	13:06:00	0.00
24-Aug-18	13:08:00	0.00
24-Aug-18	13:10:00	0.00
24-Aug-18	13:12:00	0.00
24-Aug-18	13:14:00	0.00
24-Aug-18	13:16:00	0.00
24-Aug-18	13:18:00	0.00
24-Aug-18	13:20:00	0.00
24-Aug-18	13:22:00	0.00
24-Aug-18	13:24:00	0.00
24-Aug-18	13:26:00	0.00
24-Aug-18	13:28:00	0.00
24-Aug-18	13:30:00	0.30
24-Aug-18	13:32:00	0.30
24-Aug-18	13:34:00	0.00
24-Aug-18	13:36:00	0.00
24-Aug-18	13:38:00	0.00
24-Aug-18	13:40:00	0.00
24-Aug-18	13:42:00	0.00
24-Aug-18	13:44:00	0.00
24-Aug-18	13:46:00	0.00
24-Aug-18	13:48:00	0.00
24-Aug-18	13:50:00	0.00
24-Aug-18	13:52:00	0.00

24-Aug-18	13:54:00	0.00
24-Aug-18	13:56:00	0.00
24-Aug-18	13:58:00	0.00
24-Aug-18	14:00:00	0.00
24-Aug-18	14:02:00	0.00
24-Aug-18	14:04:00	0.00
24-Aug-18	14:06:00	0.00
24-Aug-18	14:08:00	0.00
24-Aug-18	14:10:00	0.00
24-Aug-18	14:12:00	0.00
24-Aug-18	14:14:00	0.00
24-Aug-18	14:16:00	0.00
24-Aug-18	14:18:00	0.00
24-Aug-18	14:20:00	0.00
24-Aug-18	14:22:00	0.00
24-Aug-18	14:24:00	0.00
24-Aug-18	14:26:00	0.00
24-Aug-18	14:28:00	0.00
24-Aug-18	14:30:00	0.00
24-Aug-18	14:32:00	0.00
24-Aug-18	14:34:00	0.10
24-Aug-18	14:36:00	0.10
24-Aug-18	14:38:00	0.10
24-Aug-18	14:40:00	0.10
24-Aug-18	14:42:00	0.10
24-Aug-18	14:44:00	0.00
24-Aug-18	14:46:00	0.00
24-Aug-18	14:48:00	0.00
24-Aug-18	14:50:00	0.00
24-Aug-18	14:52:00	0.00
24-Aug-18	14:54:00	0.00
24-Aug-18	14:56:00	0.00
24-Aug-18	14:58:00	0.00
24-Aug-18	15:00:00	0.00
24-Aug-18	15:02:00	0.00
24-Aug-18	15:04:00	0.00
24-Aug-18	15:06:00	0.00
24-Aug-18	15:08:00	0.00
24-Aug-18	15:10:00	0.00
24-Aug-18	15:12:00	0.00
24-Aug-18	15:14:00	0.00
24-Aug-18	15:16:00	0.00
24-Aug-18	15:18:00	0.00
24-Aug-18	15:20:00	0.00
24-Aug-18	15:22:00	0.00
24-Aug-18	15:24:00	0.00
24-Aug-18	15:26:00	0.00

24-Aug-18	15:28:00	0.00
24-Aug-18	15:30:00	0.00
24-Aug-18	15:32:00	0.00
24-Aug-18	15:34:00	0.00
24-Aug-18	15:36:00	0.00
24-Aug-18	15:38:00	0.00
24-Aug-18	15:40:00	0.00
24-Aug-18	15:42:00	0.00
24-Aug-18	15:44:00	0.10
24-Aug-18	15:46:00	0.20
24-Aug-18	15:48:00	0.20
24-Aug-18	15:50:00	0.20
24-Aug-18	15:52:00	0.20
24-Aug-18	15:54:00	0.20
24-Aug-18	15:56:00	0.20
24-Aug-18	15:58:00	0.20
24-Aug-18	16:00:00	0.20
24-Aug-18	16:02:00	0.20
24-Aug-18	16:04:00	0.20
24-Aug-18	16:06:00	0.20
24-Aug-18	16:08:00	0.20
24-Aug-18	16:10:00	0.20
24-Aug-18	16:12:00	0.20
24-Aug-18	16:14:00	0.20
24-Aug-18	16:16:00	0.00
24-Aug-18	16:18:00	0.00
24-Aug-18	16:20:00	0.00
24-Aug-18	16:22:00	0.00
24-Aug-18	16:24:00	0.00
24-Aug-18	16:26:00	0.00
24-Aug-18	16:28:00	0.00
24-Aug-18	16:30:00	0.00
24-Aug-18	16:32:00	0.00
24-Aug-18	16:34:00	0.00
24-Aug-18	16:36:00	0.00
24-Aug-18	16:38:00	0.00
24-Aug-18	16:40:00	0.00
24-Aug-18	16:42:00	0.00
24-Aug-18	16:44:00	0.00
24-Aug-18	16:46:00	0.00
24-Aug-18	16:48:00	0.00
24-Aug-18	16:50:00	0.00
24-Aug-18	16:52:00	0.00
24-Aug-18	16:54:00	0.00
24-Aug-18	16:56:00	0.00
24-Aug-18	16:58:00	0.00
24-Aug-18	17:00:00	0.00

24-Aug-18	17:02:00	0.00
24-Aug-18	17:04:00	0.00
24-Aug-18	17:06:00	0.00
24-Aug-18	17:08:00	0.00
24-Aug-18	17:10:00	0.00
24-Aug-18	17:12:00	0.00
24-Aug-18	17:14:00	0.00
24-Aug-18	17:16:00	0.00
24-Aug-18	17:18:00	0.00
24-Aug-18	17:20:00	0.00
24-Aug-18	17:22:00	0.00
24-Aug-18	17:24:00	0.00
24-Aug-18	17:26:00	0.00
24-Aug-18	17:28:00	0.00
24-Aug-18	17:30:00	0.00
24-Aug-18	17:32:00	0.00
24-Aug-18	17:34:00	0.00
24-Aug-18	17:36:00	0.00
24-Aug-18	17:38:00	0.00
24-Aug-18	17:40:00	0.00
24-Aug-18	17:42:00	0.00
24-Aug-18	17:44:00	0.00
24-Aug-18	17:46:00	0.00
24-Aug-18	17:48:00	0.00
24-Aug-18	17:50:00	0.00
24-Aug-18	17:52:00	0.00
24-Aug-18	17:54:00	0.00
24-Aug-18	17:56:00	0.00
24-Aug-18	17:58:00	0.00
24-Aug-18	18:00:00	0.00
24-Aug-18	18:02:00	0.00
24-Aug-18	18:04:00	0.00
24-Aug-18	18:06:00	0.00
24-Aug-18	18:08:00	0.00
24-Aug-18	18:10:00	0.00
24-Aug-18	18:12:00	0.00
24-Aug-18	18:14:00	0.00
24-Aug-18	18:16:00	0.00
24-Aug-18	18:18:00	0.00
24-Aug-18	18:20:00	0.00
24-Aug-18	18:22:00	0.00
24-Aug-18	18:24:00	0.00
24-Aug-18	18:26:00	0.00
24-Aug-18	18:28:00	0.00
24-Aug-18	18:30:00	0.00
24-Aug-18	18:32:00	0.00
24-Aug-18	18:34:00	0.00

24-Aug-18	18:36:00	0.00
24-Aug-18	18:38:00	0.00
24-Aug-18	18:40:00	0.00
24-Aug-18	18:42:00	0.00
24-Aug-18	18:44:00	0.00
24-Aug-18	18:46:00	0.00
24-Aug-18	18:48:00	0.00
24-Aug-18	18:50:00	0.00
24-Aug-18	18:52:00	0.00
24-Aug-18	18:54:00	0.00
24-Aug-18	18:56:00	0.00
24-Aug-18	18:58:00	0.00
24-Aug-18	19:00:00	0.00
28-Aug-18	6:00:00	0.00
28-Aug-18	6:02:00	0.00
28-Aug-18	6:04:00	0.00
28-Aug-18	6:06:00	0.00
28-Aug-18	6:08:00	0.00
28-Aug-18	6:10:00	0.00
28-Aug-18	6:12:00	0.00
28-Aug-18	6:14:00	0.00
28-Aug-18	6:16:00	0.00
28-Aug-18	6:18:00	0.00
28-Aug-18	6:20:00	0.00
28-Aug-18	6:22:00	0.00
28-Aug-18	6:24:00	0.00
28-Aug-18	6:26:00	0.00
28-Aug-18	6:28:00	0.00
28-Aug-18	6:30:00	0.00
28-Aug-18	6:32:00	0.00
28-Aug-18	6:34:00	0.00
28-Aug-18	6:36:00	0.00
28-Aug-18	6:38:00	0.00
28-Aug-18	6:40:00	0.00
28-Aug-18	6:42:00	0.00
28-Aug-18	6:44:00	0.00
28-Aug-18	6:46:00	0.00
28-Aug-18	6:48:00	0.00
28-Aug-18	6:50:00	0.00
28-Aug-18	6:52:00	0.00
28-Aug-18	6:54:00	0.00
28-Aug-18	6:56:00	0.00
28-Aug-18	6:58:00	0.00
28-Aug-18	7:00:00	0.00
28-Aug-18	7:02:00	0.00
28-Aug-18	7:04:00	0.00
28-Aug-18	7:06:00	0.00

28-Aug-18	7:08:00	0.00
28-Aug-18	7:10:00	0.00
28-Aug-18	7:12:00	0.00
28-Aug-18	7:14:00	0.00
28-Aug-18	7:16:00	0.00
28-Aug-18	7:18:00	0.00
28-Aug-18	7:20:00	0.00
28-Aug-18	7:22:00	0.00
28-Aug-18	7:24:00	0.00
28-Aug-18	7:26:00	0.00
28-Aug-18	7:28:00	0.00
28-Aug-18	7:30:00	0.00
28-Aug-18	7:32:00	0.00
28-Aug-18	7:34:00	0.00
28-Aug-18	7:36:00	0.00
28-Aug-18	7:38:00	0.00
28-Aug-18	7:40:00	0.00
28-Aug-18	7:42:00	0.00
28-Aug-18	7:44:00	0.00
28-Aug-18	7:46:00	0.00
28-Aug-18	7:48:00	0.00
28-Aug-18	7:50:00	0.00
28-Aug-18	7:52:00	0.00
28-Aug-18	7:54:00	0.00
28-Aug-18	7:56:00	0.00
28-Aug-18	7:58:00	0.00
28-Aug-18	8:00:00	0.00
28-Aug-18	8:02:00	0.10
28-Aug-18	8:04:00	0.10
28-Aug-18	8:06:00	0.10
28-Aug-18	8:08:00	0.10
28-Aug-18	8:10:00	0.10
28-Aug-18	8:12:00	0.10
28-Aug-18	8:14:00	0.10
28-Aug-18	8:16:00	0.10
28-Aug-18	8:18:00	0.10
28-Aug-18	8:20:00	0.10
28-Aug-18	8:22:00	0.10
28-Aug-18	8:24:00	0.10
28-Aug-18	8:26:00	0.10
28-Aug-18	8:28:00	0.10
28-Aug-18	8:30:00	0.10
28-Aug-18	8:32:00	0.10
28-Aug-18	8:34:00	0.10
28-Aug-18	8:36:00	0.10
28-Aug-18	8:38:00	0.10
28-Aug-18	8:40:00	0.10

28-Aug-18	8:42:00	0.10
28-Aug-18	8:44:00	0.10
28-Aug-18	8:46:00	0.10
28-Aug-18	8:48:00	0.10
28-Aug-18	8:50:00	0.20
28-Aug-18	8:52:00	0.60
28-Aug-18	8:54:00	0.60
28-Aug-18	8:56:00	0.60
28-Aug-18	8:58:00	0.90
28-Aug-18	9:00:00	0.90
28-Aug-18	9:02:00	0.90
28-Aug-18	9:04:00	0.90
28-Aug-18	9:06:00	0.90
28-Aug-18	9:08:00	0.60
28-Aug-18	9:10:00	0.60
28-Aug-18	9:12:00	0.60
28-Aug-18	9:14:00	0.60
28-Aug-18	9:16:00	0.20
28-Aug-18	9:18:00	0.20
28-Aug-18	9:20:00	0.20
28-Aug-18	9:22:00	0.20
28-Aug-18	9:24:00	0.20
28-Aug-18	9:26:00	0.30
28-Aug-18	9:28:00	0.30
28-Aug-18	9:30:00	0.30
28-Aug-18	9:32:00	0.30
28-Aug-18	9:34:00	0.30
28-Aug-18	9:36:00	0.20
28-Aug-18	9:38:00	0.20
28-Aug-18	9:40:00	0.20
28-Aug-18	9:42:00	0.00
28-Aug-18	9:44:00	0.00
28-Aug-18	9:46:00	0.00
28-Aug-18	9:48:00	0.00
28-Aug-18	9:50:00	0.30
28-Aug-18	9:52:00	0.30
28-Aug-18	9:54:00	0.30
28-Aug-18	9:56:00	0.30
28-Aug-18	9:58:00	0.00
28-Aug-18	10:00:00	0.00
28-Aug-18	10:02:00	0.00
28-Aug-18	10:04:00	0.00
28-Aug-18	10:06:00	0.00
28-Aug-18	10:08:00	0.30
28-Aug-18	10:10:00	0.30
28-Aug-18	10:12:00	0.30
28-Aug-18	10:14:00	0.30

28-Aug-18	10:16:00	0.00
28-Aug-18	10:18:00	0.00
28-Aug-18	10:20:00	0.00
28-Aug-18	10:22:00	0.00
28-Aug-18	10:24:00	0.00
28-Aug-18	10:26:00	0.00
28-Aug-18	10:28:00	0.00
28-Aug-18	10:30:00	0.30
28-Aug-18	10:32:00	0.30
28-Aug-18	10:34:00	0.00
28-Aug-18	10:36:00	0.00
28-Aug-18	10:38:00	0.00
28-Aug-18	10:40:00	0.00
28-Aug-18	10:42:00	0.00
28-Aug-18	10:44:00	0.00
28-Aug-18	10:46:00	0.00
28-Aug-18	10:48:00	0.30
28-Aug-18	10:50:00	0.30
28-Aug-18	10:52:00	0.30
28-Aug-18	10:54:00	0.30
28-Aug-18	10:56:00	0.20
28-Aug-18	10:58:00	0.60
28-Aug-18	11:00:00	0.60
28-Aug-18	11:02:00	0.60
28-Aug-18	11:04:00	0.20
28-Aug-18	11:06:00	0.20
28-Aug-18	11:08:00	0.20
28-Aug-18	11:10:00	0.60
28-Aug-18	11:12:00	0.20
28-Aug-18	11:14:00	0.20
28-Aug-18	11:16:00	0.00
28-Aug-18	11:18:00	0.00
28-Aug-18	11:20:00	0.00
28-Aug-18	11:22:00	0.30
28-Aug-18	11:24:00	0.30
28-Aug-18	11:26:00	0.60
28-Aug-18	11:28:00	0.60
28-Aug-18	11:30:00	0.60
28-Aug-18	11:32:00	0.20
28-Aug-18	11:34:00	0.20
28-Aug-18	11:36:00	0.90
28-Aug-18	11:38:00	0.60
28-Aug-18	11:40:00	0.60
28-Aug-18	11:42:00	0.60
28-Aug-18	11:44:00	0.20
28-Aug-18	11:46:00	0.00
28-Aug-18	11:48:00	0.00

28-Aug-18	11:50:00	0.00
28-Aug-18	11:52:00	0.00
28-Aug-18	11:54:00	0.00
28-Aug-18	11:56:00	0.00
28-Aug-18	11:58:00	0.00
28-Aug-18	12:00:00	0.30
28-Aug-18	12:02:00	0.30
28-Aug-18	12:04:00	0.30
28-Aug-18	12:06:00	0.30
28-Aug-18	12:08:00	0.30
28-Aug-18	12:10:00	0.30
28-Aug-18	12:12:00	0.30
28-Aug-18	12:14:00	0.00
28-Aug-18	12:16:00	0.00
28-Aug-18	12:18:00	0.00
28-Aug-18	12:20:00	0.00
28-Aug-18	12:22:00	0.00
28-Aug-18	12:24:00	0.00
28-Aug-18	12:26:00	0.00
28-Aug-18	12:28:00	0.00
28-Aug-18	12:30:00	0.00
28-Aug-18	12:32:00	0.00
28-Aug-18	12:34:00	0.00
28-Aug-18	12:36:00	0.00
28-Aug-18	12:38:00	0.00
28-Aug-18	12:40:00	0.00
28-Aug-18	12:42:00	0.00
28-Aug-18	12:44:00	0.00
28-Aug-18	12:46:00	0.00
28-Aug-18	12:48:00	0.00
28-Aug-18	12:50:00	0.00
28-Aug-18	12:52:00	0.00
28-Aug-18	12:54:00	0.00
28-Aug-18	12:56:00	0.00
28-Aug-18	12:58:00	0.00
28-Aug-18	13:00:00	0.00
28-Aug-18	13:02:00	0.00
28-Aug-18	13:04:00	0.00
28-Aug-18	13:06:00	0.00
28-Aug-18	13:08:00	0.00
28-Aug-18	13:10:00	0.00
28-Aug-18	13:12:00	0.00
28-Aug-18	13:14:00	0.00
28-Aug-18	13:16:00	0.00
28-Aug-18	13:18:00	0.00
28-Aug-18	13:20:00	0.00
28-Aug-18	13:22:00	0.00

28-Aug-18	13:24:00	5.20
28-Aug-18	13:26:00	4.60
28-Aug-18	13:28:00	4.00
28-Aug-18	13:30:00	3.40
28-Aug-18	13:32:00	3.40
28-Aug-18	13:34:00	3.10
28-Aug-18	13:36:00	3.10
28-Aug-18	13:38:00	3.10
28-Aug-18	13:40:00	3.10
28-Aug-18	13:42:00	3.10
28-Aug-18	13:44:00	3.10
28-Aug-18	13:46:00	3.10
28-Aug-18	13:48:00	3.10
28-Aug-18	13:50:00	3.10
28-Aug-18	13:52:00	3.10
28-Aug-18	13:54:00	3.10
28-Aug-18	13:56:00	3.10
28-Aug-18	13:58:00	3.20
28-Aug-18	14:00:00	3.20
28-Aug-18	14:02:00	3.20
28-Aug-18	14:04:00	3.40
28-Aug-18	14:06:00	0.00
28-Aug-18	14:08:00	0.00
28-Aug-18	14:10:00	0.00
28-Aug-18	14:12:00	0.00
28-Aug-18	14:14:00	0.00
28-Aug-18	14:16:00	0.00
28-Aug-18	14:18:00	0.00
28-Aug-18	14:20:00	0.00
28-Aug-18	14:22:00	0.00
28-Aug-18	14:24:00	0.00
28-Aug-18	14:26:00	0.00
28-Aug-18	14:28:00	0.00
28-Aug-18	14:30:00	0.00
28-Aug-18	14:32:00	0.00
28-Aug-18	14:34:00	0.00
28-Aug-18	14:36:00	0.00
28-Aug-18	14:38:00	0.00
28-Aug-18	14:40:00	0.00
28-Aug-18	14:42:00	0.00
28-Aug-18	14:44:00	0.00
28-Aug-18	14:46:00	0.00
28-Aug-18	14:48:00	0.00
28-Aug-18	14:50:00	0.00
28-Aug-18	14:52:00	0.00
28-Aug-18	14:54:00	0.00
28-Aug-18	14:56:00	0.00

28-Aug-18	14:58:00	0.00
28-Aug-18	15:00:00	0.00
28-Aug-18	15:02:00	0.00
28-Aug-18	15:04:00	0.00
28-Aug-18	15:06:00	0.00
28-Aug-18	15:08:00	0.00
28-Aug-18	15:10:00	0.00
28-Aug-18	15:12:00	0.00
28-Aug-18	15:14:00	0.00
28-Aug-18	15:16:00	0.00
28-Aug-18	15:18:00	0.00
28-Aug-18	15:20:00	0.00
28-Aug-18	15:22:00	0.00
28-Aug-18	15:24:00	0.00
28-Aug-18	15:26:00	0.00
28-Aug-18	15:28:00	0.00
28-Aug-18	15:30:00	0.00
28-Aug-18	15:32:00	0.00
28-Aug-18	15:34:00	0.00
28-Aug-18	15:36:00	0.00
28-Aug-18	15:38:00	0.00
28-Aug-18	15:40:00	0.00
28-Aug-18	15:42:00	0.00
28-Aug-18	15:44:00	0.00
28-Aug-18	15:46:00	0.00
28-Aug-18	15:48:00	0.00
28-Aug-18	15:50:00	0.00
28-Aug-18	15:52:00	0.00
28-Aug-18	15:54:00	0.00
28-Aug-18	15:56:00	0.00
28-Aug-18	15:58:00	0.00
28-Aug-18	16:00:00	0.00
28-Aug-18	16:02:00	0.00
28-Aug-18	16:04:00	0.00
28-Aug-18	16:06:00	0.00
28-Aug-18	16:08:00	0.10
28-Aug-18	16:10:00	0.10
28-Aug-18	16:12:00	0.10
28-Aug-18	16:14:00	0.10
28-Aug-18	16:16:00	0.10
28-Aug-18	16:18:00	0.00
28-Aug-18	16:20:00	0.00
28-Aug-18	16:22:00	0.00
28-Aug-18	16:24:00	0.00
28-Aug-18	16:26:00	0.00
28-Aug-18	16:28:00	0.00
28-Aug-18	16:30:00	0.00

28-Aug-18	16:32:00	0.00
28-Aug-18	16:34:00	0.00
28-Aug-18	16:36:00	0.00
28-Aug-18	16:38:00	0.00
28-Aug-18	16:40:00	0.00
28-Aug-18	16:42:00	0.00
28-Aug-18	16:44:00	0.00
28-Aug-18	16:46:00	0.00
28-Aug-18	16:48:00	0.00
28-Aug-18	16:50:00	0.00
28-Aug-18	16:52:00	0.00
28-Aug-18	16:54:00	0.00
28-Aug-18	16:56:00	0.00
28-Aug-18	16:58:00	0.00
28-Aug-18	17:00:00	0.00
28-Aug-18	17:02:00	0.00
28-Aug-18	17:04:00	0.00
28-Aug-18	17:06:00	0.00
28-Aug-18	17:08:00	0.00
28-Aug-18	17:10:00	0.00
28-Aug-18	17:12:00	0.00
28-Aug-18	17:14:00	0.00
28-Aug-18	17:16:00	0.00
28-Aug-18	17:18:00	0.00
28-Aug-18	17:20:00	0.00
28-Aug-18	17:22:00	0.00
28-Aug-18	17:24:00	0.00
28-Aug-18	17:26:00	0.00
28-Aug-18	17:28:00	0.00
28-Aug-18	17:30:00	0.00
28-Aug-18	17:32:00	0.00
28-Aug-18	17:34:00	0.00
28-Aug-18	17:36:00	0.00
28-Aug-18	17:38:00	0.00
28-Aug-18	17:40:00	0.00
28-Aug-18	17:42:00	0.00
28-Aug-18	17:44:00	0.00
28-Aug-18	17:46:00	0.00
28-Aug-18	17:48:00	0.00
28-Aug-18	17:50:00	0.00
28-Aug-18	17:52:00	0.00
28-Aug-18	17:54:00	0.00
28-Aug-18	17:56:00	0.00
28-Aug-18	17:58:00	0.00
28-Aug-18	18:00:00	0.00
28-Aug-18	18:02:00	0.00
28-Aug-18	18:04:00	0.00

28-Aug-18	18:06:00	0.00
28-Aug-18	18:08:00	0.00
28-Aug-18	18:10:00	0.00
28-Aug-18	18:12:00	0.00
28-Aug-18	18:14:00	0.00
28-Aug-18	18:16:00	0.00
28-Aug-18	18:18:00	0.00
28-Aug-18	18:20:00	0.00
28-Aug-18	18:22:00	0.00
28-Aug-18	18:24:00	0.00
28-Aug-18	18:26:00	0.00
28-Aug-18	18:28:00	0.00
28-Aug-18	18:30:00	0.00
28-Aug-18	18:32:00	0.00
28-Aug-18	18:34:00	0.00
28-Aug-18	18:36:00	0.00
28-Aug-18	18:38:00	0.00
28-Aug-18	18:40:00	0.00
28-Aug-18	18:42:00	0.00
28-Aug-18	18:44:00	0.00
28-Aug-18	18:46:00	0.00
28-Aug-18	18:48:00	0.00
28-Aug-18	18:50:00	0.00
28-Aug-18	18:52:00	0.00
28-Aug-18	18:54:00	0.00
28-Aug-18	18:56:00	0.00
28-Aug-18	18:58:00	0.00
28-Aug-18	19:00:00	0.00

5-Sep-18	6:00:00	0.00
5-Sep-18	6:02:00	0.00
5-Sep-18	6:04:00	0.00
5-Sep-18	6:06:00	0.00
5-Sep-18	6:08:00	0.00
5-Sep-18	6:10:00	0.00
5-Sep-18	6:12:00	0.00
5-Sep-18	6:14:00	0.00
5-Sep-18	6:16:00	0.00
5-Sep-18	6:18:00	0.00
5-Sep-18	6:20:00	0.00
5-Sep-18	6:22:00	0.00
5-Sep-18	6:24:00	0.00
5-Sep-18	6:26:00	0.00
5-Sep-18	6:28:00	0.00
5-Sep-18	6:30:00	0.00
5-Sep-18	6:32:00	0.00
5-Sep-18	6:34:00	0.00
5-Sep-18	6:36:00	0.00
5-Sep-18	6:38:00	0.00
5-Sep-18	6:40:00	0.00
5-Sep-18	6:42:00	0.00
5-Sep-18	6:44:00	0.00
5-Sep-18	6:46:00	0.00
5-Sep-18	6:48:00	0.00
5-Sep-18	6:50:00	0.00
5-Sep-18	6:52:00	0.00
5-Sep-18	6:54:00	0.00
5-Sep-18	6:56:00	0.00
5-Sep-18	6:58:00	0.00
5-Sep-18	7:00:00	0.00
5-Sep-18	7:02:00	0.00
5-Sep-18	7:04:00	0.00
5-Sep-18	7:06:00	0.00
5-Sep-18	7:08:00	0.00
5-Sep-18	7:10:00	0.00
5-Sep-18	7:12:00	0.00
5-Sep-18	7:14:00	0.00
5-Sep-18	7:16:00	0.10
5-Sep-18	7:18:00	0.10
5-Sep-18	7:20:00	0.10
5-Sep-18	7:22:00	0.10
5-Sep-18	7:24:00	0.10
5-Sep-18	7:26:00	0.10
5-Sep-18	7:28:00	0.10
5-Sep-18	7:30:00	0.10
5-Sep-18	7:32:00	0.10

5-Sep-18	7:34:00	0.10
5-Sep-18	7:36:00	0.10
5-Sep-18	7:38:00	0.10
5-Sep-18	7:40:00	0.10
5-Sep-18	7:42:00	0.10
5-Sep-18	7:44:00	0.10
5-Sep-18	7:46:00	0.10
5-Sep-18	7:48:00	0.10
5-Sep-18	7:50:00	0.10
5-Sep-18	7:52:00	0.10
5-Sep-18	7:54:00	0.10
5-Sep-18	7:56:00	0.10
5-Sep-18	7:58:00	0.10
5-Sep-18	8:00:00	0.10
5-Sep-18	8:02:00	0.10
5-Sep-18	8:04:00	0.10
5-Sep-18	8:06:00	0.00
5-Sep-18	8:08:00	0.00
5-Sep-18	8:10:00	0.00
5-Sep-18	8:12:00	0.00
5-Sep-18	8:14:00	0.00
5-Sep-18	8:16:00	0.00
5-Sep-18	8:18:00	0.00
5-Sep-18	8:20:00	0.00
5-Sep-18	8:22:00	0.00
5-Sep-18	8:24:00	0.00
5-Sep-18	8:26:00	0.10
5-Sep-18	8:28:00	0.10
5-Sep-18	8:30:00	0.10
5-Sep-18	8:32:00	0.10
5-Sep-18	8:34:00	0.10
5-Sep-18	8:36:00	0.10
5-Sep-18	8:38:00	0.10
5-Sep-18	8:40:00	0.10
5-Sep-18	8:42:00	0.10
5-Sep-18	8:44:00	0.10
5-Sep-18	8:46:00	0.10
5-Sep-18	8:48:00	0.10
5-Sep-18	8:50:00	0.10
5-Sep-18	8:52:00	0.10
5-Sep-18	8:54:00	0.10
5-Sep-18	8:56:00	0.20
5-Sep-18	8:58:00	0.30
5-Sep-18	9:00:00	0.30
5-Sep-18	9:02:00	0.60
5-Sep-18	9:04:00	0.60
5-Sep-18	9:06:00	0.60

5-Sep-18	9:08:00	0.60
5-Sep-18	9:10:00	0.60
5-Sep-18	9:12:00	0.60
5-Sep-18	9:14:00	0.60
5-Sep-18	9:16:00	0.60
5-Sep-18	9:18:00	0.60
5-Sep-18	9:20:00	0.60
5-Sep-18	9:22:00	0.30
5-Sep-18	9:24:00	0.30
5-Sep-18	9:26:00	0.30
5-Sep-18	9:28:00	0.30
5-Sep-18	9:30:00	0.30
5-Sep-18	9:32:00	0.30
5-Sep-18	9:34:00	0.00
5-Sep-18	9:36:00	0.00
5-Sep-18	9:38:00	0.00
5-Sep-18	9:40:00	0.00
5-Sep-18	9:42:00	0.30
5-Sep-18	9:44:00	0.30
5-Sep-18	9:46:00	0.00
5-Sep-18	9:48:00	0.00
5-Sep-18	9:50:00	0.00
5-Sep-18	9:52:00	0.30
5-Sep-18	9:54:00	0.30
5-Sep-18	9:56:00	0.30
5-Sep-18	9:58:00	0.30
5-Sep-18	10:00:00	0.30
5-Sep-18	10:02:00	0.20
5-Sep-18	10:04:00	0.20
5-Sep-18	10:06:00	0.20
5-Sep-18	10:08:00	0.20
5-Sep-18	10:10:00	0.20
5-Sep-18	10:12:00	0.40
5-Sep-18	10:14:00	0.00
5-Sep-18	10:16:00	0.40
5-Sep-18	10:18:00	0.40
5-Sep-18	10:20:00	0.40
5-Sep-18	10:22:00	0.40
5-Sep-18	10:24:00	0.40
5-Sep-18	10:26:00	0.40
5-Sep-18	10:28:00	0.40
5-Sep-18	10:30:00	0.40
5-Sep-18	10:32:00	0.40
5-Sep-18	10:34:00	0.40
5-Sep-18	10:36:00	0.40
5-Sep-18	10:38:00	0.40
5-Sep-18	10:40:00	0.40

5-Sep-18	10:42:00	0.00
5-Sep-18	10:44:00	0.00
5-Sep-18	10:46:00	0.00
5-Sep-18	10:48:00	0.00
5-Sep-18	10:50:00	0.30
5-Sep-18	10:52:00	0.30
5-Sep-18	10:54:00	0.30
5-Sep-18	10:56:00	0.00
5-Sep-18	10:58:00	0.00
5-Sep-18	11:00:00	0.00
5-Sep-18	11:02:00	0.30
5-Sep-18	11:04:00	0.30
5-Sep-18	11:06:00	0.30
5-Sep-18	11:08:00	0.30
5-Sep-18	11:10:00	0.30
5-Sep-18	11:12:00	0.20
5-Sep-18	11:14:00	0.20
5-Sep-18	11:16:00	0.60
5-Sep-18	11:18:00	0.60
5-Sep-18	11:20:00	0.60
5-Sep-18	11:22:00	0.60
5-Sep-18	11:24:00	0.00
5-Sep-18	11:26:00	0.00
5-Sep-18	11:28:00	0.00
5-Sep-18	11:30:00	0.00
5-Sep-18	11:32:00	0.00
5-Sep-18	11:34:00	0.10
5-Sep-18	11:36:00	0.10
5-Sep-18	11:38:00	0.10
5-Sep-18	11:40:00	0.10
5-Sep-18	11:42:00	0.10
5-Sep-18	11:44:00	0.00
5-Sep-18	11:46:00	0.00
5-Sep-18	11:48:00	0.00
5-Sep-18	11:50:00	0.00
5-Sep-18	11:52:00	0.00
5-Sep-18	11:54:00	0.00
5-Sep-18	11:56:00	0.00
5-Sep-18	11:58:00	0.00
5-Sep-18	12:00:00	0.30
5-Sep-18	12:02:00	0.30
5-Sep-18	12:04:00	0.00
5-Sep-18	12:06:00	0.00
5-Sep-18	12:08:00	0.00
5-Sep-18	12:10:00	0.00
5-Sep-18	12:12:00	0.30
5-Sep-18	12:14:00	0.60

5-Sep-18	12:16:00	0.00
5-Sep-18	12:18:00	0.00
5-Sep-18	12:20:00	0.00
5-Sep-18	12:22:00	0.00
5-Sep-18	12:24:00	0.00
5-Sep-18	12:26:00	0.00
5-Sep-18	12:28:00	0.00
5-Sep-18	12:30:00	0.00
5-Sep-18	12:32:00	0.00
5-Sep-18	12:34:00	0.00
5-Sep-18	12:36:00	0.30
5-Sep-18	12:38:00	0.30
5-Sep-18	12:40:00	0.00
5-Sep-18	12:42:00	0.00
5-Sep-18	12:44:00	0.00
5-Sep-18	12:46:00	0.00
5-Sep-18	12:48:00	0.00
5-Sep-18	12:50:00	0.00
5-Sep-18	12:52:00	0.00
5-Sep-18	12:54:00	0.00
5-Sep-18	12:56:00	0.00
5-Sep-18	12:58:00	0.00
5-Sep-18	13:00:00	0.00
5-Sep-18	13:02:00	2.00
5-Sep-18	13:04:00	5.00
5-Sep-18	13:06:00	4.30
5-Sep-18	13:08:00	4.00
5-Sep-18	13:10:00	3.10
5-Sep-18	13:12:00	2.80
5-Sep-18	13:14:00	2.50
5-Sep-18	13:16:00	2.80
5-Sep-18	13:18:00	3.70
5-Sep-18	13:20:00	4.30
5-Sep-18	13:22:00	4.30
5-Sep-18	13:24:00	4.30
5-Sep-18	13:26:00	4.30
5-Sep-18	13:28:00	4.30
5-Sep-18	13:30:00	4.00
5-Sep-18	13:32:00	3.40
5-Sep-18	13:34:00	3.10
5-Sep-18	13:36:00	3.10
5-Sep-18	13:38:00	3.10
5-Sep-18	13:40:00	3.10
5-Sep-18	13:42:00	3.40
5-Sep-18	13:44:00	0.00
5-Sep-18	13:46:00	0.00
5-Sep-18	13:48:00	0.00

5-Sep-18	13:50:00	0.00
5-Sep-18	13:52:00	0.00
5-Sep-18	13:54:00	0.00
5-Sep-18	13:56:00	0.00
5-Sep-18	13:58:00	0.00
5-Sep-18	14:00:00	0.00
5-Sep-18	14:02:00	0.00
5-Sep-18	14:04:00	0.00
5-Sep-18	14:06:00	0.00
5-Sep-18	14:08:00	0.00
5-Sep-18	14:10:00	0.00
5-Sep-18	14:12:00	0.00
5-Sep-18	14:14:00	0.00
5-Sep-18	14:16:00	0.00
5-Sep-18	14:18:00	0.00
5-Sep-18	14:20:00	0.00
5-Sep-18	14:22:00	0.00
5-Sep-18	14:24:00	0.00
5-Sep-18	14:26:00	0.00
5-Sep-18	14:28:00	0.00
5-Sep-18	14:30:00	0.00
5-Sep-18	14:32:00	0.00
5-Sep-18	14:34:00	0.00
5-Sep-18	14:36:00	0.00
5-Sep-18	14:38:00	0.00
5-Sep-18	14:40:00	0.00
5-Sep-18	14:42:00	0.00
5-Sep-18	14:44:00	0.10
5-Sep-18	14:46:00	0.10
5-Sep-18	14:48:00	0.10
5-Sep-18	14:50:00	0.10
5-Sep-18	14:52:00	0.10
5-Sep-18	14:54:00	0.00
5-Sep-18	14:56:00	0.00
5-Sep-18	14:58:00	0.00
5-Sep-18	15:00:00	0.00
5-Sep-18	15:02:00	0.00
5-Sep-18	15:04:00	0.00
5-Sep-18	15:06:00	0.00
5-Sep-18	15:08:00	0.00
5-Sep-18	15:10:00	0.00
5-Sep-18	15:12:00	0.00
5-Sep-18	15:14:00	0.00
5-Sep-18	15:16:00	0.00
5-Sep-18	15:18:00	0.00
5-Sep-18	15:20:00	0.00
5-Sep-18	15:22:00	0.00

5-Sep-18	15:24:00	0.00
5-Sep-18	15:26:00	0.00
5-Sep-18	15:28:00	0.00
5-Sep-18	15:30:00	0.00
5-Sep-18	15:32:00	0.00
5-Sep-18	15:34:00	0.00
5-Sep-18	15:36:00	0.00
5-Sep-18	15:38:00	0.00
5-Sep-18	15:40:00	0.00
5-Sep-18	15:42:00	0.00
5-Sep-18	15:44:00	0.00
5-Sep-18	15:46:00	0.00
5-Sep-18	15:48:00	0.00
5-Sep-18	15:50:00	0.00
5-Sep-18	15:52:00	0.00
5-Sep-18	15:54:00	0.00
5-Sep-18	15:56:00	0.00
5-Sep-18	15:58:00	0.00
5-Sep-18	16:00:00	0.00
5-Sep-18	16:02:00	0.00
5-Sep-18	16:04:00	0.00
5-Sep-18	16:06:00	0.00
5-Sep-18	16:08:00	0.00
5-Sep-18	16:10:00	0.00
5-Sep-18	16:12:00	0.00
5-Sep-18	16:14:00	0.00
5-Sep-18	16:16:00	0.00
5-Sep-18	16:18:00	0.00
5-Sep-18	16:20:00	0.00
5-Sep-18	16:22:00	0.00
5-Sep-18	16:24:00	0.00
5-Sep-18	16:26:00	0.00
5-Sep-18	16:28:00	0.00
5-Sep-18	16:30:00	0.00
5-Sep-18	16:32:00	0.00
5-Sep-18	16:34:00	0.00
5-Sep-18	16:36:00	0.00
5-Sep-18	16:38:00	0.00
5-Sep-18	16:40:00	0.00
5-Sep-18	16:42:00	0.00
5-Sep-18	16:44:00	0.00
5-Sep-18	16:46:00	0.00
5-Sep-18	16:48:00	0.00
5-Sep-18	16:50:00	0.00
5-Sep-18	16:52:00	0.00
5-Sep-18	16:54:00	0.00
5-Sep-18	16:56:00	0.00

5-Sep-18	16:58:00	0.00
5-Sep-18	17:00:00	0.00
5-Sep-18	17:02:00	0.00
5-Sep-18	17:04:00	0.00
5-Sep-18	17:06:00	0.00
5-Sep-18	17:08:00	0.00
5-Sep-18	17:10:00	0.00
5-Sep-18	17:12:00	0.00
5-Sep-18	17:14:00	0.00
5-Sep-18	17:16:00	0.00
5-Sep-18	17:18:00	0.00
5-Sep-18	17:20:00	0.00
5-Sep-18	17:22:00	0.00
5-Sep-18	17:24:00	0.00
5-Sep-18	17:26:00	0.00
5-Sep-18	17:28:00	0.00
5-Sep-18	17:30:00	0.00
5-Sep-18	17:32:00	0.00
5-Sep-18	17:34:00	0.00
5-Sep-18	17:36:00	0.00
5-Sep-18	17:38:00	0.00
5-Sep-18	17:40:00	0.00
5-Sep-18	17:42:00	0.00
5-Sep-18	17:44:00	0.00
5-Sep-18	17:46:00	0.00
5-Sep-18	17:48:00	0.00
5-Sep-18	17:50:00	0.00
5-Sep-18	17:52:00	0.00
5-Sep-18	17:54:00	0.00
5-Sep-18	17:56:00	0.00
5-Sep-18	17:58:00	0.00
5-Sep-18	18:00:00	0.00
5-Sep-18	18:02:00	0.00
5-Sep-18	18:04:00	0.00
5-Sep-18	18:06:00	0.00
5-Sep-18	18:08:00	0.00
5-Sep-18	18:10:00	0.00
5-Sep-18	18:12:00	0.00
5-Sep-18	18:14:00	0.00
5-Sep-18	18:16:00	0.00
5-Sep-18	18:18:00	0.00
5-Sep-18	18:20:00	0.00
5-Sep-18	18:22:00	0.00
5-Sep-18	18:24:00	0.00
5-Sep-18	18:26:00	0.00
5-Sep-18	18:28:00	0.00
5-Sep-18	18:30:00	0.00

5-Sep-18	18:32:00	0.00
5-Sep-18	18:34:00	0.00
5-Sep-18	18:36:00	0.00
5-Sep-18	18:38:00	0.00
5-Sep-18	18:40:00	0.00
5-Sep-18	18:42:00	0.00
5-Sep-18	18:44:00	0.00
5-Sep-18	18:46:00	0.00
5-Sep-18	18:48:00	0.00
5-Sep-18	18:50:00	0.00
5-Sep-18	18:52:00	0.00
5-Sep-18	18:54:00	0.00
5-Sep-18	18:56:00	0.00
5-Sep-18	18:58:00	0.00
5-Sep-18	19:00:00	0.00
6-Sep-18	6:00:00	0.00
6-Sep-18	6:02:00	0.00
6-Sep-18	6:04:00	0.00
6-Sep-18	6:06:00	0.00
6-Sep-18	6:08:00	0.00
6-Sep-18	6:10:00	0.00
6-Sep-18	6:12:00	0.00
6-Sep-18	6:14:00	0.00
6-Sep-18	6:16:00	0.00
6-Sep-18	6:18:00	0.00
6-Sep-18	6:20:00	0.00
6-Sep-18	6:22:00	0.00
6-Sep-18	6:24:00	0.00
6-Sep-18	6:26:00	0.00
6-Sep-18	6:28:00	0.00
6-Sep-18	6:30:00	0.00
6-Sep-18	6:32:00	0.00
6-Sep-18	6:34:00	0.00
6-Sep-18	6:36:00	0.00
6-Sep-18	6:38:00	0.00
6-Sep-18	6:40:00	0.00
6-Sep-18	6:42:00	0.00
6-Sep-18	6:44:00	0.00
6-Sep-18	6:46:00	0.00
6-Sep-18	6:48:00	0.00
6-Sep-18	6:50:00	0.00
6-Sep-18	6:52:00	0.00
6-Sep-18	6:54:00	0.00
6-Sep-18	6:56:00	0.00
6-Sep-18	6:58:00	0.00
6-Sep-18	7:00:00	0.00
6-Sep-18	7:02:00	0.00

6-Sep-18	7:04:00	0.00
6-Sep-18	7:06:00	0.00
6-Sep-18	7:08:00	0.00
6-Sep-18	7:10:00	0.00
6-Sep-18	7:12:00	0.00
6-Sep-18	7:14:00	0.00
6-Sep-18	7:16:00	0.00
6-Sep-18	7:18:00	0.00
6-Sep-18	7:20:00	0.00
6-Sep-18	7:22:00	0.00
6-Sep-18	7:24:00	0.00
6-Sep-18	7:26:00	0.00
6-Sep-18	7:28:00	0.00
6-Sep-18	7:30:00	0.00
6-Sep-18	7:32:00	0.00
6-Sep-18	7:34:00	0.10
6-Sep-18	7:36:00	0.10
6-Sep-18	7:38:00	0.10
6-Sep-18	7:40:00	0.10
6-Sep-18	7:42:00	0.10
6-Sep-18	7:44:00	0.10
6-Sep-18	7:46:00	0.10
6-Sep-18	7:48:00	0.10
6-Sep-18	7:50:00	0.10
6-Sep-18	7:52:00	0.10
6-Sep-18	7:54:00	0.10
6-Sep-18	7:56:00	0.00
6-Sep-18	7:58:00	0.00
6-Sep-18	8:00:00	0.00
6-Sep-18	8:02:00	0.00
6-Sep-18	8:04:00	0.00
6-Sep-18	8:06:00	0.00
6-Sep-18	8:08:00	0.00
6-Sep-18	8:10:00	0.00
6-Sep-18	8:12:00	0.00
6-Sep-18	8:14:00	0.00
6-Sep-18	8:16:00	0.00
6-Sep-18	8:18:00	0.00
6-Sep-18	8:20:00	0.00
6-Sep-18	8:22:00	0.00
6-Sep-18	8:24:00	0.00
6-Sep-18	8:26:00	0.00
6-Sep-18	8:28:00	0.00
6-Sep-18	8:30:00	0.00
6-Sep-18	8:32:00	0.00
6-Sep-18	8:34:00	0.10
6-Sep-18	8:36:00	0.10

6-Sep-18	8:38:00	0.10
6-Sep-18	8:40:00	0.10
6-Sep-18	8:42:00	0.10
6-Sep-18	8:44:00	0.10
6-Sep-18	8:46:00	0.10
6-Sep-18	8:48:00	0.10
6-Sep-18	8:50:00	0.10
6-Sep-18	8:52:00	0.10
6-Sep-18	8:54:00	0.10
6-Sep-18	8:56:00	0.10
6-Sep-18	8:58:00	0.10
6-Sep-18	9:00:00	0.10
6-Sep-18	9:02:00	0.10
6-Sep-18	9:04:00	0.10
6-Sep-18	9:06:00	0.20
6-Sep-18	9:08:00	0.20
6-Sep-18	9:10:00	0.30
6-Sep-18	9:12:00	0.30
6-Sep-18	9:14:00	0.30
6-Sep-18	9:16:00	0.30
6-Sep-18	9:18:00	0.30
6-Sep-18	9:20:00	0.00
6-Sep-18	9:22:00	0.00
6-Sep-18	9:24:00	0.00
6-Sep-18	9:26:00	0.00
6-Sep-18	9:28:00	0.00
6-Sep-18	9:30:00	0.10
6-Sep-18	9:32:00	0.10
6-Sep-18	9:34:00	0.10
6-Sep-18	9:36:00	5.60
6-Sep-18	9:38:00	4.70
6-Sep-18	9:40:00	4.40
6-Sep-18	9:42:00	3.80
6-Sep-18	9:44:00	3.80
6-Sep-18	9:46:00	3.80
6-Sep-18	9:48:00	3.80
6-Sep-18	9:50:00	3.80
6-Sep-18	9:52:00	4.10
6-Sep-18	9:54:00	4.10
6-Sep-18	9:56:00	4.10
6-Sep-18	9:58:00	4.10
6-Sep-18	10:00:00	4.10
6-Sep-18	10:02:00	4.10
6-Sep-18	10:04:00	4.10
6-Sep-18	10:06:00	4.40
6-Sep-18	10:08:00	4.10
6-Sep-18	10:10:00	0.60

6-Sep-18	10:12:00	0.10
6-Sep-18	10:14:00	0.10
6-Sep-18	10:16:00	0.10
6-Sep-18	10:18:00	0.10
6-Sep-18	10:20:00	0.10
6-Sep-18	10:22:00	0.00
6-Sep-18	10:24:00	0.00
6-Sep-18	10:26:00	0.00
6-Sep-18	10:28:00	0.00
6-Sep-18	10:30:00	0.00
6-Sep-18	10:32:00	0.00
6-Sep-18	10:34:00	0.00
6-Sep-18	10:36:00	0.00
6-Sep-18	10:38:00	0.00
6-Sep-18	10:40:00	0.20
6-Sep-18	10:42:00	0.20
6-Sep-18	10:44:00	0.20
6-Sep-18	10:46:00	0.20
6-Sep-18	10:48:00	0.20
6-Sep-18	10:50:00	0.10
6-Sep-18	10:52:00	0.10
6-Sep-18	10:54:00	0.10
6-Sep-18	10:56:00	0.10
6-Sep-18	10:58:00	0.10
6-Sep-18	11:00:00	0.10
6-Sep-18	11:02:00	0.10
6-Sep-18	11:04:00	0.10
6-Sep-18	11:06:00	0.10
6-Sep-18	11:08:00	0.10
6-Sep-18	11:10:00	0.00
6-Sep-18	11:12:00	0.00
6-Sep-18	11:14:00	0.00
6-Sep-18	11:16:00	0.00
6-Sep-18	11:18:00	0.00
6-Sep-18	11:20:00	0.00
6-Sep-18	11:22:00	0.00
6-Sep-18	11:24:00	0.00
6-Sep-18	11:26:00	0.00
6-Sep-18	11:28:00	0.00
6-Sep-18	11:30:00	0.00
6-Sep-18	11:32:00	0.10
6-Sep-18	11:34:00	0.10
6-Sep-18	11:36:00	0.10
6-Sep-18	11:38:00	0.10
6-Sep-18	11:40:00	0.00
6-Sep-18	11:42:00	0.00
6-Sep-18	11:44:00	0.00

6-Sep-18	11:46:00	0.00
6-Sep-18	11:48:00	0.00
6-Sep-18	11:50:00	0.00
6-Sep-18	11:52:00	0.20
6-Sep-18	11:54:00	0.20
6-Sep-18	11:56:00	0.20
6-Sep-18	11:58:00	0.20
6-Sep-18	12:00:00	0.00
6-Sep-18	12:02:00	0.00
6-Sep-18	12:04:00	0.00
6-Sep-18	12:06:00	0.00
6-Sep-18	12:08:00	0.00
6-Sep-18	12:10:00	0.00
6-Sep-18	12:12:00	0.00
6-Sep-18	12:14:00	0.00
6-Sep-18	12:16:00	0.00
6-Sep-18	12:18:00	0.00
6-Sep-18	12:20:00	0.00
6-Sep-18	12:22:00	0.00
6-Sep-18	12:24:00	0.00
6-Sep-18	12:26:00	0.00
6-Sep-18	12:28:00	0.00
6-Sep-18	12:30:00	0.00
6-Sep-18	12:32:00	0.00
6-Sep-18	12:34:00	0.00
6-Sep-18	12:36:00	0.00
6-Sep-18	12:38:00	0.00
6-Sep-18	12:40:00	0.00
6-Sep-18	12:42:00	0.00
6-Sep-18	12:44:00	0.00
6-Sep-18	12:46:00	0.00
6-Sep-18	12:48:00	0.00
6-Sep-18	12:50:00	0.00
6-Sep-18	12:52:00	0.00
6-Sep-18	12:54:00	0.00
6-Sep-18	12:56:00	0.00
6-Sep-18	12:58:00	0.00
6-Sep-18	13:00:00	0.00
6-Sep-18	13:02:00	0.10
6-Sep-18	13:04:00	0.10
6-Sep-18	13:06:00	0.10
6-Sep-18	13:08:00	0.10
6-Sep-18	13:10:00	0.10
6-Sep-18	13:12:00	0.30
6-Sep-18	13:14:00	0.40
6-Sep-18	13:16:00	0.40
6-Sep-18	13:18:00	0.70

6-Sep-18	13:20:00	0.70
6-Sep-18	13:22:00	0.70
6-Sep-18	13:24:00	0.40
6-Sep-18	13:26:00	0.40
6-Sep-18	13:28:00	0.40
6-Sep-18	13:30:00	0.40
6-Sep-18	13:32:00	0.40
6-Sep-18	13:34:00	0.10
6-Sep-18	13:36:00	0.10
6-Sep-18	13:38:00	0.10
6-Sep-18	13:40:00	0.10
6-Sep-18	13:42:00	0.10
6-Sep-18	13:44:00	0.00
6-Sep-18	13:46:00	0.00
6-Sep-18	13:48:00	0.00
6-Sep-18	13:50:00	0.00
6-Sep-18	13:52:00	0.00
6-Sep-18	13:54:00	0.00
6-Sep-18	13:56:00	0.00
6-Sep-18	13:58:00	0.00
6-Sep-18	14:00:00	0.00
6-Sep-18	14:02:00	0.00
6-Sep-18	14:04:00	0.00
6-Sep-18	14:06:00	0.00
6-Sep-18	14:08:00	0.00
6-Sep-18	14:10:00	0.00
6-Sep-18	14:12:00	0.00
6-Sep-18	14:14:00	0.00
6-Sep-18	14:16:00	0.00
6-Sep-18	14:18:00	0.00
6-Sep-18	14:20:00	0.00
6-Sep-18	14:22:00	0.00
6-Sep-18	14:24:00	0.00
6-Sep-18	14:26:00	0.00
6-Sep-18	14:28:00	0.00
6-Sep-18	14:30:00	0.00
6-Sep-18	14:32:00	0.00
6-Sep-18	14:34:00	0.00
6-Sep-18	14:36:00	0.00
6-Sep-18	14:38:00	0.00
6-Sep-18	14:40:00	0.00
6-Sep-18	14:42:00	0.00
6-Sep-18	14:44:00	0.00
6-Sep-18	14:46:00	0.00
6-Sep-18	14:48:00	0.00
6-Sep-18	14:50:00	0.00
6-Sep-18	14:52:00	0.00

6-Sep-18	14:54:00	0.00
6-Sep-18	14:56:00	0.00
6-Sep-18	14:58:00	0.00
6-Sep-18	15:00:00	0.00
6-Sep-18	15:02:00	0.00
6-Sep-18	15:04:00	0.10
6-Sep-18	15:06:00	0.10
6-Sep-18	15:08:00	0.10
6-Sep-18	15:10:00	0.10
6-Sep-18	15:12:00	0.10
6-Sep-18	15:14:00	0.00
6-Sep-18	15:16:00	0.00
6-Sep-18	15:18:00	0.00
6-Sep-18	15:20:00	0.00
6-Sep-18	15:22:00	0.00
6-Sep-18	15:24:00	0.00
6-Sep-18	15:26:00	0.00
6-Sep-18	15:28:00	0.00
6-Sep-18	15:30:00	0.00
6-Sep-18	15:32:00	0.00
6-Sep-18	15:34:00	0.00
6-Sep-18	15:36:00	0.00
6-Sep-18	15:38:00	0.00
6-Sep-18	15:40:00	0.00
6-Sep-18	15:42:00	0.00
6-Sep-18	15:44:00	0.00
6-Sep-18	15:46:00	0.00
6-Sep-18	15:48:00	0.00
6-Sep-18	15:50:00	0.00
6-Sep-18	15:52:00	0.00
6-Sep-18	15:54:00	0.00
6-Sep-18	15:56:00	0.00
6-Sep-18	15:58:00	0.00
6-Sep-18	16:00:00	0.00
6-Sep-18	16:02:00	0.00
6-Sep-18	16:04:00	0.10
6-Sep-18	16:06:00	0.10
6-Sep-18	16:08:00	0.10
6-Sep-18	16:10:00	0.10
6-Sep-18	16:12:00	0.10
6-Sep-18	16:14:00	0.30
6-Sep-18	16:16:00	0.40
6-Sep-18	16:18:00	0.40
6-Sep-18	16:20:00	0.40
6-Sep-18	16:22:00	0.40
6-Sep-18	16:24:00	0.10
6-Sep-18	16:26:00	0.10

6-Sep-18	16:28:00	0.10
6-Sep-18	16:30:00	0.10
6-Sep-18	16:32:00	0.10
6-Sep-18	16:34:00	0.00
6-Sep-18	16:36:00	0.00
6-Sep-18	16:38:00	0.00
6-Sep-18	16:40:00	0.00
6-Sep-18	16:42:00	0.00
6-Sep-18	16:44:00	0.00
6-Sep-18	16:46:00	0.00
6-Sep-18	16:48:00	0.00
6-Sep-18	16:50:00	0.00
6-Sep-18	16:52:00	0.00
6-Sep-18	16:54:00	0.00
6-Sep-18	16:56:00	0.00
6-Sep-18	16:58:00	0.00
6-Sep-18	17:00:00	0.00
6-Sep-18	17:02:00	0.40
6-Sep-18	17:04:00	0.40
6-Sep-18	17:06:00	0.40
6-Sep-18	17:08:00	0.40
6-Sep-18	17:10:00	0.40
6-Sep-18	17:12:00	0.40
6-Sep-18	17:14:00	0.20
6-Sep-18	17:16:00	0.20
6-Sep-18	17:18:00	0.20
6-Sep-18	17:20:00	0.20
6-Sep-18	17:22:00	0.10
6-Sep-18	17:24:00	0.10
6-Sep-18	17:26:00	0.10
6-Sep-18	17:28:00	0.10
6-Sep-18	17:30:00	0.10
6-Sep-18	17:32:00	0.00
6-Sep-18	17:34:00	0.00
6-Sep-18	17:36:00	0.00
6-Sep-18	17:38:00	0.00
6-Sep-18	17:40:00	0.00
6-Sep-18	17:42:00	0.00
6-Sep-18	17:44:00	0.00
6-Sep-18	17:46:00	0.00
6-Sep-18	17:48:00	0.00
6-Sep-18	17:50:00	0.00
6-Sep-18	17:52:00	0.00
6-Sep-18	17:54:00	0.00
6-Sep-18	17:56:00	0.00
6-Sep-18	17:58:00	0.00
6-Sep-18	18:00:00	0.00

6-Sep-18	18:02:00	0.00
6-Sep-18	18:04:00	0.00
6-Sep-18	18:06:00	0.00
6-Sep-18	18:08:00	0.00
6-Sep-18	18:10:00	0.00
6-Sep-18	18:12:00	0.00
6-Sep-18	18:14:00	0.00
6-Sep-18	18:16:00	0.00
6-Sep-18	18:18:00	0.00
6-Sep-18	18:20:00	0.00
6-Sep-18	18:22:00	0.00
6-Sep-18	18:24:00	0.00
6-Sep-18	18:26:00	0.00
6-Sep-18	18:28:00	0.00
6-Sep-18	18:30:00	0.00
6-Sep-18	18:32:00	0.00
6-Sep-18	18:34:00	0.00
6-Sep-18	18:36:00	0.00
6-Sep-18	18:38:00	0.00
6-Sep-18	18:40:00	0.00
6-Sep-18	18:42:00	0.00
6-Sep-18	18:44:00	0.00
6-Sep-18	18:46:00	0.00
6-Sep-18	18:48:00	0.00
6-Sep-18	18:50:00	0.00
6-Sep-18	18:52:00	0.00
6-Sep-18	18:54:00	0.00
6-Sep-18	18:56:00	0.00
6-Sep-18	18:58:00	0.00
6-Sep-18	19:00:00	0.00
13-Sep-18	6:00:00	0.00
13-Sep-18	6:02:00	0.00
13-Sep-18	6:04:00	0.00
13-Sep-18	6:06:00	0.00
13-Sep-18	6:08:00	0.00
13-Sep-18	6:10:00	0.10
13-Sep-18	6:12:00	0.10
13-Sep-18	6:14:00	0.10
13-Sep-18	6:16:00	0.10
13-Sep-18	6:18:00	0.10
13-Sep-18	6:20:00	0.00
13-Sep-18	6:22:00	0.00
13-Sep-18	6:24:00	0.00
13-Sep-18	6:26:00	0.00
13-Sep-18	6:28:00	0.00
13-Sep-18	6:30:00	0.00
13-Sep-18	6:32:00	0.00

13-Sep-18	6:34:00	0.00
13-Sep-18	6:36:00	0.00
13-Sep-18	6:38:00	0.00
13-Sep-18	6:40:00	0.00
13-Sep-18	6:42:00	0.00
13-Sep-18	6:44:00	0.00
13-Sep-18	6:46:00	0.00
13-Sep-18	6:48:00	0.00
13-Sep-18	6:50:00	0.00
13-Sep-18	6:52:00	0.00
13-Sep-18	6:54:00	0.00
13-Sep-18	6:56:00	0.00
13-Sep-18	6:58:00	0.00
13-Sep-18	7:00:00	0.00
13-Sep-18	7:02:00	0.00
13-Sep-18	7:04:00	0.00
13-Sep-18	7:06:00	0.00
13-Sep-18	7:08:00	0.00
13-Sep-18	7:10:00	0.00
13-Sep-18	7:12:00	0.00
13-Sep-18	7:14:00	0.00
13-Sep-18	7:16:00	0.00
13-Sep-18	7:18:00	0.00
13-Sep-18	7:20:00	0.00
13-Sep-18	7:22:00	0.00
13-Sep-18	7:24:00	0.00
13-Sep-18	7:26:00	0.00
13-Sep-18	7:28:00	0.00
13-Sep-18	7:30:00	0.00
13-Sep-18	7:32:00	0.10
13-Sep-18	7:34:00	0.10
13-Sep-18	7:36:00	0.10
13-Sep-18	7:38:00	0.10
13-Sep-18	7:40:00	0.10
13-Sep-18	7:42:00	0.00
13-Sep-18	7:44:00	0.00
13-Sep-18	7:46:00	0.00
13-Sep-18	7:48:00	0.00
13-Sep-18	7:50:00	0.00
13-Sep-18	7:52:00	0.00
13-Sep-18	7:54:00	0.00
13-Sep-18	7:56:00	0.00
13-Sep-18	7:58:00	0.00
13-Sep-18	8:00:00	0.10
13-Sep-18	8:02:00	0.10
13-Sep-18	8:04:00	0.10
13-Sep-18	8:06:00	0.10

13-Sep-18	8:08:00	0.10
13-Sep-18	8:10:00	0.10
13-Sep-18	8:12:00	0.10
13-Sep-18	8:14:00	0.10
13-Sep-18	8:16:00	0.10
13-Sep-18	8:18:00	0.10
13-Sep-18	8:20:00	0.10
13-Sep-18	8:22:00	0.10
13-Sep-18	8:24:00	0.10
13-Sep-18	8:26:00	0.10
13-Sep-18	8:28:00	0.10
13-Sep-18	8:30:00	0.10
13-Sep-18	8:32:00	0.10
13-Sep-18	8:34:00	0.10
13-Sep-18	8:36:00	0.10
13-Sep-18	8:38:00	0.10
13-Sep-18	8:40:00	0.10
13-Sep-18	8:42:00	0.10
13-Sep-18	8:44:00	0.10
13-Sep-18	8:46:00	0.10
13-Sep-18	8:48:00	0.10
13-Sep-18	8:50:00	0.10
13-Sep-18	8:52:00	0.00
13-Sep-18	8:54:00	0.00
13-Sep-18	8:56:00	0.00
13-Sep-18	8:58:00	0.00
13-Sep-18	9:00:00	0.00
13-Sep-18	9:02:00	0.10
13-Sep-18	9:04:00	0.40
13-Sep-18	9:06:00	0.40
13-Sep-18	9:08:00	0.40
13-Sep-18	9:10:00	0.70
13-Sep-18	9:12:00	0.70
13-Sep-18	9:14:00	0.70
13-Sep-18	9:16:00	0.70
13-Sep-18	9:18:00	0.70
13-Sep-18	9:20:00	0.90
13-Sep-18	9:22:00	0.90
13-Sep-18	9:24:00	0.90
13-Sep-18	9:26:00	0.90
13-Sep-18	9:28:00	0.90
13-Sep-18	9:30:00	0.50
13-Sep-18	9:32:00	0.50
13-Sep-18	9:34:00	0.50
13-Sep-18	9:36:00	0.50
13-Sep-18	9:38:00	0.50
13-Sep-18	9:40:00	0.70

13-Sep-18	9:42:00	0.70
13-Sep-18	9:44:00	0.70
13-Sep-18	9:46:00	0.70
13-Sep-18	9:48:00	0.70
13-Sep-18	9:50:00	0.40
13-Sep-18	9:52:00	0.40
13-Sep-18	9:54:00	0.40
13-Sep-18	9:56:00	0.40
13-Sep-18	9:58:00	0.40
13-Sep-18	10:00:00	0.30
13-Sep-18	10:02:00	0.30
13-Sep-18	10:04:00	0.30
13-Sep-18	10:06:00	0.30
13-Sep-18	10:08:00	0.20
13-Sep-18	10:10:00	0.20
13-Sep-18	10:12:00	0.20
13-Sep-18	10:14:00	0.20
13-Sep-18	10:16:00	0.20
13-Sep-18	10:18:00	0.30
13-Sep-18	10:20:00	0.30
13-Sep-18	10:22:00	0.30
13-Sep-18	10:24:00	0.30
13-Sep-18	10:26:00	0.30
13-Sep-18	10:28:00	0.50
13-Sep-18	10:30:00	0.50
13-Sep-18	10:32:00	0.50
13-Sep-18	10:34:00	0.50
13-Sep-18	10:36:00	0.50
13-Sep-18	10:38:00	0.50
13-Sep-18	10:40:00	0.50
13-Sep-18	10:42:00	0.50
13-Sep-18	10:44:00	0.50
13-Sep-18	10:46:00	0.50
13-Sep-18	10:48:00	0.30
13-Sep-18	10:50:00	0.30
13-Sep-18	10:52:00	0.30
13-Sep-18	10:54:00	0.30
13-Sep-18	10:56:00	0.30
13-Sep-18	10:58:00	0.30
13-Sep-18	11:00:00	0.10
13-Sep-18	11:02:00	0.10
13-Sep-18	11:04:00	0.10
13-Sep-18	11:06:00	0.10
13-Sep-18	11:08:00	0.10
13-Sep-18	11:10:00	0.40
13-Sep-18	11:12:00	0.40
13-Sep-18	11:14:00	0.40

13-Sep-18	11:16:00	0.40
13-Sep-18	11:18:00	0.10
13-Sep-18	11:20:00	0.10
13-Sep-18	11:22:00	0.10
13-Sep-18	11:24:00	6.00
13-Sep-18	11:26:00	5.30
13-Sep-18	11:28:00	4.70
13-Sep-18	11:30:00	4.40
13-Sep-18	11:32:00	4.10
13-Sep-18	11:34:00	4.10
13-Sep-18	11:36:00	4.10
13-Sep-18	11:38:00	3.80
13-Sep-18	11:40:00	3.80
13-Sep-18	11:42:00	3.80
13-Sep-18	11:44:00	3.80
13-Sep-18	11:46:00	3.80
13-Sep-18	11:48:00	4.10
13-Sep-18	11:50:00	4.10
13-Sep-18	11:52:00	4.10
13-Sep-18	11:54:00	4.10
13-Sep-18	11:56:00	4.10
13-Sep-18	11:58:00	4.30
13-Sep-18	12:00:00	4.40
13-Sep-18	12:02:00	4.40
13-Sep-18	12:04:00	3.10
13-Sep-18	12:06:00	0.10
13-Sep-18	12:08:00	0.10
13-Sep-18	12:10:00	0.10
13-Sep-18	12:12:00	0.10
13-Sep-18	12:14:00	0.10
13-Sep-18	12:16:00	0.00
13-Sep-18	12:18:00	0.00
13-Sep-18	12:20:00	0.00
13-Sep-18	12:22:00	0.00
13-Sep-18	12:24:00	0.00
13-Sep-18	12:26:00	0.10
13-Sep-18	12:28:00	0.10
13-Sep-18	12:30:00	0.10
13-Sep-18	12:32:00	0.10
13-Sep-18	12:34:00	0.10
13-Sep-18	12:36:00	0.10
13-Sep-18	12:38:00	0.10
13-Sep-18	12:40:00	0.10
13-Sep-18	12:42:00	0.10
13-Sep-18	12:44:00	0.10
13-Sep-18	12:46:00	5.40
13-Sep-18	12:48:00	5.10

13-Sep-18	12:50:00	4.50
13-Sep-18	12:52:00	4.20
13-Sep-18	12:54:00	4.20
13-Sep-18	12:56:00	3.90
13-Sep-18	12:58:00	3.90
13-Sep-18	13:00:00	3.60
13-Sep-18	13:02:00	3.30
13-Sep-18	13:04:00	3.30
13-Sep-18	13:06:00	3.60
13-Sep-18	13:08:00	3.60
13-Sep-18	13:10:00	3.80
13-Sep-18	13:12:00	0.10
13-Sep-18	13:14:00	0.10
13-Sep-18	13:16:00	0.10
13-Sep-18	13:18:00	0.10
13-Sep-18	13:20:00	0.10
13-Sep-18	13:22:00	0.00
13-Sep-18	13:24:00	0.00
13-Sep-18	13:26:00	0.00
13-Sep-18	13:28:00	0.00
13-Sep-18	13:30:00	0.00
13-Sep-18	13:32:00	0.00
13-Sep-18	13:34:00	0.00
13-Sep-18	13:36:00	0.00
13-Sep-18	13:38:00	0.00
13-Sep-18	13:40:00	0.00
13-Sep-18	13:42:00	0.00
13-Sep-18	13:44:00	0.00
13-Sep-18	13:46:00	0.00
13-Sep-18	13:48:00	0.00
13-Sep-18	13:50:00	0.00
13-Sep-18	13:52:00	0.00
13-Sep-18	13:54:00	0.00
13-Sep-18	13:56:00	0.00
13-Sep-18	13:58:00	0.00
13-Sep-18	14:00:00	0.00
13-Sep-18	14:02:00	0.00
13-Sep-18	14:04:00	0.00
13-Sep-18	14:06:00	0.00
13-Sep-18	14:08:00	0.00
13-Sep-18	14:10:00	0.00
13-Sep-18	14:12:00	0.00
13-Sep-18	14:14:00	0.00
13-Sep-18	14:16:00	0.00
13-Sep-18	14:18:00	0.00
13-Sep-18	14:20:00	0.00
13-Sep-18	14:22:00	0.00

13-Sep-18	14:24:00	0.00
13-Sep-18	14:26:00	0.00
13-Sep-18	14:28:00	0.00
13-Sep-18	14:30:00	0.00
13-Sep-18	14:32:00	0.00
13-Sep-18	14:34:00	0.00
13-Sep-18	14:36:00	0.00
13-Sep-18	14:38:00	0.00
13-Sep-18	14:40:00	0.00
13-Sep-18	14:42:00	0.00
13-Sep-18	14:44:00	0.00
13-Sep-18	14:46:00	0.00
13-Sep-18	14:48:00	0.00
13-Sep-18	14:50:00	0.00
13-Sep-18	14:52:00	0.00
13-Sep-18	14:54:00	0.00
13-Sep-18	14:56:00	0.00
13-Sep-18	14:58:00	0.00
13-Sep-18	15:00:00	0.00
13-Sep-18	15:02:00	0.00
13-Sep-18	15:04:00	0.00
13-Sep-18	15:06:00	0.00
13-Sep-18	15:08:00	0.00
13-Sep-18	15:10:00	0.00
13-Sep-18	15:12:00	0.00
13-Sep-18	15:14:00	0.00
13-Sep-18	15:16:00	0.00
13-Sep-18	15:18:00	0.00
13-Sep-18	15:20:00	0.00
13-Sep-18	15:22:00	0.00
13-Sep-18	15:24:00	0.00
13-Sep-18	15:26:00	0.00
13-Sep-18	15:28:00	0.00
13-Sep-18	15:30:00	0.00
13-Sep-18	15:32:00	0.10
13-Sep-18	15:34:00	0.10
13-Sep-18	15:36:00	0.10
13-Sep-18	15:38:00	0.10
13-Sep-18	15:40:00	0.10
13-Sep-18	15:42:00	0.10
13-Sep-18	15:44:00	0.00
13-Sep-18	15:46:00	0.00
13-Sep-18	15:48:00	0.00
13-Sep-18	15:50:00	0.00
13-Sep-18	15:52:00	0.00
13-Sep-18	15:54:00	0.00
13-Sep-18	15:56:00	0.00

13-Sep-18	15:58:00	0.00
13-Sep-18	16:00:00	0.00
13-Sep-18	16:02:00	0.00
13-Sep-18	16:04:00	0.00
13-Sep-18	16:06:00	0.00
13-Sep-18	16:08:00	0.00
13-Sep-18	16:10:00	0.00
13-Sep-18	16:12:00	0.00
13-Sep-18	16:14:00	0.00
13-Sep-18	16:16:00	0.00
13-Sep-18	16:18:00	0.00
13-Sep-18	16:20:00	0.00
13-Sep-18	16:22:00	0.00
13-Sep-18	16:24:00	0.00
13-Sep-18	16:26:00	0.00
13-Sep-18	16:28:00	0.00
13-Sep-18	16:30:00	0.00
13-Sep-18	16:32:00	0.00
13-Sep-18	16:34:00	0.00
13-Sep-18	16:36:00	0.00
13-Sep-18	16:38:00	0.00
13-Sep-18	16:40:00	0.00
13-Sep-18	16:42:00	0.00
13-Sep-18	16:44:00	0.00
13-Sep-18	16:46:00	0.00
13-Sep-18	16:48:00	0.00
13-Sep-18	16:50:00	0.00
13-Sep-18	16:52:00	0.00
13-Sep-18	16:54:00	0.00
13-Sep-18	16:56:00	0.00
13-Sep-18	16:58:00	0.00
13-Sep-18	17:00:00	0.00
13-Sep-18	17:02:00	0.00
13-Sep-18	17:04:00	0.00
13-Sep-18	17:06:00	0.00
13-Sep-18	17:08:00	0.00
13-Sep-18	17:10:00	0.00
13-Sep-18	17:12:00	0.00
13-Sep-18	17:14:00	0.00
13-Sep-18	17:16:00	0.00
13-Sep-18	17:18:00	0.00
13-Sep-18	17:20:00	0.00
13-Sep-18	17:22:00	0.00
13-Sep-18	17:24:00	0.00
13-Sep-18	17:26:00	0.00
13-Sep-18	17:28:00	0.00
13-Sep-18	17:30:00	0.00

13-Sep-18	17:32:00	0.00
13-Sep-18	17:34:00	0.00
13-Sep-18	17:36:00	0.00
13-Sep-18	17:38:00	0.00
13-Sep-18	17:40:00	0.00
13-Sep-18	17:42:00	0.00
13-Sep-18	17:44:00	0.00
13-Sep-18	17:46:00	0.00
13-Sep-18	17:48:00	0.00
13-Sep-18	17:50:00	0.00
13-Sep-18	17:52:00	0.00
13-Sep-18	17:54:00	0.00
13-Sep-18	17:56:00	0.00
13-Sep-18	17:58:00	0.00
13-Sep-18	18:00:00	0.00
13-Sep-18	18:02:00	0.00
13-Sep-18	18:04:00	0.00
13-Sep-18	18:06:00	0.00
13-Sep-18	18:08:00	0.00
13-Sep-18	18:10:00	0.00
13-Sep-18	18:12:00	0.00
13-Sep-18	18:14:00	0.00
13-Sep-18	18:16:00	0.00
13-Sep-18	18:18:00	0.00
13-Sep-18	18:20:00	0.00
13-Sep-18	18:22:00	0.00
13-Sep-18	18:24:00	0.00
13-Sep-18	18:26:00	0.00
13-Sep-18	18:28:00	0.00
13-Sep-18	18:30:00	0.00
13-Sep-18	18:32:00	0.00
13-Sep-18	18:34:00	0.00
13-Sep-18	18:36:00	0.00
13-Sep-18	18:38:00	0.00
13-Sep-18	18:40:00	0.00
13-Sep-18	18:42:00	0.00
13-Sep-18	18:44:00	0.00
13-Sep-18	18:46:00	0.00
13-Sep-18	18:48:00	0.00
13-Sep-18	18:50:00	0.00
13-Sep-18	18:52:00	0.00
13-Sep-18	18:54:00	0.00
13-Sep-18	18:56:00	0.00
13-Sep-18	18:58:00	0.00
13-Sep-18	19:00:00	0.00
17-Sep-18	6:00:00	0.00
17-Sep-18	6:02:00	0.00

17-Sep-18	6:04:00	0.00
17-Sep-18	6:06:00	0.00
17-Sep-18	6:08:00	0.00
17-Sep-18	6:10:00	0.00
17-Sep-18	6:12:00	0.00
17-Sep-18	6:14:00	0.00
17-Sep-18	6:16:00	0.00
17-Sep-18	6:18:00	0.00
17-Sep-18	6:20:00	0.00
17-Sep-18	6:22:00	0.00
17-Sep-18	6:24:00	0.00
17-Sep-18	6:26:00	0.00
17-Sep-18	6:28:00	0.00
17-Sep-18	6:30:00	0.00
17-Sep-18	6:32:00	0.00
17-Sep-18	6:34:00	0.00
17-Sep-18	6:36:00	0.00
17-Sep-18	6:38:00	0.00
17-Sep-18	6:40:00	0.00
17-Sep-18	6:42:00	0.00
17-Sep-18	6:44:00	0.00
17-Sep-18	6:46:00	0.00
17-Sep-18	6:48:00	0.00
17-Sep-18	6:50:00	0.00
17-Sep-18	6:52:00	0.00
17-Sep-18	6:54:00	0.00
17-Sep-18	6:56:00	0.00
17-Sep-18	6:58:00	0.00
17-Sep-18	7:00:00	0.00
17-Sep-18	7:02:00	0.00
17-Sep-18	7:04:00	0.00
17-Sep-18	7:06:00	0.00
17-Sep-18	7:08:00	0.00
17-Sep-18	7:10:00	0.00
17-Sep-18	7:12:00	0.00
17-Sep-18	7:14:00	0.00
17-Sep-18	7:16:00	0.00
17-Sep-18	7:18:00	0.00
17-Sep-18	7:20:00	0.10
17-Sep-18	7:22:00	0.10
17-Sep-18	7:24:00	0.10
17-Sep-18	7:26:00	0.10
17-Sep-18	7:28:00	0.10
17-Sep-18	7:30:00	0.10
17-Sep-18	7:32:00	0.10
17-Sep-18	7:34:00	0.10
17-Sep-18	7:36:00	0.10

17-Sep-18	7:38:00	0.10
17-Sep-18	7:40:00	0.10
17-Sep-18	7:42:00	0.10
17-Sep-18	7:44:00	0.10
17-Sep-18	7:46:00	0.10
17-Sep-18	7:48:00	0.10
17-Sep-18	7:50:00	0.10
17-Sep-18	7:52:00	0.10
17-Sep-18	7:54:00	0.10
17-Sep-18	7:56:00	0.10
17-Sep-18	7:58:00	0.10
17-Sep-18	8:00:00	0.10
17-Sep-18	8:02:00	0.10
17-Sep-18	8:04:00	0.10
17-Sep-18	8:06:00	0.10
17-Sep-18	8:08:00	0.10
17-Sep-18	8:10:00	0.10
17-Sep-18	8:12:00	0.10
17-Sep-18	8:14:00	0.10
17-Sep-18	8:16:00	0.10
17-Sep-18	8:18:00	0.10
17-Sep-18	8:20:00	0.10
17-Sep-18	8:22:00	0.10
17-Sep-18	8:24:00	0.10
17-Sep-18	8:26:00	0.10
17-Sep-18	8:28:00	0.10
17-Sep-18	8:30:00	0.10
17-Sep-18	8:32:00	0.10
17-Sep-18	8:34:00	0.10
17-Sep-18	8:36:00	0.10
17-Sep-18	8:38:00	0.10
17-Sep-18	8:40:00	0.20
17-Sep-18	8:42:00	0.20
17-Sep-18	8:44:00	0.20
17-Sep-18	8:46:00	0.20
17-Sep-18	8:48:00	0.20
17-Sep-18	8:50:00	0.10
17-Sep-18	8:52:00	0.10
17-Sep-18	8:54:00	0.10
17-Sep-18	8:56:00	0.10
17-Sep-18	8:58:00	0.10
17-Sep-18	9:00:00	0.20
17-Sep-18	9:02:00	0.20
17-Sep-18	9:04:00	0.20
17-Sep-18	9:06:00	0.20
17-Sep-18	9:08:00	0.20
17-Sep-18	9:10:00	0.50

17-Sep-18	9:12:00	0.80
17-Sep-18	9:14:00	0.80
17-Sep-18	9:16:00	0.80
17-Sep-18	9:18:00	0.80
17-Sep-18	9:20:00	0.80
17-Sep-18	9:22:00	0.90
17-Sep-18	9:24:00	0.90
17-Sep-18	9:26:00	0.90
17-Sep-18	9:28:00	0.90
17-Sep-18	9:30:00	0.90
17-Sep-18	9:32:00	0.70
17-Sep-18	9:34:00	0.70
17-Sep-18	9:36:00	0.70
17-Sep-18	9:38:00	0.70
17-Sep-18	9:40:00	0.70
17-Sep-18	9:42:00	0.80
17-Sep-18	9:44:00	0.80
17-Sep-18	9:46:00	0.80
17-Sep-18	9:48:00	0.80
17-Sep-18	9:50:00	0.80
17-Sep-18	9:52:00	0.70
17-Sep-18	9:54:00	0.70
17-Sep-18	9:56:00	0.70
17-Sep-18	9:58:00	0.70
17-Sep-18	10:00:00	0.70
17-Sep-18	10:02:00	0.50
17-Sep-18	10:04:00	0.20
17-Sep-18	10:06:00	0.20
17-Sep-18	10:08:00	0.50
17-Sep-18	10:10:00	0.50
17-Sep-18	10:12:00	0.50
17-Sep-18	10:14:00	0.50
17-Sep-18	10:16:00	0.50
17-Sep-18	10:18:00	0.70
17-Sep-18	10:20:00	0.80
17-Sep-18	10:22:00	6.70
17-Sep-18	10:24:00	5.70
17-Sep-18	10:26:00	5.40
17-Sep-18	10:28:00	5.10
17-Sep-18	10:30:00	4.80
17-Sep-18	10:32:00	4.80
17-Sep-18	10:34:00	4.80
17-Sep-18	10:36:00	4.50
17-Sep-18	10:38:00	4.50
17-Sep-18	10:40:00	4.50
17-Sep-18	10:42:00	4.50
17-Sep-18	10:44:00	4.50

17-Sep-18	10:46:00	4.50
17-Sep-18	10:48:00	4.50
17-Sep-18	10:50:00	4.20
17-Sep-18	10:52:00	4.20
17-Sep-18	10:54:00	4.50
17-Sep-18	10:56:00	0.00
17-Sep-18	10:58:00	0.00
17-Sep-18	11:00:00	0.00
17-Sep-18	11:02:00	0.00
17-Sep-18	11:04:00	0.20
17-Sep-18	11:06:00	0.20
17-Sep-18	11:08:00	0.50
17-Sep-18	11:10:00	0.50
17-Sep-18	11:12:00	0.50
17-Sep-18	11:14:00	0.50
17-Sep-18	11:16:00	0.50
17-Sep-18	11:18:00	0.50
17-Sep-18	11:20:00	0.70
17-Sep-18	11:22:00	0.70
17-Sep-18	11:24:00	0.70
17-Sep-18	11:26:00	0.70
17-Sep-18	11:28:00	0.70
17-Sep-18	11:30:00	0.50
17-Sep-18	11:32:00	0.20
17-Sep-18	11:34:00	0.00
17-Sep-18	11:36:00	0.00
17-Sep-18	11:38:00	0.00
17-Sep-18	11:40:00	0.00
17-Sep-18	11:42:00	0.00
17-Sep-18	11:44:00	0.00
17-Sep-18	11:46:00	0.00
17-Sep-18	11:48:00	0.00
17-Sep-18	11:50:00	0.00
17-Sep-18	11:52:00	0.20
17-Sep-18	11:54:00	0.20
17-Sep-18	11:56:00	0.00
17-Sep-18	11:58:00	0.00
17-Sep-18	12:00:00	0.00
17-Sep-18	12:02:00	0.00
17-Sep-18	12:04:00	0.00
17-Sep-18	12:06:00	0.00
17-Sep-18	12:08:00	0.00
17-Sep-18	12:10:00	0.00
17-Sep-18	12:12:00	0.00
17-Sep-18	12:14:00	0.00
17-Sep-18	12:16:00	0.00
17-Sep-18	12:18:00	0.00

17-Sep-18	12:20:00	0.00
17-Sep-18	12:22:00	0.20
17-Sep-18	12:24:00	0.50
17-Sep-18	12:26:00	0.50
17-Sep-18	12:28:00	0.20
17-Sep-18	12:30:00	0.20
17-Sep-18	12:32:00	0.00
17-Sep-18	12:34:00	0.00
17-Sep-18	12:36:00	0.00
17-Sep-18	12:38:00	0.00
17-Sep-18	12:40:00	0.00
17-Sep-18	12:42:00	0.20
17-Sep-18	12:44:00	0.20
17-Sep-18	12:46:00	0.20
17-Sep-18	12:48:00	0.20
17-Sep-18	12:50:00	0.20
17-Sep-18	12:52:00	0.00
17-Sep-18	12:54:00	0.00
17-Sep-18	12:56:00	0.00
17-Sep-18	12:58:00	0.00
17-Sep-18	13:00:00	0.00
17-Sep-18	13:02:00	0.00
17-Sep-18	13:04:00	0.00
17-Sep-18	13:06:00	0.00
17-Sep-18	13:08:00	0.00
17-Sep-18	13:10:00	0.00
17-Sep-18	13:12:00	0.00
17-Sep-18	13:14:00	0.00
17-Sep-18	13:16:00	0.00
17-Sep-18	13:18:00	0.00
17-Sep-18	13:20:00	0.00
17-Sep-18	13:22:00	0.00
17-Sep-18	13:24:00	0.00
17-Sep-18	13:26:00	0.00
17-Sep-18	13:28:00	0.00
17-Sep-18	13:30:00	0.00
17-Sep-18	13:32:00	0.00
17-Sep-18	13:34:00	0.00
17-Sep-18	13:36:00	0.20
17-Sep-18	13:38:00	0.20
17-Sep-18	13:40:00	0.00
17-Sep-18	13:42:00	0.00
17-Sep-18	13:44:00	0.00
17-Sep-18	13:46:00	0.00
17-Sep-18	13:48:00	0.00
17-Sep-18	13:50:00	0.00
17-Sep-18	13:52:00	0.00

17-Sep-18	13:54:00	0.00
17-Sep-18	13:56:00	0.00
17-Sep-18	13:58:00	0.00
17-Sep-18	14:00:00	0.00
17-Sep-18	14:02:00	0.00
17-Sep-18	14:04:00	0.00
17-Sep-18	14:06:00	0.00
17-Sep-18	14:08:00	0.00
17-Sep-18	14:10:00	0.00
17-Sep-18	14:12:00	0.00
17-Sep-18	14:14:00	0.00
17-Sep-18	14:16:00	0.00
17-Sep-18	14:18:00	0.00
17-Sep-18	14:20:00	0.00
17-Sep-18	14:22:00	0.00
17-Sep-18	14:24:00	0.00
17-Sep-18	14:26:00	0.00
17-Sep-18	14:28:00	0.00
17-Sep-18	14:30:00	0.00
17-Sep-18	14:32:00	0.00
17-Sep-18	14:34:00	0.00
17-Sep-18	14:36:00	0.00
17-Sep-18	14:38:00	0.00
17-Sep-18	14:40:00	0.00
17-Sep-18	14:42:00	0.00
17-Sep-18	14:44:00	0.00
17-Sep-18	14:46:00	0.00
17-Sep-18	14:48:00	0.00
17-Sep-18	14:50:00	0.00
17-Sep-18	14:52:00	0.00
17-Sep-18	14:54:00	0.00
17-Sep-18	14:56:00	0.00
17-Sep-18	14:58:00	0.00
17-Sep-18	15:00:00	0.00
17-Sep-18	15:02:00	0.00
17-Sep-18	15:04:00	0.00
17-Sep-18	15:06:00	0.00
17-Sep-18	15:08:00	0.00
17-Sep-18	15:10:00	0.00
17-Sep-18	15:12:00	0.00
17-Sep-18	15:14:00	0.00
17-Sep-18	15:16:00	0.00
17-Sep-18	15:18:00	0.00
17-Sep-18	15:20:00	0.00
17-Sep-18	15:22:00	0.00
17-Sep-18	15:24:00	0.00
17-Sep-18	15:26:00	0.00

17-Sep-18	15:28:00	0.00
17-Sep-18	15:30:00	0.00
17-Sep-18	15:32:00	0.00
17-Sep-18	15:34:00	0.00
17-Sep-18	15:36:00	0.00
17-Sep-18	15:38:00	0.00
17-Sep-18	15:40:00	0.10
17-Sep-18	15:42:00	0.10
17-Sep-18	15:44:00	0.10
17-Sep-18	15:46:00	0.10
17-Sep-18	15:48:00	0.10
17-Sep-18	15:50:00	0.10
17-Sep-18	15:52:00	0.10
17-Sep-18	15:54:00	0.10
17-Sep-18	15:56:00	0.10
17-Sep-18	15:58:00	0.10
17-Sep-18	16:00:00	0.00
17-Sep-18	16:02:00	0.00
17-Sep-18	16:04:00	0.00
17-Sep-18	16:06:00	0.00
17-Sep-18	16:08:00	0.00
17-Sep-18	16:10:00	0.00
17-Sep-18	16:12:00	0.00
17-Sep-18	16:14:00	0.00
17-Sep-18	16:16:00	0.00
17-Sep-18	16:18:00	0.00
17-Sep-18	16:20:00	0.10
17-Sep-18	16:22:00	0.10
17-Sep-18	16:24:00	0.10
17-Sep-18	16:26:00	0.10
17-Sep-18	16:28:00	0.10
17-Sep-18	16:30:00	0.00
17-Sep-18	16:32:00	0.00
17-Sep-18	16:34:00	0.00
17-Sep-18	16:36:00	0.00
17-Sep-18	16:38:00	0.00
17-Sep-18	16:40:00	0.00
17-Sep-18	16:42:00	0.00
17-Sep-18	16:44:00	0.00
17-Sep-18	16:46:00	0.00
17-Sep-18	16:48:00	0.00
17-Sep-18	16:50:00	0.00
17-Sep-18	16:52:00	0.00
17-Sep-18	16:54:00	0.00
17-Sep-18	16:56:00	0.00
17-Sep-18	16:58:00	0.00
17-Sep-18	17:00:00	0.00

17-Sep-18	17:02:00	0.00
17-Sep-18	17:04:00	0.00
17-Sep-18	17:06:00	0.00
17-Sep-18	17:08:00	0.00
17-Sep-18	17:10:00	0.00
17-Sep-18	17:12:00	0.00
17-Sep-18	17:14:00	0.00
17-Sep-18	17:16:00	0.00
17-Sep-18	17:18:00	0.00
17-Sep-18	17:20:00	0.10
17-Sep-18	17:22:00	0.10
17-Sep-18	17:24:00	0.10
17-Sep-18	17:26:00	0.10
17-Sep-18	17:28:00	0.10
17-Sep-18	17:30:00	0.00
17-Sep-18	17:32:00	0.00
17-Sep-18	17:34:00	0.00
17-Sep-18	17:36:00	0.00
17-Sep-18	17:38:00	0.00
17-Sep-18	17:40:00	0.10
17-Sep-18	17:42:00	0.10
17-Sep-18	17:44:00	0.10
17-Sep-18	17:46:00	0.10
17-Sep-18	17:48:00	0.10
17-Sep-18	17:50:00	0.00
17-Sep-18	17:52:00	0.00
17-Sep-18	17:54:00	0.00
17-Sep-18	17:56:00	0.00
17-Sep-18	17:58:00	0.00
17-Sep-18	18:00:00	0.00
17-Sep-18	18:02:00	0.00
17-Sep-18	18:04:00	0.00
17-Sep-18	18:06:00	0.00
17-Sep-18	18:08:00	0.00
17-Sep-18	18:10:00	0.00
17-Sep-18	18:12:00	0.00
17-Sep-18	18:14:00	0.00
17-Sep-18	18:16:00	0.00
17-Sep-18	18:18:00	0.00
17-Sep-18	18:20:00	0.00
17-Sep-18	18:22:00	0.00
17-Sep-18	18:24:00	0.00
17-Sep-18	18:26:00	0.00
17-Sep-18	18:28:00	0.00
17-Sep-18	18:30:00	0.00
17-Sep-18	18:32:00	0.00
17-Sep-18	18:34:00	0.00

17-Sep-18	18:36:00	0.00
17-Sep-18	18:38:00	0.00
17-Sep-18	18:40:00	0.00
17-Sep-18	18:42:00	0.00
17-Sep-18	18:44:00	0.00
17-Sep-18	18:46:00	0.00
17-Sep-18	18:48:00	0.00
17-Sep-18	18:50:00	0.00
17-Sep-18	18:52:00	0.00
17-Sep-18	18:54:00	0.00
17-Sep-18	18:56:00	0.00
17-Sep-18	18:58:00	0.00
17-Sep-18	19:00:00	0.00
18-Sep-18	6:00:00	0.00
18-Sep-18	6:02:00	0.00
18-Sep-18	6:04:00	0.00
18-Sep-18	6:06:00	0.00
18-Sep-18	6:08:00	0.00
18-Sep-18	6:10:00	0.00
18-Sep-18	6:12:00	0.00
18-Sep-18	6:14:00	0.00
18-Sep-18	6:16:00	0.00
18-Sep-18	6:18:00	0.00
18-Sep-18	6:20:00	0.00
18-Sep-18	6:22:00	0.00
18-Sep-18	6:24:00	0.00
18-Sep-18	6:26:00	0.00
18-Sep-18	6:28:00	0.00
18-Sep-18	6:30:00	0.00
18-Sep-18	6:32:00	0.00
18-Sep-18	6:34:00	0.00
18-Sep-18	6:36:00	0.00
18-Sep-18	6:38:00	0.00
18-Sep-18	6:40:00	0.00
18-Sep-18	6:42:00	0.00
18-Sep-18	6:44:00	0.00
18-Sep-18	6:46:00	0.00
18-Sep-18	6:48:00	0.00
18-Sep-18	6:50:00	0.00
18-Sep-18	6:52:00	0.00
18-Sep-18	6:54:00	0.00
18-Sep-18	6:56:00	0.00
18-Sep-18	6:58:00	0.00
18-Sep-18	7:00:00	0.00
18-Sep-18	7:02:00	0.00
18-Sep-18	7:04:00	0.00
18-Sep-18	7:06:00	0.00

18-Sep-18	7:08:00	0.00
18-Sep-18	7:10:00	0.00
18-Sep-18	7:12:00	0.00
18-Sep-18	7:14:00	0.00
18-Sep-18	7:16:00	0.00
18-Sep-18	7:18:00	0.00
18-Sep-18	7:20:00	0.00
18-Sep-18	7:22:00	0.00
18-Sep-18	7:24:00	0.00
18-Sep-18	7:26:00	0.00
18-Sep-18	7:28:00	0.00
18-Sep-18	7:30:00	0.00
18-Sep-18	7:32:00	0.00
18-Sep-18	7:34:00	0.00
18-Sep-18	7:36:00	0.00
18-Sep-18	7:38:00	0.00
18-Sep-18	7:40:00	0.00
18-Sep-18	7:42:00	0.00
18-Sep-18	7:44:00	0.00
18-Sep-18	7:46:00	0.00
18-Sep-18	7:48:00	0.00
18-Sep-18	7:50:00	0.00
18-Sep-18	7:52:00	0.00
18-Sep-18	7:54:00	0.00
18-Sep-18	7:56:00	0.00
18-Sep-18	7:58:00	0.00
18-Sep-18	8:00:00	0.00
18-Sep-18	8:02:00	0.10
18-Sep-18	8:04:00	0.10
18-Sep-18	8:06:00	0.10
18-Sep-18	8:08:00	0.10
18-Sep-18	8:10:00	0.10
18-Sep-18	8:12:00	0.10
18-Sep-18	8:14:00	0.10
18-Sep-18	8:16:00	0.10
18-Sep-18	8:18:00	0.10
18-Sep-18	8:20:00	0.10
18-Sep-18	8:22:00	0.10
18-Sep-18	8:24:00	0.10
18-Sep-18	8:26:00	0.10
18-Sep-18	8:28:00	0.10
18-Sep-18	8:30:00	0.10
18-Sep-18	8:32:00	0.10
18-Sep-18	8:34:00	0.10
18-Sep-18	8:36:00	0.10
18-Sep-18	8:38:00	0.10
18-Sep-18	8:40:00	0.10

18-Sep-18	8:42:00	0.10
18-Sep-18	8:44:00	2.00
18-Sep-18	8:46:00	5.80
18-Sep-18	8:48:00	5.50
18-Sep-18	8:50:00	4.90
18-Sep-18	8:52:00	4.60
18-Sep-18	8:54:00	4.30
18-Sep-18	8:56:00	4.30
18-Sep-18	8:58:00	4.30
18-Sep-18	9:00:00	4.30
18-Sep-18	9:02:00	4.30
18-Sep-18	9:04:00	4.20
18-Sep-18	9:06:00	4.20
18-Sep-18	9:08:00	4.20
18-Sep-18	9:10:00	4.60
18-Sep-18	9:12:00	4.60
18-Sep-18	9:14:00	4.90
18-Sep-18	9:16:00	4.90
18-Sep-18	9:18:00	4.90
18-Sep-18	9:20:00	4.90
18-Sep-18	9:22:00	4.90
18-Sep-18	9:24:00	4.80
18-Sep-18	9:26:00	4.80
18-Sep-18	9:28:00	4.80
18-Sep-18	9:30:00	4.80
18-Sep-18	9:32:00	4.70
18-Sep-18	9:34:00	4.70
18-Sep-18	9:36:00	4.70
18-Sep-18	9:38:00	4.70
18-Sep-18	9:40:00	4.70
18-Sep-18	9:42:00	4.90
18-Sep-18	9:44:00	0.00
18-Sep-18	9:46:00	0.00
18-Sep-18	9:48:00	0.00
18-Sep-18	9:50:00	0.00
18-Sep-18	9:52:00	0.00
18-Sep-18	9:54:00	0.20
18-Sep-18	9:56:00	0.30
18-Sep-18	9:58:00	0.60
18-Sep-18	10:00:00	0.60
18-Sep-18	10:02:00	0.30
18-Sep-18	10:04:00	0.60
18-Sep-18	10:06:00	0.60
18-Sep-18	10:08:00	0.60
18-Sep-18	10:10:00	0.60
18-Sep-18	10:12:00	0.60
18-Sep-18	10:14:00	0.90

18-Sep-18	10:16:00	0.90
18-Sep-18	10:18:00	0.90
18-Sep-18	10:20:00	0.90
18-Sep-18	10:22:00	0.70
18-Sep-18	10:24:00	0.30
18-Sep-18	10:26:00	0.00
18-Sep-18	10:28:00	0.00
18-Sep-18	10:30:00	0.00
18-Sep-18	10:32:00	0.00
18-Sep-18	10:34:00	0.30
18-Sep-18	10:36:00	0.60
18-Sep-18	10:38:00	0.90
18-Sep-18	10:40:00	0.90
18-Sep-18	10:42:00	0.60
18-Sep-18	10:44:00	0.00
18-Sep-18	10:46:00	0.00
18-Sep-18	10:48:00	0.00
18-Sep-18	10:50:00	0.00
18-Sep-18	10:52:00	0.00
18-Sep-18	10:54:00	0.10
18-Sep-18	10:56:00	0.10
18-Sep-18	10:58:00	0.30
18-Sep-18	11:00:00	0.60
18-Sep-18	11:02:00	0.90
18-Sep-18	11:04:00	0.60
18-Sep-18	11:06:00	0.30
18-Sep-18	11:08:00	0.00
18-Sep-18	11:10:00	0.30
18-Sep-18	11:12:00	0.30
18-Sep-18	11:14:00	0.30
18-Sep-18	11:16:00	0.60
18-Sep-18	11:18:00	0.30
18-Sep-18	11:20:00	0.00
18-Sep-18	11:22:00	0.00
18-Sep-18	11:24:00	0.30
18-Sep-18	11:26:00	0.30
18-Sep-18	11:28:00	0.60
18-Sep-18	11:30:00	0.30
18-Sep-18	11:32:00	0.30
18-Sep-18	11:34:00	0.30
18-Sep-18	11:36:00	0.00
18-Sep-18	11:38:00	0.00
18-Sep-18	11:40:00	0.00
18-Sep-18	11:42:00	0.00
18-Sep-18	11:44:00	0.00
18-Sep-18	11:46:00	0.30
18-Sep-18	11:48:00	0.30

18-Sep-18	11:50:00	0.30
18-Sep-18	11:52:00	0.30
18-Sep-18	11:54:00	0.30
18-Sep-18	11:56:00	0.00
18-Sep-18	11:58:00	0.00
18-Sep-18	12:00:00	0.00
18-Sep-18	12:02:00	0.00
18-Sep-18	12:04:00	0.00
18-Sep-18	12:06:00	0.00
18-Sep-18	12:08:00	0.30
18-Sep-18	12:10:00	0.00
18-Sep-18	12:12:00	0.00
18-Sep-18	12:14:00	0.00
18-Sep-18	12:16:00	0.00
18-Sep-18	12:18:00	0.00
18-Sep-18	12:20:00	0.00
18-Sep-18	12:22:00	0.30
18-Sep-18	12:24:00	0.30
18-Sep-18	12:26:00	0.30
18-Sep-18	12:28:00	0.30
18-Sep-18	12:30:00	0.30
18-Sep-18	12:32:00	0.00
18-Sep-18	12:34:00	0.00
18-Sep-18	12:36:00	0.00
18-Sep-18	12:38:00	0.00
18-Sep-18	12:40:00	0.00
18-Sep-18	12:42:00	0.10
18-Sep-18	12:44:00	0.30
18-Sep-18	12:46:00	0.30
18-Sep-18	12:48:00	0.30
18-Sep-18	12:50:00	0.30
18-Sep-18	12:52:00	0.30
18-Sep-18	12:54:00	0.00
18-Sep-18	12:56:00	0.00
18-Sep-18	12:58:00	0.00
18-Sep-18	13:00:00	0.00
18-Sep-18	13:02:00	0.00
18-Sep-18	13:04:00	0.00
18-Sep-18	13:06:00	0.00
18-Sep-18	13:08:00	0.00
18-Sep-18	13:10:00	0.00
18-Sep-18	13:12:00	0.00
18-Sep-18	13:14:00	0.00
18-Sep-18	13:16:00	0.00
18-Sep-18	13:18:00	0.00
18-Sep-18	13:20:00	0.00
18-Sep-18	13:22:00	0.00

18-Sep-18	13:24:00	0.00
18-Sep-18	13:26:00	0.00
18-Sep-18	13:28:00	0.00
18-Sep-18	13:30:00	0.00
18-Sep-18	13:32:00	0.00
18-Sep-18	13:34:00	0.00
18-Sep-18	13:36:00	0.00
18-Sep-18	13:38:00	0.00
18-Sep-18	13:40:00	0.00
18-Sep-18	13:42:00	0.00
18-Sep-18	13:44:00	0.00
18-Sep-18	13:46:00	0.00
18-Sep-18	13:48:00	0.00
18-Sep-18	13:50:00	0.00
18-Sep-18	13:52:00	0.00
18-Sep-18	13:54:00	0.10
18-Sep-18	13:56:00	0.10
18-Sep-18	13:58:00	0.10
18-Sep-18	14:00:00	0.10
18-Sep-18	14:02:00	0.10
18-Sep-18	14:04:00	0.20
18-Sep-18	14:06:00	0.20
18-Sep-18	14:08:00	0.20
18-Sep-18	14:10:00	0.20
18-Sep-18	14:12:00	0.20
18-Sep-18	14:14:00	0.00
18-Sep-18	14:16:00	0.00
18-Sep-18	14:18:00	0.00
18-Sep-18	14:20:00	0.00
18-Sep-18	14:22:00	0.00
18-Sep-18	14:24:00	0.00
18-Sep-18	14:26:00	0.00
18-Sep-18	14:28:00	0.00
18-Sep-18	14:30:00	0.00
18-Sep-18	14:32:00	0.00
18-Sep-18	14:34:00	0.00
18-Sep-18	14:36:00	0.00
18-Sep-18	14:38:00	0.00
18-Sep-18	14:40:00	0.00
18-Sep-18	14:42:00	0.00
18-Sep-18	14:44:00	0.10
18-Sep-18	14:46:00	0.10
18-Sep-18	14:48:00	0.10
18-Sep-18	14:50:00	0.10
18-Sep-18	14:52:00	0.10
18-Sep-18	14:54:00	0.10
18-Sep-18	14:56:00	0.10

18-Sep-18	14:58:00	0.10
18-Sep-18	15:00:00	0.10
18-Sep-18	15:02:00	0.10
18-Sep-18	15:04:00	0.00
18-Sep-18	15:06:00	0.00
18-Sep-18	15:08:00	0.00
18-Sep-18	15:10:00	0.00
18-Sep-18	15:12:00	0.00
18-Sep-18	15:14:00	0.00
18-Sep-18	15:16:00	0.00
18-Sep-18	15:18:00	0.00
18-Sep-18	15:20:00	0.00
18-Sep-18	15:22:00	0.00
18-Sep-18	15:24:00	0.00
18-Sep-18	15:26:00	0.00
18-Sep-18	15:28:00	0.00
18-Sep-18	15:30:00	0.00
18-Sep-18	15:32:00	0.00
18-Sep-18	15:34:00	0.00
18-Sep-18	15:36:00	0.00
18-Sep-18	15:38:00	0.00
18-Sep-18	15:40:00	0.00
18-Sep-18	15:42:00	0.00
18-Sep-18	15:44:00	0.00
18-Sep-18	15:46:00	0.00
18-Sep-18	15:48:00	0.00
18-Sep-18	15:50:00	0.00
18-Sep-18	15:52:00	0.00
18-Sep-18	15:54:00	0.10
18-Sep-18	15:56:00	0.10
18-Sep-18	15:58:00	0.10
18-Sep-18	16:00:00	0.10
18-Sep-18	16:02:00	0.10
18-Sep-18	16:04:00	0.10
18-Sep-18	16:06:00	0.10
18-Sep-18	16:08:00	0.10
18-Sep-18	16:10:00	0.10
18-Sep-18	16:12:00	0.10
18-Sep-18	16:14:00	0.10
18-Sep-18	16:16:00	0.10
18-Sep-18	16:18:00	0.10
18-Sep-18	16:20:00	0.10
18-Sep-18	16:22:00	0.10
18-Sep-18	16:24:00	0.00
18-Sep-18	16:26:00	0.00
18-Sep-18	16:28:00	0.00
18-Sep-18	16:30:00	0.00

18-Sep-18	16:32:00	0.00
18-Sep-18	16:34:00	0.00
18-Sep-18	16:36:00	0.00
18-Sep-18	16:38:00	0.00
18-Sep-18	16:40:00	0.00
18-Sep-18	16:42:00	0.00
18-Sep-18	16:44:00	0.00
18-Sep-18	16:46:00	0.00
18-Sep-18	16:48:00	0.00
18-Sep-18	16:50:00	0.00
18-Sep-18	16:52:00	0.00
18-Sep-18	16:54:00	0.00
18-Sep-18	16:56:00	0.00
18-Sep-18	16:58:00	0.00
18-Sep-18	17:00:00	0.00
18-Sep-18	17:02:00	0.00
18-Sep-18	17:04:00	0.10
18-Sep-18	17:06:00	0.10
18-Sep-18	17:08:00	0.10
18-Sep-18	17:10:00	0.10
18-Sep-18	17:12:00	0.10
18-Sep-18	17:14:00	0.10
18-Sep-18	17:16:00	0.10
18-Sep-18	17:18:00	0.10
18-Sep-18	17:20:00	0.10
18-Sep-18	17:22:00	0.10
18-Sep-18	17:24:00	0.00
18-Sep-18	17:26:00	0.00
18-Sep-18	17:28:00	0.00
18-Sep-18	17:30:00	0.00
18-Sep-18	17:32:00	0.00
18-Sep-18	17:34:00	0.00
18-Sep-18	17:36:00	0.00
18-Sep-18	17:38:00	0.00
18-Sep-18	17:40:00	0.00
18-Sep-18	17:42:00	0.00
18-Sep-18	17:44:00	0.00
18-Sep-18	17:46:00	0.00
18-Sep-18	17:48:00	0.00
18-Sep-18	17:50:00	0.00
18-Sep-18	17:52:00	0.00
18-Sep-18	17:54:00	0.00
18-Sep-18	17:56:00	0.00
18-Sep-18	17:58:00	0.00
18-Sep-18	18:00:00	0.00
18-Sep-18	18:02:00	0.00
18-Sep-18	18:04:00	0.00

18-Sep-18	18:06:00	0.00
18-Sep-18	18:08:00	0.00
18-Sep-18	18:10:00	0.00
18-Sep-18	18:12:00	0.00
18-Sep-18	18:14:00	0.00
18-Sep-18	18:16:00	0.00
18-Sep-18	18:18:00	0.00
18-Sep-18	18:20:00	0.00
18-Sep-18	18:22:00	0.00
18-Sep-18	18:24:00	0.00
18-Sep-18	18:26:00	0.00
18-Sep-18	18:28:00	0.00
18-Sep-18	18:30:00	0.00
18-Sep-18	18:32:00	0.00
18-Sep-18	18:34:00	0.00
18-Sep-18	18:36:00	0.00
18-Sep-18	18:38:00	0.00
18-Sep-18	18:40:00	0.00
18-Sep-18	18:42:00	0.00
18-Sep-18	18:44:00	0.00
18-Sep-18	18:46:00	0.00
18-Sep-18	18:48:00	0.00
18-Sep-18	18:50:00	0.00
18-Sep-18	18:52:00	0.00
18-Sep-18	18:54:00	0.00
18-Sep-18	18:56:00	0.00
18-Sep-18	18:58:00	0.00
18-Sep-18	19:00:00	0.00
19-Sep-18	6:00:00	0.00
19-Sep-18	6:02:00	0.00
19-Sep-18	6:04:00	0.00
19-Sep-18	6:06:00	0.00
19-Sep-18	6:08:00	0.00
19-Sep-18	6:10:00	0.00
19-Sep-18	6:12:00	0.00
19-Sep-18	6:14:00	0.00
19-Sep-18	6:16:00	0.00
19-Sep-18	6:18:00	0.00
19-Sep-18	6:20:00	0.00
19-Sep-18	6:22:00	0.00
19-Sep-18	6:24:00	0.00
19-Sep-18	6:26:00	0.00
19-Sep-18	6:28:00	0.00
19-Sep-18	6:30:00	0.00
19-Sep-18	6:32:00	0.00
19-Sep-18	6:34:00	0.00
19-Sep-18	6:36:00	0.00

19-Sep-18	6:38:00	0.00
19-Sep-18	6:40:00	0.00
19-Sep-18	6:42:00	0.00
19-Sep-18	6:44:00	0.00
19-Sep-18	6:46:00	0.00
19-Sep-18	6:48:00	0.00
19-Sep-18	6:50:00	0.00
19-Sep-18	6:52:00	0.00
19-Sep-18	6:54:00	0.00
19-Sep-18	6:56:00	0.00
19-Sep-18	6:58:00	0.00
19-Sep-18	7:00:00	0.00
19-Sep-18	7:02:00	0.00
19-Sep-18	7:04:00	0.00
19-Sep-18	7:06:00	0.00
19-Sep-18	7:08:00	0.00
19-Sep-18	7:10:00	0.00
19-Sep-18	7:12:00	0.00
19-Sep-18	7:14:00	0.00
19-Sep-18	7:16:00	0.00
19-Sep-18	7:18:00	0.00
19-Sep-18	7:20:00	0.00
19-Sep-18	7:22:00	0.00
19-Sep-18	7:24:00	0.00
19-Sep-18	7:26:00	0.00
19-Sep-18	7:28:00	0.00
19-Sep-18	7:30:00	0.00
19-Sep-18	7:32:00	0.00
19-Sep-18	7:34:00	0.00
19-Sep-18	7:36:00	0.00
19-Sep-18	7:38:00	0.00
19-Sep-18	7:40:00	0.00
19-Sep-18	7:42:00	0.00
19-Sep-18	7:44:00	0.10
19-Sep-18	7:46:00	0.10
19-Sep-18	7:48:00	0.10
19-Sep-18	7:50:00	0.10
19-Sep-18	7:52:00	0.10
19-Sep-18	7:54:00	0.10
19-Sep-18	7:56:00	0.10
19-Sep-18	7:58:00	0.10
19-Sep-18	8:00:00	0.10
19-Sep-18	8:02:00	0.10
19-Sep-18	8:04:00	0.10
19-Sep-18	8:06:00	0.10
19-Sep-18	8:08:00	0.10
19-Sep-18	8:10:00	0.10

19-Sep-18	8:12:00	0.10
19-Sep-18	8:14:00	0.10
19-Sep-18	8:16:00	0.10
19-Sep-18	8:18:00	0.10
19-Sep-18	8:20:00	0.10
19-Sep-18	8:22:00	0.10
19-Sep-18	8:24:00	0.10
19-Sep-18	8:26:00	0.10
19-Sep-18	8:28:00	0.10
19-Sep-18	8:30:00	0.10
19-Sep-18	8:32:00	0.10
19-Sep-18	8:34:00	0.10
19-Sep-18	8:36:00	0.10
19-Sep-18	8:38:00	0.10
19-Sep-18	8:40:00	0.10
19-Sep-18	8:42:00	0.10
19-Sep-18	8:44:00	0.10
19-Sep-18	8:46:00	0.10
19-Sep-18	8:48:00	0.10
19-Sep-18	8:50:00	0.10
19-Sep-18	8:52:00	0.10
19-Sep-18	8:54:00	0.20
19-Sep-18	8:56:00	0.20
19-Sep-18	8:58:00	0.20
19-Sep-18	9:00:00	0.20
19-Sep-18	9:02:00	0.20
19-Sep-18	9:04:00	0.20
19-Sep-18	9:06:00	6.50
19-Sep-18	9:08:00	5.80
19-Sep-18	9:10:00	5.50
19-Sep-18	9:12:00	5.20
19-Sep-18	9:14:00	4.90
19-Sep-18	9:16:00	4.60
19-Sep-18	9:18:00	4.60
19-Sep-18	9:20:00	4.60
19-Sep-18	9:22:00	4.60
19-Sep-18	9:24:00	4.30
19-Sep-18	9:26:00	4.30
19-Sep-18	9:28:00	4.00
19-Sep-18	9:30:00	3.70
19-Sep-18	9:32:00	3.70
19-Sep-18	9:34:00	3.70
19-Sep-18	9:36:00	0.00
19-Sep-18	9:38:00	0.00
19-Sep-18	9:40:00	0.00
19-Sep-18	9:42:00	0.30
19-Sep-18	9:44:00	0.60

19-Sep-18	9:46:00	0.60
19-Sep-18	9:48:00	0.90
19-Sep-18	9:50:00	0.90
19-Sep-18	9:52:00	0.90
19-Sep-18	9:54:00	0.90
19-Sep-18	9:56:00	0.90
19-Sep-18	9:58:00	0.90
19-Sep-18	10:00:00	0.60
19-Sep-18	10:02:00	0.60
19-Sep-18	10:04:00	0.30
19-Sep-18	10:06:00	0.30
19-Sep-18	10:08:00	0.30
19-Sep-18	10:10:00	0.60
19-Sep-18	10:12:00	0.60
19-Sep-18	10:14:00	0.60
19-Sep-18	10:16:00	0.00
19-Sep-18	10:18:00	0.00
19-Sep-18	10:20:00	0.00
19-Sep-18	10:22:00	0.30
19-Sep-18	10:24:00	0.30
19-Sep-18	10:26:00	0.00
19-Sep-18	10:28:00	0.00
19-Sep-18	10:30:00	0.00
19-Sep-18	10:32:00	0.00
19-Sep-18	10:34:00	0.00
19-Sep-18	10:36:00	0.00
19-Sep-18	10:38:00	0.00
19-Sep-18	10:40:00	0.00
19-Sep-18	10:42:00	0.00
19-Sep-18	10:44:00	0.00
19-Sep-18	10:46:00	0.00
19-Sep-18	10:48:00	0.60
19-Sep-18	10:50:00	0.90
19-Sep-18	10:52:00	1.20
19-Sep-18	10:54:00	1.20
19-Sep-18	10:56:00	1.50
19-Sep-18	10:58:00	1.50
19-Sep-18	11:00:00	0.90
19-Sep-18	11:02:00	0.90
19-Sep-18	11:04:00	0.90
19-Sep-18	11:06:00	0.60
19-Sep-18	11:08:00	0.30
19-Sep-18	11:10:00	0.30
19-Sep-18	11:12:00	0.30
19-Sep-18	11:14:00	0.60
19-Sep-18	11:16:00	0.60
19-Sep-18	11:18:00	0.60

19-Sep-18	11:20:00	0.30
19-Sep-18	11:22:00	0.30
19-Sep-18	11:24:00	0.30
19-Sep-18	11:26:00	0.60
19-Sep-18	11:28:00	0.60
19-Sep-18	11:30:00	0.30
19-Sep-18	11:32:00	0.00
19-Sep-18	11:34:00	0.00
19-Sep-18	11:36:00	0.00
19-Sep-18	11:38:00	0.00
19-Sep-18	11:40:00	0.00
19-Sep-18	11:42:00	0.00
19-Sep-18	11:44:00	0.00
19-Sep-18	11:46:00	0.00
19-Sep-18	11:48:00	0.00
19-Sep-18	11:50:00	0.00
19-Sep-18	11:52:00	0.00
19-Sep-18	11:54:00	0.00
19-Sep-18	11:56:00	0.30
19-Sep-18	11:58:00	0.60
19-Sep-18	12:00:00	0.00
19-Sep-18	12:02:00	0.00
19-Sep-18	12:04:00	0.00
19-Sep-18	12:06:00	0.00
19-Sep-18	12:08:00	0.00
19-Sep-18	12:10:00	0.00
19-Sep-18	12:12:00	0.00
19-Sep-18	12:14:00	0.30
19-Sep-18	12:16:00	0.30
19-Sep-18	12:18:00	0.00
19-Sep-18	12:20:00	0.00
19-Sep-18	12:22:00	0.00
19-Sep-18	12:24:00	0.00
19-Sep-18	12:26:00	0.00
19-Sep-18	12:28:00	0.30
19-Sep-18	12:30:00	0.30
19-Sep-18	12:32:00	0.60
19-Sep-18	12:34:00	0.00
19-Sep-18	12:36:00	0.00
19-Sep-18	12:38:00	0.00
19-Sep-18	12:40:00	0.00
19-Sep-18	12:42:00	0.30
19-Sep-18	12:44:00	0.30
19-Sep-18	12:46:00	0.30
19-Sep-18	12:48:00	0.00
19-Sep-18	12:50:00	0.00
19-Sep-18	12:52:00	0.00

19-Sep-18	12:54:00	0.00
19-Sep-18	12:56:00	0.00
19-Sep-18	12:58:00	0.00
19-Sep-18	13:00:00	0.00
19-Sep-18	13:02:00	0.00
19-Sep-18	13:04:00	0.00
19-Sep-18	13:06:00	0.00
19-Sep-18	13:08:00	0.00
19-Sep-18	13:10:00	0.00
19-Sep-18	13:12:00	0.00
19-Sep-18	13:14:00	0.30
19-Sep-18	13:16:00	0.00
19-Sep-18	13:18:00	0.00
19-Sep-18	13:20:00	0.00
19-Sep-18	13:22:00	0.00
19-Sep-18	13:24:00	0.00
19-Sep-18	13:26:00	0.00
19-Sep-18	13:28:00	0.00
19-Sep-18	13:30:00	0.00
19-Sep-18	13:32:00	0.00
19-Sep-18	13:34:00	0.00
19-Sep-18	13:36:00	0.00
19-Sep-18	13:38:00	0.00
19-Sep-18	13:40:00	0.00
19-Sep-18	13:42:00	0.00
19-Sep-18	13:44:00	0.00
19-Sep-18	13:46:00	0.00
19-Sep-18	13:48:00	0.00
19-Sep-18	13:50:00	0.00
19-Sep-18	13:52:00	0.00
19-Sep-18	13:54:00	0.00
19-Sep-18	13:56:00	0.00
19-Sep-18	13:58:00	0.00
19-Sep-18	14:00:00	0.00
19-Sep-18	14:02:00	0.00
19-Sep-18	14:04:00	0.00
19-Sep-18	14:06:00	0.00
19-Sep-18	14:08:00	0.00
19-Sep-18	14:10:00	0.00
19-Sep-18	14:12:00	0.00
19-Sep-18	14:14:00	0.00
19-Sep-18	14:16:00	0.00
19-Sep-18	14:18:00	0.00
19-Sep-18	14:20:00	0.00
19-Sep-18	14:22:00	0.00
19-Sep-18	14:24:00	0.00
19-Sep-18	14:26:00	0.00

19-Sep-18	14:28:00	0.00
19-Sep-18	14:30:00	0.00
19-Sep-18	14:32:00	0.00
19-Sep-18	14:34:00	0.00
19-Sep-18	14:36:00	0.00
19-Sep-18	14:38:00	0.00
19-Sep-18	14:40:00	0.00
19-Sep-18	14:42:00	0.00
19-Sep-18	14:44:00	0.00
19-Sep-18	14:46:00	0.00
19-Sep-18	14:48:00	0.00
19-Sep-18	14:50:00	0.00
19-Sep-18	14:52:00	0.00
19-Sep-18	14:54:00	0.00
19-Sep-18	14:56:00	0.00
19-Sep-18	14:58:00	0.00
19-Sep-18	15:00:00	0.00
19-Sep-18	15:02:00	0.00
19-Sep-18	15:04:00	0.00
19-Sep-18	15:06:00	0.00
19-Sep-18	15:08:00	0.00
19-Sep-18	15:10:00	0.00
19-Sep-18	15:12:00	0.00
19-Sep-18	15:14:00	0.00
19-Sep-18	15:16:00	0.00
19-Sep-18	15:18:00	0.00
19-Sep-18	15:20:00	0.00
19-Sep-18	15:22:00	0.00
19-Sep-18	15:24:00	0.00
19-Sep-18	15:26:00	0.00
19-Sep-18	15:28:00	0.00
19-Sep-18	15:30:00	0.00
19-Sep-18	15:32:00	0.00
19-Sep-18	15:34:00	0.00
19-Sep-18	15:36:00	0.10
19-Sep-18	15:38:00	0.10
19-Sep-18	15:40:00	0.10
19-Sep-18	15:42:00	0.10
19-Sep-18	15:44:00	0.10
19-Sep-18	15:46:00	0.10
19-Sep-18	15:48:00	0.10
19-Sep-18	15:50:00	0.10
19-Sep-18	15:52:00	0.10
19-Sep-18	15:54:00	0.10
19-Sep-18	15:56:00	0.10
19-Sep-18	15:58:00	0.10
19-Sep-18	16:00:00	0.10

19-Sep-18	16:02:00	0.10
19-Sep-18	16:04:00	0.10
19-Sep-18	16:06:00	0.00
19-Sep-18	16:08:00	0.00
19-Sep-18	16:10:00	0.00
19-Sep-18	16:12:00	0.00
19-Sep-18	16:14:00	0.00
19-Sep-18	16:16:00	0.10
19-Sep-18	16:18:00	0.10
19-Sep-18	16:20:00	0.10
19-Sep-18	16:22:00	0.10
19-Sep-18	16:24:00	0.10
19-Sep-18	16:26:00	0.10
19-Sep-18	16:28:00	0.10
19-Sep-18	16:30:00	0.10
19-Sep-18	16:32:00	0.10
19-Sep-18	16:34:00	0.10
19-Sep-18	16:36:00	0.10
19-Sep-18	16:38:00	0.10
19-Sep-18	16:40:00	0.10
19-Sep-18	16:42:00	0.10
19-Sep-18	16:44:00	0.10
19-Sep-18	16:46:00	0.00
19-Sep-18	16:48:00	0.00
19-Sep-18	16:50:00	0.00
19-Sep-18	16:52:00	0.00
19-Sep-18	16:54:00	0.00
19-Sep-18	16:56:00	0.00
19-Sep-18	16:58:00	0.00
19-Sep-18	17:00:00	0.00
19-Sep-18	17:02:00	0.00
19-Sep-18	17:04:00	0.00
19-Sep-18	17:06:00	0.00
19-Sep-18	17:08:00	0.00
19-Sep-18	17:10:00	0.00
19-Sep-18	17:12:00	0.00
19-Sep-18	17:14:00	0.00
19-Sep-18	17:16:00	0.00
19-Sep-18	17:18:00	0.00
19-Sep-18	17:20:00	0.00
19-Sep-18	17:22:00	0.00
19-Sep-18	17:24:00	0.00
19-Sep-18	17:26:00	0.00
19-Sep-18	17:28:00	0.00
19-Sep-18	17:30:00	0.00
19-Sep-18	17:32:00	0.00
19-Sep-18	17:34:00	0.00

19-Sep-18	17:36:00	0.00
19-Sep-18	17:38:00	0.00
19-Sep-18	17:40:00	0.00
19-Sep-18	17:42:00	0.00
19-Sep-18	17:44:00	0.00
19-Sep-18	17:46:00	0.00
19-Sep-18	17:48:00	0.00
19-Sep-18	17:50:00	0.00
19-Sep-18	17:52:00	0.00
19-Sep-18	17:54:00	0.00
19-Sep-18	17:56:00	0.00
19-Sep-18	17:58:00	0.00
19-Sep-18	18:00:00	0.00
19-Sep-18	18:02:00	0.00
19-Sep-18	18:04:00	0.00
19-Sep-18	18:06:00	0.00
19-Sep-18	18:08:00	0.00
19-Sep-18	18:10:00	0.00
19-Sep-18	18:12:00	0.00
19-Sep-18	18:14:00	0.00
19-Sep-18	18:16:00	0.00
19-Sep-18	18:18:00	0.00
19-Sep-18	18:20:00	0.00
19-Sep-18	18:22:00	0.00
19-Sep-18	18:24:00	0.00
19-Sep-18	18:26:00	0.00
19-Sep-18	18:28:00	0.00
19-Sep-18	18:30:00	0.00
19-Sep-18	18:32:00	0.00
19-Sep-18	18:34:00	0.00
19-Sep-18	18:36:00	0.00
19-Sep-18	18:38:00	0.00
19-Sep-18	18:40:00	0.00
19-Sep-18	18:42:00	0.00
19-Sep-18	18:44:00	0.00
19-Sep-18	18:46:00	0.00
19-Sep-18	18:48:00	0.00
19-Sep-18	18:50:00	0.00
19-Sep-18	18:52:00	0.00
19-Sep-18	18:54:00	0.00
19-Sep-18	18:56:00	0.00
19-Sep-18	18:58:00	0.00
19-Sep-18	19:00:00	0.00

1-Oct-18	6:00:00	0.00
1-Oct-18	6:02:00	0.00
1-Oct-18	6:04:00	0.00
1-Oct-18	6:06:00	0.00
1-Oct-18	6:08:00	0.00
1-Oct-18	6:10:00	0.00
1-Oct-18	6:12:00	0.00
1-Oct-18	6:14:00	0.00
1-Oct-18	6:16:00	0.00
1-Oct-18	6:18:00	0.00
1-Oct-18	6:20:00	0.00
1-Oct-18	6:22:00	0.00
1-Oct-18	6:24:00	0.00
1-Oct-18	6:26:00	0.00
1-Oct-18	6:28:00	0.00
1-Oct-18	6:30:00	0.00
1-Oct-18	6:32:00	0.00
1-Oct-18	6:34:00	0.00
1-Oct-18	6:36:00	0.00
1-Oct-18	6:38:00	0.00
1-Oct-18	6:40:00	0.00
1-Oct-18	6:42:00	0.00
1-Oct-18	6:44:00	0.00
1-Oct-18	6:46:00	0.00
1-Oct-18	6:48:00	0.00
1-Oct-18	6:50:00	0.00
1-Oct-18	6:52:00	0.00
1-Oct-18	6:54:00	0.00
1-Oct-18	6:56:00	0.00
1-Oct-18	6:58:00	0.00
1-Oct-18	7:00:00	0.00
1-Oct-18	7:02:00	0.00
1-Oct-18	7:04:00	0.00
1-Oct-18	7:06:00	0.00
1-Oct-18	7:08:00	0.00
1-Oct-18	7:10:00	0.00
1-Oct-18	7:12:00	0.00
1-Oct-18	7:14:00	0.00
1-Oct-18	7:16:00	0.00
1-Oct-18	7:18:00	0.00
1-Oct-18	7:20:00	0.00
1-Oct-18	7:22:00	0.00
1-Oct-18	7:24:00	0.00
1-Oct-18	7:26:00	0.00
1-Oct-18	7:28:00	0.00
1-Oct-18	7:30:00	0.00
1-Oct-18	7:32:00	0.00

1-Oct-18	7:34:00	0.00
1-Oct-18	7:36:00	0.00
1-Oct-18	7:38:00	0.00
1-Oct-18	7:40:00	0.10
1-Oct-18	7:42:00	0.10
1-Oct-18	7:44:00	0.10
1-Oct-18	7:46:00	0.10
1-Oct-18	7:48:00	0.10
1-Oct-18	7:50:00	0.10
1-Oct-18	7:52:00	0.10
1-Oct-18	7:54:00	0.10
1-Oct-18	7:56:00	0.10
1-Oct-18	7:58:00	0.10
1-Oct-18	8:00:00	0.10
1-Oct-18	8:02:00	0.10
1-Oct-18	8:04:00	0.10
1-Oct-18	8:06:00	0.10
1-Oct-18	8:08:00	0.20
1-Oct-18	8:10:00	0.20
1-Oct-18	8:12:00	0.20
1-Oct-18	8:14:00	0.20
1-Oct-18	8:16:00	0.20
1-Oct-18	8:18:00	0.30
1-Oct-18	8:20:00	0.30
1-Oct-18	8:22:00	0.30
1-Oct-18	8:24:00	0.30
1-Oct-18	8:26:00	0.30
1-Oct-18	8:28:00	0.30
1-Oct-18	8:30:00	0.30
1-Oct-18	8:32:00	0.30
1-Oct-18	8:34:00	0.30
1-Oct-18	8:36:00	0.30
1-Oct-18	8:38:00	0.20
1-Oct-18	8:40:00	0.20
1-Oct-18	8:42:00	0.20
1-Oct-18	8:44:00	0.20
1-Oct-18	8:46:00	0.20
1-Oct-18	8:48:00	0.20
1-Oct-18	8:50:00	0.20
1-Oct-18	8:52:00	0.20
1-Oct-18	8:54:00	0.20
1-Oct-18	8:56:00	0.20
1-Oct-18	8:58:00	0.10
1-Oct-18	9:00:00	0.10
1-Oct-18	9:02:00	0.10
1-Oct-18	9:04:00	0.10
1-Oct-18	9:06:00	0.10

1-Oct-18	9:08:00	0.10
1-Oct-18	9:10:00	0.10
1-Oct-18	9:12:00	0.10
1-Oct-18	9:14:00	0.10
1-Oct-18	9:16:00	0.10
1-Oct-18	9:18:00	0.10
1-Oct-18	9:20:00	0.10
1-Oct-18	9:22:00	0.10
1-Oct-18	9:24:00	0.10
1-Oct-18	9:26:00	0.10
1-Oct-18	9:28:00	0.30
1-Oct-18	9:30:00	0.30
1-Oct-18	9:32:00	0.30
1-Oct-18	9:34:00	0.60
1-Oct-18	9:36:00	0.90
1-Oct-18	9:38:00	0.90
1-Oct-18	9:40:00	0.90
1-Oct-18	9:42:00	0.90
1-Oct-18	9:44:00	0.90
1-Oct-18	9:46:00	0.60
1-Oct-18	9:48:00	0.60
1-Oct-18	9:50:00	0.60
1-Oct-18	9:52:00	0.60
1-Oct-18	9:54:00	0.60
1-Oct-18	9:56:00	0.60
1-Oct-18	9:58:00	0.60
1-Oct-18	10:00:00	0.60
1-Oct-18	10:02:00	0.60
1-Oct-18	10:04:00	0.30
1-Oct-18	10:06:00	0.30
1-Oct-18	10:08:00	0.60
1-Oct-18	10:10:00	0.90
1-Oct-18	10:12:00	0.90
1-Oct-18	10:14:00	0.90
1-Oct-18	10:16:00	0.60
1-Oct-18	10:18:00	0.60
1-Oct-18	10:20:00	0.00
1-Oct-18	10:22:00	0.00
1-Oct-18	10:24:00	0.00
1-Oct-18	10:26:00	0.00
1-Oct-18	10:28:00	0.00
1-Oct-18	10:30:00	0.00
1-Oct-18	10:32:00	0.00
1-Oct-18	10:34:00	0.00
1-Oct-18	10:36:00	0.00
1-Oct-18	10:38:00	0.00
1-Oct-18	10:40:00	0.00

1-Oct-18	10:42:00	0.00
1-Oct-18	10:44:00	0.00
1-Oct-18	10:46:00	0.00
1-Oct-18	10:48:00	0.30
1-Oct-18	10:50:00	0.30
1-Oct-18	10:52:00	0.60
1-Oct-18	10:54:00	0.60
1-Oct-18	10:56:00	0.90
1-Oct-18	10:58:00	0.90
1-Oct-18	11:00:00	0.60
1-Oct-18	11:02:00	0.30
1-Oct-18	11:04:00	0.30
1-Oct-18	11:06:00	0.60
1-Oct-18	11:08:00	0.60
1-Oct-18	11:10:00	0.60
1-Oct-18	11:12:00	0.00
1-Oct-18	11:14:00	0.00
1-Oct-18	11:16:00	0.00
1-Oct-18	11:18:00	0.30
1-Oct-18	11:20:00	0.30
1-Oct-18	11:22:00	0.30
1-Oct-18	11:24:00	0.30
1-Oct-18	11:26:00	0.60
1-Oct-18	11:28:00	0.60
1-Oct-18	11:30:00	0.60
1-Oct-18	11:32:00	0.30
1-Oct-18	11:34:00	0.00
1-Oct-18	11:36:00	0.00
1-Oct-18	11:38:00	0.30
1-Oct-18	11:40:00	0.30
1-Oct-18	11:42:00	0.60
1-Oct-18	11:44:00	0.00
1-Oct-18	11:46:00	0.00
1-Oct-18	11:48:00	0.00
1-Oct-18	11:50:00	0.00
1-Oct-18	11:52:00	0.00
1-Oct-18	11:54:00	0.00
1-Oct-18	11:56:00	0.00
1-Oct-18	11:58:00	0.00
1-Oct-18	12:00:00	0.00
1-Oct-18	12:02:00	0.00
1-Oct-18	12:04:00	0.00
1-Oct-18	12:06:00	0.00
1-Oct-18	12:08:00	0.00
1-Oct-18	12:10:00	0.00
1-Oct-18	12:12:00	0.00
1-Oct-18	12:14:00	0.00

1-Oct-18	12:16:00	0.00
1-Oct-18	12:18:00	0.00
1-Oct-18	12:20:00	0.00
1-Oct-18	12:22:00	0.00
1-Oct-18	12:24:00	0.00
1-Oct-18	12:26:00	0.10
1-Oct-18	12:28:00	0.10
1-Oct-18	12:30:00	0.30
1-Oct-18	12:32:00	0.30
1-Oct-18	12:34:00	0.30
1-Oct-18	12:36:00	0.60
1-Oct-18	12:38:00	0.60
1-Oct-18	12:40:00	0.60
1-Oct-18	12:42:00	0.30
1-Oct-18	12:44:00	0.30
1-Oct-18	12:46:00	0.30
1-Oct-18	12:48:00	0.00
1-Oct-18	12:50:00	0.00
1-Oct-18	12:52:00	4.70
1-Oct-18	12:54:00	5.60
1-Oct-18	12:56:00	4.90
1-Oct-18	12:58:00	4.40
1-Oct-18	13:00:00	4.40
1-Oct-18	13:02:00	4.40
1-Oct-18	13:04:00	4.40
1-Oct-18	13:06:00	4.40
1-Oct-18	13:08:00	4.40
1-Oct-18	13:10:00	4.00
1-Oct-18	13:12:00	3.40
1-Oct-18	13:14:00	2.80
1-Oct-18	13:16:00	2.80
1-Oct-18	13:18:00	2.80
1-Oct-18	13:20:00	2.80
1-Oct-18	13:22:00	2.80
1-Oct-18	13:24:00	2.90
1-Oct-18	13:26:00	3.10
1-Oct-18	13:28:00	3.40
1-Oct-18	13:30:00	3.70
1-Oct-18	13:32:00	3.70
1-Oct-18	13:34:00	3.70
1-Oct-18	13:36:00	3.70
1-Oct-18	13:38:00	3.70
1-Oct-18	13:40:00	3.40
1-Oct-18	13:42:00	3.40
1-Oct-18	13:44:00	3.40
1-Oct-18	13:46:00	3.40
1-Oct-18	13:48:00	3.40

1-Oct-18	13:50:00	3.30
1-Oct-18	13:52:00	3.30
1-Oct-18	13:54:00	3.30
1-Oct-18	13:56:00	3.30
1-Oct-18	13:58:00	3.30
1-Oct-18	14:00:00	3.40
1-Oct-18	14:02:00	3.40
1-Oct-18	14:04:00	3.40
1-Oct-18	14:06:00	3.40
1-Oct-18	14:08:00	3.40
1-Oct-18	14:10:00	3.70
1-Oct-18	14:12:00	3.70
1-Oct-18	14:14:00	3.70
1-Oct-18	14:16:00	3.70
1-Oct-18	14:18:00	3.70
1-Oct-18	14:20:00	3.70
1-Oct-18	14:22:00	3.70
1-Oct-18	14:24:00	3.40
1-Oct-18	14:26:00	3.40
1-Oct-18	14:28:00	3.40
1-Oct-18	14:30:00	3.30
1-Oct-18	14:32:00	0.00
1-Oct-18	14:34:00	0.00
1-Oct-18	14:36:00	0.00
1-Oct-18	14:38:00	0.00
1-Oct-18	14:40:00	0.00
1-Oct-18	14:42:00	0.00
1-Oct-18	14:44:00	0.00
1-Oct-18	14:46:00	0.00
1-Oct-18	14:48:00	0.00
1-Oct-18	14:50:00	0.00
1-Oct-18	14:52:00	0.10
1-Oct-18	14:54:00	0.10
1-Oct-18	14:56:00	0.10
1-Oct-18	14:58:00	0.10
1-Oct-18	15:00:00	0.10
1-Oct-18	15:02:00	0.00
1-Oct-18	15:04:00	0.00
1-Oct-18	15:06:00	0.00
1-Oct-18	15:08:00	0.00
1-Oct-18	15:10:00	0.00
1-Oct-18	15:12:00	0.00
1-Oct-18	15:14:00	0.00
1-Oct-18	15:16:00	0.00
1-Oct-18	15:18:00	0.00
1-Oct-18	15:20:00	0.00
1-Oct-18	15:22:00	0.00

1-Oct-18	15:24:00	0.00
1-Oct-18	15:26:00	0.00
1-Oct-18	15:28:00	0.00
1-Oct-18	15:30:00	0.00
1-Oct-18	15:32:00	0.10
1-Oct-18	15:34:00	0.10
1-Oct-18	15:36:00	0.10
1-Oct-18	15:38:00	0.10
1-Oct-18	15:40:00	0.10
1-Oct-18	15:42:00	0.00
1-Oct-18	15:44:00	0.00
1-Oct-18	15:46:00	0.00
1-Oct-18	15:48:00	0.00
1-Oct-18	15:50:00	0.00
1-Oct-18	15:52:00	0.00
1-Oct-18	15:54:00	0.00
1-Oct-18	15:56:00	0.00
1-Oct-18	15:58:00	0.00
1-Oct-18	16:00:00	0.00
1-Oct-18	16:02:00	0.00
1-Oct-18	16:04:00	0.00
1-Oct-18	16:06:00	0.00
1-Oct-18	16:08:00	0.00
1-Oct-18	16:10:00	0.00
1-Oct-18	16:12:00	0.00
1-Oct-18	16:14:00	0.00
1-Oct-18	16:16:00	0.00
1-Oct-18	16:18:00	0.00
1-Oct-18	16:20:00	0.00
1-Oct-18	16:22:00	0.00
1-Oct-18	16:24:00	0.00
1-Oct-18	16:26:00	0.00
1-Oct-18	16:28:00	0.00
1-Oct-18	16:30:00	0.00
1-Oct-18	16:32:00	0.00
1-Oct-18	16:34:00	0.00
1-Oct-18	16:36:00	0.00
1-Oct-18	16:38:00	0.00
1-Oct-18	16:40:00	0.00
1-Oct-18	16:42:00	0.00
1-Oct-18	16:44:00	0.00
1-Oct-18	16:46:00	0.00
1-Oct-18	16:48:00	0.00
1-Oct-18	16:50:00	0.00
1-Oct-18	16:52:00	0.10
1-Oct-18	16:54:00	0.10
1-Oct-18	16:56:00	0.10

1-Oct-18	16:58:00	0.10
1-Oct-18	17:00:00	0.10
1-Oct-18	17:02:00	0.00
1-Oct-18	17:04:00	0.00
1-Oct-18	17:06:00	0.00
1-Oct-18	17:08:00	0.00
1-Oct-18	17:10:00	0.00
1-Oct-18	17:12:00	0.00
1-Oct-18	17:14:00	0.00
1-Oct-18	17:16:00	0.00
1-Oct-18	17:18:00	0.00
1-Oct-18	17:20:00	0.00
1-Oct-18	17:22:00	0.00
1-Oct-18	17:24:00	0.00
1-Oct-18	17:26:00	0.00
1-Oct-18	17:28:00	0.00
1-Oct-18	17:30:00	0.00
1-Oct-18	17:32:00	0.00
1-Oct-18	17:34:00	0.00
1-Oct-18	17:36:00	0.00
1-Oct-18	17:38:00	0.00
1-Oct-18	17:40:00	0.00
1-Oct-18	17:42:00	0.00
1-Oct-18	17:44:00	0.00
1-Oct-18	17:46:00	0.00
1-Oct-18	17:48:00	0.00
1-Oct-18	17:50:00	0.00
1-Oct-18	17:52:00	0.00
1-Oct-18	17:54:00	0.00
1-Oct-18	17:56:00	0.00
1-Oct-18	17:58:00	0.00
1-Oct-18	18:00:00	0.00
1-Oct-18	18:02:00	0.00
1-Oct-18	18:04:00	0.00
1-Oct-18	18:06:00	0.00
1-Oct-18	18:08:00	0.00
1-Oct-18	18:10:00	0.00
1-Oct-18	18:12:00	0.00
1-Oct-18	18:14:00	0.00
1-Oct-18	18:16:00	0.00
1-Oct-18	18:18:00	0.00
1-Oct-18	18:20:00	0.00
1-Oct-18	18:22:00	0.00
1-Oct-18	18:24:00	0.00
1-Oct-18	18:26:00	0.00
1-Oct-18	18:28:00	0.00
1-Oct-18	18:30:00	0.00

1-Oct-18	18:32:00	0.00
1-Oct-18	18:34:00	0.00
1-Oct-18	18:36:00	0.00
1-Oct-18	18:38:00	0.00
1-Oct-18	18:40:00	0.00
1-Oct-18	18:42:00	0.00
1-Oct-18	18:44:00	0.00
1-Oct-18	18:46:00	0.00
1-Oct-18	18:48:00	0.00
1-Oct-18	18:50:00	0.00
1-Oct-18	18:52:00	0.00
1-Oct-18	18:54:00	0.00
1-Oct-18	18:56:00	0.00
1-Oct-18	18:58:00	0.00
1-Oct-18	19:00:00	0.00
10-Oct-18	6:00:00	0.00
10-Oct-18	6:02:00	0.00
10-Oct-18	6:04:00	0.00
10-Oct-18	6:06:00	0.00
10-Oct-18	6:08:00	0.00
10-Oct-18	6:10:00	0.00
10-Oct-18	6:12:00	0.00
10-Oct-18	6:14:00	0.00
10-Oct-18	6:16:00	0.00
10-Oct-18	6:18:00	0.00
10-Oct-18	6:20:00	0.00
10-Oct-18	6:22:00	0.00
10-Oct-18	6:24:00	0.00
10-Oct-18	6:26:00	0.00
10-Oct-18	6:28:00	0.00
10-Oct-18	6:30:00	0.00
10-Oct-18	6:32:00	0.00
10-Oct-18	6:34:00	0.00
10-Oct-18	6:36:00	0.00
10-Oct-18	6:38:00	0.00
10-Oct-18	6:40:00	0.00
10-Oct-18	6:42:00	0.00
10-Oct-18	6:44:00	0.00
10-Oct-18	6:46:00	0.00
10-Oct-18	6:48:00	0.00
10-Oct-18	6:50:00	0.00
10-Oct-18	6:52:00	0.00
10-Oct-18	6:54:00	0.00
10-Oct-18	6:56:00	0.00
10-Oct-18	6:58:00	0.00
10-Oct-18	7:00:00	0.00
10-Oct-18	7:02:00	0.00

10-Oct-18	7:04:00	0.00
10-Oct-18	7:06:00	0.00
10-Oct-18	7:08:00	0.00
10-Oct-18	7:10:00	0.00
10-Oct-18	7:12:00	0.00
10-Oct-18	7:14:00	0.00
10-Oct-18	7:16:00	0.00
10-Oct-18	7:18:00	0.00
10-Oct-18	7:20:00	0.00
10-Oct-18	7:22:00	0.00
10-Oct-18	7:24:00	0.00
10-Oct-18	7:26:00	0.00
10-Oct-18	7:28:00	0.00
10-Oct-18	7:30:00	0.00
10-Oct-18	7:32:00	0.00
10-Oct-18	7:34:00	0.00
10-Oct-18	7:36:00	0.00
10-Oct-18	7:38:00	0.00
10-Oct-18	7:40:00	0.00
10-Oct-18	7:42:00	0.00
10-Oct-18	7:44:00	0.00
10-Oct-18	7:46:00	0.00
10-Oct-18	7:48:00	0.10
10-Oct-18	7:50:00	0.10
10-Oct-18	7:52:00	0.10
10-Oct-18	7:54:00	0.10
10-Oct-18	7:56:00	0.10
10-Oct-18	7:58:00	0.10
10-Oct-18	8:00:00	0.10
10-Oct-18	8:02:00	0.10
10-Oct-18	8:04:00	0.10
10-Oct-18	8:06:00	0.10
10-Oct-18	8:08:00	0.20
10-Oct-18	8:10:00	0.20
10-Oct-18	8:12:00	0.20
10-Oct-18	8:14:00	0.20
10-Oct-18	8:16:00	0.20
10-Oct-18	8:18:00	0.10
10-Oct-18	8:20:00	0.10
10-Oct-18	8:22:00	0.10
10-Oct-18	8:24:00	0.10
10-Oct-18	8:26:00	0.10
10-Oct-18	8:28:00	0.00
10-Oct-18	8:30:00	0.00
10-Oct-18	8:32:00	0.00
10-Oct-18	8:34:00	0.00
10-Oct-18	8:36:00	0.00

10-Oct-18	8:38:00	0.00
10-Oct-18	8:40:00	0.00
10-Oct-18	8:42:00	0.00
10-Oct-18	8:44:00	0.00
10-Oct-18	8:46:00	0.00
10-Oct-18	8:48:00	0.00
10-Oct-18	8:50:00	0.00
10-Oct-18	8:52:00	0.00
10-Oct-18	8:54:00	0.00
10-Oct-18	8:56:00	0.00
10-Oct-18	8:58:00	0.00
10-Oct-18	9:00:00	0.00
10-Oct-18	9:02:00	0.00
10-Oct-18	9:04:00	0.00
10-Oct-18	9:06:00	0.00
10-Oct-18	9:08:00	0.20
10-Oct-18	9:10:00	0.20
10-Oct-18	9:12:00	0.20
10-Oct-18	9:14:00	0.20
10-Oct-18	9:16:00	0.20
10-Oct-18	9:18:00	0.20
10-Oct-18	9:20:00	0.20
10-Oct-18	9:22:00	0.20
10-Oct-18	9:24:00	0.20
10-Oct-18	9:26:00	0.20
10-Oct-18	9:28:00	0.30
10-Oct-18	9:30:00	0.40
10-Oct-18	9:32:00	0.70
10-Oct-18	9:34:00	0.70
10-Oct-18	9:36:00	1.00
10-Oct-18	9:38:00	1.00
10-Oct-18	9:40:00	1.00
10-Oct-18	9:42:00	0.70
10-Oct-18	9:44:00	0.70
10-Oct-18	9:46:00	0.70
10-Oct-18	9:48:00	1.00
10-Oct-18	9:50:00	0.70
10-Oct-18	9:52:00	0.10
10-Oct-18	9:54:00	0.10
10-Oct-18	9:56:00	0.10
10-Oct-18	9:58:00	0.10
10-Oct-18	10:00:00	0.10
10-Oct-18	10:02:00	0.00
10-Oct-18	10:04:00	0.00
10-Oct-18	10:06:00	0.00
10-Oct-18	10:08:00	0.00
10-Oct-18	10:10:00	0.00

10-Oct-18	10:12:00	0.40
10-Oct-18	10:14:00	1.30
10-Oct-18	10:16:00	0.40
10-Oct-18	10:18:00	0.40
10-Oct-18	10:20:00	0.10
10-Oct-18	10:22:00	0.10
10-Oct-18	10:24:00	0.40
10-Oct-18	10:26:00	0.40
10-Oct-18	10:28:00	1.00
10-Oct-18	10:30:00	7.20
10-Oct-18	10:32:00	5.90
10-Oct-18	10:34:00	5.60
10-Oct-18	10:36:00	4.40
10-Oct-18	10:38:00	4.10
10-Oct-18	10:40:00	4.10
10-Oct-18	10:42:00	3.80
10-Oct-18	10:44:00	3.20
10-Oct-18	10:46:00	3.50
10-Oct-18	10:48:00	4.10
10-Oct-18	10:50:00	4.10
10-Oct-18	10:52:00	3.80
10-Oct-18	10:54:00	4.10
10-Oct-18	10:56:00	4.70
10-Oct-18	10:58:00	4.40
10-Oct-18	11:00:00	4.10
10-Oct-18	11:02:00	4.40
10-Oct-18	11:04:00	4.10
10-Oct-18	11:06:00	4.10
10-Oct-18	11:08:00	0.10
10-Oct-18	11:10:00	0.10
10-Oct-18	11:12:00	0.10
10-Oct-18	11:14:00	0.10
10-Oct-18	11:16:00	0.10
10-Oct-18	11:18:00	0.00
10-Oct-18	11:20:00	0.00
10-Oct-18	11:22:00	0.00
10-Oct-18	11:24:00	0.00
10-Oct-18	11:26:00	0.40
10-Oct-18	11:28:00	0.70
10-Oct-18	11:30:00	0.40
10-Oct-18	11:32:00	0.40
10-Oct-18	11:34:00	0.10
10-Oct-18	11:36:00	0.10
10-Oct-18	11:38:00	0.10
10-Oct-18	11:40:00	0.10
10-Oct-18	11:42:00	0.10
10-Oct-18	11:44:00	0.00

10-Oct-18	11:46:00	0.00
10-Oct-18	11:48:00	0.00
10-Oct-18	11:50:00	0.00
10-Oct-18	11:52:00	0.00
10-Oct-18	11:54:00	0.00
10-Oct-18	11:56:00	0.00
10-Oct-18	11:58:00	0.00
10-Oct-18	12:00:00	0.00
10-Oct-18	12:02:00	0.00
10-Oct-18	12:04:00	0.00
10-Oct-18	12:06:00	0.00
10-Oct-18	12:08:00	0.00
10-Oct-18	12:10:00	0.00
10-Oct-18	12:12:00	0.00
10-Oct-18	12:14:00	0.40
10-Oct-18	12:16:00	0.70
10-Oct-18	12:18:00	0.40
10-Oct-18	12:20:00	0.40
10-Oct-18	12:22:00	0.10
10-Oct-18	12:24:00	0.40
10-Oct-18	12:26:00	0.10
10-Oct-18	12:28:00	0.10
10-Oct-18	12:30:00	0.10
10-Oct-18	12:32:00	0.10
10-Oct-18	12:34:00	0.10
10-Oct-18	12:36:00	0.00
10-Oct-18	12:38:00	0.00
10-Oct-18	12:40:00	0.00
10-Oct-18	12:42:00	0.00
10-Oct-18	12:44:00	0.70
10-Oct-18	12:46:00	0.70
10-Oct-18	12:48:00	1.00
10-Oct-18	12:50:00	0.70
10-Oct-18	12:52:00	0.40
10-Oct-18	12:54:00	0.40
10-Oct-18	12:56:00	0.10
10-Oct-18	12:58:00	0.10
10-Oct-18	13:00:00	0.10
10-Oct-18	13:02:00	0.10
10-Oct-18	13:04:00	0.10
10-Oct-18	13:06:00	0.00
10-Oct-18	13:08:00	0.40
10-Oct-18	13:10:00	1.00
10-Oct-18	13:12:00	1.00
10-Oct-18	13:14:00	1.00
10-Oct-18	13:16:00	1.00
10-Oct-18	13:18:00	1.00

10-Oct-18	13:20:00	0.40
10-Oct-18	13:22:00	0.10
10-Oct-18	13:24:00	0.70
10-Oct-18	13:26:00	0.70
10-Oct-18	13:28:00	0.70
10-Oct-18	13:30:00	0.00
10-Oct-18	13:32:00	0.40
10-Oct-18	13:34:00	0.10
10-Oct-18	13:36:00	0.10
10-Oct-18	13:38:00	0.10
10-Oct-18	13:40:00	0.10
10-Oct-18	13:42:00	0.10
10-Oct-18	13:44:00	0.00
10-Oct-18	13:46:00	0.00
10-Oct-18	13:48:00	0.00
10-Oct-18	13:50:00	0.00
10-Oct-18	13:52:00	0.00
10-Oct-18	13:54:00	0.00
10-Oct-18	13:56:00	0.00
10-Oct-18	13:58:00	0.00
10-Oct-18	14:00:00	0.00
10-Oct-18	14:02:00	0.00
10-Oct-18	14:04:00	0.00
10-Oct-18	14:06:00	0.00
10-Oct-18	14:08:00	0.00
10-Oct-18	14:10:00	0.00
10-Oct-18	14:12:00	0.00
10-Oct-18	14:14:00	0.00
10-Oct-18	14:16:00	0.00
10-Oct-18	14:18:00	0.00
10-Oct-18	14:20:00	0.00
10-Oct-18	14:22:00	0.00
10-Oct-18	14:24:00	0.00
10-Oct-18	14:26:00	0.00
10-Oct-18	14:28:00	0.00
10-Oct-18	14:30:00	0.00
10-Oct-18	14:32:00	0.00
10-Oct-18	14:34:00	0.00
10-Oct-18	14:36:00	0.00
10-Oct-18	14:38:00	0.00
10-Oct-18	14:40:00	0.00
10-Oct-18	14:42:00	0.00
10-Oct-18	14:44:00	0.00
10-Oct-18	14:46:00	0.00
10-Oct-18	14:48:00	0.00
10-Oct-18	14:50:00	0.00
10-Oct-18	14:52:00	0.00

10-Oct-18	14:54:00	0.00
10-Oct-18	14:56:00	0.00
10-Oct-18	14:58:00	0.00
10-Oct-18	15:00:00	0.00
10-Oct-18	15:02:00	0.00
10-Oct-18	15:04:00	0.00
10-Oct-18	15:06:00	0.00
10-Oct-18	15:08:00	0.00
10-Oct-18	15:10:00	0.00
10-Oct-18	15:12:00	0.00
10-Oct-18	15:14:00	0.00
10-Oct-18	15:16:00	0.00
10-Oct-18	15:18:00	0.00
10-Oct-18	15:20:00	0.00
10-Oct-18	15:22:00	0.00
10-Oct-18	15:24:00	0.00
10-Oct-18	15:26:00	0.00
10-Oct-18	15:28:00	0.00
10-Oct-18	15:30:00	0.00
10-Oct-18	15:32:00	0.00
10-Oct-18	15:34:00	0.00
10-Oct-18	15:36:00	0.00
10-Oct-18	15:38:00	0.00
10-Oct-18	15:40:00	0.00
10-Oct-18	15:42:00	0.00
10-Oct-18	15:44:00	0.10
10-Oct-18	15:46:00	0.10
10-Oct-18	15:48:00	0.10
10-Oct-18	15:50:00	0.10
10-Oct-18	15:52:00	0.10
10-Oct-18	15:54:00	0.00
10-Oct-18	15:56:00	0.00
10-Oct-18	15:58:00	0.00
10-Oct-18	16:00:00	0.00
10-Oct-18	16:02:00	0.00
10-Oct-18	16:04:00	0.00
10-Oct-18	16:06:00	0.00
10-Oct-18	16:08:00	0.00
10-Oct-18	16:10:00	0.00
10-Oct-18	16:12:00	0.00
10-Oct-18	16:14:00	0.00
10-Oct-18	16:16:00	0.00
10-Oct-18	16:18:00	0.00
10-Oct-18	16:20:00	0.00
10-Oct-18	16:22:00	0.00
10-Oct-18	16:24:00	0.00
10-Oct-18	16:26:00	0.00

10-Oct-18	16:28:00	0.00
10-Oct-18	16:30:00	0.00
10-Oct-18	16:32:00	0.00
10-Oct-18	16:34:00	0.00
10-Oct-18	16:36:00	0.00
10-Oct-18	16:38:00	0.00
10-Oct-18	16:40:00	0.00
10-Oct-18	16:42:00	0.00
10-Oct-18	16:44:00	0.00
10-Oct-18	16:46:00	0.00
10-Oct-18	16:48:00	0.00
10-Oct-18	16:50:00	0.00
10-Oct-18	16:52:00	0.00
10-Oct-18	16:54:00	0.00
10-Oct-18	16:56:00	0.00
10-Oct-18	16:58:00	0.00
10-Oct-18	17:00:00	0.00
10-Oct-18	17:02:00	0.00
10-Oct-18	17:04:00	0.00
10-Oct-18	17:06:00	0.00
10-Oct-18	17:08:00	0.00
10-Oct-18	17:10:00	0.00
10-Oct-18	17:12:00	0.00
10-Oct-18	17:14:00	0.10
10-Oct-18	17:16:00	0.10
10-Oct-18	17:18:00	0.10
10-Oct-18	17:20:00	0.10
10-Oct-18	17:22:00	0.10
10-Oct-18	17:24:00	0.00
10-Oct-18	17:26:00	0.00
10-Oct-18	17:28:00	0.00
10-Oct-18	17:30:00	0.00
10-Oct-18	17:32:00	0.00
10-Oct-18	17:34:00	0.00
10-Oct-18	17:36:00	0.00
10-Oct-18	17:38:00	0.00
10-Oct-18	17:40:00	0.00
10-Oct-18	17:42:00	0.00
10-Oct-18	17:44:00	0.00
10-Oct-18	17:46:00	0.00
10-Oct-18	17:48:00	0.00
10-Oct-18	17:50:00	0.00
10-Oct-18	17:52:00	0.00
10-Oct-18	17:54:00	0.00
10-Oct-18	17:56:00	0.00
10-Oct-18	17:58:00	0.00
10-Oct-18	18:00:00	0.00

10-Oct-18	18:02:00	0.00
10-Oct-18	18:04:00	0.00
10-Oct-18	18:06:00	0.00
10-Oct-18	18:08:00	0.00
10-Oct-18	18:10:00	0.00
10-Oct-18	18:12:00	0.00
10-Oct-18	18:14:00	0.00
10-Oct-18	18:16:00	0.00
10-Oct-18	18:18:00	0.00
10-Oct-18	18:20:00	0.00
10-Oct-18	18:22:00	0.00
10-Oct-18	18:24:00	0.00
10-Oct-18	18:26:00	0.00
10-Oct-18	18:28:00	0.00
10-Oct-18	18:30:00	0.00
10-Oct-18	18:32:00	0.00
10-Oct-18	18:34:00	0.00
10-Oct-18	18:36:00	0.00
10-Oct-18	18:38:00	0.00
10-Oct-18	18:40:00	0.00
10-Oct-18	18:42:00	0.00
10-Oct-18	18:44:00	0.00
10-Oct-18	18:46:00	0.00
10-Oct-18	18:48:00	0.00
10-Oct-18	18:50:00	0.00
10-Oct-18	18:52:00	0.00
10-Oct-18	18:54:00	0.00
10-Oct-18	18:56:00	0.00
10-Oct-18	18:58:00	0.00
10-Oct-18	19:00:00	0.00
15-Oct-18	6:00:00	0.00
15-Oct-18	6:02:00	0.00
15-Oct-18	6:04:00	0.00
15-Oct-18	6:06:00	0.00
15-Oct-18	6:08:00	0.00
15-Oct-18	6:10:00	0.00
15-Oct-18	6:12:00	0.00
15-Oct-18	6:14:00	0.00
15-Oct-18	6:16:00	0.00
15-Oct-18	6:18:00	0.00
15-Oct-18	6:20:00	0.00
15-Oct-18	6:22:00	0.00
15-Oct-18	6:24:00	0.00
15-Oct-18	6:26:00	0.00
15-Oct-18	6:28:00	0.00
15-Oct-18	6:30:00	0.00
15-Oct-18	6:32:00	0.00

15-Oct-18	6:34:00	0.00
15-Oct-18	6:36:00	0.00
15-Oct-18	6:38:00	0.00
15-Oct-18	6:40:00	0.00
15-Oct-18	6:42:00	0.00
15-Oct-18	6:44:00	0.00
15-Oct-18	6:46:00	0.00
15-Oct-18	6:48:00	0.00
15-Oct-18	6:50:00	0.00
15-Oct-18	6:52:00	0.00
15-Oct-18	6:54:00	0.00
15-Oct-18	6:56:00	0.00
15-Oct-18	6:58:00	0.00
15-Oct-18	7:00:00	0.00
15-Oct-18	7:02:00	0.00
15-Oct-18	7:04:00	0.00
15-Oct-18	7:06:00	0.00
15-Oct-18	7:08:00	0.00
15-Oct-18	7:10:00	0.00
15-Oct-18	7:12:00	0.00
15-Oct-18	7:14:00	0.00
15-Oct-18	7:16:00	0.00
15-Oct-18	7:18:00	0.00
15-Oct-18	7:20:00	0.00
15-Oct-18	7:22:00	0.00
15-Oct-18	7:24:00	0.00
15-Oct-18	7:26:00	0.00
15-Oct-18	7:28:00	0.00
15-Oct-18	7:30:00	0.00
15-Oct-18	7:32:00	0.00
15-Oct-18	7:34:00	0.00
15-Oct-18	7:36:00	0.00
15-Oct-18	7:38:00	0.00
15-Oct-18	7:40:00	0.00
15-Oct-18	7:42:00	0.00
15-Oct-18	7:44:00	0.00
15-Oct-18	7:46:00	0.00
15-Oct-18	7:48:00	0.00
15-Oct-18	7:50:00	0.00
15-Oct-18	7:52:00	0.00
15-Oct-18	7:54:00	0.00
15-Oct-18	7:56:00	0.00
15-Oct-18	7:58:00	0.00
15-Oct-18	8:00:00	0.00
15-Oct-18	8:02:00	0.00
15-Oct-18	8:04:00	0.10
15-Oct-18	8:06:00	0.10

15-Oct-18	8:08:00	0.10
15-Oct-18	8:10:00	0.10
15-Oct-18	8:12:00	0.10
15-Oct-18	8:14:00	0.10
15-Oct-18	8:16:00	0.10
15-Oct-18	8:18:00	0.10
15-Oct-18	8:20:00	0.10
15-Oct-18	8:22:00	0.10
15-Oct-18	8:24:00	0.00
15-Oct-18	8:26:00	0.00
15-Oct-18	8:28:00	0.00
15-Oct-18	8:30:00	0.00
15-Oct-18	8:32:00	0.00
15-Oct-18	8:34:00	0.00
15-Oct-18	8:36:00	0.10
15-Oct-18	8:38:00	0.10
15-Oct-18	8:40:00	0.10
15-Oct-18	8:42:00	0.10
15-Oct-18	8:44:00	0.10
15-Oct-18	8:46:00	0.10
15-Oct-18	8:48:00	0.10
15-Oct-18	8:50:00	0.10
15-Oct-18	8:52:00	0.10
15-Oct-18	8:54:00	0.00
15-Oct-18	8:56:00	0.00
15-Oct-18	8:58:00	6.60
15-Oct-18	9:00:00	5.70
15-Oct-18	9:02:00	5.10
15-Oct-18	9:04:00	4.40
15-Oct-18	9:06:00	3.80
15-Oct-18	9:08:00	3.80
15-Oct-18	9:10:00	3.80
15-Oct-18	9:12:00	3.80
15-Oct-18	9:14:00	3.80
15-Oct-18	9:16:00	4.00
15-Oct-18	9:18:00	4.00
15-Oct-18	9:20:00	4.10
15-Oct-18	9:22:00	4.10
15-Oct-18	9:24:00	4.10
15-Oct-18	9:26:00	4.10
15-Oct-18	9:28:00	4.10
15-Oct-18	9:30:00	4.20
15-Oct-18	9:32:00	4.20
15-Oct-18	9:34:00	4.20
15-Oct-18	9:36:00	4.20
15-Oct-18	9:38:00	4.20
15-Oct-18	9:40:00	0.10

15-Oct-18	9:42:00	0.10
15-Oct-18	9:44:00	0.10
15-Oct-18	9:46:00	0.10
15-Oct-18	9:48:00	0.10
15-Oct-18	9:50:00	0.10
15-Oct-18	9:52:00	0.00
15-Oct-18	9:54:00	0.00
15-Oct-18	9:56:00	0.00
15-Oct-18	9:58:00	0.00
15-Oct-18	10:00:00	0.00
15-Oct-18	10:02:00	0.10
15-Oct-18	10:04:00	0.10
15-Oct-18	10:06:00	0.10
15-Oct-18	10:08:00	0.10
15-Oct-18	10:10:00	0.10
15-Oct-18	10:12:00	0.10
15-Oct-18	10:14:00	0.10
15-Oct-18	10:16:00	0.10
15-Oct-18	10:18:00	0.10
15-Oct-18	10:20:00	0.10
15-Oct-18	10:22:00	0.00
15-Oct-18	10:24:00	0.00
15-Oct-18	10:26:00	0.00
15-Oct-18	10:28:00	0.00
15-Oct-18	10:30:00	0.00
15-Oct-18	10:32:00	0.00
15-Oct-18	10:34:00	0.00
15-Oct-18	10:36:00	0.00
15-Oct-18	10:38:00	0.00
15-Oct-18	10:40:00	0.00
15-Oct-18	10:42:00	0.00
15-Oct-18	10:44:00	0.00
15-Oct-18	10:46:00	0.00
15-Oct-18	10:48:00	0.00
15-Oct-18	10:50:00	0.00
15-Oct-18	10:52:00	0.10
15-Oct-18	10:54:00	0.10
15-Oct-18	10:56:00	0.10
15-Oct-18	10:58:00	0.10
15-Oct-18	11:00:00	0.10
15-Oct-18	11:02:00	0.00
15-Oct-18	11:04:00	0.00
15-Oct-18	11:06:00	0.00
15-Oct-18	11:08:00	0.00
15-Oct-18	11:10:00	0.00
15-Oct-18	11:12:00	0.10
15-Oct-18	11:14:00	0.10

15-Oct-18	11:16:00	0.10
15-Oct-18	11:18:00	0.10
15-Oct-18	11:20:00	0.10
15-Oct-18	11:22:00	0.10
15-Oct-18	11:24:00	0.10
15-Oct-18	11:26:00	0.10
15-Oct-18	11:28:00	0.10
15-Oct-18	11:30:00	0.10
15-Oct-18	11:32:00	0.00
15-Oct-18	11:34:00	0.00
15-Oct-18	11:36:00	0.00
15-Oct-18	11:38:00	0.00
15-Oct-18	11:40:00	0.00
15-Oct-18	11:42:00	0.10
15-Oct-18	11:44:00	0.10
15-Oct-18	11:46:00	0.10
15-Oct-18	11:48:00	0.10
15-Oct-18	11:50:00	0.10
15-Oct-18	11:52:00	0.10
15-Oct-18	11:54:00	0.10
15-Oct-18	11:56:00	0.10
15-Oct-18	11:58:00	0.10
15-Oct-18	12:00:00	0.10
15-Oct-18	12:02:00	0.00
15-Oct-18	12:04:00	0.00
15-Oct-18	12:06:00	0.00
15-Oct-18	12:08:00	0.00
15-Oct-18	12:10:00	0.00
15-Oct-18	12:12:00	0.00
15-Oct-18	12:14:00	0.00
15-Oct-18	12:16:00	0.00
15-Oct-18	12:18:00	0.00
15-Oct-18	12:20:00	0.00
15-Oct-18	12:22:00	0.00
15-Oct-18	12:24:00	0.00
15-Oct-18	12:26:00	0.00
15-Oct-18	12:28:00	0.00
15-Oct-18	12:30:00	0.00
15-Oct-18	12:32:00	0.00
15-Oct-18	12:34:00	0.00
15-Oct-18	12:36:00	0.00
15-Oct-18	12:38:00	0.00
15-Oct-18	12:40:00	0.00
15-Oct-18	12:42:00	0.30
15-Oct-18	12:44:00	0.30
15-Oct-18	12:46:00	0.30
15-Oct-18	12:48:00	0.30

15-Oct-18	12:50:00	0.30
15-Oct-18	12:52:00	0.10
15-Oct-18	12:54:00	0.10
15-Oct-18	12:56:00	0.10
15-Oct-18	12:58:00	0.10
15-Oct-18	13:00:00	0.10
15-Oct-18	13:02:00	0.10
15-Oct-18	13:04:00	0.10
15-Oct-18	13:06:00	0.10
15-Oct-18	13:08:00	0.10
15-Oct-18	13:10:00	0.10
15-Oct-18	13:12:00	0.00
15-Oct-18	13:14:00	0.00
15-Oct-18	13:16:00	0.00
15-Oct-18	13:18:00	0.00
15-Oct-18	13:20:00	0.00
15-Oct-18	13:22:00	0.20
15-Oct-18	13:24:00	0.20
15-Oct-18	13:26:00	0.20
15-Oct-18	13:28:00	0.20
15-Oct-18	13:30:00	0.20
15-Oct-18	13:32:00	0.00
15-Oct-18	13:34:00	0.00
15-Oct-18	13:36:00	0.00
15-Oct-18	13:38:00	0.00
15-Oct-18	13:40:00	0.00
15-Oct-18	13:42:00	0.00
15-Oct-18	13:44:00	0.00
15-Oct-18	13:46:00	0.00
15-Oct-18	13:48:00	0.00
15-Oct-18	13:50:00	0.00
15-Oct-18	13:52:00	0.20
15-Oct-18	13:54:00	0.20
15-Oct-18	13:56:00	0.20
15-Oct-18	13:58:00	0.20
15-Oct-18	14:00:00	0.20
15-Oct-18	14:02:00	0.10
15-Oct-18	14:04:00	0.10
15-Oct-18	14:06:00	0.10
15-Oct-18	14:08:00	0.10
15-Oct-18	14:10:00	0.10
15-Oct-18	14:12:00	0.10
15-Oct-18	14:14:00	0.10
15-Oct-18	14:16:00	0.10
15-Oct-18	14:18:00	0.10
15-Oct-18	14:20:00	0.10
15-Oct-18	14:22:00	0.20

15-Oct-18	14:24:00	0.20
15-Oct-18	14:26:00	0.20
15-Oct-18	14:28:00	0.20
15-Oct-18	14:30:00	0.20
15-Oct-18	14:32:00	0.00
15-Oct-18	14:34:00	0.00
15-Oct-18	14:36:00	0.00
15-Oct-18	14:38:00	0.00
15-Oct-18	14:40:00	0.00
15-Oct-18	14:42:00	0.00
15-Oct-18	14:44:00	0.00
15-Oct-18	14:46:00	0.00
15-Oct-18	14:48:00	0.00
15-Oct-18	14:50:00	0.00
15-Oct-18	14:52:00	0.00
15-Oct-18	14:54:00	0.00
15-Oct-18	14:56:00	0.00
15-Oct-18	14:58:00	0.00
15-Oct-18	15:00:00	0.00
15-Oct-18	15:02:00	0.10
15-Oct-18	15:04:00	0.10
15-Oct-18	15:06:00	0.10
15-Oct-18	15:08:00	0.10
15-Oct-18	15:10:00	0.10
15-Oct-18	15:12:00	0.00
15-Oct-18	15:14:00	0.00
15-Oct-18	15:16:00	0.00
15-Oct-18	15:18:00	0.00
15-Oct-18	15:20:00	0.00
15-Oct-18	15:22:00	0.00
15-Oct-18	15:24:00	0.00
15-Oct-18	15:26:00	0.00
15-Oct-18	15:28:00	0.00
15-Oct-18	15:30:00	0.00
15-Oct-18	15:32:00	0.10
15-Oct-18	15:34:00	0.10
15-Oct-18	15:36:00	0.10
15-Oct-18	15:38:00	0.10
15-Oct-18	15:40:00	0.10
15-Oct-18	15:42:00	0.00
15-Oct-18	15:44:00	0.00
15-Oct-18	15:46:00	0.00
15-Oct-18	15:48:00	0.00
15-Oct-18	15:50:00	0.00
15-Oct-18	15:52:00	0.00
15-Oct-18	15:54:00	0.00
15-Oct-18	15:56:00	0.00

15-Oct-18	15:58:00	0.00
15-Oct-18	16:00:00	0.00
15-Oct-18	16:02:00	0.00
15-Oct-18	16:04:00	0.00
15-Oct-18	16:06:00	0.00
15-Oct-18	16:08:00	0.00
15-Oct-18	16:10:00	0.00
15-Oct-18	16:12:00	0.00
15-Oct-18	16:14:00	0.00
15-Oct-18	16:16:00	0.00
15-Oct-18	16:18:00	0.00
15-Oct-18	16:20:00	0.00
15-Oct-18	16:22:00	0.00
15-Oct-18	16:24:00	0.00
15-Oct-18	16:26:00	0.00
15-Oct-18	16:28:00	0.00
15-Oct-18	16:30:00	0.00
15-Oct-18	16:32:00	0.00
15-Oct-18	16:34:00	0.00
15-Oct-18	16:36:00	0.00
15-Oct-18	16:38:00	0.00
15-Oct-18	16:40:00	0.00
15-Oct-18	16:42:00	0.10
15-Oct-18	16:44:00	0.10
15-Oct-18	16:46:00	0.10
15-Oct-18	16:48:00	0.10
15-Oct-18	16:50:00	0.10
15-Oct-18	16:52:00	0.00
15-Oct-18	16:54:00	0.00
15-Oct-18	16:56:00	0.00
15-Oct-18	16:58:00	0.00
15-Oct-18	17:00:00	0.00
15-Oct-18	17:02:00	0.00
15-Oct-18	17:04:00	0.00
15-Oct-18	17:06:00	0.00
15-Oct-18	17:08:00	0.00
15-Oct-18	17:10:00	0.00
15-Oct-18	17:12:00	0.00
15-Oct-18	17:14:00	0.00
15-Oct-18	17:16:00	0.00
15-Oct-18	17:18:00	0.00
15-Oct-18	17:20:00	0.00
15-Oct-18	17:22:00	0.00
15-Oct-18	17:24:00	0.00
15-Oct-18	17:26:00	0.00
15-Oct-18	17:28:00	0.00
15-Oct-18	17:30:00	0.00

15-Oct-18	17:32:00	0.00
15-Oct-18	17:34:00	0.00
15-Oct-18	17:36:00	0.00
15-Oct-18	17:38:00	0.00
15-Oct-18	17:40:00	0.00
15-Oct-18	17:42:00	0.00
15-Oct-18	17:44:00	0.00
15-Oct-18	17:46:00	0.00
15-Oct-18	17:48:00	0.00
15-Oct-18	17:50:00	0.00
15-Oct-18	17:52:00	0.00
15-Oct-18	17:54:00	0.00
15-Oct-18	17:56:00	0.00
15-Oct-18	17:58:00	0.00
15-Oct-18	18:00:00	0.00
15-Oct-18	18:02:00	0.00
15-Oct-18	18:04:00	0.00
15-Oct-18	18:06:00	0.00
15-Oct-18	18:08:00	0.00
15-Oct-18	18:10:00	0.00
15-Oct-18	18:12:00	0.00
15-Oct-18	18:14:00	0.00
15-Oct-18	18:16:00	0.00
15-Oct-18	18:18:00	0.00
15-Oct-18	18:20:00	0.00
15-Oct-18	18:22:00	0.00
15-Oct-18	18:24:00	0.00
15-Oct-18	18:26:00	0.00
15-Oct-18	18:28:00	0.00
15-Oct-18	18:30:00	0.00
15-Oct-18	18:32:00	0.00
15-Oct-18	18:34:00	0.00
15-Oct-18	18:36:00	0.00
15-Oct-18	18:38:00	0.00
15-Oct-18	18:40:00	0.00
15-Oct-18	18:42:00	0.00
15-Oct-18	18:44:00	0.00
15-Oct-18	18:46:00	0.00
15-Oct-18	18:48:00	0.00
15-Oct-18	18:50:00	0.00
15-Oct-18	18:52:00	0.00
15-Oct-18	18:54:00	0.00
15-Oct-18	18:56:00	0.00
15-Oct-18	18:58:00	0.00
15-Oct-18	19:00:00	0.00
19-Oct-18	6:00:00	0.00
19-Oct-18	6:02:00	0.00

19-Oct-18	6:04:00	0.00
19-Oct-18	6:06:00	0.00
19-Oct-18	6:08:00	0.00
19-Oct-18	6:10:00	0.00
19-Oct-18	6:12:00	0.00
19-Oct-18	6:14:00	0.00
19-Oct-18	6:16:00	0.00
19-Oct-18	6:18:00	0.00
19-Oct-18	6:20:00	0.00
19-Oct-18	6:22:00	0.00
19-Oct-18	6:24:00	0.00
19-Oct-18	6:26:00	0.00
19-Oct-18	6:28:00	0.00
19-Oct-18	6:30:00	0.00
19-Oct-18	6:32:00	0.00
19-Oct-18	6:34:00	0.00
19-Oct-18	6:36:00	0.00
19-Oct-18	6:38:00	0.00
19-Oct-18	6:40:00	0.00
19-Oct-18	6:42:00	0.00
19-Oct-18	6:44:00	0.00
19-Oct-18	6:46:00	0.00
19-Oct-18	6:48:00	0.00
19-Oct-18	6:50:00	0.00
19-Oct-18	6:52:00	0.00
19-Oct-18	6:54:00	0.00
19-Oct-18	6:56:00	0.00
19-Oct-18	6:58:00	0.00
19-Oct-18	7:00:00	0.00
19-Oct-18	7:02:00	0.00
19-Oct-18	7:04:00	0.00
19-Oct-18	7:06:00	0.00
19-Oct-18	7:08:00	0.00
19-Oct-18	7:10:00	0.00
19-Oct-18	7:12:00	0.00
19-Oct-18	7:14:00	0.00
19-Oct-18	7:16:00	0.00
19-Oct-18	7:18:00	0.00
19-Oct-18	7:20:00	0.00
19-Oct-18	7:22:00	0.00
19-Oct-18	7:24:00	0.00
19-Oct-18	7:26:00	0.00
19-Oct-18	7:28:00	0.00
19-Oct-18	7:30:00	0.00
19-Oct-18	7:32:00	0.00
19-Oct-18	7:34:00	0.00
19-Oct-18	7:36:00	0.00

19-Oct-18	7:38:00	0.00
19-Oct-18	7:40:00	0.00
19-Oct-18	7:42:00	0.00
19-Oct-18	7:44:00	0.10
19-Oct-18	7:46:00	0.10
19-Oct-18	7:48:00	0.10
19-Oct-18	7:50:00	0.10
19-Oct-18	7:52:00	0.10
19-Oct-18	7:54:00	0.00
19-Oct-18	7:56:00	0.00
19-Oct-18	7:58:00	0.00
19-Oct-18	8:00:00	0.00
19-Oct-18	8:02:00	0.00
19-Oct-18	8:04:00	0.10
19-Oct-18	8:06:00	0.10
19-Oct-18	8:08:00	0.10
19-Oct-18	8:10:00	0.10
19-Oct-18	8:12:00	0.10
19-Oct-18	8:14:00	0.10
19-Oct-18	8:16:00	0.10
19-Oct-18	8:18:00	0.10
19-Oct-18	8:20:00	0.10
19-Oct-18	8:22:00	0.10
19-Oct-18	8:24:00	0.10
19-Oct-18	8:26:00	0.10
19-Oct-18	8:28:00	0.10
19-Oct-18	8:30:00	0.10
19-Oct-18	8:32:00	0.10
19-Oct-18	8:34:00	0.00
19-Oct-18	8:36:00	0.00
19-Oct-18	8:38:00	0.00
19-Oct-18	8:40:00	0.00
19-Oct-18	8:42:00	0.00
19-Oct-18	8:44:00	0.10
19-Oct-18	8:46:00	0.10
19-Oct-18	8:48:00	0.10
19-Oct-18	8:50:00	0.10
19-Oct-18	8:52:00	0.10
19-Oct-18	8:54:00	0.10
19-Oct-18	8:56:00	0.10
19-Oct-18	8:58:00	0.10
19-Oct-18	9:00:00	0.10
19-Oct-18	9:02:00	0.10
19-Oct-18	9:04:00	0.10
19-Oct-18	9:06:00	0.10
19-Oct-18	9:08:00	0.10
19-Oct-18	9:10:00	0.10

19-Oct-18	9:12:00	0.10
19-Oct-18	9:14:00	0.30
19-Oct-18	9:16:00	0.30
19-Oct-18	9:18:00	0.30
19-Oct-18	9:20:00	0.30
19-Oct-18	9:22:00	0.30
19-Oct-18	9:24:00	0.00
19-Oct-18	9:26:00	0.00
19-Oct-18	9:28:00	0.00
19-Oct-18	9:30:00	0.00
19-Oct-18	9:32:00	0.00
19-Oct-18	9:34:00	0.10
19-Oct-18	9:36:00	0.10
19-Oct-18	9:38:00	0.10
19-Oct-18	9:40:00	0.50
19-Oct-18	9:42:00	1.10
19-Oct-18	9:44:00	1.70
19-Oct-18	9:46:00	2.00
19-Oct-18	9:48:00	2.00
19-Oct-18	9:50:00	2.00
19-Oct-18	9:52:00	2.00
19-Oct-18	9:54:00	2.00
19-Oct-18	9:56:00	1.80
19-Oct-18	9:58:00	1.70
19-Oct-18	10:00:00	1.40
19-Oct-18	10:02:00	1.40
19-Oct-18	10:04:00	1.40
19-Oct-18	10:06:00	1.40
19-Oct-18	10:08:00	1.10
19-Oct-18	10:10:00	0.80
19-Oct-18	10:12:00	0.80
19-Oct-18	10:14:00	0.80
19-Oct-18	10:16:00	0.80
19-Oct-18	10:18:00	0.50
19-Oct-18	10:20:00	0.50
19-Oct-18	10:22:00	0.20
19-Oct-18	10:24:00	0.20
19-Oct-18	10:26:00	0.20
19-Oct-18	10:28:00	0.20
19-Oct-18	10:30:00	0.20
19-Oct-18	10:32:00	0.40
19-Oct-18	10:34:00	0.40
19-Oct-18	10:36:00	0.40
19-Oct-18	10:38:00	0.40
19-Oct-18	10:40:00	0.40
19-Oct-18	10:42:00	0.40
19-Oct-18	10:44:00	0.50

19-Oct-18	10:46:00	0.50
19-Oct-18	10:48:00	0.20
19-Oct-18	10:50:00	0.20
19-Oct-18	10:52:00	0.20
19-Oct-18	10:54:00	0.20
19-Oct-18	10:56:00	0.20
19-Oct-18	10:58:00	0.30
19-Oct-18	11:00:00	0.30
19-Oct-18	11:02:00	0.30
19-Oct-18	11:04:00	6.40
19-Oct-18	11:06:00	5.70
19-Oct-18	11:08:00	5.10
19-Oct-18	11:10:00	4.80
19-Oct-18	11:12:00	4.50
19-Oct-18	11:14:00	4.50
19-Oct-18	11:16:00	4.50
19-Oct-18	11:18:00	4.50
19-Oct-18	11:20:00	4.50
19-Oct-18	11:22:00	4.60
19-Oct-18	11:24:00	4.60
19-Oct-18	11:26:00	0.00
19-Oct-18	11:28:00	3.90
19-Oct-18	11:30:00	3.90
19-Oct-18	11:32:00	3.90
19-Oct-18	11:34:00	3.90
19-Oct-18	11:36:00	4.20
19-Oct-18	11:38:00	4.20
19-Oct-18	11:40:00	4.20
19-Oct-18	11:42:00	4.20
19-Oct-18	11:44:00	4.20
19-Oct-18	11:46:00	4.50
19-Oct-18	11:48:00	4.50
19-Oct-18	11:50:00	4.50
19-Oct-18	11:52:00	4.50
19-Oct-18	11:54:00	4.50
19-Oct-18	11:56:00	4.20
19-Oct-18	11:58:00	4.20
19-Oct-18	12:00:00	0.00
19-Oct-18	12:02:00	0.00
19-Oct-18	12:04:00	0.00
19-Oct-18	12:06:00	0.00
19-Oct-18	12:08:00	0.00
19-Oct-18	12:10:00	0.00
19-Oct-18	12:12:00	0.00
19-Oct-18	12:14:00	0.00
19-Oct-18	12:16:00	0.20
19-Oct-18	12:18:00	0.00

19-Oct-18	12:20:00	0.00
19-Oct-18	12:22:00	0.00
19-Oct-18	12:24:00	0.00
19-Oct-18	12:26:00	0.20
19-Oct-18	12:28:00	0.20
19-Oct-18	12:30:00	0.00
19-Oct-18	12:32:00	0.00
19-Oct-18	12:34:00	0.00
19-Oct-18	12:36:00	0.00
19-Oct-18	12:38:00	0.00
19-Oct-18	12:40:00	0.20
19-Oct-18	12:42:00	0.20
19-Oct-18	12:44:00	0.20
19-Oct-18	12:46:00	0.20
19-Oct-18	12:48:00	0.20
19-Oct-18	12:50:00	0.00
19-Oct-18	12:52:00	0.00
19-Oct-18	12:54:00	0.00
19-Oct-18	12:56:00	0.00
19-Oct-18	12:58:00	0.00
19-Oct-18	13:00:00	0.00
19-Oct-18	13:02:00	0.00
19-Oct-18	13:04:00	0.00
19-Oct-18	13:06:00	0.00
19-Oct-18	13:08:00	0.00
19-Oct-18	13:10:00	0.00
19-Oct-18	13:12:00	0.00
19-Oct-18	13:14:00	0.00
19-Oct-18	13:16:00	0.00
19-Oct-18	13:18:00	0.00
19-Oct-18	13:20:00	0.00
19-Oct-18	13:22:00	0.00
19-Oct-18	13:24:00	0.00
19-Oct-18	13:26:00	0.00
19-Oct-18	13:28:00	0.00
19-Oct-18	13:30:00	0.10
19-Oct-18	13:32:00	0.10
19-Oct-18	13:34:00	0.10
19-Oct-18	13:36:00	0.10
19-Oct-18	13:38:00	0.10
19-Oct-18	13:40:00	0.00
19-Oct-18	13:42:00	0.00
19-Oct-18	13:44:00	0.00
19-Oct-18	13:46:00	0.00
19-Oct-18	13:48:00	0.00
19-Oct-18	13:50:00	0.00
19-Oct-18	13:52:00	0.00

19-Oct-18	13:54:00	0.00
19-Oct-18	13:56:00	0.00
19-Oct-18	13:58:00	0.00
19-Oct-18	14:00:00	0.00
19-Oct-18	14:02:00	0.00
19-Oct-18	14:04:00	0.00
19-Oct-18	14:06:00	0.00
19-Oct-18	14:08:00	0.00
19-Oct-18	14:10:00	0.00
19-Oct-18	14:12:00	0.00
19-Oct-18	14:14:00	0.00
19-Oct-18	14:16:00	0.00
19-Oct-18	14:18:00	0.00
19-Oct-18	14:20:00	0.00
19-Oct-18	14:22:00	0.00
19-Oct-18	14:24:00	0.00
19-Oct-18	14:26:00	0.00
19-Oct-18	14:28:00	0.00
19-Oct-18	14:30:00	0.00
19-Oct-18	14:32:00	0.00
19-Oct-18	14:34:00	0.00
19-Oct-18	14:36:00	0.00
19-Oct-18	14:38:00	0.00
19-Oct-18	14:40:00	0.00
19-Oct-18	14:42:00	0.00
19-Oct-18	14:44:00	0.00
19-Oct-18	14:46:00	0.00
19-Oct-18	14:48:00	0.00
19-Oct-18	14:50:00	0.00
19-Oct-18	14:52:00	0.00
19-Oct-18	14:54:00	0.00
19-Oct-18	14:56:00	0.00
19-Oct-18	14:58:00	0.00
19-Oct-18	15:00:00	0.00
19-Oct-18	15:02:00	0.00
19-Oct-18	15:04:00	0.00
19-Oct-18	15:06:00	0.00
19-Oct-18	15:08:00	0.00
19-Oct-18	15:10:00	0.00
19-Oct-18	15:12:00	0.00
19-Oct-18	15:14:00	0.00
19-Oct-18	15:16:00	0.00
19-Oct-18	15:18:00	0.00
19-Oct-18	15:20:00	0.00
19-Oct-18	15:22:00	0.00
19-Oct-18	15:24:00	0.00
19-Oct-18	15:26:00	0.00

19-Oct-18	15:28:00	0.00
19-Oct-18	15:30:00	0.00
19-Oct-18	15:32:00	0.00
19-Oct-18	15:34:00	0.00
19-Oct-18	15:36:00	0.00
19-Oct-18	15:38:00	0.00
19-Oct-18	15:40:00	0.00
19-Oct-18	15:42:00	0.00
19-Oct-18	15:44:00	0.00
19-Oct-18	15:46:00	0.00
19-Oct-18	15:48:00	0.00
19-Oct-18	15:50:00	0.00
19-Oct-18	15:52:00	0.00
19-Oct-18	15:54:00	0.00
19-Oct-18	15:56:00	0.00
19-Oct-18	15:58:00	0.00
19-Oct-18	16:00:00	0.00
19-Oct-18	16:02:00	0.00
19-Oct-18	16:04:00	0.00
19-Oct-18	16:06:00	0.00
19-Oct-18	16:08:00	0.00
19-Oct-18	16:10:00	0.00
19-Oct-18	16:12:00	0.00
19-Oct-18	16:14:00	0.00
19-Oct-18	16:16:00	0.00
19-Oct-18	16:18:00	0.00
19-Oct-18	16:20:00	0.00
19-Oct-18	16:22:00	0.00
19-Oct-18	16:24:00	0.00
19-Oct-18	16:26:00	0.00
19-Oct-18	16:28:00	0.00
19-Oct-18	16:30:00	0.00
19-Oct-18	16:32:00	0.00
19-Oct-18	16:34:00	0.00
19-Oct-18	16:36:00	0.00
19-Oct-18	16:38:00	0.00
19-Oct-18	16:40:00	0.00
19-Oct-18	16:42:00	0.00
19-Oct-18	16:44:00	0.00
19-Oct-18	16:46:00	0.00
19-Oct-18	16:48:00	0.00
19-Oct-18	16:50:00	0.00
19-Oct-18	16:52:00	0.00
19-Oct-18	16:54:00	0.00
19-Oct-18	16:56:00	0.00
19-Oct-18	16:58:00	0.00
19-Oct-18	17:00:00	0.00

19-Oct-18	17:02:00	0.00
19-Oct-18	17:04:00	0.00
19-Oct-18	17:06:00	0.00
19-Oct-18	17:08:00	0.00
19-Oct-18	17:10:00	0.00
19-Oct-18	17:12:00	0.00
19-Oct-18	17:14:00	0.00
19-Oct-18	17:16:00	0.00
19-Oct-18	17:18:00	0.00
19-Oct-18	17:20:00	0.00
19-Oct-18	17:22:00	0.00
19-Oct-18	17:24:00	0.00
19-Oct-18	17:26:00	0.00
19-Oct-18	17:28:00	0.00
19-Oct-18	17:30:00	0.00
19-Oct-18	17:32:00	0.00
19-Oct-18	17:34:00	0.00
19-Oct-18	17:36:00	0.00
19-Oct-18	17:38:00	0.00
19-Oct-18	17:40:00	0.00
19-Oct-18	17:42:00	0.00
19-Oct-18	17:44:00	0.00
19-Oct-18	17:46:00	0.00
19-Oct-18	17:48:00	0.00
19-Oct-18	17:50:00	0.00
19-Oct-18	17:52:00	0.00
19-Oct-18	17:54:00	0.00
19-Oct-18	17:56:00	0.00
19-Oct-18	17:58:00	0.00
19-Oct-18	18:00:00	0.00
19-Oct-18	18:02:00	0.00
19-Oct-18	18:04:00	0.00
19-Oct-18	18:06:00	0.00
19-Oct-18	18:08:00	0.00
19-Oct-18	18:10:00	0.00
19-Oct-18	18:12:00	0.00
19-Oct-18	18:14:00	0.00
19-Oct-18	18:16:00	0.00
19-Oct-18	18:18:00	0.00
19-Oct-18	18:20:00	0.00
19-Oct-18	18:22:00	0.00
19-Oct-18	18:24:00	0.00
19-Oct-18	18:26:00	0.00
19-Oct-18	18:28:00	0.00
19-Oct-18	18:30:00	0.00
19-Oct-18	18:32:00	0.00
19-Oct-18	18:34:00	0.00

19-Oct-18	18:36:00	0.00
19-Oct-18	18:38:00	0.00
19-Oct-18	18:40:00	0.00
19-Oct-18	18:42:00	0.00
19-Oct-18	18:44:00	0.00
19-Oct-18	18:46:00	0.00
19-Oct-18	18:48:00	0.00
19-Oct-18	18:50:00	0.00
19-Oct-18	18:52:00	0.00
19-Oct-18	18:54:00	0.00
19-Oct-18	18:56:00	0.00
19-Oct-18	18:58:00	0.00
19-Oct-18	19:00:00	0.00
29-Oct-18	6:00:00	0.00
29-Oct-18	6:02:00	0.00
29-Oct-18	6:04:00	0.00
29-Oct-18	6:06:00	0.00
29-Oct-18	6:08:00	0.00
29-Oct-18	6:10:00	0.00
29-Oct-18	6:12:00	0.00
29-Oct-18	6:14:00	0.00
29-Oct-18	6:16:00	0.00
29-Oct-18	6:18:00	0.00
29-Oct-18	6:20:00	0.00
29-Oct-18	6:22:00	0.00
29-Oct-18	6:24:00	0.00
29-Oct-18	6:26:00	0.00
29-Oct-18	6:28:00	0.00
29-Oct-18	6:30:00	0.00
29-Oct-18	6:32:00	0.00
29-Oct-18	6:34:00	0.00
29-Oct-18	6:36:00	0.00
29-Oct-18	6:38:00	0.00
29-Oct-18	6:40:00	0.00
29-Oct-18	6:42:00	0.00
29-Oct-18	6:44:00	0.00
29-Oct-18	6:46:00	0.00
29-Oct-18	6:48:00	0.00
29-Oct-18	6:50:00	0.00
29-Oct-18	6:52:00	0.00
29-Oct-18	6:54:00	0.00
29-Oct-18	6:56:00	0.00
29-Oct-18	6:58:00	0.00
29-Oct-18	7:00:00	0.00
29-Oct-18	7:02:00	0.00
29-Oct-18	7:04:00	0.00
29-Oct-18	7:06:00	0.00

29-Oct-18	7:08:00	0.00
29-Oct-18	7:10:00	0.00
29-Oct-18	7:12:00	0.00
29-Oct-18	7:14:00	0.00
29-Oct-18	7:16:00	0.00
29-Oct-18	7:18:00	0.00
29-Oct-18	7:20:00	0.00
29-Oct-18	7:22:00	0.00
29-Oct-18	7:24:00	0.00
29-Oct-18	7:26:00	0.00
29-Oct-18	7:28:00	0.00
29-Oct-18	7:30:00	0.00
29-Oct-18	7:32:00	0.00
29-Oct-18	7:34:00	0.00
29-Oct-18	7:36:00	0.00
29-Oct-18	7:38:00	0.00
29-Oct-18	7:40:00	0.00
29-Oct-18	7:42:00	0.00
29-Oct-18	7:44:00	0.00
29-Oct-18	7:46:00	0.00
29-Oct-18	7:48:00	0.00
29-Oct-18	7:50:00	0.00
29-Oct-18	7:52:00	0.00
29-Oct-18	7:54:00	0.00
29-Oct-18	7:56:00	0.00
29-Oct-18	7:58:00	0.00
29-Oct-18	8:00:00	0.00
29-Oct-18	8:02:00	0.00
29-Oct-18	8:04:00	0.00
29-Oct-18	8:06:00	0.00
29-Oct-18	8:08:00	0.10
29-Oct-18	8:10:00	0.10
29-Oct-18	8:12:00	0.10
29-Oct-18	8:14:00	0.10
29-Oct-18	8:16:00	0.10
29-Oct-18	8:18:00	0.10
29-Oct-18	8:20:00	0.10
29-Oct-18	8:22:00	0.10
29-Oct-18	8:24:00	0.10
29-Oct-18	8:26:00	0.10
29-Oct-18	8:28:00	0.10
29-Oct-18	8:30:00	0.10
29-Oct-18	8:32:00	0.10
29-Oct-18	8:34:00	0.10
29-Oct-18	8:36:00	0.10
29-Oct-18	8:38:00	0.10
29-Oct-18	8:40:00	0.10

29-Oct-18	8:42:00	0.10
29-Oct-18	8:44:00	0.10
29-Oct-18	8:46:00	0.10
29-Oct-18	8:48:00	0.00
29-Oct-18	8:50:00	0.00
29-Oct-18	8:52:00	0.00
29-Oct-18	8:54:00	0.00
29-Oct-18	8:56:00	0.00
29-Oct-18	8:58:00	0.10
29-Oct-18	9:00:00	0.10
29-Oct-18	9:02:00	0.10
29-Oct-18	9:04:00	0.10
29-Oct-18	9:06:00	0.10
29-Oct-18	9:08:00	0.10
29-Oct-18	9:10:00	0.10
29-Oct-18	9:12:00	0.10
29-Oct-18	9:14:00	0.10
29-Oct-18	9:16:00	0.10
29-Oct-18	9:18:00	0.00
29-Oct-18	9:20:00	0.00
29-Oct-18	9:22:00	0.00
29-Oct-18	9:24:00	0.00
29-Oct-18	9:26:00	0.00
29-Oct-18	9:28:00	0.00
29-Oct-18	9:30:00	0.00
29-Oct-18	9:32:00	0.00
29-Oct-18	9:34:00	0.00
29-Oct-18	9:36:00	0.00
29-Oct-18	9:38:00	0.10
29-Oct-18	9:40:00	0.10
29-Oct-18	9:42:00	0.10
29-Oct-18	9:44:00	0.20
29-Oct-18	9:46:00	0.20
29-Oct-18	9:48:00	0.20
29-Oct-18	9:50:00	0.50
29-Oct-18	9:52:00	0.80
29-Oct-18	9:54:00	1.40
29-Oct-18	9:56:00	1.70
29-Oct-18	9:58:00	1.70
29-Oct-18	10:00:00	2.00
29-Oct-18	10:02:00	2.00
29-Oct-18	10:04:00	2.00
29-Oct-18	10:06:00	2.00
29-Oct-18	10:08:00	1.40
29-Oct-18	10:10:00	1.10
29-Oct-18	10:12:00	1.10
29-Oct-18	10:14:00	1.10

29-Oct-18	10:16:00	1.10
29-Oct-18	10:18:00	0.50
29-Oct-18	10:20:00	0.50
29-Oct-18	10:22:00	0.50
29-Oct-18	10:24:00	0.80
29-Oct-18	10:26:00	0.50
29-Oct-18	10:28:00	0.50
29-Oct-18	10:30:00	0.50
29-Oct-18	10:32:00	0.50
29-Oct-18	10:34:00	0.50
29-Oct-18	10:36:00	0.20
29-Oct-18	10:38:00	0.00
29-Oct-18	10:40:00	0.00
29-Oct-18	10:42:00	0.00
29-Oct-18	10:44:00	0.00
29-Oct-18	10:46:00	0.20
29-Oct-18	10:48:00	0.20
29-Oct-18	10:50:00	0.50
29-Oct-18	10:52:00	0.50
29-Oct-18	10:54:00	0.50
29-Oct-18	10:56:00	0.50
29-Oct-18	10:58:00	6.70
29-Oct-18	11:00:00	6.10
29-Oct-18	11:02:00	5.80
29-Oct-18	11:04:00	5.10
29-Oct-18	11:06:00	4.80
29-Oct-18	11:08:00	4.20
29-Oct-18	11:10:00	4.20
29-Oct-18	11:12:00	4.20
29-Oct-18	11:14:00	4.20
29-Oct-18	11:16:00	3.90
29-Oct-18	11:18:00	3.90
29-Oct-18	11:20:00	3.60
29-Oct-18	11:22:00	3.60
29-Oct-18	11:24:00	3.60
29-Oct-18	11:26:00	3.90
29-Oct-18	11:28:00	0.00
29-Oct-18	11:30:00	0.00
29-Oct-18	11:32:00	4.60
29-Oct-18	11:34:00	4.60
29-Oct-18	11:36:00	4.60
29-Oct-18	11:38:00	4.30
29-Oct-18	11:40:00	4.30
29-Oct-18	11:42:00	4.00
29-Oct-18	11:44:00	3.70
29-Oct-18	11:46:00	3.70
29-Oct-18	11:48:00	3.70

29-Oct-18	11:50:00	3.70
29-Oct-18	11:52:00	3.70
29-Oct-18	11:54:00	3.70
29-Oct-18	11:56:00	3.70
29-Oct-18	11:58:00	3.70
29-Oct-18	12:00:00	3.70
29-Oct-18	12:02:00	0.00
29-Oct-18	12:04:00	0.00
29-Oct-18	12:06:00	0.00
29-Oct-18	12:08:00	0.00
29-Oct-18	12:10:00	0.00
29-Oct-18	12:12:00	0.00
29-Oct-18	12:14:00	0.00
29-Oct-18	12:16:00	0.00
29-Oct-18	12:18:00	0.00
29-Oct-18	12:20:00	0.00
29-Oct-18	12:22:00	0.00
29-Oct-18	12:24:00	0.00
29-Oct-18	12:26:00	0.30
29-Oct-18	12:28:00	0.30
29-Oct-18	12:30:00	0.30
29-Oct-18	12:32:00	0.00
29-Oct-18	12:34:00	0.00
29-Oct-18	12:36:00	0.00
29-Oct-18	12:38:00	0.00
29-Oct-18	12:40:00	0.00
29-Oct-18	12:42:00	0.00
29-Oct-18	12:44:00	0.00
29-Oct-18	12:46:00	0.00
29-Oct-18	12:48:00	0.00
29-Oct-18	12:50:00	0.20
29-Oct-18	12:52:00	0.20
29-Oct-18	12:54:00	0.20
29-Oct-18	12:56:00	0.20
29-Oct-18	12:58:00	0.20
29-Oct-18	13:00:00	0.00
29-Oct-18	13:02:00	0.00
29-Oct-18	13:04:00	0.00
29-Oct-18	13:06:00	0.00
29-Oct-18	13:08:00	0.00
29-Oct-18	13:10:00	0.30
29-Oct-18	13:12:00	0.30
29-Oct-18	13:14:00	0.30
29-Oct-18	13:16:00	0.30
29-Oct-18	13:18:00	0.30
29-Oct-18	13:20:00	0.10
29-Oct-18	13:22:00	0.00

29-Oct-18	13:24:00	0.00
29-Oct-18	13:26:00	0.00
29-Oct-18	13:28:00	0.00
29-Oct-18	13:30:00	0.00
29-Oct-18	13:32:00	0.00
29-Oct-18	13:34:00	0.00
29-Oct-18	13:36:00	0.00
29-Oct-18	13:38:00	0.00
29-Oct-18	13:40:00	0.00
29-Oct-18	13:42:00	0.00
29-Oct-18	13:44:00	0.00
29-Oct-18	13:46:00	0.00
29-Oct-18	13:48:00	0.00
29-Oct-18	13:50:00	0.00
29-Oct-18	13:52:00	0.00
29-Oct-18	13:54:00	0.00
29-Oct-18	13:56:00	0.00
29-Oct-18	13:58:00	0.00
29-Oct-18	14:00:00	0.00
29-Oct-18	14:02:00	0.00
29-Oct-18	14:04:00	0.00
29-Oct-18	14:06:00	0.00
29-Oct-18	14:08:00	0.00
29-Oct-18	14:10:00	0.00
29-Oct-18	14:12:00	0.00
29-Oct-18	14:14:00	0.00
29-Oct-18	14:16:00	0.00
29-Oct-18	14:18:00	0.00
29-Oct-18	14:20:00	0.00
29-Oct-18	14:22:00	0.00
29-Oct-18	14:24:00	0.00
29-Oct-18	14:26:00	0.00
29-Oct-18	14:28:00	0.00
29-Oct-18	14:30:00	0.00
29-Oct-18	14:32:00	0.00
29-Oct-18	14:34:00	0.00
29-Oct-18	14:36:00	0.00
29-Oct-18	14:38:00	0.00
29-Oct-18	14:40:00	0.00
29-Oct-18	14:42:00	0.00
29-Oct-18	14:44:00	0.00
29-Oct-18	14:46:00	0.00
29-Oct-18	14:48:00	0.00
29-Oct-18	14:50:00	0.00
29-Oct-18	14:52:00	0.00
29-Oct-18	14:54:00	0.00
29-Oct-18	14:56:00	0.00

29-Oct-18	14:58:00	0.00
29-Oct-18	15:00:00	0.00
29-Oct-18	15:02:00	0.10
29-Oct-18	15:04:00	0.10
29-Oct-18	15:06:00	0.10
29-Oct-18	15:08:00	0.10
29-Oct-18	15:10:00	0.10
29-Oct-18	15:12:00	0.10
29-Oct-18	15:14:00	0.10
29-Oct-18	15:16:00	0.10
29-Oct-18	15:18:00	0.10
29-Oct-18	15:20:00	0.10
29-Oct-18	15:22:00	0.00
29-Oct-18	15:24:00	0.00
29-Oct-18	15:26:00	0.00
29-Oct-18	15:28:00	0.00
29-Oct-18	15:30:00	0.00
29-Oct-18	15:32:00	0.10
29-Oct-18	15:34:00	0.10
29-Oct-18	15:36:00	0.10
29-Oct-18	15:38:00	0.10
29-Oct-18	15:40:00	0.10
29-Oct-18	15:42:00	0.00
29-Oct-18	15:44:00	0.00
29-Oct-18	15:46:00	0.00
29-Oct-18	15:48:00	0.00
29-Oct-18	15:50:00	0.00
29-Oct-18	15:52:00	0.00
29-Oct-18	15:54:00	0.00
29-Oct-18	15:56:00	0.00
29-Oct-18	15:58:00	0.00
29-Oct-18	16:00:00	0.00
29-Oct-18	16:02:00	0.00
29-Oct-18	16:04:00	0.00
29-Oct-18	16:06:00	0.00
29-Oct-18	16:08:00	0.00
29-Oct-18	16:10:00	0.00
29-Oct-18	16:12:00	0.00
29-Oct-18	16:14:00	0.00
29-Oct-18	16:16:00	0.00
29-Oct-18	16:18:00	0.00
29-Oct-18	16:20:00	0.00
29-Oct-18	16:22:00	0.00
29-Oct-18	16:24:00	0.00
29-Oct-18	16:26:00	0.00
29-Oct-18	16:28:00	0.00
29-Oct-18	16:30:00	0.00

29-Oct-18	16:32:00	0.00
29-Oct-18	16:34:00	0.00
29-Oct-18	16:36:00	0.00
29-Oct-18	16:38:00	0.00
29-Oct-18	16:40:00	0.00
29-Oct-18	16:42:00	0.00
29-Oct-18	16:44:00	0.00
29-Oct-18	16:46:00	0.00
29-Oct-18	16:48:00	0.00
29-Oct-18	16:50:00	0.00
29-Oct-18	16:52:00	0.00
29-Oct-18	16:54:00	0.00
29-Oct-18	16:56:00	0.00
29-Oct-18	16:58:00	0.00
29-Oct-18	17:00:00	0.00
29-Oct-18	17:02:00	0.00
29-Oct-18	17:04:00	0.00
29-Oct-18	17:06:00	0.00
29-Oct-18	17:08:00	0.00
29-Oct-18	17:10:00	0.00
29-Oct-18	17:12:00	0.00
29-Oct-18	17:14:00	0.00
29-Oct-18	17:16:00	0.00
29-Oct-18	17:18:00	0.00
29-Oct-18	17:20:00	0.00
29-Oct-18	17:22:00	0.00
29-Oct-18	17:24:00	0.00
29-Oct-18	17:26:00	0.00
29-Oct-18	17:28:00	0.00
29-Oct-18	17:30:00	0.00
29-Oct-18	17:32:00	0.00
29-Oct-18	17:34:00	0.00
29-Oct-18	17:36:00	0.00
29-Oct-18	17:38:00	0.00
29-Oct-18	17:40:00	0.00
29-Oct-18	17:42:00	0.00
29-Oct-18	17:44:00	0.00
29-Oct-18	17:46:00	0.00
29-Oct-18	17:48:00	0.00
29-Oct-18	17:50:00	0.00
29-Oct-18	17:52:00	0.00
29-Oct-18	17:54:00	0.00
29-Oct-18	17:56:00	0.00
29-Oct-18	17:58:00	0.00
29-Oct-18	18:00:00	0.00
29-Oct-18	18:02:00	0.00
29-Oct-18	18:04:00	0.00

29-Oct-18	18:06:00	0.00
29-Oct-18	18:08:00	0.00
29-Oct-18	18:10:00	0.00
29-Oct-18	18:12:00	0.00
29-Oct-18	18:14:00	0.00
29-Oct-18	18:16:00	0.00
29-Oct-18	18:18:00	0.00
29-Oct-18	18:20:00	0.00
29-Oct-18	18:22:00	0.00
29-Oct-18	18:24:00	0.00
29-Oct-18	18:26:00	0.00
29-Oct-18	18:28:00	0.00
29-Oct-18	18:30:00	0.00
29-Oct-18	18:32:00	0.00
29-Oct-18	18:34:00	0.00
29-Oct-18	18:36:00	0.00
29-Oct-18	18:38:00	0.00
29-Oct-18	18:40:00	0.00
29-Oct-18	18:42:00	0.00
29-Oct-18	18:44:00	0.00
29-Oct-18	18:46:00	0.00
29-Oct-18	18:48:00	0.00
29-Oct-18	18:50:00	0.00
29-Oct-18	18:52:00	0.00
29-Oct-18	18:54:00	0.00
29-Oct-18	18:56:00	0.00
29-Oct-18	18:58:00	0.00
29-Oct-18	19:00:00	0.00
30-Oct-18	6:00:00	0.00
30-Oct-18	6:02:00	0.00
30-Oct-18	6:04:00	0.00
30-Oct-18	6:06:00	0.00
30-Oct-18	6:08:00	0.00
30-Oct-18	6:10:00	0.00
30-Oct-18	6:12:00	0.00
30-Oct-18	6:14:00	0.00
30-Oct-18	6:16:00	0.00
30-Oct-18	6:18:00	0.00
30-Oct-18	6:20:00	0.00
30-Oct-18	6:22:00	0.00
30-Oct-18	6:24:00	0.00
30-Oct-18	6:26:00	0.00
30-Oct-18	6:28:00	0.00
30-Oct-18	6:30:00	0.00
30-Oct-18	6:32:00	0.00
30-Oct-18	6:34:00	0.00
30-Oct-18	6:36:00	0.00

30-Oct-18	6:38:00	0.00
30-Oct-18	6:40:00	0.00
30-Oct-18	6:42:00	0.00
30-Oct-18	6:44:00	0.00
30-Oct-18	6:46:00	0.00
30-Oct-18	6:48:00	0.00
30-Oct-18	6:50:00	0.00
30-Oct-18	6:52:00	0.00
30-Oct-18	6:54:00	0.00
30-Oct-18	6:56:00	0.00
30-Oct-18	6:58:00	0.00
30-Oct-18	7:00:00	0.00
30-Oct-18	7:02:00	0.00
30-Oct-18	7:04:00	0.00
30-Oct-18	7:06:00	0.00
30-Oct-18	7:08:00	0.00
30-Oct-18	7:10:00	0.00
30-Oct-18	7:12:00	0.00
30-Oct-18	7:14:00	0.00
30-Oct-18	7:16:00	0.00
30-Oct-18	7:18:00	0.00
30-Oct-18	7:20:00	0.00
30-Oct-18	7:22:00	0.00
30-Oct-18	7:24:00	0.00
30-Oct-18	7:26:00	0.00
30-Oct-18	7:28:00	0.00
30-Oct-18	7:30:00	0.00
30-Oct-18	7:32:00	0.00
30-Oct-18	7:34:00	0.00
30-Oct-18	7:36:00	0.00
30-Oct-18	7:38:00	0.00
30-Oct-18	7:40:00	0.00
30-Oct-18	7:42:00	0.00
30-Oct-18	7:44:00	0.00
30-Oct-18	7:46:00	0.00
30-Oct-18	7:48:00	0.00
30-Oct-18	7:50:00	0.00
30-Oct-18	7:52:00	0.10
30-Oct-18	7:54:00	0.10
30-Oct-18	7:56:00	0.10
30-Oct-18	7:58:00	0.10
30-Oct-18	8:00:00	0.10
30-Oct-18	8:02:00	0.00
30-Oct-18	8:04:00	0.00
30-Oct-18	8:06:00	0.00
30-Oct-18	8:08:00	0.00
30-Oct-18	8:10:00	0.00

30-Oct-18	8:12:00	0.10
30-Oct-18	8:14:00	0.10
30-Oct-18	8:16:00	0.10
30-Oct-18	8:18:00	0.10
30-Oct-18	8:20:00	0.10
30-Oct-18	8:22:00	0.00
30-Oct-18	8:24:00	0.00
30-Oct-18	8:26:00	0.00
30-Oct-18	8:28:00	0.00
30-Oct-18	8:30:00	0.00
30-Oct-18	8:32:00	0.00
30-Oct-18	8:34:00	0.00
30-Oct-18	8:36:00	0.00
30-Oct-18	8:38:00	0.00
30-Oct-18	8:40:00	0.00
30-Oct-18	8:42:00	0.00
30-Oct-18	8:44:00	0.10
30-Oct-18	8:46:00	0.10
30-Oct-18	8:48:00	0.10
30-Oct-18	8:50:00	0.10
30-Oct-18	8:52:00	0.20
30-Oct-18	8:54:00	0.20
30-Oct-18	8:56:00	0.20
30-Oct-18	8:58:00	0.20
30-Oct-18	9:00:00	0.20
30-Oct-18	9:02:00	0.20
30-Oct-18	9:04:00	0.20
30-Oct-18	9:06:00	0.20
30-Oct-18	9:08:00	0.20
30-Oct-18	9:10:00	0.20
30-Oct-18	9:12:00	0.20
30-Oct-18	9:14:00	0.20
30-Oct-18	9:16:00	0.20
30-Oct-18	9:18:00	0.20
30-Oct-18	9:20:00	0.20
30-Oct-18	9:22:00	0.10
30-Oct-18	9:24:00	0.10
30-Oct-18	9:26:00	0.10
30-Oct-18	9:28:00	0.10
30-Oct-18	9:30:00	0.10
30-Oct-18	9:32:00	0.10
30-Oct-18	9:34:00	0.10
30-Oct-18	9:36:00	0.10
30-Oct-18	9:38:00	0.10
30-Oct-18	9:40:00	0.10
30-Oct-18	9:42:00	0.10
30-Oct-18	9:44:00	0.10

30-Oct-18	9:46:00	0.10
30-Oct-18	9:48:00	0.10
30-Oct-18	9:50:00	0.10
30-Oct-18	9:52:00	0.10
30-Oct-18	9:54:00	0.00
30-Oct-18	9:56:00	0.00
30-Oct-18	9:58:00	0.00
30-Oct-18	10:00:00	0.00
30-Oct-18	10:02:00	0.00
30-Oct-18	10:04:00	0.00
30-Oct-18	10:06:00	0.00
30-Oct-18	10:08:00	0.00
30-Oct-18	10:10:00	0.00
30-Oct-18	10:12:00	0.00
30-Oct-18	10:14:00	0.00
30-Oct-18	10:16:00	0.00
30-Oct-18	10:18:00	0.00
30-Oct-18	10:20:00	0.00
30-Oct-18	10:22:00	0.00
30-Oct-18	10:24:00	0.00
30-Oct-18	10:26:00	0.00
30-Oct-18	10:28:00	0.00
30-Oct-18	10:30:00	0.00
30-Oct-18	10:32:00	0.00
30-Oct-18	10:34:00	0.00
30-Oct-18	10:36:00	0.00
30-Oct-18	10:38:00	0.00
30-Oct-18	10:40:00	0.00
30-Oct-18	10:42:00	0.00
30-Oct-18	10:44:00	0.00
30-Oct-18	10:46:00	0.00
30-Oct-18	10:48:00	0.00
30-Oct-18	10:50:00	0.00
30-Oct-18	10:52:00	0.00
30-Oct-18	10:54:00	0.00
30-Oct-18	10:56:00	0.00
30-Oct-18	10:58:00	0.00
30-Oct-18	11:00:00	0.00
30-Oct-18	11:02:00	0.10
30-Oct-18	11:04:00	0.10
30-Oct-18	11:06:00	0.10
30-Oct-18	11:08:00	0.10
30-Oct-18	11:10:00	0.10
30-Oct-18	11:12:00	0.10
30-Oct-18	11:14:00	0.10
30-Oct-18	11:16:00	0.10
30-Oct-18	11:18:00	0.10

30-Oct-18	11:20:00	0.10
30-Oct-18	11:22:00	0.10
30-Oct-18	11:24:00	0.00
30-Oct-18	11:26:00	0.00
30-Oct-18	11:28:00	0.00
30-Oct-18	11:30:00	0.00
30-Oct-18	11:32:00	0.00
30-Oct-18	11:34:00	0.00
30-Oct-18	11:36:00	0.00
30-Oct-18	11:38:00	0.00
30-Oct-18	11:40:00	0.30
30-Oct-18	11:42:00	0.30
30-Oct-18	11:44:00	0.30
30-Oct-18	11:46:00	0.30
30-Oct-18	11:48:00	0.30
30-Oct-18	11:50:00	0.60
30-Oct-18	11:52:00	0.90
30-Oct-18	11:54:00	0.90
30-Oct-18	11:56:00	0.90
30-Oct-18	11:58:00	0.90
30-Oct-18	12:00:00	0.90
30-Oct-18	12:02:00	0.70
30-Oct-18	12:04:00	0.60
30-Oct-18	12:06:00	0.60
30-Oct-18	12:08:00	0.90
30-Oct-18	12:10:00	1.20
30-Oct-18	12:12:00	1.20
30-Oct-18	12:14:00	0.90
30-Oct-18	12:16:00	0.30
30-Oct-18	12:18:00	0.00
30-Oct-18	12:20:00	0.00
30-Oct-18	12:22:00	0.00
30-Oct-18	12:24:00	0.00
30-Oct-18	12:26:00	0.00
30-Oct-18	12:28:00	0.30
30-Oct-18	12:30:00	0.30
30-Oct-18	12:32:00	0.30
30-Oct-18	12:34:00	0.30
30-Oct-18	12:36:00	0.30
30-Oct-18	12:38:00	0.10
30-Oct-18	12:40:00	0.10
30-Oct-18	12:42:00	0.10
30-Oct-18	12:44:00	0.10
30-Oct-18	12:46:00	0.00
30-Oct-18	12:48:00	0.00
30-Oct-18	12:50:00	0.00
30-Oct-18	12:52:00	0.00

30-Oct-18	12:54:00	0.00
30-Oct-18	12:56:00	0.00
30-Oct-18	12:58:00	0.00
30-Oct-18	13:00:00	0.00
30-Oct-18	13:02:00	0.00
30-Oct-18	13:04:00	0.00
30-Oct-18	13:06:00	5.50
30-Oct-18	13:08:00	4.90
30-Oct-18	13:10:00	4.30
30-Oct-18	13:12:00	3.70
30-Oct-18	13:14:00	3.70
30-Oct-18	13:16:00	3.40
30-Oct-18	13:18:00	3.40
30-Oct-18	13:20:00	3.40
30-Oct-18	13:22:00	3.70
30-Oct-18	13:24:00	3.70
30-Oct-18	13:26:00	4.00
30-Oct-18	13:28:00	4.00
30-Oct-18	13:30:00	4.00
30-Oct-18	13:32:00	4.00
30-Oct-18	13:34:00	3.80
30-Oct-18	13:36:00	0.00
30-Oct-18	13:38:00	0.00
30-Oct-18	13:40:00	0.00
30-Oct-18	13:42:00	0.00
30-Oct-18	13:44:00	0.30
30-Oct-18	13:46:00	0.30
30-Oct-18	13:48:00	0.30
30-Oct-18	13:50:00	0.30
30-Oct-18	13:52:00	0.30
30-Oct-18	13:54:00	0.40
30-Oct-18	13:56:00	0.40
30-Oct-18	13:58:00	0.00
30-Oct-18	14:00:00	0.00
30-Oct-18	14:02:00	0.00
30-Oct-18	14:04:00	0.00
30-Oct-18	14:06:00	0.00
30-Oct-18	14:08:00	0.00
30-Oct-18	14:10:00	0.00
30-Oct-18	14:12:00	0.00
30-Oct-18	14:14:00	0.00
30-Oct-18	14:16:00	0.00
30-Oct-18	14:18:00	0.00
30-Oct-18	14:20:00	0.00
30-Oct-18	14:22:00	0.00
30-Oct-18	14:24:00	0.00
30-Oct-18	14:26:00	0.00

30-Oct-18	14:28:00	0.00
30-Oct-18	14:30:00	0.00
30-Oct-18	14:32:00	0.00
30-Oct-18	14:34:00	0.00
30-Oct-18	14:36:00	0.00
30-Oct-18	14:38:00	0.00
30-Oct-18	14:40:00	0.00
30-Oct-18	14:42:00	0.00
30-Oct-18	14:44:00	0.00
30-Oct-18	14:46:00	0.00
30-Oct-18	14:48:00	0.00
30-Oct-18	14:50:00	0.00
30-Oct-18	14:52:00	0.00
30-Oct-18	14:54:00	0.00
30-Oct-18	14:56:00	0.00
30-Oct-18	14:58:00	0.00
30-Oct-18	15:00:00	0.00
30-Oct-18	15:02:00	0.00
30-Oct-18	15:04:00	0.00
30-Oct-18	15:06:00	0.00
30-Oct-18	15:08:00	0.00
30-Oct-18	15:10:00	0.00
30-Oct-18	15:12:00	0.00
30-Oct-18	15:14:00	0.00
30-Oct-18	15:16:00	0.00
30-Oct-18	15:18:00	0.30
30-Oct-18	15:20:00	0.30
30-Oct-18	15:22:00	0.30
30-Oct-18	15:24:00	0.30
30-Oct-18	15:26:00	0.30
30-Oct-18	15:28:00	0.30
30-Oct-18	15:30:00	0.30
30-Oct-18	15:32:00	0.30
30-Oct-18	15:34:00	0.30
30-Oct-18	15:36:00	0.30
30-Oct-18	15:38:00	0.00
30-Oct-18	15:40:00	0.00
30-Oct-18	15:42:00	0.00
30-Oct-18	15:44:00	0.00
30-Oct-18	15:46:00	0.00
30-Oct-18	15:48:00	0.10
30-Oct-18	15:50:00	0.10
30-Oct-18	15:52:00	0.10
30-Oct-18	15:54:00	0.10
30-Oct-18	15:56:00	0.10
30-Oct-18	15:58:00	0.10
30-Oct-18	16:00:00	0.10

30-Oct-18	16:02:00	0.10
30-Oct-18	16:04:00	0.10
30-Oct-18	16:06:00	0.10
30-Oct-18	16:08:00	0.10
30-Oct-18	16:10:00	0.10
30-Oct-18	16:12:00	0.10
30-Oct-18	16:14:00	0.10
30-Oct-18	16:16:00	0.10
30-Oct-18	16:18:00	0.10
30-Oct-18	16:20:00	0.10
30-Oct-18	16:22:00	0.10
30-Oct-18	16:24:00	0.10
30-Oct-18	16:26:00	0.10
30-Oct-18	16:28:00	0.00
30-Oct-18	16:30:00	0.00
30-Oct-18	16:32:00	0.00
30-Oct-18	16:34:00	0.00
30-Oct-18	16:36:00	0.00
30-Oct-18	16:38:00	0.00
30-Oct-18	16:40:00	0.00
30-Oct-18	16:42:00	0.00
30-Oct-18	16:44:00	0.00
30-Oct-18	16:46:00	0.00
30-Oct-18	16:48:00	0.00
30-Oct-18	16:50:00	0.00
30-Oct-18	16:52:00	0.00
30-Oct-18	16:54:00	0.00
30-Oct-18	16:56:00	0.00
30-Oct-18	16:58:00	0.00
30-Oct-18	17:00:00	0.00
30-Oct-18	17:02:00	0.00
30-Oct-18	17:04:00	0.00
30-Oct-18	17:06:00	0.00
30-Oct-18	17:08:00	0.00
30-Oct-18	17:10:00	0.00
30-Oct-18	17:12:00	0.00
30-Oct-18	17:14:00	0.00
30-Oct-18	17:16:00	0.00
30-Oct-18	17:18:00	0.00
30-Oct-18	17:20:00	0.00
30-Oct-18	17:22:00	0.00
30-Oct-18	17:24:00	0.00
30-Oct-18	17:26:00	0.00
30-Oct-18	17:28:00	0.00
30-Oct-18	17:30:00	0.00
30-Oct-18	17:32:00	0.00
30-Oct-18	17:34:00	0.00

30-Oct-18	17:36:00	0.00
30-Oct-18	17:38:00	0.00
30-Oct-18	17:40:00	0.00
30-Oct-18	17:42:00	0.00
30-Oct-18	17:44:00	0.00
30-Oct-18	17:46:00	0.00
30-Oct-18	17:48:00	0.00
30-Oct-18	17:50:00	0.00
30-Oct-18	17:52:00	0.00
30-Oct-18	17:54:00	0.00
30-Oct-18	17:56:00	0.00
30-Oct-18	17:58:00	0.00
30-Oct-18	18:00:00	0.00
30-Oct-18	18:02:00	0.00
30-Oct-18	18:04:00	0.00
30-Oct-18	18:06:00	0.00
30-Oct-18	18:08:00	0.00
30-Oct-18	18:10:00	0.00
30-Oct-18	18:12:00	0.00
30-Oct-18	18:14:00	0.00
30-Oct-18	18:16:00	0.00
30-Oct-18	18:18:00	0.00
30-Oct-18	18:20:00	0.00
30-Oct-18	18:22:00	0.00
30-Oct-18	18:24:00	0.00
30-Oct-18	18:26:00	0.00
30-Oct-18	18:28:00	0.00
30-Oct-18	18:30:00	0.00
30-Oct-18	18:32:00	0.00
30-Oct-18	18:34:00	0.00
30-Oct-18	18:36:00	0.00
30-Oct-18	18:38:00	0.00
30-Oct-18	18:40:00	0.00
30-Oct-18	18:42:00	0.00
30-Oct-18	18:44:00	0.00
30-Oct-18	18:46:00	0.00
30-Oct-18	18:48:00	0.00
30-Oct-18	18:50:00	0.00
30-Oct-18	18:52:00	0.00
30-Oct-18	18:54:00	0.00
30-Oct-18	18:56:00	0.00
30-Oct-18	18:58:00	0.00
30-Oct-18	19:00:00	0.00

Date	Time	Diff Press
2-Nov-18	6:00:00	0.00
2-Nov-18	6:02:00	0.00
2-Nov-18	6:04:00	0.00
2-Nov-18	6:06:00	0.00
2-Nov-18	6:08:00	0.00
2-Nov-18	6:10:00	0.00
2-Nov-18	6:12:00	0.00
2-Nov-18	6:14:00	0.00
2-Nov-18	6:16:00	0.00
2-Nov-18	6:18:00	0.00
2-Nov-18	6:20:00	0.00
2-Nov-18	6:22:00	0.00
2-Nov-18	6:24:00	0.00
2-Nov-18	6:26:00	0.00
2-Nov-18	6:28:00	0.00
2-Nov-18	6:30:00	0.00
2-Nov-18	6:32:00	0.00
2-Nov-18	6:34:00	0.00
2-Nov-18	6:36:00	0.00
2-Nov-18	6:38:00	0.00
2-Nov-18	6:40:00	0.00
2-Nov-18	6:42:00	0.00
2-Nov-18	6:44:00	0.00
2-Nov-18	6:46:00	0.00
2-Nov-18	6:48:00	0.00
2-Nov-18	6:50:00	0.00
2-Nov-18	6:52:00	0.00
2-Nov-18	6:54:00	0.00
2-Nov-18	6:56:00	0.00
2-Nov-18	6:58:00	0.00
2-Nov-18	7:00:00	0.00
2-Nov-18	7:02:00	0.00
2-Nov-18	7:04:00	0.00
2-Nov-18	7:06:00	0.00
2-Nov-18	7:08:00	0.00
2-Nov-18	7:10:00	0.00
2-Nov-18	7:12:00	0.00
2-Nov-18	7:14:00	0.00
2-Nov-18	7:16:00	0.00
2-Nov-18	7:18:00	0.00
2-Nov-18	7:20:00	0.00
2-Nov-18	7:22:00	0.00
2-Nov-18	7:24:00	0.00
2-Nov-18	7:26:00	0.00
2-Nov-18	7:28:00	0.00

2-Nov-18	7:30:00	0.00
2-Nov-18	7:32:00	0.00
2-Nov-18	7:34:00	0.00
2-Nov-18	7:36:00	0.00
2-Nov-18	7:38:00	0.00
2-Nov-18	7:40:00	0.00
2-Nov-18	7:42:00	0.00
2-Nov-18	7:44:00	0.00
2-Nov-18	7:46:00	0.00
2-Nov-18	7:48:00	0.00
2-Nov-18	7:50:00	0.00
2-Nov-18	7:52:00	0.00
2-Nov-18	7:54:00	0.00
2-Nov-18	7:56:00	0.00
2-Nov-18	7:58:00	0.00
2-Nov-18	8:00:00	0.00
2-Nov-18	8:02:00	0.00
2-Nov-18	8:04:00	0.00
2-Nov-18	8:06:00	0.00
2-Nov-18	8:08:00	0.00
2-Nov-18	8:10:00	0.00
2-Nov-18	8:12:00	0.00
2-Nov-18	8:14:00	0.00
2-Nov-18	8:16:00	0.00
2-Nov-18	8:18:00	0.10
2-Nov-18	8:20:00	0.10
2-Nov-18	8:22:00	0.00
2-Nov-18	8:24:00	0.10
2-Nov-18	8:26:00	0.10
2-Nov-18	8:28:00	0.10
2-Nov-18	8:30:00	0.10
2-Nov-18	8:32:00	0.10
2-Nov-18	8:34:00	0.10
2-Nov-18	8:36:00	0.10
2-Nov-18	8:38:00	0.10
2-Nov-18	8:40:00	0.10
2-Nov-18	8:42:00	0.10
2-Nov-18	8:44:00	0.10
2-Nov-18	8:46:00	0.10
2-Nov-18	8:48:00	0.00
2-Nov-18	8:50:00	0.00
2-Nov-18	8:52:00	0.00
2-Nov-18	8:54:00	0.00
2-Nov-18	8:56:00	0.00
2-Nov-18	8:58:00	0.10
2-Nov-18	9:00:00	0.10
2-Nov-18	9:02:00	0.10

2-Nov-18	9:04:00	0.10
2-Nov-18	9:06:00	0.10
2-Nov-18	9:08:00	0.10
2-Nov-18	9:10:00	0.10
2-Nov-18	9:12:00	0.10
2-Nov-18	9:14:00	0.10
2-Nov-18	9:16:00	0.10
2-Nov-18	9:18:00	0.20
2-Nov-18	9:20:00	0.20
2-Nov-18	9:22:00	0.20
2-Nov-18	9:24:00	0.20
2-Nov-18	9:26:00	0.20
2-Nov-18	9:28:00	0.10
2-Nov-18	9:30:00	0.10
2-Nov-18	9:32:00	0.10
2-Nov-18	9:34:00	0.10
2-Nov-18	9:36:00	0.10
2-Nov-18	9:38:00	0.30
2-Nov-18	9:40:00	0.30
2-Nov-18	9:42:00	0.30
2-Nov-18	9:44:00	0.30
2-Nov-18	9:46:00	0.30
2-Nov-18	9:48:00	0.30
2-Nov-18	9:50:00	0.30
2-Nov-18	9:52:00	0.30
2-Nov-18	9:54:00	0.30
2-Nov-18	9:56:00	0.90
2-Nov-18	9:58:00	1.50
2-Nov-18	10:00:00	1.80
2-Nov-18	10:02:00	1.80
2-Nov-18	10:04:00	1.80
2-Nov-18	10:06:00	1.80
2-Nov-18	10:08:00	1.50
2-Nov-18	10:10:00	1.20
2-Nov-18	10:12:00	1.20
2-Nov-18	10:14:00	1.20
2-Nov-18	10:16:00	0.90
2-Nov-18	10:18:00	0.90
2-Nov-18	10:20:00	0.90
2-Nov-18	10:22:00	0.90
2-Nov-18	10:24:00	0.60
2-Nov-18	10:26:00	0.60
2-Nov-18	10:28:00	0.60
2-Nov-18	10:30:00	0.60
2-Nov-18	10:32:00	0.60
2-Nov-18	10:34:00	0.70
2-Nov-18	10:36:00	0.70

2-Nov-18	10:38:00	0.70
2-Nov-18	10:40:00	6.20
2-Nov-18	10:42:00	5.30
2-Nov-18	10:44:00	4.70
2-Nov-18	10:46:00	4.30
2-Nov-18	10:48:00	4.00
2-Nov-18	10:50:00	4.00
2-Nov-18	10:52:00	4.00
2-Nov-18	10:54:00	4.00
2-Nov-18	10:56:00	4.40
2-Nov-18	10:58:00	4.40
2-Nov-18	11:00:00	4.40
2-Nov-18	11:02:00	4.40
2-Nov-18	11:04:00	4.40
2-Nov-18	11:06:00	4.20
2-Nov-18	11:08:00	4.20
2-Nov-18	11:10:00	4.20
2-Nov-18	11:12:00	4.20
2-Nov-18	11:14:00	4.20
2-Nov-18	11:16:00	4.00
2-Nov-18	11:18:00	3.70
2-Nov-18	11:20:00	3.70
2-Nov-18	11:22:00	3.70
2-Nov-18	11:24:00	4.00
2-Nov-18	11:26:00	4.00
2-Nov-18	11:28:00	3.70
2-Nov-18	11:30:00	3.70
2-Nov-18	11:32:00	3.40
2-Nov-18	11:34:00	3.70
2-Nov-18	11:36:00	3.40
2-Nov-18	11:38:00	3.40
2-Nov-18	11:40:00	3.40
2-Nov-18	11:42:00	3.40
2-Nov-18	11:44:00	3.40
2-Nov-18	11:46:00	3.30
2-Nov-18	11:48:00	3.30
2-Nov-18	11:50:00	3.30
2-Nov-18	11:52:00	3.30
2-Nov-18	11:54:00	4.00
2-Nov-18	11:56:00	4.40
2-Nov-18	11:58:00	0.00
2-Nov-18	12:00:00	0.00
2-Nov-18	12:02:00	0.00
2-Nov-18	12:04:00	0.00
2-Nov-18	12:06:00	0.00
2-Nov-18	12:08:00	0.00
2-Nov-18	12:10:00	0.00

2-Nov-18	12:12:00	0.00
2-Nov-18	12:14:00	0.00
2-Nov-18	12:16:00	0.00
2-Nov-18	12:18:00	0.00
2-Nov-18	12:20:00	0.00
2-Nov-18	12:22:00	0.00
2-Nov-18	12:24:00	0.00
2-Nov-18	12:26:00	0.00
2-Nov-18	12:28:00	0.00
2-Nov-18	12:30:00	0.00
2-Nov-18	12:32:00	0.40
2-Nov-18	12:34:00	0.40
2-Nov-18	12:36:00	0.40
2-Nov-18	12:38:00	0.10
2-Nov-18	12:40:00	0.10
2-Nov-18	12:42:00	0.10
2-Nov-18	12:44:00	0.10
2-Nov-18	12:46:00	0.10
2-Nov-18	12:48:00	0.00
2-Nov-18	12:50:00	0.00
2-Nov-18	12:52:00	0.00
2-Nov-18	12:54:00	0.40
2-Nov-18	12:56:00	0.40
2-Nov-18	12:58:00	0.10
2-Nov-18	13:00:00	0.10
2-Nov-18	13:02:00	0.10
2-Nov-18	13:04:00	0.10
2-Nov-18	13:06:00	0.10
2-Nov-18	13:08:00	0.00
2-Nov-18	13:10:00	0.00
2-Nov-18	13:12:00	0.40
2-Nov-18	13:14:00	0.40
2-Nov-18	13:16:00	0.40
2-Nov-18	13:18:00	0.10
2-Nov-18	13:20:00	0.10
2-Nov-18	13:22:00	0.10
2-Nov-18	13:24:00	0.10
2-Nov-18	13:26:00	0.10
2-Nov-18	13:28:00	0.00
2-Nov-18	13:30:00	0.00
2-Nov-18	13:32:00	0.00
2-Nov-18	13:34:00	0.00
2-Nov-18	13:36:00	0.00
2-Nov-18	13:38:00	0.00
2-Nov-18	13:40:00	0.00
2-Nov-18	13:42:00	0.00
2-Nov-18	13:44:00	0.00

2-Nov-18	13:46:00	0.00
2-Nov-18	13:48:00	0.00
2-Nov-18	13:50:00	0.00
2-Nov-18	13:52:00	0.00
2-Nov-18	13:54:00	0.00
2-Nov-18	13:56:00	0.00
2-Nov-18	13:58:00	0.00
2-Nov-18	14:00:00	0.00
2-Nov-18	14:02:00	0.00
2-Nov-18	14:04:00	0.00
2-Nov-18	14:06:00	0.00
2-Nov-18	14:08:00	0.00
2-Nov-18	14:10:00	0.00
2-Nov-18	14:12:00	0.00
2-Nov-18	14:14:00	0.00
2-Nov-18	14:16:00	0.00
2-Nov-18	14:18:00	0.00
2-Nov-18	14:20:00	0.00
2-Nov-18	14:22:00	0.00
2-Nov-18	14:24:00	0.00
2-Nov-18	14:26:00	0.00
2-Nov-18	14:28:00	0.00
2-Nov-18	14:30:00	0.00
2-Nov-18	14:32:00	0.00
2-Nov-18	14:34:00	0.00
2-Nov-18	14:36:00	0.00
2-Nov-18	14:38:00	0.00
2-Nov-18	14:40:00	0.00
2-Nov-18	14:42:00	0.00
2-Nov-18	14:44:00	0.00
2-Nov-18	14:46:00	0.00
2-Nov-18	14:48:00	0.00
2-Nov-18	14:50:00	0.00
2-Nov-18	14:52:00	0.00
2-Nov-18	14:54:00	0.00
2-Nov-18	14:56:00	0.00
2-Nov-18	14:58:00	0.00
2-Nov-18	15:00:00	0.00
2-Nov-18	15:02:00	0.00
2-Nov-18	15:04:00	0.00
2-Nov-18	15:06:00	0.00
2-Nov-18	15:08:00	0.00
2-Nov-18	15:10:00	0.00
2-Nov-18	15:12:00	0.00
2-Nov-18	15:14:00	0.00
2-Nov-18	15:16:00	0.00
2-Nov-18	15:18:00	0.00

2-Nov-18	15:20:00	0.00
2-Nov-18	15:22:00	0.00
2-Nov-18	15:24:00	0.00
2-Nov-18	15:26:00	0.00
2-Nov-18	15:28:00	0.00
2-Nov-18	15:30:00	0.00
2-Nov-18	15:32:00	0.00
2-Nov-18	15:34:00	0.00
2-Nov-18	15:36:00	0.00
2-Nov-18	15:38:00	0.10
2-Nov-18	15:40:00	0.10
2-Nov-18	15:42:00	0.10
2-Nov-18	15:44:00	0.10
2-Nov-18	15:46:00	0.10
2-Nov-18	15:48:00	0.00
2-Nov-18	15:50:00	0.00
2-Nov-18	15:52:00	0.00
2-Nov-18	15:54:00	0.00
2-Nov-18	15:56:00	0.00
2-Nov-18	15:58:00	0.10
2-Nov-18	16:00:00	0.10
2-Nov-18	16:02:00	0.10
2-Nov-18	16:04:00	0.10
2-Nov-18	16:06:00	0.10
2-Nov-18	16:08:00	0.10
2-Nov-18	16:10:00	0.10
2-Nov-18	16:12:00	0.10
2-Nov-18	16:14:00	0.10
2-Nov-18	16:16:00	0.10
2-Nov-18	16:18:00	0.00
2-Nov-18	16:20:00	0.00
2-Nov-18	16:22:00	0.00
2-Nov-18	16:24:00	0.00
2-Nov-18	16:26:00	0.00
2-Nov-18	16:28:00	0.00
2-Nov-18	16:30:00	0.00
2-Nov-18	16:32:00	0.00
2-Nov-18	16:34:00	0.00
2-Nov-18	16:36:00	0.00
2-Nov-18	16:38:00	0.00
2-Nov-18	16:40:00	0.00
2-Nov-18	16:42:00	0.00
2-Nov-18	16:44:00	0.00
2-Nov-18	16:46:00	0.00
2-Nov-18	16:48:00	0.00
2-Nov-18	16:50:00	0.00
2-Nov-18	16:52:00	0.00

2-Nov-18	16:54:00	0.00
2-Nov-18	16:56:00	0.00
2-Nov-18	16:58:00	0.00
2-Nov-18	17:00:00	0.00
2-Nov-18	17:02:00	0.00
2-Nov-18	17:04:00	0.00
2-Nov-18	17:06:00	0.00
2-Nov-18	17:08:00	0.00
2-Nov-18	17:10:00	0.00
2-Nov-18	17:12:00	0.00
2-Nov-18	17:14:00	0.00
2-Nov-18	17:16:00	0.00
2-Nov-18	17:18:00	0.00
2-Nov-18	17:20:00	0.00
2-Nov-18	17:22:00	0.00
2-Nov-18	17:24:00	0.00
2-Nov-18	17:26:00	0.00
2-Nov-18	17:28:00	0.00
2-Nov-18	17:30:00	0.00
2-Nov-18	17:32:00	0.00
2-Nov-18	17:34:00	0.00
2-Nov-18	17:36:00	0.00
2-Nov-18	17:38:00	0.00
2-Nov-18	17:40:00	0.00
2-Nov-18	17:42:00	0.00
2-Nov-18	17:44:00	0.00
2-Nov-18	17:46:00	0.00
2-Nov-18	17:48:00	0.00
2-Nov-18	17:50:00	0.00
2-Nov-18	17:52:00	0.00
2-Nov-18	17:54:00	0.00
2-Nov-18	17:56:00	0.00
2-Nov-18	17:58:00	0.00
2-Nov-18	18:00:00	0.00
2-Nov-18	18:02:00	0.00
2-Nov-18	18:04:00	0.00
2-Nov-18	18:06:00	0.00
2-Nov-18	18:08:00	0.00
2-Nov-18	18:10:00	0.00
2-Nov-18	18:12:00	0.00
2-Nov-18	18:14:00	0.00
2-Nov-18	18:16:00	0.00
2-Nov-18	18:18:00	0.00
2-Nov-18	18:20:00	0.00
2-Nov-18	18:22:00	0.00
2-Nov-18	18:24:00	0.00
2-Nov-18	18:26:00	0.00

2-Nov-18	18:28:00	0.00
2-Nov-18	18:30:00	0.00
2-Nov-18	18:32:00	0.00
2-Nov-18	18:34:00	0.00
2-Nov-18	18:36:00	0.00
2-Nov-18	18:38:00	0.00
2-Nov-18	18:40:00	0.00
2-Nov-18	18:42:00	0.00
2-Nov-18	18:44:00	0.00
2-Nov-18	18:46:00	0.00
2-Nov-18	18:48:00	0.00
2-Nov-18	18:50:00	0.00
2-Nov-18	18:52:00	0.00
2-Nov-18	18:54:00	0.00
2-Nov-18	18:56:00	0.00
2-Nov-18	18:58:00	0.00
2-Nov-18	19:00:00	0.00
5-Nov-18	6:00:00	0.10
5-Nov-18	6:02:00	0.10
5-Nov-18	6:04:00	0.10
5-Nov-18	6:06:00	0.00
5-Nov-18	6:08:00	0.00
5-Nov-18	6:10:00	0.00
5-Nov-18	6:12:00	0.00
5-Nov-18	6:14:00	0.00
5-Nov-18	6:16:00	0.10
5-Nov-18	6:18:00	0.10
5-Nov-18	6:20:00	0.10
5-Nov-18	6:22:00	0.10
5-Nov-18	6:24:00	0.10
5-Nov-18	6:26:00	0.00
5-Nov-18	6:28:00	0.00
5-Nov-18	6:30:00	0.00
5-Nov-18	6:32:00	0.00
5-Nov-18	6:34:00	0.00
5-Nov-18	6:36:00	0.00
5-Nov-18	6:38:00	0.00
5-Nov-18	6:40:00	0.00
5-Nov-18	6:42:00	0.00
5-Nov-18	6:44:00	0.00
5-Nov-18	6:46:00	0.00
5-Nov-18	6:48:00	0.00
5-Nov-18	6:50:00	0.00
5-Nov-18	6:52:00	0.00
5-Nov-18	6:54:00	0.00
5-Nov-18	6:56:00	0.00
5-Nov-18	6:58:00	0.00

5-Nov-18	7:00:00	0.00
5-Nov-18	7:02:00	0.00
5-Nov-18	7:04:00	0.00
5-Nov-18	7:06:00	0.00
5-Nov-18	7:08:00	0.00
5-Nov-18	7:10:00	0.00
5-Nov-18	7:12:00	0.00
5-Nov-18	7:14:00	0.00
5-Nov-18	7:16:00	0.10
5-Nov-18	7:18:00	0.10
5-Nov-18	7:20:00	0.10
5-Nov-18	7:22:00	0.10
5-Nov-18	7:24:00	0.10
5-Nov-18	7:26:00	0.10
5-Nov-18	7:28:00	0.10
5-Nov-18	7:30:00	0.10
5-Nov-18	7:32:00	0.10
5-Nov-18	7:34:00	0.10
5-Nov-18	7:36:00	0.10
5-Nov-18	7:38:00	0.10
5-Nov-18	7:40:00	0.10
5-Nov-18	7:42:00	0.10
5-Nov-18	7:44:00	0.10
5-Nov-18	7:46:00	0.10
5-Nov-18	7:48:00	0.10
5-Nov-18	7:50:00	0.10
5-Nov-18	7:52:00	0.10
5-Nov-18	7:54:00	0.10
5-Nov-18	7:56:00	0.10
5-Nov-18	7:58:00	0.10
5-Nov-18	8:00:00	0.10
5-Nov-18	8:02:00	0.10
5-Nov-18	8:04:00	0.10
5-Nov-18	8:06:00	0.10
5-Nov-18	8:08:00	0.10
5-Nov-18	8:10:00	0.10
5-Nov-18	8:12:00	0.10
5-Nov-18	8:14:00	0.10
5-Nov-18	8:16:00	0.10
5-Nov-18	8:18:00	0.10
5-Nov-18	8:20:00	0.10
5-Nov-18	8:22:00	0.10
5-Nov-18	8:24:00	0.10
5-Nov-18	8:26:00	0.10
5-Nov-18	8:28:00	0.10
5-Nov-18	8:30:00	0.10
5-Nov-18	8:32:00	0.10

5-Nov-18	8:34:00	0.10
5-Nov-18	8:36:00	0.10
5-Nov-18	8:38:00	0.10
5-Nov-18	8:40:00	0.10
5-Nov-18	8:42:00	0.10
5-Nov-18	8:44:00	0.10
5-Nov-18	8:46:00	0.10
5-Nov-18	8:48:00	0.10
5-Nov-18	8:50:00	0.10
5-Nov-18	8:52:00	0.10
5-Nov-18	8:54:00	0.10
5-Nov-18	8:56:00	0.20
5-Nov-18	8:58:00	0.40
5-Nov-18	9:00:00	0.70
5-Nov-18	9:02:00	1.30
5-Nov-18	9:04:00	1.30
5-Nov-18	9:06:00	1.00
5-Nov-18	9:08:00	0.70
5-Nov-18	9:10:00	0.70
5-Nov-18	9:12:00	1.00
5-Nov-18	9:14:00	1.30
5-Nov-18	9:16:00	1.30
5-Nov-18	9:18:00	1.30
5-Nov-18	9:20:00	1.30
5-Nov-18	9:22:00	1.30
5-Nov-18	9:24:00	1.50
5-Nov-18	9:26:00	1.50
5-Nov-18	9:28:00	1.50
5-Nov-18	9:30:00	1.00
5-Nov-18	9:32:00	1.00
5-Nov-18	9:34:00	1.00
5-Nov-18	9:36:00	1.00
5-Nov-18	9:38:00	0.70
5-Nov-18	9:40:00	0.70
5-Nov-18	9:42:00	0.70
5-Nov-18	9:44:00	0.70
5-Nov-18	9:46:00	0.70
5-Nov-18	9:48:00	0.50
5-Nov-18	9:50:00	0.40
5-Nov-18	9:52:00	0.40
5-Nov-18	9:54:00	0.00
5-Nov-18	9:56:00	0.00
5-Nov-18	9:58:00	0.00
5-Nov-18	10:00:00	0.00
5-Nov-18	10:02:00	0.00
5-Nov-18	10:04:00	0.00
5-Nov-18	10:06:00	0.00

5-Nov-18	10:08:00	0.00
5-Nov-18	10:10:00	0.00
5-Nov-18	10:12:00	0.00
5-Nov-18	10:14:00	0.20
5-Nov-18	10:16:00	0.20
5-Nov-18	10:18:00	0.20
5-Nov-18	10:20:00	0.40
5-Nov-18	10:22:00	0.70
5-Nov-18	10:24:00	0.40
5-Nov-18	10:26:00	6.50
5-Nov-18	10:28:00	5.60
5-Nov-18	10:30:00	5.00
5-Nov-18	10:32:00	4.70
5-Nov-18	10:34:00	4.70
5-Nov-18	10:36:00	4.60
5-Nov-18	10:38:00	4.70
5-Nov-18	10:40:00	4.10
5-Nov-18	10:42:00	3.80
5-Nov-18	10:44:00	3.80
5-Nov-18	10:46:00	4.10
5-Nov-18	10:48:00	4.10
5-Nov-18	10:50:00	4.10
5-Nov-18	10:52:00	4.10
5-Nov-18	10:54:00	4.10
5-Nov-18	10:56:00	3.80
5-Nov-18	10:58:00	3.80
5-Nov-18	11:00:00	3.50
5-Nov-18	11:02:00	3.50
5-Nov-18	11:04:00	3.50
5-Nov-18	11:06:00	3.50
5-Nov-18	11:08:00	3.50
5-Nov-18	11:10:00	3.70
5-Nov-18	11:12:00	3.70
5-Nov-18	11:14:00	3.80
5-Nov-18	11:16:00	3.80
5-Nov-18	11:18:00	4.10
5-Nov-18	11:20:00	4.00
5-Nov-18	11:22:00	4.00
5-Nov-18	11:24:00	3.80
5-Nov-18	11:26:00	3.80
5-Nov-18	11:28:00	3.80
5-Nov-18	11:30:00	3.80
5-Nov-18	11:32:00	3.80
5-Nov-18	11:34:00	3.90
5-Nov-18	11:36:00	0.10
5-Nov-18	11:38:00	0.10
5-Nov-18	11:40:00	0.10

5-Nov-18	11:42:00	0.10
5-Nov-18	11:44:00	0.10
5-Nov-18	11:46:00	0.10
5-Nov-18	11:48:00	0.00
5-Nov-18	11:50:00	0.00
5-Nov-18	11:52:00	0.00
5-Nov-18	11:54:00	0.00
5-Nov-18	11:56:00	0.00
5-Nov-18	11:58:00	0.00
5-Nov-18	12:00:00	0.00
5-Nov-18	12:02:00	0.00
5-Nov-18	12:04:00	0.00
5-Nov-18	12:06:00	0.00
5-Nov-18	12:08:00	0.00
5-Nov-18	12:10:00	0.00
5-Nov-18	12:12:00	0.00
5-Nov-18	12:14:00	0.00
5-Nov-18	12:16:00	0.00
5-Nov-18	12:18:00	0.10
5-Nov-18	12:20:00	0.10
5-Nov-18	12:22:00	0.10
5-Nov-18	12:24:00	0.10
5-Nov-18	12:26:00	0.10
5-Nov-18	12:28:00	0.20
5-Nov-18	12:30:00	0.20
5-Nov-18	12:32:00	0.20
5-Nov-18	12:34:00	0.20
5-Nov-18	12:36:00	0.20
5-Nov-18	12:38:00	0.00
5-Nov-18	12:40:00	0.00
5-Nov-18	12:42:00	0.00
5-Nov-18	12:44:00	0.00
5-Nov-18	12:46:00	0.00
5-Nov-18	12:48:00	0.00
5-Nov-18	12:50:00	0.00
5-Nov-18	12:52:00	0.00
5-Nov-18	12:54:00	0.00
5-Nov-18	12:56:00	0.00
5-Nov-18	12:58:00	0.00
5-Nov-18	13:00:00	0.00
5-Nov-18	13:02:00	0.00
5-Nov-18	13:04:00	0.00
5-Nov-18	13:06:00	0.00
5-Nov-18	13:08:00	0.00
5-Nov-18	13:10:00	0.00
5-Nov-18	13:12:00	0.00
5-Nov-18	13:14:00	0.00

5-Nov-18	13:16:00	0.00
5-Nov-18	13:18:00	0.00
5-Nov-18	13:20:00	0.00
5-Nov-18	13:22:00	0.00
5-Nov-18	13:24:00	0.00
5-Nov-18	13:26:00	0.00
5-Nov-18	13:28:00	0.00
5-Nov-18	13:30:00	0.00
5-Nov-18	13:32:00	0.00
5-Nov-18	13:34:00	0.00
5-Nov-18	13:36:00	0.00
5-Nov-18	13:38:00	0.00
5-Nov-18	13:40:00	0.00
5-Nov-18	13:42:00	0.00
5-Nov-18	13:44:00	0.00
5-Nov-18	13:46:00	0.00
5-Nov-18	13:48:00	0.00
5-Nov-18	13:50:00	0.00
5-Nov-18	13:52:00	0.00
5-Nov-18	13:54:00	0.00
5-Nov-18	13:56:00	0.00
5-Nov-18	13:58:00	0.00
5-Nov-18	14:00:00	0.00
5-Nov-18	14:02:00	0.00
5-Nov-18	14:04:00	0.00
5-Nov-18	14:06:00	0.00
5-Nov-18	14:08:00	0.00
5-Nov-18	14:10:00	0.00
5-Nov-18	14:12:00	0.00
5-Nov-18	14:14:00	0.00
5-Nov-18	14:16:00	0.00
5-Nov-18	14:18:00	0.00
5-Nov-18	14:20:00	0.00
5-Nov-18	14:22:00	0.00
5-Nov-18	14:24:00	0.00
5-Nov-18	14:26:00	0.00
5-Nov-18	14:28:00	0.00
5-Nov-18	14:30:00	0.00
5-Nov-18	14:32:00	0.00
5-Nov-18	14:34:00	0.00
5-Nov-18	14:36:00	0.00
5-Nov-18	14:38:00	0.00
5-Nov-18	14:40:00	0.00
5-Nov-18	14:42:00	0.00
5-Nov-18	14:44:00	0.00
5-Nov-18	14:46:00	0.00
5-Nov-18	14:48:00	0.00

5-Nov-18	14:50:00	0.00
5-Nov-18	14:52:00	0.00
5-Nov-18	14:54:00	0.00
5-Nov-18	14:56:00	0.00
5-Nov-18	14:58:00	0.00
5-Nov-18	15:00:00	0.00
5-Nov-18	15:02:00	0.00
5-Nov-18	15:04:00	0.00
5-Nov-18	15:06:00	0.00
5-Nov-18	15:08:00	0.00
5-Nov-18	15:10:00	0.00
5-Nov-18	15:12:00	0.00
5-Nov-18	15:14:00	0.00
5-Nov-18	15:16:00	0.00
5-Nov-18	15:18:00	0.00
5-Nov-18	15:20:00	0.00
5-Nov-18	15:22:00	0.00
5-Nov-18	15:24:00	0.00
5-Nov-18	15:26:00	0.00
5-Nov-18	15:28:00	0.00
5-Nov-18	15:30:00	0.00
5-Nov-18	15:32:00	0.00
5-Nov-18	15:34:00	0.00
5-Nov-18	15:36:00	0.00
5-Nov-18	15:38:00	0.00
5-Nov-18	15:40:00	0.00
5-Nov-18	15:42:00	0.00
5-Nov-18	15:44:00	0.00
5-Nov-18	15:46:00	0.00
5-Nov-18	15:48:00	0.00
5-Nov-18	15:50:00	0.00
5-Nov-18	15:52:00	0.00
5-Nov-18	15:54:00	0.00
5-Nov-18	15:56:00	0.00
5-Nov-18	15:58:00	0.00
5-Nov-18	16:00:00	0.00
5-Nov-18	16:02:00	0.00
5-Nov-18	16:04:00	0.00
5-Nov-18	16:06:00	0.00
5-Nov-18	16:08:00	0.00
5-Nov-18	16:10:00	0.00
5-Nov-18	16:12:00	0.00
5-Nov-18	16:14:00	0.00
5-Nov-18	16:16:00	0.00
5-Nov-18	16:18:00	0.00
5-Nov-18	16:20:00	0.00
5-Nov-18	16:22:00	0.00

5-Nov-18	16:24:00	0.00
5-Nov-18	16:26:00	0.00
5-Nov-18	16:28:00	0.00
5-Nov-18	16:30:00	0.00
5-Nov-18	16:32:00	0.00
5-Nov-18	16:34:00	0.00
5-Nov-18	16:36:00	0.00
5-Nov-18	16:38:00	0.00
5-Nov-18	16:40:00	0.00
5-Nov-18	16:42:00	0.00
5-Nov-18	16:44:00	0.00
5-Nov-18	16:46:00	0.00
5-Nov-18	16:48:00	0.00
5-Nov-18	16:50:00	0.00
5-Nov-18	16:52:00	0.00
5-Nov-18	16:54:00	0.00
5-Nov-18	16:56:00	0.00
5-Nov-18	16:58:00	0.00
5-Nov-18	17:00:00	0.00
5-Nov-18	17:02:00	0.00
5-Nov-18	17:04:00	0.00
5-Nov-18	17:06:00	0.00
5-Nov-18	17:08:00	0.00
5-Nov-18	17:10:00	0.00
5-Nov-18	17:12:00	0.00
5-Nov-18	17:14:00	0.00
5-Nov-18	17:16:00	0.00
5-Nov-18	17:18:00	0.00
5-Nov-18	17:20:00	0.00
5-Nov-18	17:22:00	0.00
5-Nov-18	17:24:00	0.00
5-Nov-18	17:26:00	0.00
5-Nov-18	17:28:00	0.00
5-Nov-18	17:30:00	0.00
5-Nov-18	17:32:00	0.00
5-Nov-18	17:34:00	0.00
5-Nov-18	17:36:00	0.00
5-Nov-18	17:38:00	0.00
5-Nov-18	17:40:00	0.00
5-Nov-18	17:42:00	0.00
5-Nov-18	17:44:00	0.00
5-Nov-18	17:46:00	0.00
5-Nov-18	17:48:00	0.00
5-Nov-18	17:50:00	0.00
5-Nov-18	17:52:00	0.00
5-Nov-18	17:54:00	0.00
5-Nov-18	17:56:00	0.00

5-Nov-18	17:58:00	0.00
5-Nov-18	18:00:00	0.00
5-Nov-18	18:02:00	0.00
5-Nov-18	18:04:00	0.00
5-Nov-18	18:06:00	0.00
5-Nov-18	18:08:00	0.00
5-Nov-18	18:10:00	0.00
5-Nov-18	18:12:00	0.00
5-Nov-18	18:14:00	0.00
5-Nov-18	18:16:00	0.00
5-Nov-18	18:18:00	0.00
5-Nov-18	18:20:00	0.00
5-Nov-18	18:22:00	0.00
5-Nov-18	18:24:00	0.00
5-Nov-18	18:26:00	0.00
5-Nov-18	18:28:00	0.00
5-Nov-18	18:30:00	0.00
5-Nov-18	18:32:00	0.00
5-Nov-18	18:34:00	0.00
5-Nov-18	18:36:00	0.00
5-Nov-18	18:38:00	0.00
5-Nov-18	18:40:00	0.00
5-Nov-18	18:42:00	0.00
5-Nov-18	18:44:00	0.00
5-Nov-18	18:46:00	0.00
5-Nov-18	18:48:00	0.00
5-Nov-18	18:50:00	0.00
5-Nov-18	18:52:00	0.00
5-Nov-18	18:54:00	0.00
5-Nov-18	18:56:00	0.00
5-Nov-18	18:58:00	0.00
5-Nov-18	19:00:00	0.00
6-Nov-18	6:00:00	0.00
6-Nov-18	6:02:00	0.00
6-Nov-18	6:04:00	0.00
6-Nov-18	6:06:00	0.00
6-Nov-18	6:08:00	0.00
6-Nov-18	6:10:00	0.00
6-Nov-18	6:12:00	0.00
6-Nov-18	6:14:00	0.00
6-Nov-18	6:16:00	0.00
6-Nov-18	6:18:00	0.00
6-Nov-18	6:20:00	0.00
6-Nov-18	6:22:00	0.00
6-Nov-18	6:24:00	0.00
6-Nov-18	6:26:00	0.00
6-Nov-18	6:28:00	0.00

6-Nov-18	6:30:00	0.00
6-Nov-18	6:32:00	0.00
6-Nov-18	6:34:00	0.00
6-Nov-18	6:36:00	0.00
6-Nov-18	6:38:00	0.00
6-Nov-18	6:40:00	0.00
6-Nov-18	6:42:00	0.00
6-Nov-18	6:44:00	0.00
6-Nov-18	6:46:00	0.00
6-Nov-18	6:48:00	0.00
6-Nov-18	6:50:00	0.00
6-Nov-18	6:52:00	0.00
6-Nov-18	6:54:00	0.00
6-Nov-18	6:56:00	0.00
6-Nov-18	6:58:00	0.20
6-Nov-18	7:00:00	0.20
6-Nov-18	7:02:00	0.20
6-Nov-18	7:04:00	0.20
6-Nov-18	7:06:00	0.20
6-Nov-18	7:08:00	0.10
6-Nov-18	7:10:00	0.10
6-Nov-18	7:12:00	0.10
6-Nov-18	7:14:00	0.10
6-Nov-18	7:16:00	0.10
6-Nov-18	7:18:00	0.20
6-Nov-18	7:20:00	0.20
6-Nov-18	7:22:00	0.20
6-Nov-18	7:24:00	0.20
6-Nov-18	7:26:00	0.20
6-Nov-18	7:28:00	0.10
6-Nov-18	7:30:00	0.10
6-Nov-18	7:32:00	0.10
6-Nov-18	7:34:00	0.10
6-Nov-18	7:36:00	0.10
6-Nov-18	7:38:00	0.10
6-Nov-18	7:40:00	0.10
6-Nov-18	7:42:00	0.10
6-Nov-18	7:44:00	0.10
6-Nov-18	7:46:00	0.10
6-Nov-18	7:48:00	0.00
6-Nov-18	7:50:00	0.00
6-Nov-18	7:52:00	0.00
6-Nov-18	7:54:00	0.00
6-Nov-18	7:56:00	0.00
6-Nov-18	7:58:00	0.00
6-Nov-18	8:00:00	0.00
6-Nov-18	8:02:00	0.00

6-Nov-18	8:04:00	0.00
6-Nov-18	8:06:00	0.00
6-Nov-18	8:08:00	0.10
6-Nov-18	8:10:00	0.10
6-Nov-18	8:12:00	0.10
6-Nov-18	8:14:00	0.10
6-Nov-18	8:16:00	0.10
6-Nov-18	8:18:00	0.10
6-Nov-18	8:20:00	0.10
6-Nov-18	8:22:00	0.10
6-Nov-18	8:24:00	0.10
6-Nov-18	8:26:00	0.10
6-Nov-18	8:28:00	0.10
6-Nov-18	8:30:00	0.10
6-Nov-18	8:32:00	0.10
6-Nov-18	8:34:00	0.10
6-Nov-18	8:36:00	0.10
6-Nov-18	8:38:00	0.20
6-Nov-18	8:40:00	0.20
6-Nov-18	8:42:00	0.20
6-Nov-18	8:44:00	0.20
6-Nov-18	8:46:00	0.20
6-Nov-18	8:48:00	0.20
6-Nov-18	8:50:00	0.20
6-Nov-18	8:52:00	0.20
6-Nov-18	8:54:00	0.40
6-Nov-18	8:56:00	0.40
6-Nov-18	8:58:00	0.40
6-Nov-18	9:00:00	0.40
6-Nov-18	9:02:00	1.00
6-Nov-18	9:04:00	1.30
6-Nov-18	9:06:00	1.00
6-Nov-18	9:08:00	0.70
6-Nov-18	9:10:00	0.70
6-Nov-18	9:12:00	1.00
6-Nov-18	9:14:00	1.60
6-Nov-18	9:16:00	1.90
6-Nov-18	9:18:00	2.20
6-Nov-18	9:20:00	2.20
6-Nov-18	9:22:00	2.20
6-Nov-18	9:24:00	2.20
6-Nov-18	9:26:00	1.60
6-Nov-18	9:28:00	1.60
6-Nov-18	9:30:00	1.30
6-Nov-18	9:32:00	1.30
6-Nov-18	9:34:00	1.00
6-Nov-18	9:36:00	1.00

6-Nov-18	9:38:00	6.90
6-Nov-18	9:40:00	6.30
6-Nov-18	9:42:00	5.70
6-Nov-18	9:44:00	5.70
6-Nov-18	9:46:00	5.70
6-Nov-18	9:48:00	5.70
6-Nov-18	9:50:00	5.00
6-Nov-18	9:52:00	4.40
6-Nov-18	9:54:00	4.40
6-Nov-18	9:56:00	4.10
6-Nov-18	9:58:00	4.40
6-Nov-18	10:00:00	4.40
6-Nov-18	10:02:00	4.40
6-Nov-18	10:04:00	4.70
6-Nov-18	10:06:00	4.40
6-Nov-18	10:08:00	4.40
6-Nov-18	10:10:00	4.40
6-Nov-18	10:12:00	4.40
6-Nov-18	10:14:00	4.40
6-Nov-18	10:16:00	4.40
6-Nov-18	10:18:00	4.40
6-Nov-18	10:20:00	4.40
6-Nov-18	10:22:00	4.40
6-Nov-18	10:24:00	4.40
6-Nov-18	10:26:00	4.60
6-Nov-18	10:28:00	4.60
6-Nov-18	10:30:00	4.60
6-Nov-18	10:32:00	4.10
6-Nov-18	10:34:00	3.80
6-Nov-18	10:36:00	3.80
6-Nov-18	10:38:00	3.20
6-Nov-18	10:40:00	3.20
6-Nov-18	10:42:00	3.20
6-Nov-18	10:44:00	2.90
6-Nov-18	10:46:00	2.90
6-Nov-18	10:48:00	2.90
6-Nov-18	10:50:00	2.90
6-Nov-18	10:52:00	2.90
6-Nov-18	10:54:00	0.10
6-Nov-18	10:56:00	0.10
6-Nov-18	10:58:00	0.10
6-Nov-18	11:00:00	0.10
6-Nov-18	11:02:00	0.10
6-Nov-18	11:04:00	0.00
6-Nov-18	11:06:00	0.00
6-Nov-18	11:08:00	0.00
6-Nov-18	11:10:00	0.00

6-Nov-18	11:12:00	0.00
6-Nov-18	11:14:00	0.00
6-Nov-18	11:16:00	0.00
6-Nov-18	11:18:00	0.00
6-Nov-18	11:20:00	0.00
6-Nov-18	11:22:00	0.00
6-Nov-18	11:24:00	0.00
6-Nov-18	11:26:00	0.00
6-Nov-18	11:28:00	0.00
6-Nov-18	11:30:00	0.00
6-Nov-18	11:32:00	0.00
6-Nov-18	11:34:00	0.10
6-Nov-18	11:36:00	0.10
6-Nov-18	11:38:00	0.10
6-Nov-18	11:40:00	0.10
6-Nov-18	11:42:00	0.10
6-Nov-18	11:44:00	0.20
6-Nov-18	11:46:00	0.20
6-Nov-18	11:48:00	0.20
6-Nov-18	11:50:00	0.20
6-Nov-18	11:52:00	0.20
6-Nov-18	11:54:00	0.30
6-Nov-18	11:56:00	0.30
6-Nov-18	11:58:00	0.30
6-Nov-18	12:00:00	0.30
6-Nov-18	12:02:00	0.30
6-Nov-18	12:04:00	0.10
6-Nov-18	12:06:00	0.10
6-Nov-18	12:08:00	0.10
6-Nov-18	12:10:00	0.10
6-Nov-18	12:12:00	0.10
6-Nov-18	12:14:00	0.00
6-Nov-18	12:16:00	0.00
6-Nov-18	12:18:00	0.00
6-Nov-18	12:20:00	0.00
6-Nov-18	12:22:00	0.00
6-Nov-18	12:24:00	0.00
6-Nov-18	12:26:00	0.00
6-Nov-18	12:28:00	0.00
6-Nov-18	12:30:00	0.00
6-Nov-18	12:32:00	0.00
6-Nov-18	12:34:00	0.20
6-Nov-18	12:36:00	0.20
6-Nov-18	12:38:00	0.20
6-Nov-18	12:40:00	0.20
6-Nov-18	12:42:00	0.20
6-Nov-18	12:44:00	0.00

6-Nov-18	12:46:00	0.00
6-Nov-18	12:48:00	0.00
6-Nov-18	12:50:00	0.00
6-Nov-18	12:52:00	0.00
6-Nov-18	12:54:00	0.00
6-Nov-18	12:56:00	0.00
6-Nov-18	12:58:00	0.00
6-Nov-18	13:00:00	0.00
6-Nov-18	13:02:00	0.00
6-Nov-18	13:04:00	0.00
6-Nov-18	13:06:00	0.00
6-Nov-18	13:08:00	0.00
6-Nov-18	13:10:00	0.00
6-Nov-18	13:12:00	0.00
6-Nov-18	13:14:00	0.00
6-Nov-18	13:16:00	0.00
6-Nov-18	13:18:00	0.00
6-Nov-18	13:20:00	0.00
6-Nov-18	13:22:00	0.00
6-Nov-18	13:24:00	0.00
6-Nov-18	13:26:00	0.00
6-Nov-18	13:28:00	0.00
6-Nov-18	13:30:00	0.00
6-Nov-18	13:32:00	0.00
6-Nov-18	13:34:00	0.00
6-Nov-18	13:36:00	0.00
6-Nov-18	13:38:00	0.00
6-Nov-18	13:40:00	0.00
6-Nov-18	13:42:00	0.00
6-Nov-18	13:44:00	0.00
6-Nov-18	13:46:00	0.00
6-Nov-18	13:48:00	0.00
6-Nov-18	13:50:00	0.00
6-Nov-18	13:52:00	0.00
6-Nov-18	13:54:00	0.00
6-Nov-18	13:56:00	0.00
6-Nov-18	13:58:00	0.00
6-Nov-18	14:00:00	0.00
6-Nov-18	14:02:00	0.00
6-Nov-18	14:04:00	0.00
6-Nov-18	14:06:00	0.00
6-Nov-18	14:08:00	0.00
6-Nov-18	14:10:00	0.00
6-Nov-18	14:12:00	0.00
6-Nov-18	14:14:00	0.00
6-Nov-18	14:16:00	0.00
6-Nov-18	14:18:00	0.00

6-Nov-18	14:20:00	0.00
6-Nov-18	14:22:00	0.00
6-Nov-18	14:24:00	0.00
6-Nov-18	14:26:00	0.00
6-Nov-18	14:28:00	0.00
6-Nov-18	14:30:00	0.00
6-Nov-18	14:32:00	0.00
6-Nov-18	14:34:00	0.00
6-Nov-18	14:36:00	0.00
6-Nov-18	14:38:00	0.00
6-Nov-18	14:40:00	0.00
6-Nov-18	14:42:00	0.00
6-Nov-18	14:44:00	0.00
6-Nov-18	14:46:00	0.00
6-Nov-18	14:48:00	0.00
6-Nov-18	14:50:00	0.00
6-Nov-18	14:52:00	0.00
6-Nov-18	14:54:00	0.00
6-Nov-18	14:56:00	0.00
6-Nov-18	14:58:00	0.00
6-Nov-18	15:00:00	0.00
6-Nov-18	15:02:00	0.00
6-Nov-18	15:04:00	0.00
6-Nov-18	15:06:00	0.00
6-Nov-18	15:08:00	0.00
6-Nov-18	15:10:00	0.00
6-Nov-18	15:12:00	0.00
6-Nov-18	15:14:00	0.00
6-Nov-18	15:16:00	0.00
6-Nov-18	15:18:00	0.00
6-Nov-18	15:20:00	0.00
6-Nov-18	15:22:00	0.00
6-Nov-18	15:24:00	0.00
6-Nov-18	15:26:00	0.00
6-Nov-18	15:28:00	0.00
6-Nov-18	15:30:00	0.00
6-Nov-18	15:32:00	0.00
6-Nov-18	15:34:00	0.00
6-Nov-18	15:36:00	0.00
6-Nov-18	15:38:00	0.00
6-Nov-18	15:40:00	0.00
6-Nov-18	15:42:00	0.00
6-Nov-18	15:44:00	0.00
6-Nov-18	15:46:00	0.00
6-Nov-18	15:48:00	0.00
6-Nov-18	15:50:00	0.00
6-Nov-18	15:52:00	0.00

6-Nov-18	15:54:00	0.00
6-Nov-18	15:56:00	0.00
6-Nov-18	15:58:00	0.00
6-Nov-18	16:00:00	0.00
6-Nov-18	16:02:00	0.00
6-Nov-18	16:04:00	0.00
6-Nov-18	16:06:00	0.00
6-Nov-18	16:08:00	0.00
6-Nov-18	16:10:00	0.00
6-Nov-18	16:12:00	0.00
6-Nov-18	16:14:00	0.00
6-Nov-18	16:16:00	0.00
6-Nov-18	16:18:00	0.00
6-Nov-18	16:20:00	0.00
6-Nov-18	16:22:00	0.00
6-Nov-18	16:24:00	0.00
6-Nov-18	16:26:00	0.00
6-Nov-18	16:28:00	0.00
6-Nov-18	16:30:00	0.00
6-Nov-18	16:32:00	0.00
6-Nov-18	16:34:00	0.00
6-Nov-18	16:36:00	0.00
6-Nov-18	16:38:00	0.00
6-Nov-18	16:40:00	0.00
6-Nov-18	16:42:00	0.00
6-Nov-18	16:44:00	0.00
6-Nov-18	16:46:00	0.00
6-Nov-18	16:48:00	0.00
6-Nov-18	16:50:00	0.00
6-Nov-18	16:52:00	0.00
6-Nov-18	16:54:00	0.00
6-Nov-18	16:56:00	0.00
6-Nov-18	16:58:00	0.00
6-Nov-18	17:00:00	0.00
6-Nov-18	17:02:00	0.00
6-Nov-18	17:04:00	0.00
6-Nov-18	17:06:00	0.00
6-Nov-18	17:08:00	0.00
6-Nov-18	17:10:00	0.00
6-Nov-18	17:12:00	0.00
6-Nov-18	17:14:00	0.00
6-Nov-18	17:16:00	0.00
6-Nov-18	17:18:00	0.00
6-Nov-18	17:20:00	0.00
6-Nov-18	17:22:00	0.00
6-Nov-18	17:24:00	0.00
6-Nov-18	17:26:00	0.00

6-Nov-18	17:28:00	0.00
6-Nov-18	17:30:00	0.00
6-Nov-18	17:32:00	0.00
6-Nov-18	17:34:00	0.00
6-Nov-18	17:36:00	0.00
6-Nov-18	17:38:00	0.00
6-Nov-18	17:40:00	0.00
6-Nov-18	17:42:00	0.00
6-Nov-18	17:44:00	0.00
6-Nov-18	17:46:00	0.00
6-Nov-18	17:48:00	0.00
6-Nov-18	17:50:00	0.00
6-Nov-18	17:52:00	0.00
6-Nov-18	17:54:00	0.00
6-Nov-18	17:56:00	0.00
6-Nov-18	17:58:00	0.00
6-Nov-18	18:00:00	0.00
6-Nov-18	18:02:00	0.00
6-Nov-18	18:04:00	0.00
6-Nov-18	18:06:00	0.00
6-Nov-18	18:08:00	0.00
6-Nov-18	18:10:00	0.00
6-Nov-18	18:12:00	0.00
6-Nov-18	18:14:00	0.00
6-Nov-18	18:16:00	0.00
6-Nov-18	18:18:00	0.00
6-Nov-18	18:20:00	0.00
6-Nov-18	18:22:00	0.00
6-Nov-18	18:24:00	0.00
6-Nov-18	18:26:00	0.00
6-Nov-18	18:28:00	0.00
6-Nov-18	18:30:00	0.00
6-Nov-18	18:32:00	0.00
6-Nov-18	18:34:00	0.00
6-Nov-18	18:36:00	0.00
6-Nov-18	18:38:00	0.00
6-Nov-18	18:40:00	0.00
6-Nov-18	18:42:00	0.00
6-Nov-18	18:44:00	0.00
6-Nov-18	18:46:00	0.00
6-Nov-18	18:48:00	0.00
6-Nov-18	18:50:00	0.00
6-Nov-18	18:52:00	0.00
6-Nov-18	18:54:00	0.00
6-Nov-18	18:56:00	0.00
6-Nov-18	18:58:00	0.00
6-Nov-18	19:00:00	0.00

7-Nov-18	6:00:00	0.00
7-Nov-18	6:02:00	0.00
7-Nov-18	6:04:00	0.00
7-Nov-18	6:06:00	0.00
7-Nov-18	6:08:00	0.00
7-Nov-18	6:10:00	0.00
7-Nov-18	6:12:00	0.00
7-Nov-18	6:14:00	0.00
7-Nov-18	6:16:00	0.00
7-Nov-18	6:18:00	0.00
7-Nov-18	6:20:00	0.00
7-Nov-18	6:22:00	0.00
7-Nov-18	6:24:00	0.00
7-Nov-18	6:26:00	0.00
7-Nov-18	6:28:00	0.00
7-Nov-18	6:30:00	0.00
7-Nov-18	6:32:00	0.00
7-Nov-18	6:34:00	0.00
7-Nov-18	6:36:00	0.00
7-Nov-18	6:38:00	0.00
7-Nov-18	6:40:00	0.00
7-Nov-18	6:42:00	0.00
7-Nov-18	6:44:00	0.00
7-Nov-18	6:46:00	0.00
7-Nov-18	6:48:00	0.00
7-Nov-18	6:50:00	0.00
7-Nov-18	6:52:00	0.00
7-Nov-18	6:54:00	0.10
7-Nov-18	6:56:00	0.10
7-Nov-18	6:58:00	0.10
7-Nov-18	7:00:00	0.10
7-Nov-18	7:02:00	0.10
7-Nov-18	7:04:00	0.00
7-Nov-18	7:06:00	0.00
7-Nov-18	7:08:00	0.00
7-Nov-18	7:10:00	0.00
7-Nov-18	7:12:00	0.00
7-Nov-18	7:14:00	0.00
7-Nov-18	7:16:00	0.00
7-Nov-18	7:18:00	0.00
7-Nov-18	7:20:00	0.00
7-Nov-18	7:22:00	0.00
7-Nov-18	7:24:00	0.00
7-Nov-18	7:26:00	0.00
7-Nov-18	7:28:00	0.00
7-Nov-18	7:30:00	0.00
7-Nov-18	7:32:00	0.00

7-Nov-18	7:34:00	0.20
7-Nov-18	7:36:00	0.20
7-Nov-18	7:38:00	0.20
7-Nov-18	7:40:00	0.20
7-Nov-18	7:42:00	0.20
7-Nov-18	7:44:00	0.00
7-Nov-18	7:46:00	0.00
7-Nov-18	7:48:00	0.00
7-Nov-18	7:50:00	0.00
7-Nov-18	7:52:00	0.00
7-Nov-18	7:54:00	0.10
7-Nov-18	7:56:00	0.10
7-Nov-18	7:58:00	0.10
7-Nov-18	8:00:00	0.10
7-Nov-18	8:02:00	0.10
7-Nov-18	8:04:00	0.20
7-Nov-18	8:06:00	0.20
7-Nov-18	8:08:00	0.20
7-Nov-18	8:10:00	0.20
7-Nov-18	8:12:00	0.20
7-Nov-18	8:14:00	0.20
7-Nov-18	8:16:00	0.20
7-Nov-18	8:18:00	0.20
7-Nov-18	8:20:00	0.20
7-Nov-18	8:22:00	0.20
7-Nov-18	8:24:00	0.20
7-Nov-18	8:26:00	0.20
7-Nov-18	8:28:00	0.20
7-Nov-18	8:30:00	0.20
7-Nov-18	8:32:00	0.20
7-Nov-18	8:34:00	0.20
7-Nov-18	8:36:00	0.20
7-Nov-18	8:38:00	0.20
7-Nov-18	8:40:00	0.20
7-Nov-18	8:42:00	0.20
7-Nov-18	8:44:00	0.20
7-Nov-18	8:46:00	0.20
7-Nov-18	8:48:00	0.20
7-Nov-18	8:50:00	0.20
7-Nov-18	8:52:00	0.20
7-Nov-18	8:54:00	0.10
7-Nov-18	8:56:00	0.10
7-Nov-18	8:58:00	0.10
7-Nov-18	9:00:00	0.10
7-Nov-18	9:02:00	0.40
7-Nov-18	9:04:00	0.40
7-Nov-18	9:06:00	0.40

7-Nov-18	9:08:00	0.40
7-Nov-18	9:10:00	0.40
7-Nov-18	9:12:00	0.70
7-Nov-18	9:14:00	1.40
7-Nov-18	9:16:00	1.70
7-Nov-18	9:18:00	2.00
7-Nov-18	9:20:00	2.00
7-Nov-18	9:22:00	2.00
7-Nov-18	9:24:00	2.00
7-Nov-18	9:26:00	1.70
7-Nov-18	9:28:00	1.70
7-Nov-18	9:30:00	1.70
7-Nov-18	9:32:00	1.40
7-Nov-18	9:34:00	1.10
7-Nov-18	9:36:00	1.10
7-Nov-18	9:38:00	1.10
7-Nov-18	9:40:00	0.70
7-Nov-18	9:42:00	0.70
7-Nov-18	9:44:00	0.70
7-Nov-18	9:46:00	0.70
7-Nov-18	9:48:00	0.70
7-Nov-18	9:50:00	0.40
7-Nov-18	9:52:00	0.40
7-Nov-18	9:54:00	0.10
7-Nov-18	9:56:00	0.10
7-Nov-18	9:58:00	0.10
7-Nov-18	10:00:00	0.10
7-Nov-18	10:02:00	0.10
7-Nov-18	10:04:00	0.30
7-Nov-18	10:06:00	0.30
7-Nov-18	10:08:00	0.30
7-Nov-18	10:10:00	0.30
7-Nov-18	10:12:00	0.40
7-Nov-18	10:14:00	0.40
7-Nov-18	10:16:00	0.40
7-Nov-18	10:18:00	0.10
7-Nov-18	10:20:00	0.10
7-Nov-18	10:22:00	0.10
7-Nov-18	10:24:00	0.10
7-Nov-18	10:26:00	0.10
7-Nov-18	10:28:00	0.00
7-Nov-18	10:30:00	0.00
7-Nov-18	10:32:00	0.00
7-Nov-18	10:34:00	0.00
7-Nov-18	10:36:00	0.00
7-Nov-18	10:38:00	0.00
7-Nov-18	10:40:00	0.00

7-Nov-18	10:42:00	0.00
7-Nov-18	10:44:00	0.00
7-Nov-18	10:46:00	0.00
7-Nov-18	10:48:00	0.00
7-Nov-18	10:50:00	0.00
7-Nov-18	10:52:00	0.00
7-Nov-18	10:54:00	0.00
7-Nov-18	10:56:00	0.00
7-Nov-18	10:58:00	0.00
7-Nov-18	11:00:00	0.00
7-Nov-18	11:02:00	0.00
7-Nov-18	11:04:00	0.00
7-Nov-18	11:06:00	0.00
7-Nov-18	11:08:00	0.20
7-Nov-18	11:10:00	0.20
7-Nov-18	11:12:00	0.20
7-Nov-18	11:14:00	0.20
7-Nov-18	11:16:00	0.20
7-Nov-18	11:18:00	0.20
7-Nov-18	11:20:00	0.20
7-Nov-18	11:22:00	0.20
7-Nov-18	11:24:00	0.20
7-Nov-18	11:26:00	0.20
7-Nov-18	11:28:00	0.00
7-Nov-18	11:30:00	0.00
7-Nov-18	11:32:00	0.00
7-Nov-18	11:34:00	0.00
7-Nov-18	11:36:00	0.00
7-Nov-18	11:38:00	0.00
7-Nov-18	11:40:00	0.00
7-Nov-18	11:42:00	0.00
7-Nov-18	11:44:00	0.00
7-Nov-18	11:46:00	0.00
7-Nov-18	11:48:00	0.00
7-Nov-18	11:50:00	0.00
7-Nov-18	11:52:00	0.00
7-Nov-18	11:54:00	0.00
7-Nov-18	11:56:00	0.00
7-Nov-18	11:58:00	0.00
7-Nov-18	12:00:00	0.00
7-Nov-18	12:02:00	0.00
7-Nov-18	12:04:00	0.00
7-Nov-18	12:06:00	0.00
7-Nov-18	12:08:00	0.00
7-Nov-18	12:10:00	0.00
7-Nov-18	12:12:00	0.00
7-Nov-18	12:14:00	0.00

7-Nov-18	12:16:00	0.00
7-Nov-18	12:18:00	0.10
7-Nov-18	12:20:00	0.10
7-Nov-18	12:22:00	0.10
7-Nov-18	12:24:00	0.10
7-Nov-18	12:26:00	0.10
7-Nov-18	12:28:00	0.00
7-Nov-18	12:30:00	0.00
7-Nov-18	12:32:00	0.00
7-Nov-18	12:34:00	0.00
7-Nov-18	12:36:00	0.00
7-Nov-18	12:38:00	0.00
7-Nov-18	12:40:00	5.40
7-Nov-18	12:42:00	4.80
7-Nov-18	12:44:00	4.50
7-Nov-18	12:46:00	3.90
7-Nov-18	12:48:00	3.90
7-Nov-18	12:50:00	3.30
7-Nov-18	12:52:00	3.30
7-Nov-18	12:54:00	3.30
7-Nov-18	12:56:00	3.30
7-Nov-18	12:58:00	3.60
7-Nov-18	13:00:00	3.60
7-Nov-18	13:02:00	3.60
7-Nov-18	13:04:00	3.90
7-Nov-18	13:06:00	3.90
7-Nov-18	13:08:00	3.90
7-Nov-18	13:10:00	3.90
7-Nov-18	13:12:00	0.00
7-Nov-18	13:14:00	0.00
7-Nov-18	13:16:00	0.00
7-Nov-18	13:18:00	0.00
7-Nov-18	13:20:00	0.00
7-Nov-18	13:22:00	0.00
7-Nov-18	13:24:00	0.00
7-Nov-18	13:26:00	0.00
7-Nov-18	13:28:00	0.00
7-Nov-18	13:30:00	0.00
7-Nov-18	13:32:00	0.00
7-Nov-18	13:34:00	0.00
7-Nov-18	13:36:00	0.00
7-Nov-18	13:38:00	0.20
7-Nov-18	13:40:00	0.20
7-Nov-18	13:42:00	0.20
7-Nov-18	13:44:00	0.20
7-Nov-18	13:46:00	0.20
7-Nov-18	13:48:00	0.20

7-Nov-18	13:50:00	0.20
7-Nov-18	13:52:00	0.20
7-Nov-18	13:54:00	0.20
7-Nov-18	13:56:00	0.20
7-Nov-18	13:58:00	0.10
7-Nov-18	14:00:00	0.10
7-Nov-18	14:02:00	0.10
7-Nov-18	14:04:00	0.10
7-Nov-18	14:06:00	0.10
7-Nov-18	14:08:00	0.00
7-Nov-18	14:10:00	0.00
7-Nov-18	14:12:00	0.00
7-Nov-18	14:14:00	0.00
7-Nov-18	14:16:00	0.00
7-Nov-18	14:18:00	0.00
7-Nov-18	14:20:00	0.00
7-Nov-18	14:22:00	0.00
7-Nov-18	14:24:00	0.00
7-Nov-18	14:26:00	0.00
7-Nov-18	14:28:00	0.00
7-Nov-18	14:30:00	0.00
7-Nov-18	14:32:00	0.00
7-Nov-18	14:34:00	0.00
7-Nov-18	14:36:00	0.00
7-Nov-18	14:38:00	0.00
7-Nov-18	14:40:00	0.00
7-Nov-18	14:42:00	0.00
7-Nov-18	14:44:00	0.00
7-Nov-18	14:46:00	0.00
7-Nov-18	14:48:00	0.00
7-Nov-18	14:50:00	0.00
7-Nov-18	14:52:00	0.00
7-Nov-18	14:54:00	0.00
7-Nov-18	14:56:00	0.00
7-Nov-18	14:58:00	0.00
7-Nov-18	15:00:00	0.00
7-Nov-18	15:02:00	0.00
7-Nov-18	15:04:00	0.00
7-Nov-18	15:06:00	0.00
7-Nov-18	15:08:00	0.00
7-Nov-18	15:10:00	0.00
7-Nov-18	15:12:00	0.00
7-Nov-18	15:14:00	0.00
7-Nov-18	15:16:00	0.00
7-Nov-18	15:18:00	0.00
7-Nov-18	15:20:00	0.00
7-Nov-18	15:22:00	0.00

7-Nov-18	15:24:00	0.00
7-Nov-18	15:26:00	0.00
7-Nov-18	15:28:00	0.00
7-Nov-18	15:30:00	0.00
7-Nov-18	15:32:00	0.00
7-Nov-18	15:34:00	0.00
7-Nov-18	15:36:00	0.00
7-Nov-18	15:38:00	0.00
7-Nov-18	15:40:00	0.00
7-Nov-18	15:42:00	0.00
7-Nov-18	15:44:00	0.00
7-Nov-18	15:46:00	0.00
7-Nov-18	15:48:00	0.00
7-Nov-18	15:50:00	0.00
7-Nov-18	15:52:00	0.00
7-Nov-18	15:54:00	0.00
7-Nov-18	15:56:00	0.00
7-Nov-18	15:58:00	0.00
7-Nov-18	16:00:00	0.00
7-Nov-18	16:02:00	0.00
7-Nov-18	16:04:00	0.00
7-Nov-18	16:06:00	0.00
7-Nov-18	16:08:00	0.00
7-Nov-18	16:10:00	0.00
7-Nov-18	16:12:00	0.00
7-Nov-18	16:14:00	0.00
7-Nov-18	16:16:00	0.00
7-Nov-18	16:18:00	0.00
7-Nov-18	16:20:00	0.00
7-Nov-18	16:22:00	0.00
7-Nov-18	16:24:00	0.00
7-Nov-18	16:26:00	0.00
7-Nov-18	16:28:00	0.00
7-Nov-18	16:30:00	0.00
7-Nov-18	16:32:00	0.00
7-Nov-18	16:34:00	0.00
7-Nov-18	16:36:00	0.00
7-Nov-18	16:38:00	0.00
7-Nov-18	16:40:00	0.00
7-Nov-18	16:42:00	0.00
7-Nov-18	16:44:00	0.00
7-Nov-18	16:46:00	0.00
7-Nov-18	16:48:00	0.00
7-Nov-18	16:50:00	0.00
7-Nov-18	16:52:00	0.00
7-Nov-18	16:54:00	0.00
7-Nov-18	16:56:00	0.00

7-Nov-18	16:58:00	0.00
7-Nov-18	17:00:00	0.00
7-Nov-18	17:02:00	0.00
7-Nov-18	17:04:00	0.00
7-Nov-18	17:06:00	0.00
7-Nov-18	17:08:00	0.00
7-Nov-18	17:10:00	0.00
7-Nov-18	17:12:00	0.00
7-Nov-18	17:14:00	0.00
7-Nov-18	17:16:00	0.00
7-Nov-18	17:18:00	0.00
7-Nov-18	17:20:00	0.00
7-Nov-18	17:22:00	0.00
7-Nov-18	17:24:00	0.00
7-Nov-18	17:26:00	0.00
7-Nov-18	17:28:00	0.00
7-Nov-18	17:30:00	0.00
7-Nov-18	17:32:00	0.00
7-Nov-18	17:34:00	0.00
7-Nov-18	17:36:00	0.00
7-Nov-18	17:38:00	0.00
7-Nov-18	17:40:00	0.00
7-Nov-18	17:42:00	0.00
7-Nov-18	17:44:00	0.00
7-Nov-18	17:46:00	0.00
7-Nov-18	17:48:00	0.00
7-Nov-18	17:50:00	0.00
7-Nov-18	17:52:00	0.00
7-Nov-18	17:54:00	0.00
7-Nov-18	17:56:00	0.00
7-Nov-18	17:58:00	0.00
7-Nov-18	18:00:00	0.00
7-Nov-18	18:02:00	0.00
7-Nov-18	18:04:00	0.00
7-Nov-18	18:06:00	0.00
7-Nov-18	18:08:00	0.00
7-Nov-18	18:10:00	0.00
7-Nov-18	18:12:00	0.00
7-Nov-18	18:14:00	0.00
7-Nov-18	18:16:00	0.00
7-Nov-18	18:18:00	0.00
7-Nov-18	18:20:00	0.00
7-Nov-18	18:22:00	0.00
7-Nov-18	18:24:00	0.00
7-Nov-18	18:26:00	0.00
7-Nov-18	18:28:00	0.00
7-Nov-18	18:30:00	0.00

7-Nov-18	18:32:00	0.00
7-Nov-18	18:34:00	0.00
7-Nov-18	18:36:00	0.00
7-Nov-18	18:38:00	0.00
7-Nov-18	18:40:00	0.00
7-Nov-18	18:42:00	0.00
7-Nov-18	18:44:00	0.00
7-Nov-18	18:46:00	0.00
7-Nov-18	18:48:00	0.00
7-Nov-18	18:50:00	0.00
7-Nov-18	18:52:00	0.00
7-Nov-18	18:54:00	0.00
7-Nov-18	18:56:00	0.00
7-Nov-18	18:58:00	0.00
7-Nov-18	19:00:00	0.00
8-Nov-18	6:00:00	0.00
8-Nov-18	6:02:00	0.00
8-Nov-18	6:04:00	0.00
8-Nov-18	6:06:00	0.00
8-Nov-18	6:08:00	0.00
8-Nov-18	6:10:00	0.00
8-Nov-18	6:12:00	0.00
8-Nov-18	6:14:00	0.00
8-Nov-18	6:16:00	0.00
8-Nov-18	6:18:00	0.00
8-Nov-18	6:20:00	0.00
8-Nov-18	6:22:00	0.00
8-Nov-18	6:24:00	0.00
8-Nov-18	6:26:00	0.00
8-Nov-18	6:28:00	0.00
8-Nov-18	6:30:00	0.00
8-Nov-18	6:32:00	0.00
8-Nov-18	6:34:00	0.00
8-Nov-18	6:36:00	0.00
8-Nov-18	6:38:00	0.00
8-Nov-18	6:40:00	0.00
8-Nov-18	6:42:00	0.00
8-Nov-18	6:44:00	0.10
8-Nov-18	6:46:00	0.10
8-Nov-18	6:48:00	0.10
8-Nov-18	6:50:00	0.10
8-Nov-18	6:52:00	0.10
8-Nov-18	6:54:00	0.10
8-Nov-18	6:56:00	0.10
8-Nov-18	6:58:00	0.10
8-Nov-18	7:00:00	0.10
8-Nov-18	7:02:00	0.10

8-Nov-18	7:04:00	0.10
8-Nov-18	7:06:00	0.10
8-Nov-18	7:08:00	0.10
8-Nov-18	7:10:00	0.10
8-Nov-18	7:12:00	0.10
8-Nov-18	7:14:00	0.10
8-Nov-18	7:16:00	0.10
8-Nov-18	7:18:00	0.10
8-Nov-18	7:20:00	0.10
8-Nov-18	7:22:00	0.10
8-Nov-18	7:24:00	0.10
8-Nov-18	7:26:00	0.10
8-Nov-18	7:28:00	0.10
8-Nov-18	7:30:00	0.10
8-Nov-18	7:32:00	0.10
8-Nov-18	7:34:00	0.10
8-Nov-18	7:36:00	0.10
8-Nov-18	7:38:00	0.10
8-Nov-18	7:40:00	0.10
8-Nov-18	7:42:00	0.10
8-Nov-18	7:44:00	0.20
8-Nov-18	7:46:00	0.20
8-Nov-18	7:48:00	0.20
8-Nov-18	7:50:00	0.20
8-Nov-18	7:52:00	0.20
8-Nov-18	7:54:00	0.30
8-Nov-18	7:56:00	0.30
8-Nov-18	7:58:00	0.30
8-Nov-18	8:00:00	0.30
8-Nov-18	8:02:00	0.30
8-Nov-18	8:04:00	0.30
8-Nov-18	8:06:00	0.30
8-Nov-18	8:08:00	0.30
8-Nov-18	8:10:00	0.30
8-Nov-18	8:12:00	0.30
8-Nov-18	8:14:00	0.30
8-Nov-18	8:16:00	0.30
8-Nov-18	8:18:00	0.30
8-Nov-18	8:20:00	0.30
8-Nov-18	8:22:00	0.30
8-Nov-18	8:24:00	0.20
8-Nov-18	8:26:00	0.20
8-Nov-18	8:28:00	0.20
8-Nov-18	8:30:00	0.20
8-Nov-18	8:32:00	0.20
8-Nov-18	8:34:00	0.30
8-Nov-18	8:36:00	0.30

8-Nov-18	8:38:00	0.30
8-Nov-18	8:40:00	0.30
8-Nov-18	8:42:00	0.30
8-Nov-18	8:44:00	0.10
8-Nov-18	8:46:00	0.10
8-Nov-18	8:48:00	0.10
8-Nov-18	8:50:00	0.10
8-Nov-18	8:52:00	0.10
8-Nov-18	8:54:00	0.20
8-Nov-18	8:56:00	0.20
8-Nov-18	8:58:00	0.20
8-Nov-18	9:00:00	0.20
8-Nov-18	9:02:00	0.20
8-Nov-18	9:04:00	0.40
8-Nov-18	9:06:00	0.40
8-Nov-18	9:08:00	0.40
8-Nov-18	9:10:00	0.40
8-Nov-18	9:12:00	0.50
8-Nov-18	9:14:00	1.10
8-Nov-18	9:16:00	1.70
8-Nov-18	9:18:00	1.70
8-Nov-18	9:20:00	2.00
8-Nov-18	9:22:00	2.00
8-Nov-18	9:24:00	2.00
8-Nov-18	9:26:00	2.00
8-Nov-18	9:28:00	1.70
8-Nov-18	9:30:00	1.70
8-Nov-18	9:32:00	1.70
8-Nov-18	9:34:00	1.70
8-Nov-18	9:36:00	1.70
8-Nov-18	9:38:00	1.40
8-Nov-18	9:40:00	1.40
8-Nov-18	9:42:00	1.40
8-Nov-18	9:44:00	1.10
8-Nov-18	9:46:00	1.10
8-Nov-18	9:48:00	0.80
8-Nov-18	9:50:00	0.50
8-Nov-18	9:52:00	0.50
8-Nov-18	9:54:00	0.50
8-Nov-18	9:56:00	0.50
8-Nov-18	9:58:00	0.50
8-Nov-18	10:00:00	0.20
8-Nov-18	10:02:00	0.20
8-Nov-18	10:04:00	0.20
8-Nov-18	10:06:00	0.20
8-Nov-18	10:08:00	0.20
8-Nov-18	10:10:00	0.40

8-Nov-18	10:12:00	0.50
8-Nov-18	10:14:00	0.50
8-Nov-18	10:16:00	0.50
8-Nov-18	10:18:00	0.20
8-Nov-18	10:20:00	0.20
8-Nov-18	10:22:00	0.20
8-Nov-18	10:24:00	0.20
8-Nov-18	10:26:00	0.20
8-Nov-18	10:28:00	0.10
8-Nov-18	10:30:00	0.10
8-Nov-18	10:32:00	0.10
8-Nov-18	10:34:00	0.50
8-Nov-18	10:36:00	0.50
8-Nov-18	10:38:00	0.50
8-Nov-18	10:40:00	0.20
8-Nov-18	10:42:00	0.20
8-Nov-18	10:44:00	0.00
8-Nov-18	10:46:00	0.00
8-Nov-18	10:48:00	0.00
8-Nov-18	10:50:00	0.00
8-Nov-18	10:52:00	0.00
8-Nov-18	10:54:00	0.00
8-Nov-18	10:56:00	0.00
8-Nov-18	10:58:00	0.00
8-Nov-18	11:00:00	0.00
8-Nov-18	11:02:00	0.00
8-Nov-18	11:04:00	0.00
8-Nov-18	11:06:00	0.00
8-Nov-18	11:08:00	0.00
8-Nov-18	11:10:00	0.00
8-Nov-18	11:12:00	0.00
8-Nov-18	11:14:00	0.00
8-Nov-18	11:16:00	0.00
8-Nov-18	11:18:00	0.00
8-Nov-18	11:20:00	0.00
8-Nov-18	11:22:00	0.00
8-Nov-18	11:24:00	0.00
8-Nov-18	11:26:00	0.00
8-Nov-18	11:28:00	0.00
8-Nov-18	11:30:00	0.00
8-Nov-18	11:32:00	0.00
8-Nov-18	11:34:00	0.00
8-Nov-18	11:36:00	0.00
8-Nov-18	11:38:00	0.00
8-Nov-18	11:40:00	0.00
8-Nov-18	11:42:00	0.00
8-Nov-18	11:44:00	0.00

8-Nov-18	11:46:00	0.00
8-Nov-18	11:48:00	0.00
8-Nov-18	11:50:00	0.00
8-Nov-18	11:52:00	0.00
8-Nov-18	11:54:00	0.00
8-Nov-18	11:56:00	0.00
8-Nov-18	11:58:00	0.00
8-Nov-18	12:00:00	0.00
8-Nov-18	12:02:00	0.00
8-Nov-18	12:04:00	0.00
8-Nov-18	12:06:00	0.00
8-Nov-18	12:08:00	0.00
8-Nov-18	12:10:00	0.00
8-Nov-18	12:12:00	0.00
8-Nov-18	12:14:00	0.00
8-Nov-18	12:16:00	0.00
8-Nov-18	12:18:00	0.00
8-Nov-18	12:20:00	0.00
8-Nov-18	12:22:00	0.00
8-Nov-18	12:24:00	0.00
8-Nov-18	12:26:00	0.00
8-Nov-18	12:28:00	6.10
8-Nov-18	12:30:00	5.50
8-Nov-18	12:32:00	4.80
8-Nov-18	12:34:00	4.50
8-Nov-18	12:36:00	4.20
8-Nov-18	12:38:00	3.90
8-Nov-18	12:40:00	3.60
8-Nov-18	12:42:00	3.60
8-Nov-18	12:44:00	3.60
8-Nov-18	12:46:00	3.60
8-Nov-18	12:48:00	3.90
8-Nov-18	12:50:00	3.90
8-Nov-18	12:52:00	3.90
8-Nov-18	12:54:00	3.90
8-Nov-18	12:56:00	3.90
8-Nov-18	12:58:00	3.80
8-Nov-18	13:00:00	3.80
8-Nov-18	13:02:00	3.80
8-Nov-18	13:04:00	3.80
8-Nov-18	13:06:00	3.80
8-Nov-18	13:08:00	4.10
8-Nov-18	13:10:00	4.10
8-Nov-18	13:12:00	4.10
8-Nov-18	13:14:00	4.10
8-Nov-18	13:16:00	4.10
8-Nov-18	13:18:00	4.00

8-Nov-18	13:20:00	4.00
8-Nov-18	13:22:00	4.00
8-Nov-18	13:24:00	4.00
8-Nov-18	13:26:00	4.00
8-Nov-18	13:28:00	0.20
8-Nov-18	13:30:00	0.00
8-Nov-18	13:32:00	0.00
8-Nov-18	13:34:00	0.00
8-Nov-18	13:36:00	0.00
8-Nov-18	13:38:00	0.00
8-Nov-18	13:40:00	0.00
8-Nov-18	13:42:00	0.00
8-Nov-18	13:44:00	0.00
8-Nov-18	13:46:00	0.00
8-Nov-18	13:48:00	0.00
8-Nov-18	13:50:00	0.00
8-Nov-18	13:52:00	0.00
8-Nov-18	13:54:00	0.00
8-Nov-18	13:56:00	0.00
8-Nov-18	13:58:00	0.00
8-Nov-18	14:00:00	0.00
8-Nov-18	14:02:00	0.00
8-Nov-18	14:04:00	0.00
8-Nov-18	14:06:00	0.00
8-Nov-18	14:08:00	0.00
8-Nov-18	14:10:00	0.00
8-Nov-18	14:12:00	0.00
8-Nov-18	14:14:00	0.00
8-Nov-18	14:16:00	0.00
8-Nov-18	14:18:00	0.00
8-Nov-18	14:20:00	0.00
8-Nov-18	14:22:00	0.00
8-Nov-18	14:24:00	0.00
8-Nov-18	14:26:00	0.00
8-Nov-18	14:28:00	0.00
8-Nov-18	14:30:00	0.00
8-Nov-18	14:32:00	0.00
8-Nov-18	14:34:00	0.00
8-Nov-18	14:36:00	0.00
8-Nov-18	14:38:00	0.00
8-Nov-18	14:40:00	0.00
8-Nov-18	14:42:00	0.00
8-Nov-18	14:44:00	0.00
8-Nov-18	14:46:00	0.00
8-Nov-18	14:48:00	0.00
8-Nov-18	14:50:00	0.00
8-Nov-18	14:52:00	0.00

8-Nov-18	14:54:00	0.00
8-Nov-18	14:56:00	0.00
8-Nov-18	14:58:00	0.00
8-Nov-18	15:00:00	0.00
8-Nov-18	15:02:00	0.00
8-Nov-18	15:04:00	0.00
8-Nov-18	15:06:00	0.00
8-Nov-18	15:08:00	0.00
8-Nov-18	15:10:00	0.00
8-Nov-18	15:12:00	0.00
8-Nov-18	15:14:00	0.00
8-Nov-18	15:16:00	0.00
8-Nov-18	15:18:00	0.00
8-Nov-18	15:20:00	0.00
8-Nov-18	15:22:00	0.00
8-Nov-18	15:24:00	0.00
8-Nov-18	15:26:00	0.00
8-Nov-18	15:28:00	0.00
8-Nov-18	15:30:00	0.00
8-Nov-18	15:32:00	0.00
8-Nov-18	15:34:00	0.00
8-Nov-18	15:36:00	0.00
8-Nov-18	15:38:00	0.00
8-Nov-18	15:40:00	0.00
8-Nov-18	15:42:00	0.00
8-Nov-18	15:44:00	0.00
8-Nov-18	15:46:00	0.00
8-Nov-18	15:48:00	0.00
8-Nov-18	15:50:00	0.00
8-Nov-18	15:52:00	0.00
8-Nov-18	15:54:00	0.00
8-Nov-18	15:56:00	0.00
8-Nov-18	15:58:00	0.00
8-Nov-18	16:00:00	0.00
8-Nov-18	16:02:00	0.00
8-Nov-18	16:04:00	0.00
8-Nov-18	16:06:00	0.00
8-Nov-18	16:08:00	0.00
8-Nov-18	16:10:00	0.00
8-Nov-18	16:12:00	0.00
8-Nov-18	16:14:00	0.00
8-Nov-18	16:16:00	0.00
8-Nov-18	16:18:00	0.00
8-Nov-18	16:20:00	0.00
8-Nov-18	16:22:00	0.00
8-Nov-18	16:24:00	0.00
8-Nov-18	16:26:00	0.00

8-Nov-18	16:28:00	0.00
8-Nov-18	16:30:00	0.00
8-Nov-18	16:32:00	0.00
8-Nov-18	16:34:00	0.00
8-Nov-18	16:36:00	0.00
8-Nov-18	16:38:00	0.00
8-Nov-18	16:40:00	0.00
8-Nov-18	16:42:00	0.00
8-Nov-18	16:44:00	0.00
8-Nov-18	16:46:00	0.00
8-Nov-18	16:48:00	0.00
8-Nov-18	16:50:00	0.00
8-Nov-18	16:52:00	0.00
8-Nov-18	16:54:00	0.00
8-Nov-18	16:56:00	0.00
8-Nov-18	16:58:00	0.00
8-Nov-18	17:00:00	0.00
8-Nov-18	17:02:00	0.00
8-Nov-18	17:04:00	0.00
8-Nov-18	17:06:00	0.00
8-Nov-18	17:08:00	0.00
8-Nov-18	17:10:00	0.00
8-Nov-18	17:12:00	0.00
8-Nov-18	17:14:00	0.00
8-Nov-18	17:16:00	0.00
8-Nov-18	17:18:00	0.00
8-Nov-18	17:20:00	0.00
8-Nov-18	17:22:00	0.00
8-Nov-18	17:24:00	0.00
8-Nov-18	17:26:00	0.00
8-Nov-18	17:28:00	0.00
8-Nov-18	17:30:00	0.00
8-Nov-18	17:32:00	0.00
8-Nov-18	17:34:00	0.00
8-Nov-18	17:36:00	0.00
8-Nov-18	17:38:00	0.00
8-Nov-18	17:40:00	0.00
8-Nov-18	17:42:00	0.00
8-Nov-18	17:44:00	0.00
8-Nov-18	17:46:00	0.00
8-Nov-18	17:48:00	0.00
8-Nov-18	17:50:00	0.00
8-Nov-18	17:52:00	0.00
8-Nov-18	17:54:00	0.00
8-Nov-18	17:56:00	0.00
8-Nov-18	17:58:00	0.00
8-Nov-18	18:00:00	0.00

8-Nov-18	18:02:00	0.00
8-Nov-18	18:04:00	0.00
8-Nov-18	18:06:00	0.00
8-Nov-18	18:08:00	0.00
8-Nov-18	18:10:00	0.00
8-Nov-18	18:12:00	0.00
8-Nov-18	18:14:00	0.00
8-Nov-18	18:16:00	0.00
8-Nov-18	18:18:00	0.00
8-Nov-18	18:20:00	0.00
8-Nov-18	18:22:00	0.00
8-Nov-18	18:24:00	0.00
8-Nov-18	18:26:00	0.00
8-Nov-18	18:28:00	0.00
8-Nov-18	18:30:00	0.00
8-Nov-18	18:32:00	0.00
8-Nov-18	18:34:00	0.00
8-Nov-18	18:36:00	0.00
8-Nov-18	18:38:00	0.00
8-Nov-18	18:40:00	0.00
8-Nov-18	18:42:00	0.00
8-Nov-18	18:44:00	0.00
8-Nov-18	18:46:00	0.00
8-Nov-18	18:48:00	0.00
8-Nov-18	18:50:00	0.00
8-Nov-18	18:52:00	0.00
8-Nov-18	18:54:00	0.00
8-Nov-18	18:56:00	0.00
8-Nov-18	18:58:00	0.00
8-Nov-18	19:00:00	0.00
9-Nov-18	6:00:00	0.00
9-Nov-18	6:02:00	0.00
9-Nov-18	6:04:00	0.00
9-Nov-18	6:06:00	0.00
9-Nov-18	6:08:00	0.00
9-Nov-18	6:10:00	0.10
9-Nov-18	6:12:00	0.10
9-Nov-18	6:14:00	0.10
9-Nov-18	6:16:00	0.10
9-Nov-18	6:18:00	0.10
9-Nov-18	6:20:00	0.00
9-Nov-18	6:22:00	0.00
9-Nov-18	6:24:00	0.00
9-Nov-18	6:26:00	0.00
9-Nov-18	6:28:00	0.00
9-Nov-18	6:30:00	0.00
9-Nov-18	6:32:00	0.00

9-Nov-18	6:34:00	0.00
9-Nov-18	6:36:00	0.00
9-Nov-18	6:38:00	0.00
9-Nov-18	6:40:00	0.00
9-Nov-18	6:42:00	0.00
9-Nov-18	6:44:00	0.00
9-Nov-18	6:46:00	0.00
9-Nov-18	6:48:00	0.00
9-Nov-18	6:50:00	0.00
9-Nov-18	6:52:00	0.00
9-Nov-18	6:54:00	0.00
9-Nov-18	6:56:00	0.00
9-Nov-18	6:58:00	0.00
9-Nov-18	7:00:00	0.00
9-Nov-18	7:02:00	0.00
9-Nov-18	7:04:00	0.00
9-Nov-18	7:06:00	0.00
9-Nov-18	7:08:00	0.00
9-Nov-18	7:10:00	0.00
9-Nov-18	7:12:00	0.00
9-Nov-18	7:14:00	0.00
9-Nov-18	7:16:00	0.00
9-Nov-18	7:18:00	0.00
9-Nov-18	7:20:00	0.10
9-Nov-18	7:22:00	0.10
9-Nov-18	7:24:00	0.10
9-Nov-18	7:26:00	0.10
9-Nov-18	7:28:00	0.10
9-Nov-18	7:30:00	0.10
9-Nov-18	7:32:00	0.10
9-Nov-18	7:34:00	0.10
9-Nov-18	7:36:00	0.10
9-Nov-18	7:38:00	0.10
9-Nov-18	7:40:00	0.10
9-Nov-18	7:42:00	0.10
9-Nov-18	7:44:00	0.10
9-Nov-18	7:46:00	0.10
9-Nov-18	7:48:00	0.10
9-Nov-18	7:50:00	0.10
9-Nov-18	7:52:00	0.10
9-Nov-18	7:54:00	0.10
9-Nov-18	7:56:00	0.10
9-Nov-18	7:58:00	0.10
9-Nov-18	8:00:00	0.10
9-Nov-18	8:02:00	0.10
9-Nov-18	8:04:00	0.10
9-Nov-18	8:06:00	0.10

9-Nov-18	8:08:00	0.10
9-Nov-18	8:10:00	0.10
9-Nov-18	8:12:00	0.10
9-Nov-18	8:14:00	0.10
9-Nov-18	8:16:00	0.10
9-Nov-18	8:18:00	0.10
9-Nov-18	8:20:00	0.10
9-Nov-18	8:22:00	0.10
9-Nov-18	8:24:00	0.10
9-Nov-18	8:26:00	0.10
9-Nov-18	8:28:00	0.10
9-Nov-18	8:30:00	0.10
9-Nov-18	8:32:00	0.10
9-Nov-18	8:34:00	0.10
9-Nov-18	8:36:00	0.10
9-Nov-18	8:38:00	0.10
9-Nov-18	8:40:00	0.20
9-Nov-18	8:42:00	0.20
9-Nov-18	8:44:00	0.20
9-Nov-18	8:46:00	0.20
9-Nov-18	8:48:00	0.20
9-Nov-18	8:50:00	0.20
9-Nov-18	8:52:00	0.20
9-Nov-18	8:54:00	0.20
9-Nov-18	8:56:00	0.20
9-Nov-18	8:58:00	0.20
9-Nov-18	9:00:00	0.20
9-Nov-18	9:02:00	0.20
9-Nov-18	9:04:00	0.30
9-Nov-18	9:06:00	0.30
9-Nov-18	9:08:00	0.30
9-Nov-18	9:10:00	0.30
9-Nov-18	9:12:00	0.60
9-Nov-18	9:14:00	0.90
9-Nov-18	9:16:00	1.80
9-Nov-18	9:18:00	2.10
9-Nov-18	9:20:00	2.40
9-Nov-18	9:22:00	2.40
9-Nov-18	9:24:00	2.40
9-Nov-18	9:26:00	2.40
9-Nov-18	9:28:00	2.20
9-Nov-18	9:30:00	2.20
9-Nov-18	9:32:00	2.10
9-Nov-18	9:34:00	1.80
9-Nov-18	9:36:00	7.30
9-Nov-18	9:38:00	6.40
9-Nov-18	9:40:00	6.10

9-Nov-18	9:42:00	6.10
9-Nov-18	9:44:00	5.80
9-Nov-18	9:46:00	5.80
9-Nov-18	9:48:00	5.80
9-Nov-18	9:50:00	5.50
9-Nov-18	9:52:00	5.20
9-Nov-18	9:54:00	4.90
9-Nov-18	9:56:00	4.60
9-Nov-18	9:58:00	4.60
9-Nov-18	10:00:00	4.60
9-Nov-18	10:02:00	4.60
9-Nov-18	10:04:00	4.30
9-Nov-18	10:06:00	4.30
9-Nov-18	10:08:00	4.30
9-Nov-18	10:10:00	4.30
9-Nov-18	10:12:00	4.30
9-Nov-18	10:14:00	4.40
9-Nov-18	10:16:00	4.40
9-Nov-18	10:18:00	4.40
9-Nov-18	10:20:00	4.40
9-Nov-18	10:22:00	0.00
9-Nov-18	10:24:00	0.00
9-Nov-18	10:26:00	0.00
9-Nov-18	10:28:00	0.00
9-Nov-18	10:30:00	0.00
9-Nov-18	10:32:00	0.00
9-Nov-18	10:34:00	0.00
9-Nov-18	10:36:00	0.00
9-Nov-18	10:38:00	0.00
9-Nov-18	10:40:00	0.00
9-Nov-18	10:42:00	0.30
9-Nov-18	10:44:00	0.30
9-Nov-18	10:46:00	0.00
9-Nov-18	10:48:00	0.00
9-Nov-18	10:50:00	0.00
9-Nov-18	10:52:00	0.00
9-Nov-18	10:54:00	0.00
9-Nov-18	10:56:00	0.00
9-Nov-18	10:58:00	0.00
9-Nov-18	11:00:00	0.00
9-Nov-18	11:02:00	0.00
9-Nov-18	11:04:00	0.00
9-Nov-18	11:06:00	0.00
9-Nov-18	11:08:00	0.00
9-Nov-18	11:10:00	0.00
9-Nov-18	11:12:00	0.00
9-Nov-18	11:14:00	0.00

9-Nov-18	11:16:00	0.00
9-Nov-18	11:18:00	0.00
9-Nov-18	11:20:00	0.00
9-Nov-18	11:22:00	0.00
9-Nov-18	11:24:00	0.30
9-Nov-18	11:26:00	0.30
9-Nov-18	11:28:00	0.00
9-Nov-18	11:30:00	0.30
9-Nov-18	11:32:00	0.30
9-Nov-18	11:34:00	0.30
9-Nov-18	11:36:00	0.30
9-Nov-18	11:38:00	0.30
9-Nov-18	11:40:00	0.30
9-Nov-18	11:42:00	0.10
9-Nov-18	11:44:00	0.00
9-Nov-18	11:46:00	0.00
9-Nov-18	11:48:00	0.30
9-Nov-18	11:50:00	0.00
9-Nov-18	11:52:00	0.00
9-Nov-18	11:54:00	0.00
9-Nov-18	11:56:00	0.00
9-Nov-18	11:58:00	0.00
9-Nov-18	12:00:00	0.00
9-Nov-18	12:02:00	0.00
9-Nov-18	12:04:00	0.00
9-Nov-18	12:06:00	0.00
9-Nov-18	12:08:00	0.00
9-Nov-18	12:10:00	0.00
9-Nov-18	12:12:00	0.00
9-Nov-18	12:14:00	0.00
9-Nov-18	12:16:00	0.00
9-Nov-18	12:18:00	0.00
9-Nov-18	12:20:00	0.00
9-Nov-18	12:22:00	0.30
9-Nov-18	12:24:00	0.30
9-Nov-18	12:26:00	0.30
9-Nov-18	12:28:00	0.00
9-Nov-18	12:30:00	0.00
9-Nov-18	12:32:00	0.00
9-Nov-18	12:34:00	0.00
9-Nov-18	12:36:00	0.00
9-Nov-18	12:38:00	0.00
9-Nov-18	12:40:00	0.00
9-Nov-18	12:42:00	0.00
9-Nov-18	12:44:00	0.00
9-Nov-18	12:46:00	0.00
9-Nov-18	12:48:00	0.00

9-Nov-18	12:50:00	0.00
9-Nov-18	12:52:00	0.00
9-Nov-18	12:54:00	0.00
9-Nov-18	12:56:00	0.00
9-Nov-18	12:58:00	0.00
9-Nov-18	13:00:00	0.00
9-Nov-18	13:02:00	0.00
9-Nov-18	13:04:00	0.00
9-Nov-18	13:06:00	0.00
9-Nov-18	13:08:00	0.00
9-Nov-18	13:10:00	0.00
9-Nov-18	13:12:00	0.00
9-Nov-18	13:14:00	0.00
9-Nov-18	13:16:00	0.00
9-Nov-18	13:18:00	0.00
9-Nov-18	13:20:00	0.00
9-Nov-18	13:22:00	0.00
9-Nov-18	13:24:00	0.00
9-Nov-18	13:26:00	0.00
9-Nov-18	13:28:00	0.00
9-Nov-18	13:30:00	0.00
9-Nov-18	13:32:00	0.00
9-Nov-18	13:34:00	0.00
9-Nov-18	13:36:00	0.00
9-Nov-18	13:38:00	0.00
9-Nov-18	13:40:00	0.00
9-Nov-18	13:42:00	0.00
9-Nov-18	13:44:00	0.00
9-Nov-18	13:46:00	0.00
9-Nov-18	13:48:00	0.00
9-Nov-18	13:50:00	0.00
9-Nov-18	13:52:00	0.00
9-Nov-18	13:54:00	0.00
9-Nov-18	13:56:00	0.00
9-Nov-18	13:58:00	0.00
9-Nov-18	14:00:00	0.00
9-Nov-18	14:02:00	0.00
9-Nov-18	14:04:00	0.00
9-Nov-18	14:06:00	0.00
9-Nov-18	14:08:00	0.00
9-Nov-18	14:10:00	0.00
9-Nov-18	14:12:00	0.00
9-Nov-18	14:14:00	0.00
9-Nov-18	14:16:00	0.00
9-Nov-18	14:18:00	0.00
9-Nov-18	14:20:00	0.00
9-Nov-18	14:22:00	0.00

9-Nov-18	14:24:00	0.00
9-Nov-18	14:26:00	0.00
9-Nov-18	14:28:00	0.00
9-Nov-18	14:30:00	0.00
9-Nov-18	14:32:00	0.00
9-Nov-18	14:34:00	0.00
9-Nov-18	14:36:00	0.00
9-Nov-18	14:38:00	0.00
9-Nov-18	14:40:00	0.00
9-Nov-18	14:42:00	0.00
9-Nov-18	14:44:00	0.00
9-Nov-18	14:46:00	0.00
9-Nov-18	14:48:00	0.00
9-Nov-18	14:50:00	0.00
9-Nov-18	14:52:00	0.00
9-Nov-18	14:54:00	0.00
9-Nov-18	14:56:00	0.00
9-Nov-18	14:58:00	0.00
9-Nov-18	15:00:00	0.00
9-Nov-18	15:02:00	0.00
9-Nov-18	15:04:00	0.00
9-Nov-18	15:06:00	0.00
9-Nov-18	15:08:00	0.00
9-Nov-18	15:10:00	0.00
9-Nov-18	15:12:00	0.00
9-Nov-18	15:14:00	0.00
9-Nov-18	15:16:00	0.00
9-Nov-18	15:18:00	0.00
9-Nov-18	15:20:00	0.00
9-Nov-18	15:22:00	0.00
9-Nov-18	15:24:00	0.00
9-Nov-18	15:26:00	0.00
9-Nov-18	15:28:00	0.00
9-Nov-18	15:30:00	0.00
9-Nov-18	15:32:00	0.00
9-Nov-18	15:34:00	0.00
9-Nov-18	15:36:00	0.00
9-Nov-18	15:38:00	0.00
9-Nov-18	15:40:00	0.00
9-Nov-18	15:42:00	0.00
9-Nov-18	15:44:00	0.00
9-Nov-18	15:46:00	0.00
9-Nov-18	15:48:00	0.00
9-Nov-18	15:50:00	0.00
9-Nov-18	15:52:00	0.00
9-Nov-18	15:54:00	0.00
9-Nov-18	15:56:00	0.00

9-Nov-18	15:58:00	0.00
9-Nov-18	16:00:00	0.00
9-Nov-18	16:02:00	0.00
9-Nov-18	16:04:00	0.00
9-Nov-18	16:06:00	0.00
9-Nov-18	16:08:00	0.00
9-Nov-18	16:10:00	0.00
9-Nov-18	16:12:00	0.00
9-Nov-18	16:14:00	0.00
9-Nov-18	16:16:00	0.00
9-Nov-18	16:18:00	0.00
9-Nov-18	16:20:00	0.00
9-Nov-18	16:22:00	0.00
9-Nov-18	16:24:00	0.00
9-Nov-18	16:26:00	0.00
9-Nov-18	16:28:00	0.00
9-Nov-18	16:30:00	0.00
9-Nov-18	16:32:00	0.00
9-Nov-18	16:34:00	0.00
9-Nov-18	16:36:00	0.00
9-Nov-18	16:38:00	0.00
9-Nov-18	16:40:00	0.00
9-Nov-18	16:42:00	0.00
9-Nov-18	16:44:00	0.00
9-Nov-18	16:46:00	0.00
9-Nov-18	16:48:00	0.00
9-Nov-18	16:50:00	0.00
9-Nov-18	16:52:00	0.00
9-Nov-18	16:54:00	0.00
9-Nov-18	16:56:00	0.00
9-Nov-18	16:58:00	0.00
9-Nov-18	17:00:00	0.00
9-Nov-18	17:02:00	0.00
9-Nov-18	17:04:00	0.00
9-Nov-18	17:06:00	0.00
9-Nov-18	17:08:00	0.00
9-Nov-18	17:10:00	0.00
9-Nov-18	17:12:00	0.00
9-Nov-18	17:14:00	0.00
9-Nov-18	17:16:00	0.00
9-Nov-18	17:18:00	0.00
9-Nov-18	17:20:00	0.00
9-Nov-18	17:22:00	0.00
9-Nov-18	17:24:00	0.00
9-Nov-18	17:26:00	0.00
9-Nov-18	17:28:00	0.00
9-Nov-18	17:30:00	0.00

9-Nov-18	17:32:00	0.00
9-Nov-18	17:34:00	0.00
9-Nov-18	17:36:00	0.00
9-Nov-18	17:38:00	0.00
9-Nov-18	17:40:00	0.00
9-Nov-18	17:42:00	0.00
9-Nov-18	17:44:00	0.00
9-Nov-18	17:46:00	0.00
9-Nov-18	17:48:00	0.00
9-Nov-18	17:50:00	0.00
9-Nov-18	17:52:00	0.00
9-Nov-18	17:54:00	0.00
9-Nov-18	17:56:00	0.00
9-Nov-18	17:58:00	0.00
9-Nov-18	18:00:00	0.00
9-Nov-18	18:02:00	0.00
9-Nov-18	18:04:00	0.00
9-Nov-18	18:06:00	0.00
9-Nov-18	18:08:00	0.00
9-Nov-18	18:10:00	0.00
9-Nov-18	18:12:00	0.00
9-Nov-18	18:14:00	0.00
9-Nov-18	18:16:00	0.00
9-Nov-18	18:18:00	0.00
9-Nov-18	18:20:00	0.00
9-Nov-18	18:22:00	0.00
9-Nov-18	18:24:00	0.00
9-Nov-18	18:26:00	0.00
9-Nov-18	18:28:00	0.00
9-Nov-18	18:30:00	0.00
9-Nov-18	18:32:00	0.00
9-Nov-18	18:34:00	0.00
9-Nov-18	18:36:00	0.00
9-Nov-18	18:38:00	0.00
9-Nov-18	18:40:00	0.00
9-Nov-18	18:42:00	0.00
9-Nov-18	18:44:00	0.00
9-Nov-18	18:46:00	0.00
9-Nov-18	18:48:00	0.00
9-Nov-18	18:50:00	0.00
9-Nov-18	18:52:00	0.00
9-Nov-18	18:54:00	0.00
9-Nov-18	18:56:00	0.00
9-Nov-18	18:58:00	0.00
9-Nov-18	19:00:00	0.00
16-Nov-18	6:00:00	0.00
16-Nov-18	6:02:00	0.00

16-Nov-18	6:04:00	0.00
16-Nov-18	6:06:00	0.00
16-Nov-18	6:08:00	0.00
16-Nov-18	6:10:00	0.00
16-Nov-18	6:12:00	0.00
16-Nov-18	6:14:00	0.00
16-Nov-18	6:16:00	0.00
16-Nov-18	6:18:00	0.00
16-Nov-18	6:20:00	0.00
16-Nov-18	6:22:00	0.00
16-Nov-18	6:24:00	0.00
16-Nov-18	6:26:00	0.00
16-Nov-18	6:28:00	0.00
16-Nov-18	6:30:00	0.00
16-Nov-18	6:32:00	0.00
16-Nov-18	6:34:00	0.00
16-Nov-18	6:36:00	0.00
16-Nov-18	6:38:00	0.00
16-Nov-18	6:40:00	0.00
16-Nov-18	6:42:00	0.00
16-Nov-18	6:44:00	0.00
16-Nov-18	6:46:00	0.00
16-Nov-18	6:48:00	0.00
16-Nov-18	6:50:00	0.00
16-Nov-18	6:52:00	0.00
16-Nov-18	6:54:00	0.00
16-Nov-18	6:56:00	0.00
16-Nov-18	6:58:00	0.00
16-Nov-18	7:00:00	0.00
16-Nov-18	7:02:00	0.00
16-Nov-18	7:04:00	0.00
16-Nov-18	7:06:00	0.00
16-Nov-18	7:08:00	0.00
16-Nov-18	7:10:00	0.00
16-Nov-18	7:12:00	0.00
16-Nov-18	7:14:00	0.00
16-Nov-18	7:16:00	0.10
16-Nov-18	7:18:00	0.10
16-Nov-18	7:20:00	0.10
16-Nov-18	7:22:00	0.10
16-Nov-18	7:24:00	0.10
16-Nov-18	7:26:00	0.10
16-Nov-18	7:28:00	0.10
16-Nov-18	7:30:00	0.10
16-Nov-18	7:32:00	0.10
16-Nov-18	7:34:00	0.10
16-Nov-18	7:36:00	0.20

16-Nov-18	7:38:00	0.20
16-Nov-18	7:40:00	0.30
16-Nov-18	7:42:00	0.30
16-Nov-18	7:44:00	0.30
16-Nov-18	7:46:00	0.30
16-Nov-18	7:48:00	0.30
16-Nov-18	7:50:00	0.10
16-Nov-18	7:52:00	0.10
16-Nov-18	7:54:00	0.10
16-Nov-18	7:56:00	0.10
16-Nov-18	7:58:00	0.10
16-Nov-18	8:00:00	0.10
16-Nov-18	8:02:00	0.10
16-Nov-18	8:04:00	0.10
16-Nov-18	8:06:00	0.10
16-Nov-18	8:08:00	0.10
16-Nov-18	8:10:00	0.10
16-Nov-18	8:12:00	0.10
16-Nov-18	8:14:00	0.10
16-Nov-18	8:16:00	0.10
16-Nov-18	8:18:00	0.10
16-Nov-18	8:20:00	0.00
16-Nov-18	8:22:00	0.00
16-Nov-18	8:24:00	0.00
16-Nov-18	8:26:00	0.00
16-Nov-18	8:28:00	0.00
16-Nov-18	8:30:00	0.10
16-Nov-18	8:32:00	0.10
16-Nov-18	8:34:00	0.10
16-Nov-18	8:36:00	0.10
16-Nov-18	8:38:00	0.00
16-Nov-18	8:40:00	0.00
16-Nov-18	8:42:00	0.00
16-Nov-18	8:44:00	0.00
16-Nov-18	8:46:00	0.00
16-Nov-18	8:48:00	0.20
16-Nov-18	8:50:00	0.20
16-Nov-18	8:52:00	0.20
16-Nov-18	8:54:00	0.20
16-Nov-18	8:56:00	0.20
16-Nov-18	8:58:00	0.20
16-Nov-18	9:00:00	0.10
16-Nov-18	9:02:00	0.10
16-Nov-18	9:04:00	0.10
16-Nov-18	9:06:00	0.10
16-Nov-18	9:08:00	0.10
16-Nov-18	9:10:00	0.30

16-Nov-18	9:12:00	0.90
16-Nov-18	9:14:00	1.80
16-Nov-18	9:16:00	2.10
16-Nov-18	9:18:00	2.40
16-Nov-18	9:20:00	2.70
16-Nov-18	9:22:00	2.70
16-Nov-18	9:24:00	2.70
16-Nov-18	9:26:00	2.70
16-Nov-18	9:28:00	2.40
16-Nov-18	9:30:00	2.40
16-Nov-18	9:32:00	2.40
16-Nov-18	9:34:00	2.10
16-Nov-18	9:36:00	1.80
16-Nov-18	9:38:00	1.50
16-Nov-18	9:40:00	1.20
16-Nov-18	9:42:00	1.20
16-Nov-18	9:44:00	1.20
16-Nov-18	9:46:00	1.20
16-Nov-18	9:48:00	1.20
16-Nov-18	9:50:00	1.20
16-Nov-18	9:52:00	1.20
16-Nov-18	9:54:00	0.90
16-Nov-18	9:56:00	0.60
16-Nov-18	9:58:00	0.30
16-Nov-18	10:00:00	0.00
16-Nov-18	10:02:00	0.00
16-Nov-18	10:04:00	0.30
16-Nov-18	10:06:00	0.00
16-Nov-18	10:08:00	0.00
16-Nov-18	10:10:00	0.00
16-Nov-18	10:12:00	0.60
16-Nov-18	10:14:00	0.60
16-Nov-18	10:16:00	0.60
16-Nov-18	10:18:00	0.60
16-Nov-18	10:20:00	0.60
16-Nov-18	10:22:00	0.60
16-Nov-18	10:24:00	0.30
16-Nov-18	10:26:00	0.00
16-Nov-18	10:28:00	0.00
16-Nov-18	10:30:00	0.00
16-Nov-18	10:32:00	0.00
16-Nov-18	10:34:00	0.00
16-Nov-18	10:36:00	0.00
16-Nov-18	10:38:00	0.00
16-Nov-18	10:40:00	0.00
16-Nov-18	10:42:00	0.00
16-Nov-18	10:44:00	0.00

16-Nov-18	10:46:00	0.30
16-Nov-18	10:48:00	0.30
16-Nov-18	10:50:00	0.30
16-Nov-18	10:52:00	0.30
16-Nov-18	10:54:00	6.20
16-Nov-18	10:56:00	5.50
16-Nov-18	10:58:00	4.90
16-Nov-18	11:00:00	4.30
16-Nov-18	11:02:00	4.30
16-Nov-18	11:04:00	4.30
16-Nov-18	11:06:00	3.70
16-Nov-18	11:08:00	3.70
16-Nov-18	11:10:00	3.70
16-Nov-18	11:12:00	3.70
16-Nov-18	11:14:00	3.70
16-Nov-18	11:16:00	3.70
16-Nov-18	11:18:00	3.70
16-Nov-18	11:20:00	4.00
16-Nov-18	11:22:00	0.00
16-Nov-18	11:24:00	0.00
16-Nov-18	11:26:00	0.00
16-Nov-18	11:28:00	0.00
16-Nov-18	11:30:00	0.00
16-Nov-18	11:32:00	0.00
16-Nov-18	11:34:00	0.00
16-Nov-18	11:36:00	0.00
16-Nov-18	11:38:00	0.00
16-Nov-18	11:40:00	0.00
16-Nov-18	11:42:00	0.00
16-Nov-18	11:44:00	0.00
16-Nov-18	11:46:00	0.00
16-Nov-18	11:48:00	0.00
16-Nov-18	11:50:00	0.00
16-Nov-18	11:52:00	0.00
16-Nov-18	11:54:00	0.00
16-Nov-18	11:56:00	0.00
16-Nov-18	11:58:00	0.00
16-Nov-18	12:00:00	0.00
16-Nov-18	12:02:00	0.00
16-Nov-18	12:04:00	0.00
16-Nov-18	12:06:00	0.00
16-Nov-18	12:08:00	0.00
16-Nov-18	12:10:00	0.00
16-Nov-18	12:12:00	0.00
16-Nov-18	12:14:00	0.00
16-Nov-18	12:16:00	0.00
16-Nov-18	12:18:00	0.00

16-Nov-18	12:20:00	0.00
16-Nov-18	12:22:00	0.00
16-Nov-18	12:24:00	0.00
16-Nov-18	12:26:00	0.00
16-Nov-18	12:28:00	0.00
16-Nov-18	12:30:00	0.00
16-Nov-18	12:32:00	0.00
16-Nov-18	12:34:00	0.00
16-Nov-18	12:36:00	0.00
16-Nov-18	12:38:00	0.00
16-Nov-18	12:40:00	0.00
16-Nov-18	12:42:00	0.00
16-Nov-18	12:44:00	0.00
16-Nov-18	12:46:00	0.00
16-Nov-18	12:48:00	0.00
16-Nov-18	12:50:00	0.00
16-Nov-18	12:52:00	0.00
16-Nov-18	12:54:00	0.00
16-Nov-18	12:56:00	0.00
16-Nov-18	12:58:00	0.00
16-Nov-18	13:00:00	0.00
16-Nov-18	13:02:00	0.00
16-Nov-18	13:04:00	0.00
16-Nov-18	13:06:00	0.00
16-Nov-18	13:08:00	0.00
16-Nov-18	13:10:00	0.00
16-Nov-18	13:12:00	0.00
16-Nov-18	13:14:00	0.00
16-Nov-18	13:16:00	0.00
16-Nov-18	13:18:00	0.00
16-Nov-18	13:20:00	0.00
16-Nov-18	13:22:00	0.00
16-Nov-18	13:24:00	0.00
16-Nov-18	13:26:00	0.00
16-Nov-18	13:28:00	0.00
16-Nov-18	13:30:00	0.00
16-Nov-18	13:32:00	0.00
16-Nov-18	13:34:00	0.00
16-Nov-18	13:36:00	0.00
16-Nov-18	13:38:00	0.00
16-Nov-18	13:40:00	0.00
16-Nov-18	13:42:00	0.00
16-Nov-18	13:44:00	0.00
16-Nov-18	13:46:00	0.00
16-Nov-18	13:48:00	0.00
16-Nov-18	13:50:00	0.00
16-Nov-18	13:52:00	0.00

16-Nov-18	13:54:00	0.00
16-Nov-18	13:56:00	0.00
16-Nov-18	13:58:00	0.00
16-Nov-18	14:00:00	0.00
16-Nov-18	14:02:00	0.00
16-Nov-18	14:04:00	0.00
16-Nov-18	14:06:00	0.00
16-Nov-18	14:08:00	0.00
16-Nov-18	14:10:00	0.00
16-Nov-18	14:12:00	0.00
16-Nov-18	14:14:00	0.00
16-Nov-18	14:16:00	0.00
16-Nov-18	14:18:00	0.00
16-Nov-18	14:20:00	0.00
16-Nov-18	14:22:00	0.00
16-Nov-18	14:24:00	0.00
16-Nov-18	14:26:00	0.00
16-Nov-18	14:28:00	0.00
16-Nov-18	14:30:00	0.00
16-Nov-18	14:32:00	0.00
16-Nov-18	14:34:00	0.00
16-Nov-18	14:36:00	0.00
16-Nov-18	14:38:00	0.00
16-Nov-18	14:40:00	0.00
16-Nov-18	14:42:00	0.00
16-Nov-18	14:44:00	0.00
16-Nov-18	14:46:00	0.00
16-Nov-18	14:48:00	0.00
16-Nov-18	14:50:00	0.00
16-Nov-18	14:52:00	0.00
16-Nov-18	14:54:00	0.00
16-Nov-18	14:56:00	0.00
16-Nov-18	14:58:00	0.00
16-Nov-18	15:00:00	0.00
16-Nov-18	15:02:00	0.00
16-Nov-18	15:04:00	0.00
16-Nov-18	15:06:00	0.00
16-Nov-18	15:08:00	0.00
16-Nov-18	15:10:00	0.00
16-Nov-18	15:12:00	0.00
16-Nov-18	15:14:00	0.00
16-Nov-18	15:16:00	0.00
16-Nov-18	15:18:00	0.00
16-Nov-18	15:20:00	0.00
16-Nov-18	15:22:00	0.00
16-Nov-18	15:24:00	0.00
16-Nov-18	15:26:00	0.00

16-Nov-18	15:28:00	0.00
16-Nov-18	15:30:00	0.00
16-Nov-18	15:32:00	0.00
16-Nov-18	15:34:00	0.00
16-Nov-18	15:36:00	0.00
16-Nov-18	15:38:00	0.00
16-Nov-18	15:40:00	0.00
16-Nov-18	15:42:00	0.00
16-Nov-18	15:44:00	0.00
16-Nov-18	15:46:00	0.00
16-Nov-18	15:48:00	0.00
16-Nov-18	15:50:00	0.00
16-Nov-18	15:52:00	0.00
16-Nov-18	15:54:00	0.00
16-Nov-18	15:56:00	0.00
16-Nov-18	15:58:00	0.00
16-Nov-18	16:00:00	0.00
16-Nov-18	16:02:00	0.00
16-Nov-18	16:04:00	0.00
16-Nov-18	16:06:00	0.00
16-Nov-18	16:08:00	0.00
16-Nov-18	16:10:00	0.00
16-Nov-18	16:12:00	0.00
16-Nov-18	16:14:00	0.00
16-Nov-18	16:16:00	0.00
16-Nov-18	16:18:00	0.00
16-Nov-18	16:20:00	0.00
16-Nov-18	16:22:00	0.00
16-Nov-18	16:24:00	0.00
16-Nov-18	16:26:00	0.00
16-Nov-18	16:28:00	0.00
16-Nov-18	16:30:00	0.00
16-Nov-18	16:32:00	0.00
16-Nov-18	16:34:00	0.00
16-Nov-18	16:36:00	0.00
16-Nov-18	16:38:00	0.00
16-Nov-18	16:40:00	0.00
16-Nov-18	16:42:00	0.00
16-Nov-18	16:44:00	0.00
16-Nov-18	16:46:00	0.00
16-Nov-18	16:48:00	0.00
16-Nov-18	16:50:00	0.00
16-Nov-18	16:52:00	0.00
16-Nov-18	16:54:00	0.00
16-Nov-18	16:56:00	0.00
16-Nov-18	16:58:00	0.00
16-Nov-18	17:00:00	0.00

16-Nov-18	17:02:00	0.00
16-Nov-18	17:04:00	0.00
16-Nov-18	17:06:00	0.00
16-Nov-18	17:08:00	0.00
16-Nov-18	17:10:00	0.00
16-Nov-18	17:12:00	0.00
16-Nov-18	17:14:00	0.00
16-Nov-18	17:16:00	0.00
16-Nov-18	17:18:00	0.00
16-Nov-18	17:20:00	0.00
16-Nov-18	17:22:00	0.00
16-Nov-18	17:24:00	0.00
16-Nov-18	17:26:00	0.00
16-Nov-18	17:28:00	0.00
16-Nov-18	17:30:00	0.00
16-Nov-18	17:32:00	0.00
16-Nov-18	17:34:00	0.00
16-Nov-18	17:36:00	0.00
16-Nov-18	17:38:00	0.00
16-Nov-18	17:40:00	0.00
16-Nov-18	17:42:00	0.00
16-Nov-18	17:44:00	0.00
16-Nov-18	17:46:00	0.00
16-Nov-18	17:48:00	0.00
16-Nov-18	17:50:00	0.00
16-Nov-18	17:52:00	0.00
16-Nov-18	17:54:00	0.00
16-Nov-18	17:56:00	0.00
16-Nov-18	17:58:00	0.00
16-Nov-18	18:00:00	0.00
16-Nov-18	18:02:00	0.00
16-Nov-18	18:04:00	0.00
16-Nov-18	18:06:00	0.00
16-Nov-18	18:08:00	0.00
16-Nov-18	18:10:00	0.00
16-Nov-18	18:12:00	0.00
16-Nov-18	18:14:00	0.00
16-Nov-18	18:16:00	0.00
16-Nov-18	18:18:00	0.00
16-Nov-18	18:20:00	0.00
16-Nov-18	18:22:00	0.00
16-Nov-18	18:24:00	0.00
16-Nov-18	18:26:00	0.00
16-Nov-18	18:28:00	0.00
16-Nov-18	18:30:00	0.00
16-Nov-18	18:32:00	0.00
16-Nov-18	18:34:00	0.00

16-Nov-18	18:36:00	0.00
16-Nov-18	18:38:00	0.00
16-Nov-18	18:40:00	0.00
16-Nov-18	18:42:00	0.00
16-Nov-18	18:44:00	0.00
16-Nov-18	18:46:00	0.00
16-Nov-18	18:48:00	0.00
16-Nov-18	18:50:00	0.00
16-Nov-18	18:52:00	0.00
16-Nov-18	18:54:00	0.00
16-Nov-18	18:56:00	0.00
16-Nov-18	18:58:00	0.00
16-Nov-18	19:00:00	0.00
19-Nov-18	6:00:00	0.00
19-Nov-18	6:02:00	0.00
19-Nov-18	6:04:00	0.00
19-Nov-18	6:06:00	0.00
19-Nov-18	6:08:00	0.00
19-Nov-18	6:10:00	0.00
19-Nov-18	6:12:00	0.00
19-Nov-18	6:14:00	0.00
19-Nov-18	6:16:00	0.00
19-Nov-18	6:18:00	0.00
19-Nov-18	6:20:00	0.00
19-Nov-18	6:22:00	0.00
19-Nov-18	6:24:00	0.00
19-Nov-18	6:26:00	0.00
19-Nov-18	6:28:00	0.00
19-Nov-18	6:30:00	0.00
19-Nov-18	6:32:00	0.10
19-Nov-18	6:34:00	0.10
19-Nov-18	6:36:00	0.10
19-Nov-18	6:38:00	0.10
19-Nov-18	6:40:00	0.10
19-Nov-18	6:42:00	0.00
19-Nov-18	6:44:00	0.00
19-Nov-18	6:46:00	0.00
19-Nov-18	6:48:00	0.00
19-Nov-18	6:50:00	0.00
19-Nov-18	6:52:00	0.00
19-Nov-18	6:54:00	0.00
19-Nov-18	6:56:00	0.00
19-Nov-18	6:58:00	0.00
19-Nov-18	7:00:00	0.00
19-Nov-18	7:02:00	0.00
19-Nov-18	7:04:00	0.00
19-Nov-18	7:06:00	0.00

19-Nov-18	7:08:00	0.00
19-Nov-18	7:10:00	0.00
19-Nov-18	7:12:00	0.10
19-Nov-18	7:14:00	0.10
19-Nov-18	7:16:00	0.10
19-Nov-18	7:18:00	0.10
19-Nov-18	7:20:00	0.10
19-Nov-18	7:22:00	0.10
19-Nov-18	7:24:00	0.10
19-Nov-18	7:26:00	0.10
19-Nov-18	7:28:00	0.10
19-Nov-18	7:30:00	0.10
19-Nov-18	7:32:00	0.10
19-Nov-18	7:34:00	0.10
19-Nov-18	7:36:00	0.10
19-Nov-18	7:38:00	0.10
19-Nov-18	7:40:00	0.10
19-Nov-18	7:42:00	0.10
19-Nov-18	7:44:00	0.10
19-Nov-18	7:46:00	0.10
19-Nov-18	7:48:00	0.10
19-Nov-18	7:50:00	0.10
19-Nov-18	7:52:00	0.10
19-Nov-18	7:54:00	0.10
19-Nov-18	7:56:00	0.10
19-Nov-18	7:58:00	0.10
19-Nov-18	8:00:00	0.10
19-Nov-18	8:02:00	0.10
19-Nov-18	8:04:00	0.10
19-Nov-18	8:06:00	0.10
19-Nov-18	8:08:00	0.10
19-Nov-18	8:10:00	0.10
19-Nov-18	8:12:00	0.10
19-Nov-18	8:14:00	0.10
19-Nov-18	8:16:00	0.10
19-Nov-18	8:18:00	0.10
19-Nov-18	8:20:00	0.10
19-Nov-18	8:22:00	0.20
19-Nov-18	8:24:00	0.20
19-Nov-18	8:26:00	0.20
19-Nov-18	8:28:00	0.20
19-Nov-18	8:30:00	0.20
19-Nov-18	8:32:00	0.20
19-Nov-18	8:34:00	0.20
19-Nov-18	8:36:00	0.20
19-Nov-18	8:38:00	0.20
19-Nov-18	8:40:00	0.20

19-Nov-18	8:42:00	0.10
19-Nov-18	8:44:00	0.10
19-Nov-18	8:46:00	0.10
19-Nov-18	8:48:00	0.10
19-Nov-18	8:50:00	0.10
19-Nov-18	8:52:00	0.10
19-Nov-18	8:54:00	0.10
19-Nov-18	8:56:00	0.10
19-Nov-18	8:58:00	0.10
19-Nov-18	9:00:00	0.10
19-Nov-18	9:02:00	0.10
19-Nov-18	9:04:00	0.10
19-Nov-18	9:06:00	0.10
19-Nov-18	9:08:00	0.10
19-Nov-18	9:10:00	0.10
19-Nov-18	9:12:00	0.30
19-Nov-18	9:14:00	0.30
19-Nov-18	9:16:00	1.20
19-Nov-18	9:18:00	2.10
19-Nov-18	9:20:00	2.40
19-Nov-18	9:22:00	2.80
19-Nov-18	9:24:00	2.80
19-Nov-18	9:26:00	2.80
19-Nov-18	9:28:00	2.40
19-Nov-18	9:30:00	2.40
19-Nov-18	9:32:00	2.10
19-Nov-18	9:34:00	1.80
19-Nov-18	9:36:00	1.80
19-Nov-18	9:38:00	1.50
19-Nov-18	9:40:00	1.50
19-Nov-18	9:42:00	1.20
19-Nov-18	9:44:00	1.20
19-Nov-18	9:46:00	1.20
19-Nov-18	9:48:00	0.90
19-Nov-18	9:50:00	0.90
19-Nov-18	9:52:00	0.90
19-Nov-18	9:54:00	0.90
19-Nov-18	9:56:00	0.90
19-Nov-18	9:58:00	0.90
19-Nov-18	10:00:00	0.60
19-Nov-18	10:02:00	0.60
19-Nov-18	10:04:00	0.60
19-Nov-18	10:06:00	0.30
19-Nov-18	10:08:00	0.30
19-Nov-18	10:10:00	0.30
19-Nov-18	10:12:00	0.30
19-Nov-18	10:14:00	0.30

19-Nov-18	10:16:00	0.50
19-Nov-18	10:18:00	0.00
19-Nov-18	10:20:00	0.00
19-Nov-18	10:22:00	0.00
19-Nov-18	10:24:00	0.00
19-Nov-18	10:26:00	0.00
19-Nov-18	10:28:00	0.30
19-Nov-18	10:30:00	0.30
19-Nov-18	10:32:00	0.30
19-Nov-18	10:34:00	0.30
19-Nov-18	10:36:00	0.30
19-Nov-18	10:38:00	0.10
19-Nov-18	10:40:00	0.10
19-Nov-18	10:42:00	0.10
19-Nov-18	10:44:00	0.10
19-Nov-18	10:46:00	0.10
19-Nov-18	10:48:00	0.10
19-Nov-18	10:50:00	0.10
19-Nov-18	10:52:00	0.10
19-Nov-18	10:54:00	0.10
19-Nov-18	10:56:00	0.70
19-Nov-18	10:58:00	0.30
19-Nov-18	11:00:00	0.00
19-Nov-18	11:02:00	0.00
19-Nov-18	11:04:00	0.00
19-Nov-18	11:06:00	0.00
19-Nov-18	11:08:00	0.00
19-Nov-18	11:10:00	0.10
19-Nov-18	11:12:00	0.10
19-Nov-18	11:14:00	0.10
19-Nov-18	11:16:00	0.10
19-Nov-18	11:18:00	0.10
19-Nov-18	11:20:00	0.00
19-Nov-18	11:22:00	0.00
19-Nov-18	11:24:00	0.00
19-Nov-18	11:26:00	0.00
19-Nov-18	11:28:00	0.00
19-Nov-18	11:30:00	0.00
19-Nov-18	11:32:00	0.00
19-Nov-18	11:34:00	0.00
19-Nov-18	11:36:00	0.00
19-Nov-18	11:38:00	0.00
19-Nov-18	11:40:00	0.00
19-Nov-18	11:42:00	0.00
19-Nov-18	11:44:00	0.00
19-Nov-18	11:46:00	0.00
19-Nov-18	11:48:00	0.00

19-Nov-18	11:50:00	0.00
19-Nov-18	11:52:00	0.00
19-Nov-18	11:54:00	0.00
19-Nov-18	11:56:00	0.00
19-Nov-18	11:58:00	0.00
19-Nov-18	12:00:00	0.00
19-Nov-18	12:02:00	0.00
19-Nov-18	12:04:00	0.00
19-Nov-18	12:06:00	0.00
19-Nov-18	12:08:00	0.00
19-Nov-18	12:10:00	0.00
19-Nov-18	12:12:00	0.00
19-Nov-18	12:14:00	0.00
19-Nov-18	12:16:00	0.00
19-Nov-18	12:18:00	0.00
19-Nov-18	12:20:00	0.00
19-Nov-18	12:22:00	0.30
19-Nov-18	12:24:00	0.30
19-Nov-18	12:26:00	0.30
19-Nov-18	12:28:00	0.30
19-Nov-18	12:30:00	0.30
19-Nov-18	12:32:00	0.20
19-Nov-18	12:34:00	0.20
19-Nov-18	12:36:00	0.00
19-Nov-18	12:38:00	0.00
19-Nov-18	12:40:00	0.00
19-Nov-18	12:42:00	0.00
19-Nov-18	12:44:00	0.00
19-Nov-18	12:46:00	0.00
19-Nov-18	12:48:00	0.00
19-Nov-18	12:50:00	0.00
19-Nov-18	12:52:00	0.00
19-Nov-18	12:54:00	0.00
19-Nov-18	12:56:00	0.00
19-Nov-18	12:58:00	0.00
19-Nov-18	13:00:00	0.00
19-Nov-18	13:02:00	0.00
19-Nov-18	13:04:00	0.00
19-Nov-18	13:06:00	5.50
19-Nov-18	13:08:00	4.60
19-Nov-18	13:10:00	4.00
19-Nov-18	13:12:00	3.70
19-Nov-18	13:14:00	3.70
19-Nov-18	13:16:00	3.70
19-Nov-18	13:18:00	3.70
19-Nov-18	13:20:00	3.70
19-Nov-18	13:22:00	3.70

19-Nov-18	13:24:00	3.70
19-Nov-18	13:26:00	3.70
19-Nov-18	13:28:00	3.70
19-Nov-18	13:30:00	3.70
19-Nov-18	13:32:00	3.80
19-Nov-18	13:34:00	3.80
19-Nov-18	13:36:00	3.80
19-Nov-18	13:38:00	3.80
19-Nov-18	13:40:00	3.80
19-Nov-18	13:42:00	3.80
19-Nov-18	13:44:00	3.80
19-Nov-18	13:46:00	3.80
19-Nov-18	13:48:00	3.80
19-Nov-18	13:50:00	0.30
19-Nov-18	13:52:00	0.00
19-Nov-18	13:54:00	0.00
19-Nov-18	13:56:00	0.00
19-Nov-18	13:58:00	0.00
19-Nov-18	14:00:00	0.00
19-Nov-18	14:02:00	0.00
19-Nov-18	14:04:00	0.00
19-Nov-18	14:06:00	0.00
19-Nov-18	14:08:00	0.00
19-Nov-18	14:10:00	0.00
19-Nov-18	14:12:00	0.00
19-Nov-18	14:14:00	0.00
19-Nov-18	14:16:00	0.00
19-Nov-18	14:18:00	0.00
19-Nov-18	14:20:00	0.00
19-Nov-18	14:22:00	0.00
19-Nov-18	14:24:00	0.00
19-Nov-18	14:26:00	0.00
19-Nov-18	14:28:00	0.00
19-Nov-18	14:30:00	0.00
19-Nov-18	14:32:00	0.00
19-Nov-18	14:34:00	0.00
19-Nov-18	14:36:00	0.00
19-Nov-18	14:38:00	0.00
19-Nov-18	14:40:00	0.00
19-Nov-18	14:42:00	0.00
19-Nov-18	14:44:00	0.00
19-Nov-18	14:46:00	0.00
19-Nov-18	14:48:00	0.00
19-Nov-18	14:50:00	0.00
19-Nov-18	14:52:00	0.00
19-Nov-18	14:54:00	0.00
19-Nov-18	14:56:00	0.00

19-Nov-18	14:58:00	0.00
19-Nov-18	15:00:00	0.00
19-Nov-18	15:02:00	0.00
19-Nov-18	15:04:00	0.00
19-Nov-18	15:06:00	0.00
19-Nov-18	15:08:00	0.00
19-Nov-18	15:10:00	0.00
19-Nov-18	15:12:00	0.00
19-Nov-18	15:14:00	0.00
19-Nov-18	15:16:00	0.00
19-Nov-18	15:18:00	0.00
19-Nov-18	15:20:00	0.00
19-Nov-18	15:22:00	0.00
19-Nov-18	15:24:00	0.00
19-Nov-18	15:26:00	0.00
19-Nov-18	15:28:00	0.00
19-Nov-18	15:30:00	0.00
19-Nov-18	15:32:00	0.00
19-Nov-18	15:34:00	0.00
19-Nov-18	15:36:00	0.00
19-Nov-18	15:38:00	0.00
19-Nov-18	15:40:00	0.00
19-Nov-18	15:42:00	0.00
19-Nov-18	15:44:00	0.00
19-Nov-18	15:46:00	0.00
19-Nov-18	15:48:00	0.00
19-Nov-18	15:50:00	0.00
19-Nov-18	15:52:00	0.00
19-Nov-18	15:54:00	0.00
19-Nov-18	15:56:00	0.00
19-Nov-18	15:58:00	0.00
19-Nov-18	16:00:00	0.00
19-Nov-18	16:02:00	0.00
19-Nov-18	16:04:00	0.00
19-Nov-18	16:06:00	0.00
19-Nov-18	16:08:00	0.00
19-Nov-18	16:10:00	0.00
19-Nov-18	16:12:00	0.00
19-Nov-18	16:14:00	0.00
19-Nov-18	16:16:00	0.00
19-Nov-18	16:18:00	0.00
19-Nov-18	16:20:00	0.00
19-Nov-18	16:22:00	0.00
19-Nov-18	16:24:00	0.00
19-Nov-18	16:26:00	0.00
19-Nov-18	16:28:00	0.00
19-Nov-18	16:30:00	0.00

19-Nov-18	16:32:00	0.00
19-Nov-18	16:34:00	0.00
19-Nov-18	16:36:00	0.00
19-Nov-18	16:38:00	0.00
19-Nov-18	16:40:00	0.00
19-Nov-18	16:42:00	0.00
19-Nov-18	16:44:00	0.00
19-Nov-18	16:46:00	0.00
19-Nov-18	16:48:00	0.00
19-Nov-18	16:50:00	0.00
19-Nov-18	16:52:00	0.00
19-Nov-18	16:54:00	0.00
19-Nov-18	16:56:00	0.00
19-Nov-18	16:58:00	0.00
19-Nov-18	17:00:00	0.00
19-Nov-18	17:02:00	0.00
19-Nov-18	17:04:00	0.00
19-Nov-18	17:06:00	0.00
19-Nov-18	17:08:00	0.00
19-Nov-18	17:10:00	0.00
19-Nov-18	17:12:00	0.00
19-Nov-18	17:14:00	0.00
19-Nov-18	17:16:00	0.00
19-Nov-18	17:18:00	0.00
19-Nov-18	17:20:00	0.00
19-Nov-18	17:22:00	0.00
19-Nov-18	17:24:00	0.00
19-Nov-18	17:26:00	0.00
19-Nov-18	17:28:00	0.00
19-Nov-18	17:30:00	0.00
19-Nov-18	17:32:00	0.00
19-Nov-18	17:34:00	0.00
19-Nov-18	17:36:00	0.00
19-Nov-18	17:38:00	0.00
19-Nov-18	17:40:00	0.00
19-Nov-18	17:42:00	0.00
19-Nov-18	17:44:00	0.00
19-Nov-18	17:46:00	0.00
19-Nov-18	17:48:00	0.00
19-Nov-18	17:50:00	0.00
19-Nov-18	17:52:00	0.00
19-Nov-18	17:54:00	0.00
19-Nov-18	17:56:00	0.00
19-Nov-18	17:58:00	0.00
19-Nov-18	18:00:00	0.00
19-Nov-18	18:02:00	0.00
19-Nov-18	18:04:00	0.00

19-Nov-18	18:06:00	0.00
19-Nov-18	18:08:00	0.00
19-Nov-18	18:10:00	0.00
19-Nov-18	18:12:00	0.00
19-Nov-18	18:14:00	0.00
19-Nov-18	18:16:00	0.00
19-Nov-18	18:18:00	0.00
19-Nov-18	18:20:00	0.00
19-Nov-18	18:22:00	0.00
19-Nov-18	18:24:00	0.00
19-Nov-18	18:26:00	0.00
19-Nov-18	18:28:00	0.00
19-Nov-18	18:30:00	0.00
19-Nov-18	18:32:00	0.00
19-Nov-18	18:34:00	0.00
19-Nov-18	18:36:00	0.00
19-Nov-18	18:38:00	0.00
19-Nov-18	18:40:00	0.00
19-Nov-18	18:42:00	0.00
19-Nov-18	18:44:00	0.00
19-Nov-18	18:46:00	0.00
19-Nov-18	18:48:00	0.00
19-Nov-18	18:50:00	0.00
19-Nov-18	18:52:00	0.00
19-Nov-18	18:54:00	0.00
19-Nov-18	18:56:00	0.00
19-Nov-18	18:58:00	0.00
19-Nov-18	19:00:00	0.00
20-Nov-18	6:00:00	0.00
20-Nov-18	6:02:00	0.00
20-Nov-18	6:04:00	0.00
20-Nov-18	6:06:00	0.00
20-Nov-18	6:08:00	0.00
20-Nov-18	6:10:00	0.00
20-Nov-18	6:12:00	0.00
20-Nov-18	6:14:00	0.00
20-Nov-18	6:16:00	0.00
20-Nov-18	6:18:00	0.00
20-Nov-18	6:20:00	0.00
20-Nov-18	6:22:00	0.00
20-Nov-18	6:24:00	0.00
20-Nov-18	6:26:00	0.00
20-Nov-18	6:28:00	0.00
20-Nov-18	6:30:00	0.00
20-Nov-18	6:32:00	0.00
20-Nov-18	6:34:00	0.00
20-Nov-18	6:36:00	0.00

20-Nov-18	6:38:00	0.00
20-Nov-18	6:40:00	0.00
20-Nov-18	6:42:00	0.00
20-Nov-18	6:44:00	0.00
20-Nov-18	6:46:00	0.00
20-Nov-18	6:48:00	0.00
20-Nov-18	6:50:00	0.00
20-Nov-18	6:52:00	0.10
20-Nov-18	6:54:00	0.10
20-Nov-18	6:56:00	0.10
20-Nov-18	6:58:00	0.10
20-Nov-18	7:00:00	0.10
20-Nov-18	7:02:00	0.10
20-Nov-18	7:04:00	0.10
20-Nov-18	7:06:00	0.10
20-Nov-18	7:08:00	0.10
20-Nov-18	7:10:00	0.10
20-Nov-18	7:12:00	0.10
20-Nov-18	7:14:00	0.10
20-Nov-18	7:16:00	0.10
20-Nov-18	7:18:00	0.10
20-Nov-18	7:20:00	0.10
20-Nov-18	7:22:00	0.10
20-Nov-18	7:24:00	0.10
20-Nov-18	7:26:00	0.10
20-Nov-18	7:28:00	0.10
20-Nov-18	7:30:00	0.10
20-Nov-18	7:32:00	0.10
20-Nov-18	7:34:00	0.10
20-Nov-18	7:36:00	0.10
20-Nov-18	7:38:00	0.10
20-Nov-18	7:40:00	0.10
20-Nov-18	7:42:00	0.10
20-Nov-18	7:44:00	0.10
20-Nov-18	7:46:00	0.10
20-Nov-18	7:48:00	0.10
20-Nov-18	7:50:00	0.10
20-Nov-18	7:52:00	0.10
20-Nov-18	7:54:00	0.10
20-Nov-18	7:56:00	0.10
20-Nov-18	7:58:00	0.10
20-Nov-18	8:00:00	0.10
20-Nov-18	8:02:00	0.10
20-Nov-18	8:04:00	0.10
20-Nov-18	8:06:00	0.10
20-Nov-18	8:08:00	0.10
20-Nov-18	8:10:00	0.10

20-Nov-18	8:12:00	0.20
20-Nov-18	8:14:00	0.20
20-Nov-18	8:16:00	0.20
20-Nov-18	8:18:00	0.20
20-Nov-18	8:20:00	0.20
20-Nov-18	8:22:00	0.10
20-Nov-18	8:24:00	0.10
20-Nov-18	8:26:00	0.10
20-Nov-18	8:28:00	0.10
20-Nov-18	8:30:00	0.10
20-Nov-18	8:32:00	0.20
20-Nov-18	8:34:00	0.20
20-Nov-18	8:36:00	0.20
20-Nov-18	8:38:00	0.20
20-Nov-18	8:40:00	0.20
20-Nov-18	8:42:00	0.20
20-Nov-18	8:44:00	0.20
20-Nov-18	8:46:00	0.20
20-Nov-18	8:48:00	0.20
20-Nov-18	8:50:00	0.20
20-Nov-18	8:52:00	0.20
20-Nov-18	8:54:00	0.20
20-Nov-18	8:56:00	0.20
20-Nov-18	8:58:00	0.20
20-Nov-18	9:00:00	0.20
20-Nov-18	9:02:00	0.30
20-Nov-18	9:04:00	0.30
20-Nov-18	9:06:00	0.30
20-Nov-18	9:08:00	0.30
20-Nov-18	9:10:00	0.30
20-Nov-18	9:12:00	0.30
20-Nov-18	9:14:00	0.30
20-Nov-18	9:16:00	0.90
20-Nov-18	9:18:00	1.90
20-Nov-18	9:20:00	2.20
20-Nov-18	9:22:00	2.50
20-Nov-18	9:24:00	2.80
20-Nov-18	9:26:00	2.80
20-Nov-18	9:28:00	2.80
20-Nov-18	9:30:00	2.80
20-Nov-18	9:32:00	2.50
20-Nov-18	9:34:00	2.20
20-Nov-18	9:36:00	2.20
20-Nov-18	9:38:00	2.20
20-Nov-18	9:40:00	1.80
20-Nov-18	9:42:00	1.80
20-Nov-18	9:44:00	1.50

20-Nov-18	9:46:00	1.50
20-Nov-18	9:48:00	1.50
20-Nov-18	9:50:00	1.20
20-Nov-18	9:52:00	1.20
20-Nov-18	9:54:00	1.20
20-Nov-18	9:56:00	1.20
20-Nov-18	9:58:00	0.90
20-Nov-18	10:00:00	0.90
20-Nov-18	10:02:00	0.90
20-Nov-18	10:04:00	0.90
20-Nov-18	10:06:00	0.90
20-Nov-18	10:08:00	0.80
20-Nov-18	10:10:00	0.80
20-Nov-18	10:12:00	0.80
20-Nov-18	10:14:00	0.80
20-Nov-18	10:16:00	0.80
20-Nov-18	10:18:00	0.80
20-Nov-18	10:20:00	0.60
20-Nov-18	10:22:00	0.60
20-Nov-18	10:24:00	0.60
20-Nov-18	10:26:00	0.60
20-Nov-18	10:28:00	0.60
20-Nov-18	10:30:00	0.50
20-Nov-18	10:32:00	0.30
20-Nov-18	10:34:00	0.30
20-Nov-18	10:36:00	0.00
20-Nov-18	10:38:00	0.00
20-Nov-18	10:40:00	0.00
20-Nov-18	10:42:00	0.00
20-Nov-18	10:44:00	0.00
20-Nov-18	10:46:00	0.10
20-Nov-18	10:48:00	0.10
20-Nov-18	10:50:00	0.10
20-Nov-18	10:52:00	0.10
20-Nov-18	10:54:00	0.10
20-Nov-18	10:56:00	0.00
20-Nov-18	10:58:00	0.00
20-Nov-18	11:00:00	0.00
20-Nov-18	11:02:00	0.00
20-Nov-18	11:04:00	0.00
20-Nov-18	11:06:00	0.00
20-Nov-18	11:08:00	0.00
20-Nov-18	11:10:00	0.00
20-Nov-18	11:12:00	0.00
20-Nov-18	11:14:00	0.00
20-Nov-18	11:16:00	0.00
20-Nov-18	11:18:00	0.00

20-Nov-18	11:20:00	0.00
20-Nov-18	11:22:00	0.00
20-Nov-18	11:24:00	0.00
20-Nov-18	11:26:00	0.00
20-Nov-18	11:28:00	0.00
20-Nov-18	11:30:00	0.00
20-Nov-18	11:32:00	0.00
20-Nov-18	11:34:00	0.00
20-Nov-18	11:36:00	0.00
20-Nov-18	11:38:00	0.00
20-Nov-18	11:40:00	0.00
20-Nov-18	11:42:00	0.00
20-Nov-18	11:44:00	0.00
20-Nov-18	11:46:00	0.00
20-Nov-18	11:48:00	0.00
20-Nov-18	11:50:00	0.00
20-Nov-18	11:52:00	0.00
20-Nov-18	11:54:00	0.00
20-Nov-18	11:56:00	0.00
20-Nov-18	11:58:00	0.00
20-Nov-18	12:00:00	0.00
20-Nov-18	12:02:00	0.00
20-Nov-18	12:04:00	0.00
20-Nov-18	12:06:00	0.00
20-Nov-18	12:08:00	0.00
20-Nov-18	12:10:00	0.00
20-Nov-18	12:12:00	0.00
20-Nov-18	12:14:00	0.00
20-Nov-18	12:16:00	0.10
20-Nov-18	12:18:00	0.10
20-Nov-18	12:20:00	0.10
20-Nov-18	12:22:00	0.10
20-Nov-18	12:24:00	0.10
20-Nov-18	12:26:00	0.00
20-Nov-18	12:28:00	0.00
20-Nov-18	12:30:00	0.00
20-Nov-18	12:32:00	0.00
20-Nov-18	12:34:00	5.80
20-Nov-18	12:36:00	5.30
20-Nov-18	12:38:00	4.70
20-Nov-18	12:40:00	4.10
20-Nov-18	12:42:00	3.80
20-Nov-18	12:44:00	3.80
20-Nov-18	12:46:00	3.80
20-Nov-18	12:48:00	3.80
20-Nov-18	12:50:00	3.80
20-Nov-18	12:52:00	3.70

20-Nov-18	12:54:00	3.70
20-Nov-18	12:56:00	3.70
20-Nov-18	12:58:00	3.70
20-Nov-18	13:00:00	3.70
20-Nov-18	13:02:00	3.70
20-Nov-18	13:04:00	3.70
20-Nov-18	13:06:00	3.70
20-Nov-18	13:08:00	3.70
20-Nov-18	13:10:00	3.70
20-Nov-18	13:12:00	3.80
20-Nov-18	13:14:00	3.80
20-Nov-18	13:16:00	0.00
20-Nov-18	13:18:00	0.00
20-Nov-18	13:20:00	0.00
20-Nov-18	13:22:00	0.00
20-Nov-18	13:24:00	0.00
20-Nov-18	13:26:00	0.00
20-Nov-18	13:28:00	0.00
20-Nov-18	13:30:00	0.00
20-Nov-18	13:32:00	0.00
20-Nov-18	13:34:00	0.00
20-Nov-18	13:36:00	0.00
20-Nov-18	13:38:00	0.00
20-Nov-18	13:40:00	0.00
20-Nov-18	13:42:00	0.00
20-Nov-18	13:44:00	0.00
20-Nov-18	13:46:00	0.00
20-Nov-18	13:48:00	0.00
20-Nov-18	13:50:00	0.00
20-Nov-18	13:52:00	0.00
20-Nov-18	13:54:00	0.00
20-Nov-18	13:56:00	0.10
20-Nov-18	13:58:00	0.10
20-Nov-18	14:00:00	0.10
20-Nov-18	14:02:00	0.10
20-Nov-18	14:04:00	0.10
20-Nov-18	14:06:00	0.00
20-Nov-18	14:08:00	0.00
20-Nov-18	14:10:00	0.00
20-Nov-18	14:12:00	0.00
20-Nov-18	14:14:00	0.00
20-Nov-18	14:16:00	0.10
20-Nov-18	14:18:00	0.10
20-Nov-18	14:20:00	0.10
20-Nov-18	14:22:00	0.10
20-Nov-18	14:24:00	0.10
20-Nov-18	14:26:00	0.00

20-Nov-18	14:28:00	0.00
20-Nov-18	14:30:00	0.00
20-Nov-18	14:32:00	0.00
20-Nov-18	14:34:00	0.00
20-Nov-18	14:36:00	0.00
20-Nov-18	14:38:00	0.00
20-Nov-18	14:40:00	0.00
20-Nov-18	14:42:00	0.00
20-Nov-18	14:44:00	0.00
20-Nov-18	14:46:00	0.00
20-Nov-18	14:48:00	0.00
20-Nov-18	14:50:00	0.00
20-Nov-18	14:52:00	0.00
20-Nov-18	14:54:00	0.00
20-Nov-18	14:56:00	0.00
20-Nov-18	14:58:00	0.00
20-Nov-18	15:00:00	0.00
20-Nov-18	15:02:00	0.00
20-Nov-18	15:04:00	0.00
20-Nov-18	15:06:00	0.00
20-Nov-18	15:08:00	0.00
20-Nov-18	15:10:00	0.00
20-Nov-18	15:12:00	0.00
20-Nov-18	15:14:00	0.00
20-Nov-18	15:16:00	0.00
20-Nov-18	15:18:00	0.00
20-Nov-18	15:20:00	0.00
20-Nov-18	15:22:00	0.00
20-Nov-18	15:24:00	0.00
20-Nov-18	15:26:00	0.00
20-Nov-18	15:28:00	0.00
20-Nov-18	15:30:00	0.00
20-Nov-18	15:32:00	0.00
20-Nov-18	15:34:00	0.00
20-Nov-18	15:36:00	0.00
20-Nov-18	15:38:00	0.00
20-Nov-18	15:40:00	0.00
20-Nov-18	15:42:00	0.00
20-Nov-18	15:44:00	0.00
20-Nov-18	15:46:00	0.00
20-Nov-18	15:48:00	0.00
20-Nov-18	15:50:00	0.00
20-Nov-18	15:52:00	0.00
20-Nov-18	15:54:00	0.00
20-Nov-18	15:56:00	0.00
20-Nov-18	15:58:00	0.00
20-Nov-18	16:00:00	0.00

20-Nov-18	16:02:00	0.00
20-Nov-18	16:04:00	0.00
20-Nov-18	16:06:00	0.00
20-Nov-18	16:08:00	0.00
20-Nov-18	16:10:00	0.00
20-Nov-18	16:12:00	0.00
20-Nov-18	16:14:00	0.00
20-Nov-18	16:16:00	0.00
20-Nov-18	16:18:00	0.00
20-Nov-18	16:20:00	0.00
20-Nov-18	16:22:00	0.00
20-Nov-18	16:24:00	0.00
20-Nov-18	16:26:00	0.00
20-Nov-18	16:28:00	0.00
20-Nov-18	16:30:00	0.00
20-Nov-18	16:32:00	0.00
20-Nov-18	16:34:00	0.00
20-Nov-18	16:36:00	0.00
20-Nov-18	16:38:00	0.00
20-Nov-18	16:40:00	0.00
20-Nov-18	16:42:00	0.00
20-Nov-18	16:44:00	0.00
20-Nov-18	16:46:00	0.00
20-Nov-18	16:48:00	0.00
20-Nov-18	16:50:00	0.00
20-Nov-18	16:52:00	0.00
20-Nov-18	16:54:00	0.00
20-Nov-18	16:56:00	0.00
20-Nov-18	16:58:00	0.00
20-Nov-18	17:00:00	0.00
20-Nov-18	17:02:00	0.00
20-Nov-18	17:04:00	0.00
20-Nov-18	17:06:00	0.00
20-Nov-18	17:08:00	0.00
20-Nov-18	17:10:00	0.00
20-Nov-18	17:12:00	0.00
20-Nov-18	17:14:00	0.00
20-Nov-18	17:16:00	0.00
20-Nov-18	17:18:00	0.00
20-Nov-18	17:20:00	0.00
20-Nov-18	17:22:00	0.00
20-Nov-18	17:24:00	0.00
20-Nov-18	17:26:00	0.00
20-Nov-18	17:28:00	0.00
20-Nov-18	17:30:00	0.00
20-Nov-18	17:32:00	0.00
20-Nov-18	17:34:00	0.00

20-Nov-18	17:36:00	0.00
20-Nov-18	17:38:00	0.00
20-Nov-18	17:40:00	0.00
20-Nov-18	17:42:00	0.00
20-Nov-18	17:44:00	0.00
20-Nov-18	17:46:00	0.00
20-Nov-18	17:48:00	0.00
20-Nov-18	17:50:00	0.00
20-Nov-18	17:52:00	0.00
20-Nov-18	17:54:00	0.00
20-Nov-18	17:56:00	0.00
20-Nov-18	17:58:00	0.00
20-Nov-18	18:00:00	0.00
20-Nov-18	18:02:00	0.00
20-Nov-18	18:04:00	0.00
20-Nov-18	18:06:00	0.00
20-Nov-18	18:08:00	0.00
20-Nov-18	18:10:00	0.00
20-Nov-18	18:12:00	0.00
20-Nov-18	18:14:00	0.00
20-Nov-18	18:16:00	0.00
20-Nov-18	18:18:00	0.00
20-Nov-18	18:20:00	0.00
20-Nov-18	18:22:00	0.00
20-Nov-18	18:24:00	0.00
20-Nov-18	18:26:00	0.00
20-Nov-18	18:28:00	0.00
20-Nov-18	18:30:00	0.00
20-Nov-18	18:32:00	0.00
20-Nov-18	18:34:00	0.00
20-Nov-18	18:36:00	0.00
20-Nov-18	18:38:00	0.00
20-Nov-18	18:40:00	0.00
20-Nov-18	18:42:00	0.00
20-Nov-18	18:44:00	0.00
20-Nov-18	18:46:00	0.00
20-Nov-18	18:48:00	0.00
20-Nov-18	18:50:00	0.00
20-Nov-18	18:52:00	0.00
20-Nov-18	18:54:00	0.00
20-Nov-18	18:56:00	0.00
20-Nov-18	18:58:00	0.00
20-Nov-18	19:00:00	0.00
27-Nov-18	6:00:00	0.00
27-Nov-18	6:02:00	0.00
27-Nov-18	6:04:00	0.00
27-Nov-18	6:06:00	0.00

27-Nov-18	6:08:00	0.00
27-Nov-18	6:10:00	0.00
27-Nov-18	6:12:00	0.00
27-Nov-18	6:14:00	0.00
27-Nov-18	6:16:00	0.00
27-Nov-18	6:18:00	0.00
27-Nov-18	6:20:00	0.00
27-Nov-18	6:22:00	0.00
27-Nov-18	6:24:00	0.00
27-Nov-18	6:26:00	0.00
27-Nov-18	6:28:00	0.00
27-Nov-18	6:30:00	0.00
27-Nov-18	6:32:00	0.00
27-Nov-18	6:34:00	0.00
27-Nov-18	6:36:00	0.00
27-Nov-18	6:38:00	0.00
27-Nov-18	6:40:00	0.00
27-Nov-18	6:42:00	0.00
27-Nov-18	6:44:00	0.00
27-Nov-18	6:46:00	0.00
27-Nov-18	6:48:00	0.00
27-Nov-18	6:50:00	0.00
27-Nov-18	6:52:00	0.00
27-Nov-18	6:54:00	0.00
27-Nov-18	6:56:00	0.00
27-Nov-18	6:58:00	0.00
27-Nov-18	7:00:00	0.00
27-Nov-18	7:02:00	0.00
27-Nov-18	7:04:00	0.00
27-Nov-18	7:06:00	0.00
27-Nov-18	7:08:00	0.00
27-Nov-18	7:10:00	0.00
27-Nov-18	7:12:00	0.00
27-Nov-18	7:14:00	0.00
27-Nov-18	7:16:00	0.00
27-Nov-18	7:18:00	0.00
27-Nov-18	7:20:00	0.00
27-Nov-18	7:22:00	0.10
27-Nov-18	7:24:00	0.10
27-Nov-18	7:26:00	0.10
27-Nov-18	7:28:00	0.10
27-Nov-18	7:30:00	0.10
27-Nov-18	7:32:00	0.10
27-Nov-18	7:34:00	0.10
27-Nov-18	7:36:00	0.10
27-Nov-18	7:38:00	0.10
27-Nov-18	7:40:00	0.10

27-Nov-18	7:42:00	0.20
27-Nov-18	7:44:00	0.20
27-Nov-18	7:46:00	0.20
27-Nov-18	7:48:00	0.20
27-Nov-18	7:50:00	0.20
27-Nov-18	7:52:00	0.20
27-Nov-18	7:54:00	0.20
27-Nov-18	7:56:00	0.20
27-Nov-18	7:58:00	0.20
27-Nov-18	8:00:00	0.20
27-Nov-18	8:02:00	0.30
27-Nov-18	8:04:00	0.30
27-Nov-18	8:06:00	0.30
27-Nov-18	8:08:00	0.30
27-Nov-18	8:10:00	0.30
27-Nov-18	8:12:00	0.10
27-Nov-18	8:14:00	0.10
27-Nov-18	8:16:00	0.10
27-Nov-18	8:18:00	0.10
27-Nov-18	8:20:00	0.10
27-Nov-18	8:22:00	0.20
27-Nov-18	8:24:00	0.20
27-Nov-18	8:26:00	0.20
27-Nov-18	8:28:00	0.20
27-Nov-18	8:30:00	0.20
27-Nov-18	8:32:00	0.40
27-Nov-18	8:34:00	0.40
27-Nov-18	8:36:00	0.40
27-Nov-18	8:38:00	0.40
27-Nov-18	8:40:00	0.40
27-Nov-18	8:42:00	0.30
27-Nov-18	8:44:00	0.30
27-Nov-18	8:46:00	0.30
27-Nov-18	8:48:00	0.30
27-Nov-18	8:50:00	0.30
27-Nov-18	8:52:00	0.20
27-Nov-18	8:54:00	0.20
27-Nov-18	8:56:00	0.20
27-Nov-18	8:58:00	0.20
27-Nov-18	9:00:00	0.20
27-Nov-18	9:02:00	0.20
27-Nov-18	9:04:00	0.20
27-Nov-18	9:06:00	0.20
27-Nov-18	9:08:00	0.20
27-Nov-18	9:10:00	0.20
27-Nov-18	9:12:00	0.20
27-Nov-18	9:14:00	0.20

27-Nov-18	9:16:00	0.20
27-Nov-18	9:18:00	0.20
27-Nov-18	9:20:00	0.20
27-Nov-18	9:22:00	0.20
27-Nov-18	9:24:00	0.20
27-Nov-18	9:26:00	0.70
27-Nov-18	9:28:00	1.00
27-Nov-18	9:30:00	1.30
27-Nov-18	9:32:00	1.30
27-Nov-18	9:34:00	1.60
27-Nov-18	9:36:00	2.20
27-Nov-18	9:38:00	2.20
27-Nov-18	9:40:00	2.20
27-Nov-18	9:42:00	2.20
27-Nov-18	9:44:00	2.20
27-Nov-18	9:46:00	2.10
27-Nov-18	9:48:00	2.10
27-Nov-18	9:50:00	1.90
27-Nov-18	9:52:00	1.90
27-Nov-18	9:54:00	6.40
27-Nov-18	9:56:00	6.80
27-Nov-18	9:58:00	6.20
27-Nov-18	10:00:00	5.60
27-Nov-18	10:02:00	5.00
27-Nov-18	10:04:00	4.70
27-Nov-18	10:06:00	4.40
27-Nov-18	10:08:00	4.40
27-Nov-18	10:10:00	4.40
27-Nov-18	10:12:00	4.40
27-Nov-18	10:14:00	4.10
27-Nov-18	10:16:00	4.10
27-Nov-18	10:18:00	4.10
27-Nov-18	10:20:00	4.10
27-Nov-18	10:22:00	4.40
27-Nov-18	10:24:00	4.40
27-Nov-18	10:26:00	4.10
27-Nov-18	10:28:00	4.10
27-Nov-18	10:30:00	0.90
27-Nov-18	10:32:00	0.10
27-Nov-18	10:34:00	0.10
27-Nov-18	10:36:00	0.10
27-Nov-18	10:38:00	0.10
27-Nov-18	10:40:00	0.10
27-Nov-18	10:42:00	0.00
27-Nov-18	10:44:00	0.00
27-Nov-18	10:46:00	0.00
27-Nov-18	10:48:00	0.00

27-Nov-18	10:50:00	0.00
27-Nov-18	10:52:00	0.10
27-Nov-18	10:54:00	0.10
27-Nov-18	10:56:00	0.10
27-Nov-18	10:58:00	0.10
27-Nov-18	11:00:00	0.10
27-Nov-18	11:02:00	0.40
27-Nov-18	11:04:00	0.10
27-Nov-18	11:06:00	0.10
27-Nov-18	11:08:00	0.10
27-Nov-18	11:10:00	0.10
27-Nov-18	11:12:00	0.10
27-Nov-18	11:14:00	0.00
27-Nov-18	11:16:00	0.00
27-Nov-18	11:18:00	0.00
27-Nov-18	11:20:00	0.00
27-Nov-18	11:22:00	0.00
27-Nov-18	11:24:00	0.00
27-Nov-18	11:26:00	0.40
27-Nov-18	11:28:00	0.40
27-Nov-18	11:30:00	0.10
27-Nov-18	11:32:00	0.10
27-Nov-18	11:34:00	0.10
27-Nov-18	11:36:00	0.10
27-Nov-18	11:38:00	0.10
27-Nov-18	11:40:00	0.00
27-Nov-18	11:42:00	0.00
27-Nov-18	11:44:00	0.00
27-Nov-18	11:46:00	0.00
27-Nov-18	11:48:00	0.00
27-Nov-18	11:50:00	0.00
27-Nov-18	11:52:00	0.00
27-Nov-18	11:54:00	0.00
27-Nov-18	11:56:00	0.00
27-Nov-18	11:58:00	0.00
27-Nov-18	12:00:00	0.00
27-Nov-18	12:02:00	0.00
27-Nov-18	12:04:00	0.00
27-Nov-18	12:06:00	0.00
27-Nov-18	12:08:00	0.00
27-Nov-18	12:10:00	0.00
27-Nov-18	12:12:00	0.00
27-Nov-18	12:14:00	0.00
27-Nov-18	12:16:00	0.00
27-Nov-18	12:18:00	0.00
27-Nov-18	12:20:00	0.00
27-Nov-18	12:22:00	0.00

27-Nov-18	12:24:00	0.00
27-Nov-18	12:26:00	0.00
27-Nov-18	12:28:00	0.00
27-Nov-18	12:30:00	0.00
27-Nov-18	12:32:00	0.00
27-Nov-18	12:34:00	0.00
27-Nov-18	12:36:00	0.00
27-Nov-18	12:38:00	0.00
27-Nov-18	12:40:00	0.00
27-Nov-18	12:42:00	0.00
27-Nov-18	12:44:00	0.00
27-Nov-18	12:46:00	0.00
27-Nov-18	12:48:00	0.00
27-Nov-18	12:50:00	0.00
27-Nov-18	12:52:00	0.00
27-Nov-18	12:54:00	0.00
27-Nov-18	12:56:00	0.00
27-Nov-18	12:58:00	0.00
27-Nov-18	13:00:00	0.00
27-Nov-18	13:02:00	0.00
27-Nov-18	13:04:00	0.00
27-Nov-18	13:06:00	0.00
27-Nov-18	13:08:00	0.00
27-Nov-18	13:10:00	0.00
27-Nov-18	13:12:00	0.00
27-Nov-18	13:14:00	0.00
27-Nov-18	13:16:00	0.00
27-Nov-18	13:18:00	0.00
27-Nov-18	13:20:00	0.00
27-Nov-18	13:22:00	0.00
27-Nov-18	13:24:00	0.00
27-Nov-18	13:26:00	0.00
27-Nov-18	13:28:00	0.00
27-Nov-18	13:30:00	0.00
27-Nov-18	13:32:00	0.00
27-Nov-18	13:34:00	0.00
27-Nov-18	13:36:00	0.00
27-Nov-18	13:38:00	0.00
27-Nov-18	13:40:00	0.00
27-Nov-18	13:42:00	0.00
27-Nov-18	13:44:00	0.00
27-Nov-18	13:46:00	0.00
27-Nov-18	13:48:00	0.00
27-Nov-18	13:50:00	0.00
27-Nov-18	13:52:00	0.00
27-Nov-18	13:54:00	0.00
27-Nov-18	13:56:00	0.00

27-Nov-18	13:58:00	0.00
27-Nov-18	14:00:00	0.00
27-Nov-18	14:02:00	0.00
27-Nov-18	14:04:00	0.00
27-Nov-18	14:06:00	0.00
27-Nov-18	14:08:00	0.00
27-Nov-18	14:10:00	0.00
27-Nov-18	14:12:00	0.00
27-Nov-18	14:14:00	0.00
27-Nov-18	14:16:00	0.00
27-Nov-18	14:18:00	0.00
27-Nov-18	14:20:00	0.00
27-Nov-18	14:22:00	0.00
27-Nov-18	14:24:00	0.00
27-Nov-18	14:26:00	0.00
27-Nov-18	14:28:00	0.00
27-Nov-18	14:30:00	0.00
27-Nov-18	14:32:00	0.00
27-Nov-18	14:34:00	0.00
27-Nov-18	14:36:00	0.00
27-Nov-18	14:38:00	0.00
27-Nov-18	14:40:00	0.00
27-Nov-18	14:42:00	0.00
27-Nov-18	14:44:00	0.00
27-Nov-18	14:46:00	0.00
27-Nov-18	14:48:00	0.00
27-Nov-18	14:50:00	0.00
27-Nov-18	14:52:00	0.00
27-Nov-18	14:54:00	0.00
27-Nov-18	14:56:00	0.00
27-Nov-18	14:58:00	0.00
27-Nov-18	15:00:00	0.00
27-Nov-18	15:02:00	0.00
27-Nov-18	15:04:00	0.00
27-Nov-18	15:06:00	0.00
27-Nov-18	15:08:00	0.00
27-Nov-18	15:10:00	0.00
27-Nov-18	15:12:00	0.00
27-Nov-18	15:14:00	0.00
27-Nov-18	15:16:00	0.00
27-Nov-18	15:18:00	0.00
27-Nov-18	15:20:00	0.00
27-Nov-18	15:22:00	0.00
27-Nov-18	15:24:00	0.00
27-Nov-18	15:26:00	0.00
27-Nov-18	15:28:00	0.00
27-Nov-18	15:30:00	0.00

27-Nov-18	15:32:00	0.00
27-Nov-18	15:34:00	0.00
27-Nov-18	15:36:00	0.00
27-Nov-18	15:38:00	0.00
27-Nov-18	15:40:00	0.00
27-Nov-18	15:42:00	0.00
27-Nov-18	15:44:00	0.00
27-Nov-18	15:46:00	0.00
27-Nov-18	15:48:00	0.00
27-Nov-18	15:50:00	0.00
27-Nov-18	15:52:00	0.00
27-Nov-18	15:54:00	0.00
27-Nov-18	15:56:00	0.00
27-Nov-18	15:58:00	0.00
27-Nov-18	16:00:00	0.00
27-Nov-18	16:02:00	0.00
27-Nov-18	16:04:00	0.00
27-Nov-18	16:06:00	0.00
27-Nov-18	16:08:00	0.00
27-Nov-18	16:10:00	0.00
27-Nov-18	16:12:00	0.00
27-Nov-18	16:14:00	0.00
27-Nov-18	16:16:00	0.00
27-Nov-18	16:18:00	0.00
27-Nov-18	16:20:00	0.00
27-Nov-18	16:22:00	0.00
27-Nov-18	16:24:00	0.00
27-Nov-18	16:26:00	0.00
27-Nov-18	16:28:00	0.00
27-Nov-18	16:30:00	0.00
27-Nov-18	16:32:00	0.00
27-Nov-18	16:34:00	0.00
27-Nov-18	16:36:00	0.00
27-Nov-18	16:38:00	0.00
27-Nov-18	16:40:00	0.00
27-Nov-18	16:42:00	0.00
27-Nov-18	16:44:00	0.00
27-Nov-18	16:46:00	0.00
27-Nov-18	16:48:00	0.00
27-Nov-18	16:50:00	0.00
27-Nov-18	16:52:00	0.00
27-Nov-18	16:54:00	0.00
27-Nov-18	16:56:00	0.00
27-Nov-18	16:58:00	0.00
27-Nov-18	17:00:00	0.00
27-Nov-18	17:02:00	0.00
27-Nov-18	17:04:00	0.00

27-Nov-18	17:06:00	0.00
27-Nov-18	17:08:00	0.00
27-Nov-18	17:10:00	0.00
27-Nov-18	17:12:00	0.00
27-Nov-18	17:14:00	0.00
27-Nov-18	17:16:00	0.00
27-Nov-18	17:18:00	0.00
27-Nov-18	17:20:00	0.00
27-Nov-18	17:22:00	0.00
27-Nov-18	17:24:00	0.00
27-Nov-18	17:26:00	0.00
27-Nov-18	17:28:00	0.00
27-Nov-18	17:30:00	0.00
27-Nov-18	17:32:00	0.00
27-Nov-18	17:34:00	0.00
27-Nov-18	17:36:00	0.00
27-Nov-18	17:38:00	0.00
27-Nov-18	17:40:00	0.00
27-Nov-18	17:42:00	0.00
27-Nov-18	17:44:00	0.00
27-Nov-18	17:46:00	0.00
27-Nov-18	17:48:00	0.00
27-Nov-18	17:50:00	0.00
27-Nov-18	17:52:00	0.00
27-Nov-18	17:54:00	0.00
27-Nov-18	17:56:00	0.00
27-Nov-18	17:58:00	0.00
27-Nov-18	18:00:00	0.00
27-Nov-18	18:02:00	0.00
27-Nov-18	18:04:00	0.00
27-Nov-18	18:06:00	0.00
27-Nov-18	18:08:00	0.00
27-Nov-18	18:10:00	0.10
27-Nov-18	18:12:00	0.10
27-Nov-18	18:14:00	0.10
27-Nov-18	18:16:00	0.10
27-Nov-18	18:18:00	0.10
27-Nov-18	18:20:00	0.10
27-Nov-18	18:22:00	0.10
27-Nov-18	18:24:00	0.10
27-Nov-18	18:26:00	0.10
27-Nov-18	18:28:00	0.10
27-Nov-18	18:30:00	0.20
27-Nov-18	18:32:00	0.20
27-Nov-18	18:34:00	0.20
27-Nov-18	18:36:00	0.20
27-Nov-18	18:38:00	0.20

27-Nov-18	18:40:00	0.10
27-Nov-18	18:42:00	0.10
27-Nov-18	18:44:00	0.10
27-Nov-18	18:46:00	0.10
27-Nov-18	18:48:00	0.10
27-Nov-18	18:50:00	0.00
27-Nov-18	18:52:00	0.00
27-Nov-18	18:54:00	0.00
27-Nov-18	18:56:00	0.00
27-Nov-18	18:58:00	0.00
27-Nov-18	19:00:00	0.00
28-Nov-18	6:00:00	0.00
28-Nov-18	6:02:00	0.00
28-Nov-18	6:04:00	0.00
28-Nov-18	6:06:00	0.00
28-Nov-18	6:08:00	0.00
28-Nov-18	6:10:00	0.00
28-Nov-18	6:12:00	0.00
28-Nov-18	6:14:00	0.00
28-Nov-18	6:16:00	0.00
28-Nov-18	6:18:00	0.00
28-Nov-18	6:20:00	0.00
28-Nov-18	6:22:00	0.00
28-Nov-18	6:24:00	0.00
28-Nov-18	6:26:00	0.00
28-Nov-18	6:28:00	0.00
28-Nov-18	6:30:00	0.00
28-Nov-18	6:32:00	0.00
28-Nov-18	6:34:00	0.00
28-Nov-18	6:36:00	0.00
28-Nov-18	6:38:00	0.00
28-Nov-18	6:40:00	0.00
28-Nov-18	6:42:00	0.00
28-Nov-18	6:44:00	0.00
28-Nov-18	6:46:00	0.00
28-Nov-18	6:48:00	0.00
28-Nov-18	6:50:00	0.00
28-Nov-18	6:52:00	0.00
28-Nov-18	6:54:00	0.00
28-Nov-18	6:56:00	0.00
28-Nov-18	6:58:00	0.00
28-Nov-18	7:00:00	0.00
28-Nov-18	7:02:00	0.00
28-Nov-18	7:04:00	0.00
28-Nov-18	7:06:00	0.00
28-Nov-18	7:08:00	0.00
28-Nov-18	7:10:00	0.20

28-Nov-18	7:12:00	0.20
28-Nov-18	7:14:00	0.20
28-Nov-18	7:16:00	0.20
28-Nov-18	7:18:00	0.20
28-Nov-18	7:20:00	0.00
28-Nov-18	7:22:00	0.00
28-Nov-18	7:24:00	0.00
28-Nov-18	7:26:00	0.00
28-Nov-18	7:28:00	0.00
28-Nov-18	7:30:00	0.10
28-Nov-18	7:32:00	0.10
28-Nov-18	7:34:00	0.10
28-Nov-18	7:36:00	0.10
28-Nov-18	7:38:00	0.10
28-Nov-18	7:40:00	0.10
28-Nov-18	7:42:00	0.10
28-Nov-18	7:44:00	0.10
28-Nov-18	7:46:00	0.10
28-Nov-18	7:48:00	0.10
28-Nov-18	7:50:00	0.10
28-Nov-18	7:52:00	0.10
28-Nov-18	7:54:00	0.10
28-Nov-18	7:56:00	0.10
28-Nov-18	7:58:00	0.10
28-Nov-18	8:00:00	0.10
28-Nov-18	8:02:00	0.10
28-Nov-18	8:04:00	0.10
28-Nov-18	8:06:00	0.10
28-Nov-18	8:08:00	0.10
28-Nov-18	8:10:00	0.20
28-Nov-18	8:12:00	0.20
28-Nov-18	8:14:00	0.20
28-Nov-18	8:16:00	0.20
28-Nov-18	8:18:00	0.20
28-Nov-18	8:20:00	0.20
28-Nov-18	8:22:00	0.20
28-Nov-18	8:24:00	0.20
28-Nov-18	8:26:00	0.40
28-Nov-18	8:28:00	0.40
28-Nov-18	8:30:00	0.40
28-Nov-18	8:32:00	0.40
28-Nov-18	8:34:00	0.40
28-Nov-18	8:36:00	0.20
28-Nov-18	8:38:00	0.20
28-Nov-18	8:40:00	0.20
28-Nov-18	8:42:00	0.20
28-Nov-18	8:44:00	0.20

28-Nov-18	8:46:00	0.20
28-Nov-18	8:48:00	0.20
28-Nov-18	8:50:00	0.10
28-Nov-18	8:52:00	0.10
28-Nov-18	8:54:00	0.10
28-Nov-18	8:56:00	0.10
28-Nov-18	8:58:00	0.10
28-Nov-18	9:00:00	0.30
28-Nov-18	9:02:00	0.40
28-Nov-18	9:04:00	0.40
28-Nov-18	9:06:00	0.40
28-Nov-18	9:08:00	0.40
28-Nov-18	9:10:00	0.40
28-Nov-18	9:12:00	0.20
28-Nov-18	9:14:00	0.20
28-Nov-18	9:16:00	0.20
28-Nov-18	9:18:00	0.20
28-Nov-18	9:20:00	0.20
28-Nov-18	9:22:00	0.10
28-Nov-18	9:24:00	0.10
28-Nov-18	9:26:00	0.10
28-Nov-18	9:28:00	0.10
28-Nov-18	9:30:00	0.10
28-Nov-18	9:32:00	0.70
28-Nov-18	9:34:00	1.00
28-Nov-18	9:36:00	1.60
28-Nov-18	9:38:00	1.90
28-Nov-18	9:40:00	2.20
28-Nov-18	9:42:00	2.20
28-Nov-18	9:44:00	2.20
28-Nov-18	9:46:00	2.20
28-Nov-18	9:48:00	2.20
28-Nov-18	9:50:00	2.20
28-Nov-18	9:52:00	1.90
28-Nov-18	9:54:00	1.90
28-Nov-18	9:56:00	1.90
28-Nov-18	9:58:00	1.60
28-Nov-18	10:00:00	1.60
28-Nov-18	10:02:00	1.00
28-Nov-18	10:04:00	0.70
28-Nov-18	10:06:00	0.70
28-Nov-18	10:08:00	0.70
28-Nov-18	10:10:00	0.10
28-Nov-18	10:12:00	0.10
28-Nov-18	10:14:00	0.10
28-Nov-18	10:16:00	0.10
28-Nov-18	10:18:00	0.40

28-Nov-18	10:20:00	0.70
28-Nov-18	10:22:00	0.70
28-Nov-18	10:24:00	0.70
28-Nov-18	10:26:00	0.40
28-Nov-18	10:28:00	0.40
28-Nov-18	10:30:00	0.40
28-Nov-18	10:32:00	0.10
28-Nov-18	10:34:00	0.10
28-Nov-18	10:36:00	0.10
28-Nov-18	10:38:00	0.10
28-Nov-18	10:40:00	0.10
28-Nov-18	10:42:00	0.00
28-Nov-18	10:44:00	0.00
28-Nov-18	10:46:00	0.00
28-Nov-18	10:48:00	0.00
28-Nov-18	10:50:00	0.00
28-Nov-18	10:52:00	0.10
28-Nov-18	10:54:00	0.10
28-Nov-18	10:56:00	0.40
28-Nov-18	10:58:00	0.40
28-Nov-18	11:00:00	0.40
28-Nov-18	11:02:00	0.40
28-Nov-18	11:04:00	0.40
28-Nov-18	11:06:00	0.10
28-Nov-18	11:08:00	0.10
28-Nov-18	11:10:00	0.10
28-Nov-18	11:12:00	0.10
28-Nov-18	11:14:00	0.10
28-Nov-18	11:16:00	0.00
28-Nov-18	11:18:00	0.00
28-Nov-18	11:20:00	0.00
28-Nov-18	11:22:00	0.00
28-Nov-18	11:24:00	0.00
28-Nov-18	11:26:00	0.10
28-Nov-18	11:28:00	0.10
28-Nov-18	11:30:00	0.10
28-Nov-18	11:32:00	0.10
28-Nov-18	11:34:00	0.10
28-Nov-18	11:36:00	0.20
28-Nov-18	11:38:00	0.20
28-Nov-18	11:40:00	0.20
28-Nov-18	11:42:00	0.20
28-Nov-18	11:44:00	0.20
28-Nov-18	11:46:00	0.00
28-Nov-18	11:48:00	0.00
28-Nov-18	11:50:00	0.00
28-Nov-18	11:52:00	0.00

28-Nov-18	11:54:00	0.00
28-Nov-18	11:56:00	0.00
28-Nov-18	11:58:00	0.00
28-Nov-18	12:00:00	0.00
28-Nov-18	12:02:00	0.00
28-Nov-18	12:04:00	0.00
28-Nov-18	12:06:00	0.00
28-Nov-18	12:08:00	0.00
28-Nov-18	12:10:00	0.00
28-Nov-18	12:12:00	0.00
28-Nov-18	12:14:00	0.00
28-Nov-18	12:16:00	0.00
28-Nov-18	12:18:00	0.00
28-Nov-18	12:20:00	0.00
28-Nov-18	12:22:00	0.00
28-Nov-18	12:24:00	0.00
28-Nov-18	12:26:00	0.10
28-Nov-18	12:28:00	0.10
28-Nov-18	12:30:00	0.10
28-Nov-18	12:32:00	0.10
28-Nov-18	12:34:00	0.10
28-Nov-18	12:36:00	0.00
28-Nov-18	12:38:00	0.00
28-Nov-18	12:40:00	0.00
28-Nov-18	12:42:00	0.00
28-Nov-18	12:44:00	6.00
28-Nov-18	12:46:00	5.00
28-Nov-18	12:48:00	4.70
28-Nov-18	12:50:00	4.10
28-Nov-18	12:52:00	3.80
28-Nov-18	12:54:00	3.80
28-Nov-18	12:56:00	3.50
28-Nov-18	12:58:00	3.50
28-Nov-18	13:00:00	3.50
28-Nov-18	13:02:00	3.20
28-Nov-18	13:04:00	3.20
28-Nov-18	13:06:00	3.50
28-Nov-18	13:08:00	3.50
28-Nov-18	13:10:00	0.10
28-Nov-18	13:12:00	0.10
28-Nov-18	13:14:00	0.10
28-Nov-18	13:16:00	0.10
28-Nov-18	13:18:00	0.10
28-Nov-18	13:20:00	0.00
28-Nov-18	13:22:00	0.00
28-Nov-18	13:24:00	0.00
28-Nov-18	13:26:00	0.00

28-Nov-18	13:28:00	0.00
28-Nov-18	13:30:00	0.00
28-Nov-18	13:32:00	0.00
28-Nov-18	13:34:00	0.00
28-Nov-18	13:36:00	0.00
28-Nov-18	13:38:00	0.00
28-Nov-18	13:40:00	0.00
28-Nov-18	13:42:00	0.00
28-Nov-18	13:44:00	0.00
28-Nov-18	13:46:00	0.00
28-Nov-18	13:48:00	0.00
28-Nov-18	13:50:00	0.00
28-Nov-18	13:52:00	0.00
28-Nov-18	13:54:00	0.00
28-Nov-18	13:56:00	0.00
28-Nov-18	13:58:00	0.00
28-Nov-18	14:00:00	0.00
28-Nov-18	14:02:00	0.00
28-Nov-18	14:04:00	0.00
28-Nov-18	14:06:00	0.00
28-Nov-18	14:08:00	0.00
28-Nov-18	14:10:00	0.00
28-Nov-18	14:12:00	0.00
28-Nov-18	14:14:00	0.00
28-Nov-18	14:16:00	0.00
28-Nov-18	14:18:00	0.00
28-Nov-18	14:20:00	0.00
28-Nov-18	14:22:00	0.00
28-Nov-18	14:24:00	0.00
28-Nov-18	14:26:00	0.00
28-Nov-18	14:28:00	0.00
28-Nov-18	14:30:00	0.00
28-Nov-18	14:32:00	0.00
28-Nov-18	14:34:00	0.00
28-Nov-18	14:36:00	0.00
28-Nov-18	14:38:00	0.00
28-Nov-18	14:40:00	0.00
28-Nov-18	14:42:00	0.00
28-Nov-18	14:44:00	0.00
28-Nov-18	14:46:00	0.00
28-Nov-18	14:48:00	0.00
28-Nov-18	14:50:00	0.00
28-Nov-18	14:52:00	0.00
28-Nov-18	14:54:00	0.00
28-Nov-18	14:56:00	0.00
28-Nov-18	14:58:00	0.00
28-Nov-18	15:00:00	0.00

28-Nov-18	15:02:00	0.00
28-Nov-18	15:04:00	0.00
28-Nov-18	15:06:00	0.00
28-Nov-18	15:08:00	0.00
28-Nov-18	15:10:00	0.00
28-Nov-18	15:12:00	0.00
28-Nov-18	15:14:00	0.00
28-Nov-18	15:16:00	0.00
28-Nov-18	15:18:00	0.00
28-Nov-18	15:20:00	0.10
28-Nov-18	15:22:00	0.10
28-Nov-18	15:24:00	0.10
28-Nov-18	15:26:00	0.10
28-Nov-18	15:28:00	0.10
28-Nov-18	15:30:00	0.00
28-Nov-18	15:32:00	0.00
28-Nov-18	15:34:00	0.00
28-Nov-18	15:36:00	0.00
28-Nov-18	15:38:00	0.00
28-Nov-18	15:40:00	0.10
28-Nov-18	15:42:00	0.10
28-Nov-18	15:44:00	0.10
28-Nov-18	15:46:00	0.10
28-Nov-18	15:48:00	0.10
28-Nov-18	15:50:00	0.10
28-Nov-18	15:52:00	0.10
28-Nov-18	15:54:00	0.10
28-Nov-18	15:56:00	0.10
28-Nov-18	15:58:00	0.10
28-Nov-18	16:00:00	0.00
28-Nov-18	16:02:00	0.00
28-Nov-18	16:04:00	0.00
28-Nov-18	16:06:00	0.00
28-Nov-18	16:08:00	0.00
28-Nov-18	16:10:00	0.00
28-Nov-18	16:12:00	0.00
28-Nov-18	16:14:00	0.00
28-Nov-18	16:16:00	0.00
28-Nov-18	16:18:00	0.00
28-Nov-18	16:20:00	0.00
28-Nov-18	16:22:00	0.00
28-Nov-18	16:24:00	0.00
28-Nov-18	16:26:00	0.00
28-Nov-18	16:28:00	0.00
28-Nov-18	16:30:00	0.00
28-Nov-18	16:32:00	0.00
28-Nov-18	16:34:00	0.00

28-Nov-18	16:36:00	0.00
28-Nov-18	16:38:00	0.00
28-Nov-18	16:40:00	0.00
28-Nov-18	16:42:00	0.00
28-Nov-18	16:44:00	0.00
28-Nov-18	16:46:00	0.00
28-Nov-18	16:48:00	0.00
28-Nov-18	16:50:00	0.00
28-Nov-18	16:52:00	0.00
28-Nov-18	16:54:00	0.00
28-Nov-18	16:56:00	0.00
28-Nov-18	16:58:00	0.00
28-Nov-18	17:00:00	0.00
28-Nov-18	17:02:00	0.00
28-Nov-18	17:04:00	0.00
28-Nov-18	17:06:00	0.00
28-Nov-18	17:08:00	0.00
28-Nov-18	17:10:00	0.00
28-Nov-18	17:12:00	0.00
28-Nov-18	17:14:00	0.00
28-Nov-18	17:16:00	0.00
28-Nov-18	17:18:00	0.00
28-Nov-18	17:20:00	0.00
28-Nov-18	17:22:00	0.00
28-Nov-18	17:24:00	0.00
28-Nov-18	17:26:00	0.00
28-Nov-18	17:28:00	0.00
28-Nov-18	17:30:00	0.00
28-Nov-18	17:32:00	0.00
28-Nov-18	17:34:00	0.00
28-Nov-18	17:36:00	0.00
28-Nov-18	17:38:00	0.00
28-Nov-18	17:40:00	0.00
28-Nov-18	17:42:00	0.00
28-Nov-18	17:44:00	0.00
28-Nov-18	17:46:00	0.00
28-Nov-18	17:48:00	0.00
28-Nov-18	17:50:00	0.00
28-Nov-18	17:52:00	0.00
28-Nov-18	17:54:00	0.00
28-Nov-18	17:56:00	0.00
28-Nov-18	17:58:00	0.00
28-Nov-18	18:00:00	0.10
28-Nov-18	18:02:00	0.10
28-Nov-18	18:04:00	0.10
28-Nov-18	18:06:00	0.10
28-Nov-18	18:08:00	0.10

28-Nov-18	18:10:00	0.10
28-Nov-18	18:12:00	0.00
28-Nov-18	18:14:00	0.00
28-Nov-18	18:16:00	0.00
28-Nov-18	18:18:00	0.00
28-Nov-18	18:20:00	0.00
28-Nov-18	18:22:00	0.00
28-Nov-18	18:24:00	0.00
28-Nov-18	18:26:00	0.00
28-Nov-18	18:28:00	0.00
28-Nov-18	18:30:00	0.00
28-Nov-18	18:32:00	0.00
28-Nov-18	18:34:00	0.00
28-Nov-18	18:36:00	0.00
28-Nov-18	18:38:00	0.00
28-Nov-18	18:40:00	0.00
28-Nov-18	18:42:00	0.00
28-Nov-18	18:44:00	0.00
28-Nov-18	18:46:00	0.00
28-Nov-18	18:48:00	0.00
28-Nov-18	18:50:00	0.00
28-Nov-18	18:52:00	0.00
28-Nov-18	18:54:00	0.00
28-Nov-18	18:56:00	0.00
28-Nov-18	18:58:00	0.00
28-Nov-18	19:00:00	0.00
29-Nov-18	6:00:00	0.00
29-Nov-18	6:02:00	0.10
29-Nov-18	6:04:00	0.10
29-Nov-18	6:06:00	0.10
29-Nov-18	6:08:00	0.10
29-Nov-18	6:10:00	0.10
29-Nov-18	6:12:00	0.00
29-Nov-18	6:14:00	0.00
29-Nov-18	6:16:00	0.00
29-Nov-18	6:18:00	0.00
29-Nov-18	6:20:00	0.00
29-Nov-18	6:22:00	0.00
29-Nov-18	6:24:00	0.00
29-Nov-18	6:26:00	0.00
29-Nov-18	6:28:00	0.00
29-Nov-18	6:30:00	0.00
29-Nov-18	6:32:00	0.00
29-Nov-18	6:34:00	0.00
29-Nov-18	6:36:00	0.00
29-Nov-18	6:38:00	0.00
29-Nov-18	6:40:00	0.00

29-Nov-18	6:42:00	0.00
29-Nov-18	6:44:00	0.00
29-Nov-18	6:46:00	0.00
29-Nov-18	6:48:00	0.00
29-Nov-18	6:50:00	0.00
29-Nov-18	6:52:00	0.00
29-Nov-18	6:54:00	0.00
29-Nov-18	6:56:00	0.00
29-Nov-18	6:58:00	0.00
29-Nov-18	7:00:00	0.00
29-Nov-18	7:02:00	0.00
29-Nov-18	7:04:00	0.00
29-Nov-18	7:06:00	0.00
29-Nov-18	7:08:00	0.00
29-Nov-18	7:10:00	0.00
29-Nov-18	7:12:00	0.00
29-Nov-18	7:14:00	0.00
29-Nov-18	7:16:00	0.00
29-Nov-18	7:18:00	0.00
29-Nov-18	7:20:00	0.00
29-Nov-18	7:22:00	0.20
29-Nov-18	7:24:00	0.20
29-Nov-18	7:26:00	0.20
29-Nov-18	7:28:00	0.20
29-Nov-18	7:30:00	0.20
29-Nov-18	7:32:00	0.10
29-Nov-18	7:34:00	0.10
29-Nov-18	7:36:00	0.10
29-Nov-18	7:38:00	0.10
29-Nov-18	7:40:00	0.10
29-Nov-18	7:42:00	0.10
29-Nov-18	7:44:00	0.10
29-Nov-18	7:46:00	0.10
29-Nov-18	7:48:00	0.10
29-Nov-18	7:50:00	0.10
29-Nov-18	7:52:00	0.20
29-Nov-18	7:54:00	0.20
29-Nov-18	7:56:00	0.20
29-Nov-18	7:58:00	0.20
29-Nov-18	8:00:00	0.20
29-Nov-18	8:02:00	0.30
29-Nov-18	8:04:00	0.30
29-Nov-18	8:06:00	0.30
29-Nov-18	8:08:00	0.30
29-Nov-18	8:10:00	0.30
29-Nov-18	8:12:00	0.20
29-Nov-18	8:14:00	0.20

29-Nov-18	8:16:00	0.20
29-Nov-18	8:18:00	0.20
29-Nov-18	8:20:00	0.20
29-Nov-18	8:22:00	0.20
29-Nov-18	8:24:00	0.20
29-Nov-18	8:26:00	0.20
29-Nov-18	8:28:00	0.20
29-Nov-18	8:30:00	0.20
29-Nov-18	8:32:00	0.20
29-Nov-18	8:34:00	0.20
29-Nov-18	8:36:00	0.20
29-Nov-18	8:38:00	0.20
29-Nov-18	8:40:00	0.20
29-Nov-18	8:42:00	0.20
29-Nov-18	8:44:00	0.20
29-Nov-18	8:46:00	0.20
29-Nov-18	8:48:00	0.20
29-Nov-18	8:50:00	0.20
29-Nov-18	8:52:00	0.20
29-Nov-18	8:54:00	0.20
29-Nov-18	8:56:00	0.20
29-Nov-18	8:58:00	0.20
29-Nov-18	9:00:00	0.20
29-Nov-18	9:02:00	0.10
29-Nov-18	9:04:00	0.10
29-Nov-18	9:06:00	0.10
29-Nov-18	9:08:00	0.10
29-Nov-18	9:10:00	0.10
29-Nov-18	9:12:00	0.10
29-Nov-18	9:14:00	0.10
29-Nov-18	9:16:00	0.10
29-Nov-18	9:18:00	0.10
29-Nov-18	9:20:00	0.10
29-Nov-18	9:22:00	0.10
29-Nov-18	9:24:00	0.10
29-Nov-18	9:26:00	0.10
29-Nov-18	9:28:00	0.10
29-Nov-18	9:30:00	0.10
29-Nov-18	9:32:00	0.50
29-Nov-18	9:34:00	0.80
29-Nov-18	9:36:00	1.40
29-Nov-18	9:38:00	1.70
29-Nov-18	9:40:00	7.80
29-Nov-18	9:42:00	7.20
29-Nov-18	9:44:00	6.90
29-Nov-18	9:46:00	6.00
29-Nov-18	9:48:00	5.40

29-Nov-18	9:50:00	5.10
29-Nov-18	9:52:00	4.80
29-Nov-18	9:54:00	4.80
29-Nov-18	9:56:00	4.80
29-Nov-18	9:58:00	4.20
29-Nov-18	10:00:00	3.60
29-Nov-18	10:02:00	3.30
29-Nov-18	10:04:00	3.30
29-Nov-18	10:06:00	3.30
29-Nov-18	10:08:00	3.30
29-Nov-18	10:10:00	3.30
29-Nov-18	10:12:00	3.20
29-Nov-18	10:14:00	3.20
29-Nov-18	10:16:00	3.20
29-Nov-18	10:18:00	3.20
29-Nov-18	10:20:00	3.20
29-Nov-18	10:22:00	3.20
29-Nov-18	10:24:00	3.40
29-Nov-18	10:26:00	3.40
29-Nov-18	10:28:00	3.40
29-Nov-18	10:30:00	3.40
29-Nov-18	10:32:00	0.00
29-Nov-18	10:34:00	0.00
29-Nov-18	10:36:00	0.00
29-Nov-18	10:38:00	0.00
29-Nov-18	10:40:00	0.00
29-Nov-18	10:42:00	0.00
29-Nov-18	10:44:00	0.00
29-Nov-18	10:46:00	0.00
29-Nov-18	10:48:00	0.00
29-Nov-18	10:50:00	0.00
29-Nov-18	10:52:00	0.50
29-Nov-18	10:54:00	0.80
29-Nov-18	10:56:00	0.80
29-Nov-18	10:58:00	0.80
29-Nov-18	11:00:00	0.80
29-Nov-18	11:02:00	0.80
29-Nov-18	11:04:00	0.60
29-Nov-18	11:06:00	0.60
29-Nov-18	11:08:00	1.10
29-Nov-18	11:10:00	1.10
29-Nov-18	11:12:00	1.40
29-Nov-18	11:14:00	1.40
29-Nov-18	11:16:00	1.40
29-Nov-18	11:18:00	1.40
29-Nov-18	11:20:00	1.40
29-Nov-18	11:22:00	1.20

29-Nov-18	11:24:00	1.20
29-Nov-18	11:26:00	1.10
29-Nov-18	11:28:00	0.80
29-Nov-18	11:30:00	0.80
29-Nov-18	11:32:00	0.50
29-Nov-18	11:34:00	0.50
29-Nov-18	11:36:00	0.20
29-Nov-18	11:38:00	0.20
29-Nov-18	11:40:00	0.20
29-Nov-18	11:42:00	0.20
29-Nov-18	11:44:00	0.20
29-Nov-18	11:46:00	0.20
29-Nov-18	11:48:00	0.20
29-Nov-18	11:50:00	0.20
29-Nov-18	11:52:00	0.20
29-Nov-18	11:54:00	0.20
29-Nov-18	11:56:00	0.10
29-Nov-18	11:58:00	0.50
29-Nov-18	12:00:00	0.50
29-Nov-18	12:02:00	0.50
29-Nov-18	12:04:00	0.50
29-Nov-18	12:06:00	0.20
29-Nov-18	12:08:00	0.20
29-Nov-18	12:10:00	0.00
29-Nov-18	12:12:00	0.00
29-Nov-18	12:14:00	0.00
29-Nov-18	12:16:00	0.00
29-Nov-18	12:18:00	0.00
29-Nov-18	12:20:00	0.00
29-Nov-18	12:22:00	0.00
29-Nov-18	12:24:00	0.00
29-Nov-18	12:26:00	0.00
29-Nov-18	12:28:00	0.00
29-Nov-18	12:30:00	0.00
29-Nov-18	12:32:00	0.00
29-Nov-18	12:34:00	0.00
29-Nov-18	12:36:00	0.00
29-Nov-18	12:38:00	0.00
29-Nov-18	12:40:00	0.00
29-Nov-18	12:42:00	0.00
29-Nov-18	12:44:00	0.00
29-Nov-18	12:46:00	0.20
29-Nov-18	12:48:00	0.20
29-Nov-18	12:50:00	0.20
29-Nov-18	12:52:00	0.20
29-Nov-18	12:54:00	0.20
29-Nov-18	12:56:00	0.00

29-Nov-18	12:58:00	0.00
29-Nov-18	13:00:00	0.00
29-Nov-18	13:02:00	0.00
29-Nov-18	13:04:00	0.00
29-Nov-18	13:06:00	0.00
29-Nov-18	13:08:00	0.00
29-Nov-18	13:10:00	0.00
29-Nov-18	13:12:00	0.00
29-Nov-18	13:14:00	0.00
29-Nov-18	13:16:00	0.00
29-Nov-18	13:18:00	0.00
29-Nov-18	13:20:00	0.00
29-Nov-18	13:22:00	0.00
29-Nov-18	13:24:00	0.00
29-Nov-18	13:26:00	0.00
29-Nov-18	13:28:00	0.00
29-Nov-18	13:30:00	0.00
29-Nov-18	13:32:00	0.00
29-Nov-18	13:34:00	0.00
29-Nov-18	13:36:00	0.00
29-Nov-18	13:38:00	0.00
29-Nov-18	13:40:00	0.00
29-Nov-18	13:42:00	0.00
29-Nov-18	13:44:00	0.00
29-Nov-18	13:46:00	0.00
29-Nov-18	13:48:00	0.00
29-Nov-18	13:50:00	0.00
29-Nov-18	13:52:00	0.00
29-Nov-18	13:54:00	0.00
29-Nov-18	13:56:00	0.00
29-Nov-18	13:58:00	0.00
29-Nov-18	14:00:00	0.00
29-Nov-18	14:02:00	0.00
29-Nov-18	14:04:00	0.00
29-Nov-18	14:06:00	0.00
29-Nov-18	14:08:00	0.00
29-Nov-18	14:10:00	0.00
29-Nov-18	14:12:00	0.00
29-Nov-18	14:14:00	0.00
29-Nov-18	14:16:00	0.00
29-Nov-18	14:18:00	0.00
29-Nov-18	14:20:00	0.00
29-Nov-18	14:22:00	0.00
29-Nov-18	14:24:00	0.00
29-Nov-18	14:26:00	0.00
29-Nov-18	14:28:00	0.00
29-Nov-18	14:30:00	0.00

29-Nov-18	14:32:00	0.00
29-Nov-18	14:34:00	0.00
29-Nov-18	14:36:00	0.00
29-Nov-18	14:38:00	0.00
29-Nov-18	14:40:00	0.00
29-Nov-18	14:42:00	0.00
29-Nov-18	14:44:00	0.00
29-Nov-18	14:46:00	0.00
29-Nov-18	14:48:00	0.00
29-Nov-18	14:50:00	0.00
29-Nov-18	14:52:00	0.00
29-Nov-18	14:54:00	0.00
29-Nov-18	14:56:00	0.00
29-Nov-18	14:58:00	0.00
29-Nov-18	15:00:00	0.00
29-Nov-18	15:02:00	0.00
29-Nov-18	15:04:00	0.00
29-Nov-18	15:06:00	0.00
29-Nov-18	15:08:00	0.00
29-Nov-18	15:10:00	0.00
29-Nov-18	15:12:00	0.00
29-Nov-18	15:14:00	0.00
29-Nov-18	15:16:00	0.00
29-Nov-18	15:18:00	0.00
29-Nov-18	15:20:00	0.00
29-Nov-18	15:22:00	0.00
29-Nov-18	15:24:00	0.00
29-Nov-18	15:26:00	0.00
29-Nov-18	15:28:00	0.00
29-Nov-18	15:30:00	0.00
29-Nov-18	15:32:00	0.00
29-Nov-18	15:34:00	0.00
29-Nov-18	15:36:00	0.00
29-Nov-18	15:38:00	0.00
29-Nov-18	15:40:00	0.00
29-Nov-18	15:42:00	0.00
29-Nov-18	15:44:00	0.00
29-Nov-18	15:46:00	0.00
29-Nov-18	15:48:00	0.00
29-Nov-18	15:50:00	0.00
29-Nov-18	15:52:00	0.00
29-Nov-18	15:54:00	0.00
29-Nov-18	15:56:00	0.00
29-Nov-18	15:58:00	0.00
29-Nov-18	16:00:00	0.00
29-Nov-18	16:02:00	0.00
29-Nov-18	16:04:00	0.00

29-Nov-18	16:06:00	0.00
29-Nov-18	16:08:00	0.00
29-Nov-18	16:10:00	0.00
29-Nov-18	16:12:00	0.00
29-Nov-18	16:14:00	0.00
29-Nov-18	16:16:00	0.00
29-Nov-18	16:18:00	0.00
29-Nov-18	16:20:00	0.00
29-Nov-18	16:22:00	0.00
29-Nov-18	16:24:00	0.00
29-Nov-18	16:26:00	0.00
29-Nov-18	16:28:00	0.00
29-Nov-18	16:30:00	0.00
29-Nov-18	16:32:00	0.00
29-Nov-18	16:34:00	0.00
29-Nov-18	16:36:00	0.00
29-Nov-18	16:38:00	0.00
29-Nov-18	16:40:00	0.00
29-Nov-18	16:42:00	0.00
29-Nov-18	16:44:00	0.00
29-Nov-18	16:46:00	0.00
29-Nov-18	16:48:00	0.00
29-Nov-18	16:50:00	0.00
29-Nov-18	16:52:00	0.00
29-Nov-18	16:54:00	0.00
29-Nov-18	16:56:00	0.00
29-Nov-18	16:58:00	0.00
29-Nov-18	17:00:00	0.00
29-Nov-18	17:02:00	0.00
29-Nov-18	17:04:00	0.00
29-Nov-18	17:06:00	0.00
29-Nov-18	17:08:00	0.00
29-Nov-18	17:10:00	0.00
29-Nov-18	17:12:00	0.00
29-Nov-18	17:14:00	0.00
29-Nov-18	17:16:00	0.00
29-Nov-18	17:18:00	0.00
29-Nov-18	17:20:00	0.00
29-Nov-18	17:22:00	0.00
29-Nov-18	17:24:00	0.00
29-Nov-18	17:26:00	0.00
29-Nov-18	17:28:00	0.00
29-Nov-18	17:30:00	0.00
29-Nov-18	17:32:00	0.00
29-Nov-18	17:34:00	0.00
29-Nov-18	17:36:00	0.00
29-Nov-18	17:38:00	0.00

29-Nov-18	17:40:00	0.00
29-Nov-18	17:42:00	0.00
29-Nov-18	17:44:00	0.00
29-Nov-18	17:46:00	0.00
29-Nov-18	17:48:00	0.00
29-Nov-18	17:50:00	0.00
29-Nov-18	17:52:00	0.00
29-Nov-18	17:54:00	0.00
29-Nov-18	17:56:00	0.00
29-Nov-18	17:58:00	0.00
29-Nov-18	18:00:00	0.00
29-Nov-18	18:02:00	0.00
29-Nov-18	18:04:00	0.00
29-Nov-18	18:06:00	0.00
29-Nov-18	18:08:00	0.00
29-Nov-18	18:10:00	0.00
29-Nov-18	18:12:00	0.00
29-Nov-18	18:14:00	0.00
29-Nov-18	18:16:00	0.00
29-Nov-18	18:18:00	0.00
29-Nov-18	18:20:00	0.00
29-Nov-18	18:22:00	0.00
29-Nov-18	18:24:00	0.00
29-Nov-18	18:26:00	0.00
29-Nov-18	18:28:00	0.00
29-Nov-18	18:30:00	0.00
29-Nov-18	18:32:00	0.00
29-Nov-18	18:34:00	0.00
29-Nov-18	18:36:00	0.00
29-Nov-18	18:38:00	0.00
29-Nov-18	18:40:00	0.00
29-Nov-18	18:42:00	0.00
29-Nov-18	18:44:00	0.00
29-Nov-18	18:46:00	0.00
29-Nov-18	18:48:00	0.00
29-Nov-18	18:50:00	0.00
29-Nov-18	18:52:00	0.00
29-Nov-18	18:54:00	0.00
29-Nov-18	18:56:00	0.00
29-Nov-18	18:58:00	0.00
29-Nov-18	19:00:00	0.00

Date	Time	Diff Press
5-Dec-18	6:00:00	0.00
5-Dec-18	6:02:00	0.00
5-Dec-18	6:04:00	0.00
5-Dec-18	6:06:00	0.00
5-Dec-18	6:08:00	0.00
5-Dec-18	6:10:00	0.00
5-Dec-18	6:12:00	0.00
5-Dec-18	6:14:00	0.00
5-Dec-18	6:16:00	0.00
5-Dec-18	6:18:00	0.00
5-Dec-18	6:20:00	0.00
5-Dec-18	6:22:00	0.00
5-Dec-18	6:24:00	0.00
5-Dec-18	6:26:00	0.00
5-Dec-18	6:28:00	0.00
5-Dec-18	6:30:00	0.00
5-Dec-18	6:32:00	0.00
5-Dec-18	6:34:00	0.00
5-Dec-18	6:36:00	0.00
5-Dec-18	6:38:00	0.00
5-Dec-18	6:40:00	0.00
5-Dec-18	6:42:00	0.00
5-Dec-18	6:44:00	0.00
5-Dec-18	6:46:00	0.00
5-Dec-18	6:48:00	0.00
5-Dec-18	6:50:00	0.00
5-Dec-18	6:52:00	0.00
5-Dec-18	6:54:00	0.00
5-Dec-18	6:56:00	0.00
5-Dec-18	6:58:00	0.00
5-Dec-18	7:00:00	0.00
5-Dec-18	7:02:00	0.00
5-Dec-18	7:04:00	0.00
5-Dec-18	7:06:00	0.10
5-Dec-18	7:08:00	0.10
5-Dec-18	7:10:00	0.10
5-Dec-18	7:12:00	0.10
5-Dec-18	7:14:00	0.10
5-Dec-18	7:16:00	0.20
5-Dec-18	7:18:00	0.20
5-Dec-18	7:20:00	0.20
5-Dec-18	7:22:00	0.20
5-Dec-18	7:24:00	0.20
5-Dec-18	7:26:00	0.10
5-Dec-18	7:28:00	0.10

5-Dec-18	7:30:00	0.10
5-Dec-18	7:32:00	0.10
5-Dec-18	7:34:00	0.10
5-Dec-18	7:36:00	0.10
5-Dec-18	7:38:00	0.10
5-Dec-18	7:40:00	0.10
5-Dec-18	7:42:00	0.10
5-Dec-18	7:44:00	0.10
5-Dec-18	7:46:00	0.10
5-Dec-18	7:48:00	0.10
5-Dec-18	7:50:00	0.10
5-Dec-18	7:52:00	0.10
5-Dec-18	7:54:00	0.10
5-Dec-18	7:56:00	0.10
5-Dec-18	7:58:00	0.10
5-Dec-18	8:00:00	0.10
5-Dec-18	8:02:00	0.10
5-Dec-18	8:04:00	0.10
5-Dec-18	8:06:00	0.10
5-Dec-18	8:08:00	0.10
5-Dec-18	8:10:00	0.10
5-Dec-18	8:12:00	0.10
5-Dec-18	8:14:00	0.10
5-Dec-18	8:16:00	0.10
5-Dec-18	8:18:00	0.10
5-Dec-18	8:20:00	0.10
5-Dec-18	8:22:00	0.10
5-Dec-18	8:24:00	0.10
5-Dec-18	8:26:00	0.10
5-Dec-18	8:28:00	0.10
5-Dec-18	8:30:00	0.10
5-Dec-18	8:32:00	0.10
5-Dec-18	8:34:00	0.10
5-Dec-18	8:36:00	0.20
5-Dec-18	8:38:00	0.20
5-Dec-18	8:40:00	0.20
5-Dec-18	8:42:00	0.20
5-Dec-18	8:44:00	0.20
5-Dec-18	8:46:00	0.20
5-Dec-18	8:48:00	0.20
5-Dec-18	8:50:00	0.20
5-Dec-18	8:52:00	0.20
5-Dec-18	8:54:00	0.20
5-Dec-18	8:56:00	0.20
5-Dec-18	8:58:00	0.20
5-Dec-18	9:00:00	0.20
5-Dec-18	9:02:00	0.20

5-Dec-18	9:04:00	0.20
5-Dec-18	9:06:00	0.30
5-Dec-18	9:08:00	0.30
5-Dec-18	9:10:00	0.30
5-Dec-18	9:12:00	0.30
5-Dec-18	9:14:00	0.30
5-Dec-18	9:16:00	0.20
5-Dec-18	9:18:00	0.20
5-Dec-18	9:20:00	0.20
5-Dec-18	9:22:00	0.20
5-Dec-18	9:24:00	0.20
5-Dec-18	9:26:00	0.30
5-Dec-18	9:28:00	0.30
5-Dec-18	9:30:00	0.30
5-Dec-18	9:32:00	0.50
5-Dec-18	9:34:00	0.80
5-Dec-18	9:36:00	1.70
5-Dec-18	9:38:00	2.30
5-Dec-18	9:40:00	2.60
5-Dec-18	9:42:00	2.60
5-Dec-18	9:44:00	2.60
5-Dec-18	9:46:00	2.90
5-Dec-18	9:48:00	2.90
5-Dec-18	9:50:00	2.90
5-Dec-18	9:52:00	2.60
5-Dec-18	9:54:00	2.30
5-Dec-18	9:56:00	2.30
5-Dec-18	9:58:00	2.30
5-Dec-18	10:00:00	2.00
5-Dec-18	10:02:00	2.00
5-Dec-18	10:04:00	1.70
5-Dec-18	10:06:00	1.70
5-Dec-18	10:08:00	1.40
5-Dec-18	10:10:00	1.10
5-Dec-18	10:12:00	1.10
5-Dec-18	10:14:00	1.10
5-Dec-18	10:16:00	1.10
5-Dec-18	10:18:00	1.10
5-Dec-18	10:20:00	0.80
5-Dec-18	10:22:00	0.50
5-Dec-18	10:24:00	0.00
5-Dec-18	10:26:00	0.00
5-Dec-18	10:28:00	0.20
5-Dec-18	10:30:00	0.20
5-Dec-18	10:32:00	0.20
5-Dec-18	10:34:00	0.20
5-Dec-18	10:36:00	0.40

5-Dec-18	10:38:00	0.50
5-Dec-18	10:40:00	0.20
5-Dec-18	10:42:00	0.20
5-Dec-18	10:44:00	0.20
5-Dec-18	10:46:00	0.00
5-Dec-18	10:48:00	0.00
5-Dec-18	10:50:00	0.00
5-Dec-18	10:52:00	0.20
5-Dec-18	10:54:00	0.00
5-Dec-18	10:56:00	0.00
5-Dec-18	10:58:00	0.00
5-Dec-18	11:00:00	0.20
5-Dec-18	11:02:00	0.20
5-Dec-18	11:04:00	0.20
5-Dec-18	11:06:00	0.50
5-Dec-18	11:08:00	0.50
5-Dec-18	11:10:00	0.50
5-Dec-18	11:12:00	0.20
5-Dec-18	11:14:00	0.20
5-Dec-18	11:16:00	0.00
5-Dec-18	11:18:00	0.00
5-Dec-18	11:20:00	0.00
5-Dec-18	11:22:00	0.00
5-Dec-18	11:24:00	0.20
5-Dec-18	11:26:00	0.00
5-Dec-18	11:28:00	0.00
5-Dec-18	11:30:00	0.00
5-Dec-18	11:32:00	0.00
5-Dec-18	11:34:00	0.00
5-Dec-18	11:36:00	0.00
5-Dec-18	11:38:00	0.00
5-Dec-18	11:40:00	0.00
5-Dec-18	11:42:00	0.00
5-Dec-18	11:44:00	0.00
5-Dec-18	11:46:00	0.00
5-Dec-18	11:48:00	0.00
5-Dec-18	11:50:00	0.00
5-Dec-18	11:52:00	0.00
5-Dec-18	11:54:00	0.00
5-Dec-18	11:56:00	0.00
5-Dec-18	11:58:00	0.00
5-Dec-18	12:00:00	0.00
5-Dec-18	12:02:00	0.00
5-Dec-18	12:04:00	0.00
5-Dec-18	12:06:00	0.00
5-Dec-18	12:08:00	0.00
5-Dec-18	12:10:00	0.00

5-Dec-18	12:12:00	0.00
5-Dec-18	12:14:00	0.00
5-Dec-18	12:16:00	0.00
5-Dec-18	12:18:00	0.00
5-Dec-18	12:20:00	0.00
5-Dec-18	12:22:00	0.00
5-Dec-18	12:24:00	0.00
5-Dec-18	12:26:00	0.00
5-Dec-18	12:28:00	0.00
5-Dec-18	12:30:00	0.00
5-Dec-18	12:32:00	1.70
5-Dec-18	12:34:00	4.80
5-Dec-18	12:36:00	4.20
5-Dec-18	12:38:00	3.90
5-Dec-18	12:40:00	3.90
5-Dec-18	12:42:00	3.80
5-Dec-18	12:44:00	4.20
5-Dec-18	12:46:00	3.60
5-Dec-18	12:48:00	3.60
5-Dec-18	12:50:00	3.60
5-Dec-18	12:52:00	3.60
5-Dec-18	12:54:00	3.60
5-Dec-18	12:56:00	3.50
5-Dec-18	12:58:00	3.50
5-Dec-18	13:00:00	3.30
5-Dec-18	13:02:00	3.30
5-Dec-18	13:04:00	3.30
5-Dec-18	13:06:00	3.30
5-Dec-18	13:08:00	3.30
5-Dec-18	13:10:00	3.30
5-Dec-18	13:12:00	3.30
5-Dec-18	13:14:00	3.60
5-Dec-18	13:16:00	3.60
5-Dec-18	13:18:00	3.60
5-Dec-18	13:20:00	3.90
5-Dec-18	13:22:00	3.90
5-Dec-18	13:24:00	3.90
5-Dec-18	13:26:00	3.90
5-Dec-18	13:28:00	3.90
5-Dec-18	13:30:00	3.70
5-Dec-18	13:32:00	3.70
5-Dec-18	13:34:00	3.70
5-Dec-18	13:36:00	3.70
5-Dec-18	13:38:00	3.70
5-Dec-18	13:40:00	3.60
5-Dec-18	13:42:00	3.60
5-Dec-18	13:44:00	3.60

5-Dec-18	13:46:00	3.60
5-Dec-18	13:48:00	0.70
5-Dec-18	13:50:00	0.00
5-Dec-18	13:52:00	0.00
5-Dec-18	13:54:00	0.00
5-Dec-18	13:56:00	0.00
5-Dec-18	13:58:00	0.00
5-Dec-18	14:00:00	0.00
5-Dec-18	14:02:00	0.00
5-Dec-18	14:04:00	0.00
5-Dec-18	14:06:00	0.00
5-Dec-18	14:08:00	0.00
5-Dec-18	14:10:00	0.00
5-Dec-18	14:12:00	0.00
5-Dec-18	14:14:00	0.00
5-Dec-18	14:16:00	0.00
5-Dec-18	14:18:00	0.00
5-Dec-18	14:20:00	0.00
5-Dec-18	14:22:00	0.00
5-Dec-18	14:24:00	0.00
5-Dec-18	14:26:00	0.00
5-Dec-18	14:28:00	0.00
5-Dec-18	14:30:00	0.00
5-Dec-18	14:32:00	0.00
5-Dec-18	14:34:00	0.00
5-Dec-18	14:36:00	0.00
5-Dec-18	14:38:00	0.00
5-Dec-18	14:40:00	0.00
5-Dec-18	14:42:00	0.00
5-Dec-18	14:44:00	0.00
5-Dec-18	14:46:00	0.00
5-Dec-18	14:48:00	0.00
5-Dec-18	14:50:00	0.00
5-Dec-18	14:52:00	0.00
5-Dec-18	14:54:00	0.00
5-Dec-18	14:56:00	0.00
5-Dec-18	14:58:00	0.00
5-Dec-18	15:00:00	0.00
5-Dec-18	15:02:00	0.00
5-Dec-18	15:04:00	0.00
5-Dec-18	15:06:00	0.00
5-Dec-18	15:08:00	0.00
5-Dec-18	15:10:00	0.00
5-Dec-18	15:12:00	0.00
5-Dec-18	15:14:00	0.00
5-Dec-18	15:16:00	0.00
5-Dec-18	15:18:00	0.00

5-Dec-18	15:20:00	0.00
5-Dec-18	15:22:00	0.00
5-Dec-18	15:24:00	0.00
5-Dec-18	15:26:00	0.00
5-Dec-18	15:28:00	0.00
5-Dec-18	15:30:00	0.00
5-Dec-18	15:32:00	0.00
5-Dec-18	15:34:00	0.00
5-Dec-18	15:36:00	0.00
5-Dec-18	15:38:00	0.00
5-Dec-18	15:40:00	0.00
5-Dec-18	15:42:00	0.00
5-Dec-18	15:44:00	0.00
5-Dec-18	15:46:00	0.00
5-Dec-18	15:48:00	0.00
5-Dec-18	15:50:00	0.00
5-Dec-18	15:52:00	0.00
5-Dec-18	15:54:00	0.00
5-Dec-18	15:56:00	0.00
5-Dec-18	15:58:00	0.00
5-Dec-18	16:00:00	0.00
5-Dec-18	16:02:00	0.00
5-Dec-18	16:04:00	0.00
5-Dec-18	16:06:00	0.00
5-Dec-18	16:08:00	0.00
5-Dec-18	16:10:00	0.00
5-Dec-18	16:12:00	0.00
5-Dec-18	16:14:00	0.00
5-Dec-18	16:16:00	0.00
5-Dec-18	16:18:00	0.00
5-Dec-18	16:20:00	0.00
5-Dec-18	16:22:00	0.00
5-Dec-18	16:24:00	0.00
5-Dec-18	16:26:00	0.00
5-Dec-18	16:28:00	0.00
5-Dec-18	16:30:00	0.00
5-Dec-18	16:32:00	0.00
5-Dec-18	16:34:00	0.00
5-Dec-18	16:36:00	0.00
5-Dec-18	16:38:00	0.00
5-Dec-18	16:40:00	0.00
5-Dec-18	16:42:00	0.00
5-Dec-18	16:44:00	0.00
5-Dec-18	16:46:00	0.00
5-Dec-18	16:48:00	0.00
5-Dec-18	16:50:00	0.00
5-Dec-18	16:52:00	0.00

5-Dec-18	16:54:00	0.00
5-Dec-18	16:56:00	0.00
5-Dec-18	16:58:00	0.00
5-Dec-18	17:00:00	0.00
5-Dec-18	17:02:00	0.00
5-Dec-18	17:04:00	0.00
5-Dec-18	17:06:00	0.00
5-Dec-18	17:08:00	0.00
5-Dec-18	17:10:00	0.00
5-Dec-18	17:12:00	0.00
5-Dec-18	17:14:00	0.00
5-Dec-18	17:16:00	0.00
5-Dec-18	17:18:00	0.00
5-Dec-18	17:20:00	0.00
5-Dec-18	17:22:00	0.00
5-Dec-18	17:24:00	0.00
5-Dec-18	17:26:00	0.00
5-Dec-18	17:28:00	0.00
5-Dec-18	17:30:00	0.00
5-Dec-18	17:32:00	0.00
5-Dec-18	17:34:00	0.00
5-Dec-18	17:36:00	0.00
5-Dec-18	17:38:00	0.00
5-Dec-18	17:40:00	0.00
5-Dec-18	17:42:00	0.00
5-Dec-18	17:44:00	0.00
5-Dec-18	17:46:00	0.00
5-Dec-18	17:48:00	0.00
5-Dec-18	17:50:00	0.00
5-Dec-18	17:52:00	0.00
5-Dec-18	17:54:00	0.00
5-Dec-18	17:56:00	0.00
5-Dec-18	17:58:00	0.00
5-Dec-18	18:00:00	0.00
5-Dec-18	18:02:00	0.00
5-Dec-18	18:04:00	0.00
5-Dec-18	18:06:00	0.00
5-Dec-18	18:08:00	0.00
5-Dec-18	18:10:00	0.00
5-Dec-18	18:12:00	0.00
5-Dec-18	18:14:00	0.00
5-Dec-18	18:16:00	0.00
5-Dec-18	18:18:00	0.00
5-Dec-18	18:20:00	0.00
5-Dec-18	18:22:00	0.00
5-Dec-18	18:24:00	0.00
5-Dec-18	18:26:00	0.00

5-Dec-18	18:28:00	0.00
5-Dec-18	18:30:00	0.00
5-Dec-18	18:32:00	0.00
5-Dec-18	18:34:00	0.00
5-Dec-18	18:36:00	0.00
5-Dec-18	18:38:00	0.00
5-Dec-18	18:40:00	0.10
5-Dec-18	18:42:00	0.10
5-Dec-18	18:44:00	0.10
5-Dec-18	18:46:00	0.10
5-Dec-18	18:48:00	0.10
5-Dec-18	18:50:00	0.00
5-Dec-18	18:52:00	0.00
5-Dec-18	18:54:00	0.00
5-Dec-18	18:56:00	0.00
5-Dec-18	18:58:00	0.00
5-Dec-18	19:00:00	0.00
6-Dec-18	6:00:00	0.00
6-Dec-18	6:02:00	0.00
6-Dec-18	6:04:00	0.00
6-Dec-18	6:06:00	0.00
6-Dec-18	6:08:00	0.00
6-Dec-18	6:10:00	0.00
6-Dec-18	6:12:00	0.00
6-Dec-18	6:14:00	0.00
6-Dec-18	6:16:00	0.00
6-Dec-18	6:18:00	0.00
6-Dec-18	6:20:00	0.10
6-Dec-18	6:22:00	0.10
6-Dec-18	6:24:00	0.10
6-Dec-18	6:26:00	0.10
6-Dec-18	6:28:00	0.10
6-Dec-18	6:30:00	0.10
6-Dec-18	6:32:00	0.10
6-Dec-18	6:34:00	0.10
6-Dec-18	6:36:00	0.10
6-Dec-18	6:38:00	0.10
6-Dec-18	6:40:00	0.10
6-Dec-18	6:42:00	0.10
6-Dec-18	6:44:00	0.10
6-Dec-18	6:46:00	0.10
6-Dec-18	6:48:00	0.10
6-Dec-18	6:50:00	0.00
6-Dec-18	6:52:00	0.00
6-Dec-18	6:54:00	0.00
6-Dec-18	6:56:00	0.00
6-Dec-18	6:58:00	0.00

6-Dec-18	7:00:00	0.10
6-Dec-18	7:02:00	0.10
6-Dec-18	7:04:00	0.10
6-Dec-18	7:06:00	0.10
6-Dec-18	7:08:00	0.10
6-Dec-18	7:10:00	0.00
6-Dec-18	7:12:00	0.00
6-Dec-18	7:14:00	0.00
6-Dec-18	7:16:00	0.00
6-Dec-18	7:18:00	0.00
6-Dec-18	7:20:00	0.00
6-Dec-18	7:22:00	0.00
6-Dec-18	7:24:00	0.00
6-Dec-18	7:26:00	0.00
6-Dec-18	7:28:00	0.00
6-Dec-18	7:30:00	0.00
6-Dec-18	7:32:00	0.00
6-Dec-18	7:34:00	0.00
6-Dec-18	7:36:00	0.00
6-Dec-18	7:38:00	0.00
6-Dec-18	7:40:00	0.00
6-Dec-18	7:42:00	0.00
6-Dec-18	7:44:00	0.00
6-Dec-18	7:46:00	0.00
6-Dec-18	7:48:00	0.00
6-Dec-18	7:50:00	0.10
6-Dec-18	7:52:00	0.10
6-Dec-18	7:54:00	0.10
6-Dec-18	7:56:00	0.10
6-Dec-18	7:58:00	0.10
6-Dec-18	8:00:00	0.20
6-Dec-18	8:02:00	0.20
6-Dec-18	8:04:00	0.20
6-Dec-18	8:06:00	0.20
6-Dec-18	8:08:00	0.20
6-Dec-18	8:10:00	0.20
6-Dec-18	8:12:00	0.20
6-Dec-18	8:14:00	0.20
6-Dec-18	8:16:00	0.20
6-Dec-18	8:18:00	0.20
6-Dec-18	8:20:00	0.20
6-Dec-18	8:22:00	0.20
6-Dec-18	8:24:00	0.20
6-Dec-18	8:26:00	0.20
6-Dec-18	8:28:00	0.20
6-Dec-18	8:30:00	0.20
6-Dec-18	8:32:00	0.20

6-Dec-18	8:34:00	0.10
6-Dec-18	8:36:00	0.10
6-Dec-18	8:38:00	0.10
6-Dec-18	8:40:00	0.10
6-Dec-18	8:42:00	0.10
6-Dec-18	8:44:00	0.10
6-Dec-18	8:46:00	1.00
6-Dec-18	8:48:00	6.40
6-Dec-18	8:50:00	5.50
6-Dec-18	8:52:00	5.20
6-Dec-18	8:54:00	4.90
6-Dec-18	8:56:00	4.90
6-Dec-18	8:58:00	4.60
6-Dec-18	9:00:00	4.60
6-Dec-18	9:02:00	4.60
6-Dec-18	9:04:00	4.00
6-Dec-18	9:06:00	4.00
6-Dec-18	9:08:00	4.00
6-Dec-18	9:10:00	4.00
6-Dec-18	9:12:00	4.00
6-Dec-18	9:14:00	4.20
6-Dec-18	9:16:00	4.30
6-Dec-18	9:18:00	4.30
6-Dec-18	9:20:00	4.30
6-Dec-18	9:22:00	4.30
6-Dec-18	9:24:00	4.30
6-Dec-18	9:26:00	4.20
6-Dec-18	9:28:00	4.20
6-Dec-18	9:30:00	4.20
6-Dec-18	9:32:00	4.20
6-Dec-18	9:34:00	4.60
6-Dec-18	9:36:00	5.20
6-Dec-18	9:38:00	6.10
6-Dec-18	9:40:00	6.40
6-Dec-18	9:42:00	6.70
6-Dec-18	9:44:00	7.00
6-Dec-18	9:46:00	7.00
6-Dec-18	9:48:00	6.70
6-Dec-18	9:50:00	6.70
6-Dec-18	9:52:00	6.40
6-Dec-18	9:54:00	6.10
6-Dec-18	9:56:00	5.80
6-Dec-18	9:58:00	6.10
6-Dec-18	10:00:00	0.60
6-Dec-18	10:02:00	0.30
6-Dec-18	10:04:00	0.30
6-Dec-18	10:06:00	0.30

6-Dec-18	10:08:00	0.00
6-Dec-18	10:10:00	0.00
6-Dec-18	10:12:00	0.00
6-Dec-18	10:14:00	0.00
6-Dec-18	10:16:00	0.00
6-Dec-18	10:18:00	0.00
6-Dec-18	10:20:00	0.00
6-Dec-18	10:22:00	0.00
6-Dec-18	10:24:00	0.00
6-Dec-18	10:26:00	0.00
6-Dec-18	10:28:00	0.00
6-Dec-18	10:30:00	0.00
6-Dec-18	10:32:00	0.00
6-Dec-18	10:34:00	0.00
6-Dec-18	10:36:00	0.00
6-Dec-18	10:38:00	0.00
6-Dec-18	10:40:00	0.00
6-Dec-18	10:42:00	0.00
6-Dec-18	10:44:00	0.00
6-Dec-18	10:46:00	0.00
6-Dec-18	10:48:00	0.00
6-Dec-18	10:50:00	0.00
6-Dec-18	10:52:00	0.00
6-Dec-18	10:54:00	0.00
6-Dec-18	10:56:00	0.00
6-Dec-18	10:58:00	0.00
6-Dec-18	11:00:00	0.00
6-Dec-18	11:02:00	0.00
6-Dec-18	11:04:00	0.00
6-Dec-18	11:06:00	0.30
6-Dec-18	11:08:00	0.60
6-Dec-18	11:10:00	0.90
6-Dec-18	11:12:00	0.30
6-Dec-18	11:14:00	0.00
6-Dec-18	11:16:00	0.00
6-Dec-18	11:18:00	0.00
6-Dec-18	11:20:00	0.00
6-Dec-18	11:22:00	0.00
6-Dec-18	11:24:00	0.00
6-Dec-18	11:26:00	0.00
6-Dec-18	11:28:00	0.00
6-Dec-18	11:30:00	0.00
6-Dec-18	11:32:00	0.00
6-Dec-18	11:34:00	0.00
6-Dec-18	11:36:00	0.00
6-Dec-18	11:38:00	0.00
6-Dec-18	11:40:00	0.00

6-Dec-18	11:42:00	0.00
6-Dec-18	11:44:00	0.00
6-Dec-18	11:46:00	0.00
6-Dec-18	11:48:00	0.00
6-Dec-18	11:50:00	0.00
6-Dec-18	11:52:00	0.00
6-Dec-18	11:54:00	0.00
6-Dec-18	11:56:00	0.00
6-Dec-18	11:58:00	0.00
6-Dec-18	12:00:00	0.00
6-Dec-18	12:02:00	0.00
6-Dec-18	12:04:00	0.00
6-Dec-18	12:06:00	0.00
6-Dec-18	12:08:00	0.00
6-Dec-18	12:10:00	0.00
6-Dec-18	12:12:00	0.00
6-Dec-18	12:14:00	0.10
6-Dec-18	12:16:00	0.10
6-Dec-18	12:18:00	0.10
6-Dec-18	12:20:00	0.30
6-Dec-18	12:22:00	0.30
6-Dec-18	12:24:00	0.30
6-Dec-18	12:26:00	0.30
6-Dec-18	12:28:00	0.30
6-Dec-18	12:30:00	0.00
6-Dec-18	12:32:00	0.00
6-Dec-18	12:34:00	0.00
6-Dec-18	12:36:00	0.00
6-Dec-18	12:38:00	0.00
6-Dec-18	12:40:00	0.00
6-Dec-18	12:42:00	0.00
6-Dec-18	12:44:00	0.00
6-Dec-18	12:46:00	0.00
6-Dec-18	12:48:00	0.00
6-Dec-18	12:50:00	0.00
6-Dec-18	12:52:00	0.00
6-Dec-18	12:54:00	0.00
6-Dec-18	12:56:00	0.00
6-Dec-18	12:58:00	0.00
6-Dec-18	13:00:00	0.00
6-Dec-18	13:02:00	0.00
6-Dec-18	13:04:00	0.00
6-Dec-18	13:06:00	0.00
6-Dec-18	13:08:00	0.00
6-Dec-18	13:10:00	0.00
6-Dec-18	13:12:00	0.10
6-Dec-18	13:14:00	0.10

6-Dec-18	13:16:00	0.10
6-Dec-18	13:18:00	0.10
6-Dec-18	13:20:00	0.10
6-Dec-18	13:22:00	0.10
6-Dec-18	13:24:00	0.10
6-Dec-18	13:26:00	0.10
6-Dec-18	13:28:00	0.10
6-Dec-18	13:30:00	0.10
6-Dec-18	13:32:00	0.00
6-Dec-18	13:34:00	0.00
6-Dec-18	13:36:00	0.00
6-Dec-18	13:38:00	0.00
6-Dec-18	13:40:00	0.00
6-Dec-18	13:42:00	0.00
6-Dec-18	13:44:00	0.00
6-Dec-18	13:46:00	0.00
6-Dec-18	13:48:00	0.00
6-Dec-18	13:50:00	0.00
6-Dec-18	13:52:00	0.00
6-Dec-18	13:54:00	0.00
6-Dec-18	13:56:00	0.00
6-Dec-18	13:58:00	0.00
6-Dec-18	14:00:00	0.00
6-Dec-18	14:02:00	0.00
6-Dec-18	14:04:00	0.00
6-Dec-18	14:06:00	0.00
6-Dec-18	14:08:00	0.00
6-Dec-18	14:10:00	0.00
6-Dec-18	14:12:00	0.00
6-Dec-18	14:14:00	0.00
6-Dec-18	14:16:00	0.00
6-Dec-18	14:18:00	0.00
6-Dec-18	14:20:00	0.00
6-Dec-18	14:22:00	0.10
6-Dec-18	14:24:00	0.10
6-Dec-18	14:26:00	0.10
6-Dec-18	14:28:00	0.10
6-Dec-18	14:30:00	0.10
6-Dec-18	14:32:00	0.00
6-Dec-18	14:34:00	0.00
6-Dec-18	14:36:00	0.00
6-Dec-18	14:38:00	0.00
6-Dec-18	14:40:00	0.00
6-Dec-18	14:42:00	0.00
6-Dec-18	14:44:00	0.00
6-Dec-18	14:46:00	0.00
6-Dec-18	14:48:00	0.00

6-Dec-18	14:50:00	0.00
6-Dec-18	14:52:00	0.00
6-Dec-18	14:54:00	0.00
6-Dec-18	14:56:00	0.00
6-Dec-18	14:58:00	0.00
6-Dec-18	15:00:00	0.00
6-Dec-18	15:02:00	0.10
6-Dec-18	15:04:00	0.10
6-Dec-18	15:06:00	0.10
6-Dec-18	15:08:00	0.10
6-Dec-18	15:10:00	0.10
6-Dec-18	15:12:00	0.10
6-Dec-18	15:14:00	0.10
6-Dec-18	15:16:00	0.10
6-Dec-18	15:18:00	0.10
6-Dec-18	15:20:00	0.10
6-Dec-18	15:22:00	0.00
6-Dec-18	15:24:00	0.00
6-Dec-18	15:26:00	0.00
6-Dec-18	15:28:00	0.00
6-Dec-18	15:30:00	0.00
6-Dec-18	15:32:00	0.00
6-Dec-18	15:34:00	0.00
6-Dec-18	15:36:00	0.00
6-Dec-18	15:38:00	0.00
6-Dec-18	15:40:00	0.00
6-Dec-18	15:42:00	0.00
6-Dec-18	15:44:00	0.00
6-Dec-18	15:46:00	0.00
6-Dec-18	15:48:00	0.00
6-Dec-18	15:50:00	0.00
6-Dec-18	15:52:00	0.00
6-Dec-18	15:54:00	0.00
6-Dec-18	15:56:00	0.00
6-Dec-18	15:58:00	0.00
6-Dec-18	16:00:00	0.00
6-Dec-18	16:02:00	0.00
6-Dec-18	16:04:00	0.00
6-Dec-18	16:06:00	0.00
6-Dec-18	16:08:00	0.00
6-Dec-18	16:10:00	0.00
6-Dec-18	16:12:00	0.00
6-Dec-18	16:14:00	0.00
6-Dec-18	16:16:00	0.00
6-Dec-18	16:18:00	0.00
6-Dec-18	16:20:00	0.00
6-Dec-18	16:22:00	0.00

6-Dec-18	16:24:00	0.00
6-Dec-18	16:26:00	0.00
6-Dec-18	16:28:00	0.00
6-Dec-18	16:30:00	0.00
6-Dec-18	16:32:00	0.00
6-Dec-18	16:34:00	0.00
6-Dec-18	16:36:00	0.00
6-Dec-18	16:38:00	0.00
6-Dec-18	16:40:00	0.00
6-Dec-18	16:42:00	0.00
6-Dec-18	16:44:00	0.00
6-Dec-18	16:46:00	0.00
6-Dec-18	16:48:00	0.00
6-Dec-18	16:50:00	0.00
6-Dec-18	16:52:00	0.00
6-Dec-18	16:54:00	0.00
6-Dec-18	16:56:00	0.00
6-Dec-18	16:58:00	0.00
6-Dec-18	17:00:00	0.00
6-Dec-18	17:02:00	0.00
6-Dec-18	17:04:00	0.00
6-Dec-18	17:06:00	0.00
6-Dec-18	17:08:00	0.00
6-Dec-18	17:10:00	0.00
6-Dec-18	17:12:00	0.00
6-Dec-18	17:14:00	0.00
6-Dec-18	17:16:00	0.00
6-Dec-18	17:18:00	0.00
6-Dec-18	17:20:00	0.00
6-Dec-18	17:22:00	0.00
6-Dec-18	17:24:00	0.00
6-Dec-18	17:26:00	0.00
6-Dec-18	17:28:00	0.00
6-Dec-18	17:30:00	0.00
6-Dec-18	17:32:00	0.00
6-Dec-18	17:34:00	0.00
6-Dec-18	17:36:00	0.00
6-Dec-18	17:38:00	0.00
6-Dec-18	17:40:00	0.00
6-Dec-18	17:42:00	0.00
6-Dec-18	17:44:00	0.00
6-Dec-18	17:46:00	0.00
6-Dec-18	17:48:00	0.00
6-Dec-18	17:50:00	0.00
6-Dec-18	17:52:00	0.00
6-Dec-18	17:54:00	0.00
6-Dec-18	17:56:00	0.00

6-Dec-18	17:58:00	0.00
6-Dec-18	18:00:00	0.00
6-Dec-18	18:02:00	0.00
6-Dec-18	18:04:00	0.00
6-Dec-18	18:06:00	0.00
6-Dec-18	18:08:00	0.00
6-Dec-18	18:10:00	0.00
6-Dec-18	18:12:00	0.00
6-Dec-18	18:14:00	0.00
6-Dec-18	18:16:00	0.00
6-Dec-18	18:18:00	0.00
6-Dec-18	18:20:00	0.00
6-Dec-18	18:22:00	0.00
6-Dec-18	18:24:00	0.00
6-Dec-18	18:26:00	0.00
6-Dec-18	18:28:00	0.00
6-Dec-18	18:30:00	0.00
6-Dec-18	18:32:00	0.00
6-Dec-18	18:34:00	0.00
6-Dec-18	18:36:00	0.00
6-Dec-18	18:38:00	0.00
6-Dec-18	18:40:00	0.00
6-Dec-18	18:42:00	0.00
6-Dec-18	18:44:00	0.00
6-Dec-18	18:46:00	0.00
6-Dec-18	18:48:00	0.00
6-Dec-18	18:50:00	0.00
6-Dec-18	18:52:00	0.00
6-Dec-18	18:54:00	0.00
6-Dec-18	18:56:00	0.00
6-Dec-18	18:58:00	0.00
6-Dec-18	19:00:00	0.00
10-Dec-18	6:00:00	0.00
10-Dec-18	6:02:00	0.00
10-Dec-18	6:04:00	0.00
10-Dec-18	6:06:00	0.00
10-Dec-18	6:08:00	0.00
10-Dec-18	6:10:00	0.00
10-Dec-18	6:12:00	0.00
10-Dec-18	6:14:00	0.00
10-Dec-18	6:16:00	0.00
10-Dec-18	6:18:00	0.00
10-Dec-18	6:20:00	0.00
10-Dec-18	6:22:00	0.00
10-Dec-18	6:24:00	0.00
10-Dec-18	6:26:00	0.00
10-Dec-18	6:28:00	0.00

10-Dec-18	6:30:00	0.00
10-Dec-18	6:32:00	0.00
10-Dec-18	6:34:00	0.00
10-Dec-18	6:36:00	0.00
10-Dec-18	6:38:00	0.00
10-Dec-18	6:40:00	0.00
10-Dec-18	6:42:00	0.00
10-Dec-18	6:44:00	0.00
10-Dec-18	6:46:00	0.10
10-Dec-18	6:48:00	0.10
10-Dec-18	6:50:00	0.10
10-Dec-18	6:52:00	0.10
10-Dec-18	6:54:00	0.10
10-Dec-18	6:56:00	0.00
10-Dec-18	6:58:00	0.00
10-Dec-18	7:00:00	0.00
10-Dec-18	7:02:00	0.00
10-Dec-18	7:04:00	0.00
10-Dec-18	7:06:00	0.00
10-Dec-18	7:08:00	0.00
10-Dec-18	7:10:00	0.00
10-Dec-18	7:12:00	0.00
10-Dec-18	7:14:00	0.00
10-Dec-18	7:16:00	0.10
10-Dec-18	7:18:00	0.10
10-Dec-18	7:20:00	0.10
10-Dec-18	7:22:00	0.10
10-Dec-18	7:24:00	0.10
10-Dec-18	7:26:00	0.10
10-Dec-18	7:28:00	0.10
10-Dec-18	7:30:00	0.10
10-Dec-18	7:32:00	0.10
10-Dec-18	7:34:00	0.10
10-Dec-18	7:36:00	0.10
10-Dec-18	7:38:00	0.10
10-Dec-18	7:40:00	0.10
10-Dec-18	7:42:00	0.10
10-Dec-18	7:44:00	0.10
10-Dec-18	7:46:00	0.10
10-Dec-18	7:48:00	0.10
10-Dec-18	7:50:00	0.10
10-Dec-18	7:52:00	0.10
10-Dec-18	7:54:00	0.10
10-Dec-18	7:56:00	0.10
10-Dec-18	7:58:00	0.10
10-Dec-18	8:00:00	0.10
10-Dec-18	8:02:00	0.10

10-Dec-18	8:04:00	0.10
10-Dec-18	8:06:00	0.10
10-Dec-18	8:08:00	0.10
10-Dec-18	8:10:00	0.10
10-Dec-18	8:12:00	0.10
10-Dec-18	8:14:00	0.10
10-Dec-18	8:16:00	0.10
10-Dec-18	8:18:00	0.10
10-Dec-18	8:20:00	0.10
10-Dec-18	8:22:00	0.10
10-Dec-18	8:24:00	0.10
10-Dec-18	8:26:00	0.10
10-Dec-18	8:28:00	0.10
10-Dec-18	8:30:00	0.10
10-Dec-18	8:32:00	0.10
10-Dec-18	8:34:00	0.10
10-Dec-18	8:36:00	0.10
10-Dec-18	8:38:00	0.10
10-Dec-18	8:40:00	0.10
10-Dec-18	8:42:00	0.10
10-Dec-18	8:44:00	0.10
10-Dec-18	8:46:00	0.20
10-Dec-18	8:48:00	0.20
10-Dec-18	8:50:00	0.20
10-Dec-18	8:52:00	0.20
10-Dec-18	8:54:00	0.20
10-Dec-18	8:56:00	0.10
10-Dec-18	8:58:00	0.10
10-Dec-18	9:00:00	0.10
10-Dec-18	9:02:00	0.10
10-Dec-18	9:04:00	0.10
10-Dec-18	9:06:00	0.10
10-Dec-18	9:08:00	0.10
10-Dec-18	9:10:00	0.10
10-Dec-18	9:12:00	0.10
10-Dec-18	9:14:00	0.10
10-Dec-18	9:16:00	0.10
10-Dec-18	9:18:00	0.10
10-Dec-18	9:20:00	0.10
10-Dec-18	9:22:00	0.10
10-Dec-18	9:24:00	0.10
10-Dec-18	9:26:00	0.20
10-Dec-18	9:28:00	0.20
10-Dec-18	9:30:00	0.20
10-Dec-18	9:32:00	0.20
10-Dec-18	9:34:00	0.30
10-Dec-18	9:36:00	0.30

10-Dec-18	9:38:00	0.60
10-Dec-18	9:40:00	1.50
10-Dec-18	9:42:00	2.10
10-Dec-18	9:44:00	2.40
10-Dec-18	9:46:00	2.70
10-Dec-18	9:48:00	2.70
10-Dec-18	9:50:00	2.70
10-Dec-18	9:52:00	2.40
10-Dec-18	9:54:00	2.40
10-Dec-18	9:56:00	2.10
10-Dec-18	9:58:00	2.10
10-Dec-18	10:00:00	2.10
10-Dec-18	10:02:00	1.80
10-Dec-18	10:04:00	1.80
10-Dec-18	10:06:00	1.50
10-Dec-18	10:08:00	1.20
10-Dec-18	10:10:00	1.20
10-Dec-18	10:12:00	0.90
10-Dec-18	10:14:00	0.90
10-Dec-18	10:16:00	0.60
10-Dec-18	10:18:00	2.70
10-Dec-18	10:20:00	7.10
10-Dec-18	10:22:00	6.50
10-Dec-18	10:24:00	5.90
10-Dec-18	10:26:00	5.50
10-Dec-18	10:28:00	5.20
10-Dec-18	10:30:00	4.90
10-Dec-18	10:32:00	4.90
10-Dec-18	10:34:00	4.90
10-Dec-18	10:36:00	4.90
10-Dec-18	10:38:00	4.90
10-Dec-18	10:40:00	4.80
10-Dec-18	10:42:00	4.60
10-Dec-18	10:44:00	4.30
10-Dec-18	10:46:00	4.30
10-Dec-18	10:48:00	4.30
10-Dec-18	10:50:00	4.30
10-Dec-18	10:52:00	4.30
10-Dec-18	10:54:00	4.60
10-Dec-18	10:56:00	4.60
10-Dec-18	10:58:00	4.60
10-Dec-18	11:00:00	4.60
10-Dec-18	11:02:00	4.60
10-Dec-18	11:04:00	4.40
10-Dec-18	11:06:00	4.30
10-Dec-18	11:08:00	4.30
10-Dec-18	11:10:00	4.30

10-Dec-18	11:12:00	4.30
10-Dec-18	11:14:00	4.30
10-Dec-18	11:16:00	4.30
10-Dec-18	11:18:00	0.00
10-Dec-18	11:20:00	0.00
10-Dec-18	11:22:00	0.00
10-Dec-18	11:24:00	0.00
10-Dec-18	11:26:00	0.00
10-Dec-18	11:28:00	0.10
10-Dec-18	11:30:00	0.10
10-Dec-18	11:32:00	0.10
10-Dec-18	11:34:00	0.10
10-Dec-18	11:36:00	0.10
10-Dec-18	11:38:00	0.10
10-Dec-18	11:40:00	0.10
10-Dec-18	11:42:00	0.10
10-Dec-18	11:44:00	0.10
10-Dec-18	11:46:00	0.10
10-Dec-18	11:48:00	0.00
10-Dec-18	11:50:00	0.00
10-Dec-18	11:52:00	0.00
10-Dec-18	11:54:00	0.00
10-Dec-18	11:56:00	0.00
10-Dec-18	11:58:00	0.00
10-Dec-18	12:00:00	0.00
10-Dec-18	12:02:00	0.00
10-Dec-18	12:04:00	0.00
10-Dec-18	12:06:00	0.00
10-Dec-18	12:08:00	0.00
10-Dec-18	12:10:00	0.00
10-Dec-18	12:12:00	0.00
10-Dec-18	12:14:00	0.00
10-Dec-18	12:16:00	0.00
10-Dec-18	12:18:00	0.00
10-Dec-18	12:20:00	0.00
10-Dec-18	12:22:00	0.00
10-Dec-18	12:24:00	0.00
10-Dec-18	12:26:00	0.00
10-Dec-18	12:28:00	0.00
10-Dec-18	12:30:00	0.00
10-Dec-18	12:32:00	0.00
10-Dec-18	12:34:00	0.00
10-Dec-18	12:36:00	0.00
10-Dec-18	12:38:00	5.00
10-Dec-18	12:40:00	4.50
10-Dec-18	12:42:00	4.10
10-Dec-18	12:44:00	4.10

10-Dec-18	12:46:00	3.70
10-Dec-18	12:48:00	3.40
10-Dec-18	12:50:00	3.10
10-Dec-18	12:52:00	3.10
10-Dec-18	12:54:00	3.10
10-Dec-18	12:56:00	3.10
10-Dec-18	12:58:00	3.40
10-Dec-18	13:00:00	3.40
10-Dec-18	13:02:00	3.40
10-Dec-18	13:04:00	3.40
10-Dec-18	13:06:00	3.40
10-Dec-18	13:08:00	3.30
10-Dec-18	13:10:00	3.30
10-Dec-18	13:12:00	3.30
10-Dec-18	13:14:00	3.30
10-Dec-18	13:16:00	3.30
10-Dec-18	13:18:00	3.50
10-Dec-18	13:20:00	3.50
10-Dec-18	13:22:00	3.50
10-Dec-18	13:24:00	3.80
10-Dec-18	13:26:00	3.80
10-Dec-18	13:28:00	0.00
10-Dec-18	13:30:00	0.00
10-Dec-18	13:32:00	0.00
10-Dec-18	13:34:00	0.00
10-Dec-18	13:36:00	0.00
10-Dec-18	13:38:00	0.00
10-Dec-18	13:40:00	0.00
10-Dec-18	13:42:00	0.00
10-Dec-18	13:44:00	0.00
10-Dec-18	13:46:00	0.00
10-Dec-18	13:48:00	0.00
10-Dec-18	13:50:00	0.00
10-Dec-18	13:52:00	0.00
10-Dec-18	13:54:00	0.00
10-Dec-18	13:56:00	0.00
10-Dec-18	13:58:00	0.00
10-Dec-18	14:00:00	0.00
10-Dec-18	14:02:00	0.00
10-Dec-18	14:04:00	0.00
10-Dec-18	14:06:00	0.00
10-Dec-18	14:08:00	0.00
10-Dec-18	14:10:00	0.00
10-Dec-18	14:12:00	0.00
10-Dec-18	14:14:00	0.00
10-Dec-18	14:16:00	0.00
10-Dec-18	14:18:00	0.00

10-Dec-18	14:20:00	0.00
10-Dec-18	14:22:00	0.00
10-Dec-18	14:24:00	0.00
10-Dec-18	14:26:00	0.00
10-Dec-18	14:28:00	0.00
10-Dec-18	14:30:00	0.00
10-Dec-18	14:32:00	0.00
10-Dec-18	14:34:00	0.00
10-Dec-18	14:36:00	0.00
10-Dec-18	14:38:00	0.00
10-Dec-18	14:40:00	0.00
10-Dec-18	14:42:00	0.00
10-Dec-18	14:44:00	0.00
10-Dec-18	14:46:00	0.00
10-Dec-18	14:48:00	0.00
10-Dec-18	14:50:00	0.00
10-Dec-18	14:52:00	0.00
10-Dec-18	14:54:00	0.00
10-Dec-18	14:56:00	0.00
10-Dec-18	14:58:00	0.00
10-Dec-18	15:00:00	0.00
10-Dec-18	15:02:00	0.00
10-Dec-18	15:04:00	0.00
10-Dec-18	15:06:00	0.00
10-Dec-18	15:08:00	0.00
10-Dec-18	15:10:00	0.00
10-Dec-18	15:12:00	0.00
10-Dec-18	15:14:00	0.00
10-Dec-18	15:16:00	0.00
10-Dec-18	15:18:00	0.00
10-Dec-18	15:20:00	0.00
10-Dec-18	15:22:00	0.00
10-Dec-18	15:24:00	0.00
10-Dec-18	15:26:00	0.00
10-Dec-18	15:28:00	0.00
10-Dec-18	15:30:00	0.00
10-Dec-18	15:32:00	0.00
10-Dec-18	15:34:00	0.00
10-Dec-18	15:36:00	0.00
10-Dec-18	15:38:00	0.00
10-Dec-18	15:40:00	0.00
10-Dec-18	15:42:00	0.00
10-Dec-18	15:44:00	0.00
10-Dec-18	15:46:00	0.00
10-Dec-18	15:48:00	0.00
10-Dec-18	15:50:00	0.00
10-Dec-18	15:52:00	0.00

10-Dec-18	15:54:00	0.00
10-Dec-18	15:56:00	0.00
10-Dec-18	15:58:00	0.00
10-Dec-18	16:00:00	0.00
10-Dec-18	16:02:00	0.00
10-Dec-18	16:04:00	0.00
10-Dec-18	16:06:00	0.00
10-Dec-18	16:08:00	0.00
10-Dec-18	16:10:00	0.00
10-Dec-18	16:12:00	0.00
10-Dec-18	16:14:00	0.00
10-Dec-18	16:16:00	0.00
10-Dec-18	16:18:00	0.00
10-Dec-18	16:20:00	0.00
10-Dec-18	16:22:00	0.00
10-Dec-18	16:24:00	0.00
10-Dec-18	16:26:00	0.00
10-Dec-18	16:28:00	0.00
10-Dec-18	16:30:00	0.00
10-Dec-18	16:32:00	0.00
10-Dec-18	16:34:00	0.00
10-Dec-18	16:36:00	0.00
10-Dec-18	16:38:00	0.00
10-Dec-18	16:40:00	0.00
10-Dec-18	16:42:00	0.00
10-Dec-18	16:44:00	0.00
10-Dec-18	16:46:00	0.00
10-Dec-18	16:48:00	0.00
10-Dec-18	16:50:00	0.00
10-Dec-18	16:52:00	0.00
10-Dec-18	16:54:00	0.00
10-Dec-18	16:56:00	0.00
10-Dec-18	16:58:00	0.00
10-Dec-18	17:00:00	0.00
10-Dec-18	17:02:00	0.00
10-Dec-18	17:04:00	0.00
10-Dec-18	17:06:00	0.00
10-Dec-18	17:08:00	0.00
10-Dec-18	17:10:00	0.00
10-Dec-18	17:12:00	0.00
10-Dec-18	17:14:00	0.00
10-Dec-18	17:16:00	0.00
10-Dec-18	17:18:00	0.00
10-Dec-18	17:20:00	0.00
10-Dec-18	17:22:00	0.00
10-Dec-18	17:24:00	0.00
10-Dec-18	17:26:00	0.00

10-Dec-18	17:28:00	0.00
10-Dec-18	17:30:00	0.00
10-Dec-18	17:32:00	0.00
10-Dec-18	17:34:00	0.00
10-Dec-18	17:36:00	0.00
10-Dec-18	17:38:00	0.00
10-Dec-18	17:40:00	0.00
10-Dec-18	17:42:00	0.00
10-Dec-18	17:44:00	0.00
10-Dec-18	17:46:00	0.00
10-Dec-18	17:48:00	0.00
10-Dec-18	17:50:00	0.00
10-Dec-18	17:52:00	0.00
10-Dec-18	17:54:00	0.00
10-Dec-18	17:56:00	0.00
10-Dec-18	17:58:00	0.00
10-Dec-18	18:00:00	0.00
10-Dec-18	18:02:00	0.00
10-Dec-18	18:04:00	0.00
10-Dec-18	18:06:00	0.00
10-Dec-18	18:08:00	0.00
10-Dec-18	18:10:00	0.00
10-Dec-18	18:12:00	0.00
10-Dec-18	18:14:00	0.00
10-Dec-18	18:16:00	0.00
10-Dec-18	18:18:00	0.00
10-Dec-18	18:20:00	0.00
10-Dec-18	18:22:00	0.00
10-Dec-18	18:24:00	0.00
10-Dec-18	18:26:00	0.00
10-Dec-18	18:28:00	0.00
10-Dec-18	18:30:00	0.00
10-Dec-18	18:32:00	0.00
10-Dec-18	18:34:00	0.00
10-Dec-18	18:36:00	0.00
10-Dec-18	18:38:00	0.00
10-Dec-18	18:40:00	0.00
10-Dec-18	18:42:00	0.00
10-Dec-18	18:44:00	0.00
10-Dec-18	18:46:00	0.00
10-Dec-18	18:48:00	0.00
10-Dec-18	18:50:00	0.00
10-Dec-18	18:52:00	0.00
10-Dec-18	18:54:00	0.00
10-Dec-18	18:56:00	0.00
10-Dec-18	18:58:00	0.00
10-Dec-18	19:00:00	0.00

11-Dec-18	6:00:00	0.00
11-Dec-18	6:02:00	0.00
11-Dec-18	6:04:00	0.00
11-Dec-18	6:06:00	0.00
11-Dec-18	6:08:00	0.00
11-Dec-18	6:10:00	0.10
11-Dec-18	6:12:00	0.10
11-Dec-18	6:14:00	0.10
11-Dec-18	6:16:00	0.10
11-Dec-18	6:18:00	0.10
11-Dec-18	6:20:00	0.10
11-Dec-18	6:22:00	0.10
11-Dec-18	6:24:00	0.10
11-Dec-18	6:26:00	0.10
11-Dec-18	6:28:00	0.10
11-Dec-18	6:30:00	0.10
11-Dec-18	6:32:00	0.10
11-Dec-18	6:34:00	0.10
11-Dec-18	6:36:00	0.10
11-Dec-18	6:38:00	0.10
11-Dec-18	6:40:00	0.10
11-Dec-18	6:42:00	0.10
11-Dec-18	6:44:00	0.10
11-Dec-18	6:46:00	0.10
11-Dec-18	6:48:00	0.10
11-Dec-18	6:50:00	0.00
11-Dec-18	6:52:00	0.00
11-Dec-18	6:54:00	0.00
11-Dec-18	6:56:00	0.00
11-Dec-18	6:58:00	0.00
11-Dec-18	7:00:00	0.00
11-Dec-18	7:02:00	0.00
11-Dec-18	7:04:00	0.00
11-Dec-18	7:06:00	0.00
11-Dec-18	7:08:00	0.00
11-Dec-18	7:10:00	0.00
11-Dec-18	7:12:00	0.00
11-Dec-18	7:14:00	0.00
11-Dec-18	7:16:00	0.00
11-Dec-18	7:18:00	0.00
11-Dec-18	7:20:00	0.10
11-Dec-18	7:22:00	0.10
11-Dec-18	7:24:00	0.10
11-Dec-18	7:26:00	0.10
11-Dec-18	7:28:00	0.10
11-Dec-18	7:30:00	0.00
11-Dec-18	7:32:00	0.00

11-Dec-18	7:34:00	0.00
11-Dec-18	7:36:00	0.00
11-Dec-18	7:38:00	0.00
11-Dec-18	7:40:00	0.00
11-Dec-18	7:42:00	0.00
11-Dec-18	7:44:00	0.00
11-Dec-18	7:46:00	0.00
11-Dec-18	7:48:00	0.00
11-Dec-18	7:50:00	0.10
11-Dec-18	7:52:00	0.10
11-Dec-18	7:54:00	0.10
11-Dec-18	7:56:00	0.10
11-Dec-18	7:58:00	0.10
11-Dec-18	8:00:00	0.10
11-Dec-18	8:02:00	0.10
11-Dec-18	8:04:00	0.10
11-Dec-18	8:06:00	0.10
11-Dec-18	8:08:00	0.10
11-Dec-18	8:10:00	0.20
11-Dec-18	8:12:00	0.20
11-Dec-18	8:14:00	0.20
11-Dec-18	8:16:00	0.20
11-Dec-18	8:18:00	0.20
11-Dec-18	8:20:00	0.20
11-Dec-18	8:22:00	0.20
11-Dec-18	8:24:00	0.20
11-Dec-18	8:26:00	0.20
11-Dec-18	8:28:00	0.20
11-Dec-18	8:30:00	0.30
11-Dec-18	8:32:00	0.30
11-Dec-18	8:34:00	0.30
11-Dec-18	8:36:00	0.30
11-Dec-18	8:38:00	0.30
11-Dec-18	8:40:00	0.00
11-Dec-18	8:42:00	0.00
11-Dec-18	8:44:00	0.00
11-Dec-18	8:46:00	0.00
11-Dec-18	8:48:00	0.00
11-Dec-18	8:50:00	0.00
11-Dec-18	8:52:00	0.00
11-Dec-18	8:54:00	0.00
11-Dec-18	8:56:00	0.00
11-Dec-18	8:58:00	0.00
11-Dec-18	9:00:00	0.20
11-Dec-18	9:02:00	0.20
11-Dec-18	9:04:00	0.20
11-Dec-18	9:06:00	0.20

11-Dec-18	9:08:00	0.20
11-Dec-18	9:10:00	0.20
11-Dec-18	9:12:00	0.20
11-Dec-18	9:14:00	0.20
11-Dec-18	9:16:00	0.20
11-Dec-18	9:18:00	0.20
11-Dec-18	9:20:00	0.30
11-Dec-18	9:22:00	0.30
11-Dec-18	9:24:00	0.30
11-Dec-18	9:26:00	0.30
11-Dec-18	9:28:00	0.30
11-Dec-18	9:30:00	0.40
11-Dec-18	9:32:00	0.40
11-Dec-18	9:34:00	0.40
11-Dec-18	9:36:00	0.40
11-Dec-18	9:38:00	0.40
11-Dec-18	9:40:00	0.70
11-Dec-18	9:42:00	0.70
11-Dec-18	9:44:00	0.70
11-Dec-18	9:46:00	0.70
11-Dec-18	9:48:00	0.70
11-Dec-18	9:50:00	0.90
11-Dec-18	9:52:00	1.00
11-Dec-18	9:54:00	1.00
11-Dec-18	9:56:00	0.70
11-Dec-18	9:58:00	0.70
11-Dec-18	10:00:00	0.70
11-Dec-18	10:02:00	0.70
11-Dec-18	10:04:00	1.00
11-Dec-18	10:06:00	0.70
11-Dec-18	10:08:00	0.70
11-Dec-18	10:10:00	0.70
11-Dec-18	10:12:00	0.40
11-Dec-18	10:14:00	0.40
11-Dec-18	10:16:00	0.40
11-Dec-18	10:18:00	0.40
11-Dec-18	10:20:00	0.40
11-Dec-18	10:22:00	0.20
11-Dec-18	10:24:00	0.10
11-Dec-18	10:26:00	0.10
11-Dec-18	10:28:00	0.10
11-Dec-18	10:30:00	0.10
11-Dec-18	10:32:00	0.10
11-Dec-18	10:34:00	0.00
11-Dec-18	10:36:00	0.00
11-Dec-18	10:38:00	0.00
11-Dec-18	10:40:00	0.00

11-Dec-18	10:42:00	0.00
11-Dec-18	10:44:00	0.30
11-Dec-18	10:46:00	0.40
11-Dec-18	10:48:00	0.40
11-Dec-18	10:50:00	0.70
11-Dec-18	10:52:00	1.00
11-Dec-18	10:54:00	1.00
11-Dec-18	10:56:00	1.00
11-Dec-18	10:58:00	1.00
11-Dec-18	11:00:00	1.00
11-Dec-18	11:02:00	1.20
11-Dec-18	11:04:00	1.20
11-Dec-18	11:06:00	1.20
11-Dec-18	11:08:00	1.20
11-Dec-18	11:10:00	1.20
11-Dec-18	11:12:00	1.20
11-Dec-18	11:14:00	0.70
11-Dec-18	11:16:00	0.40
11-Dec-18	11:18:00	0.40
11-Dec-18	11:20:00	0.10
11-Dec-18	11:22:00	0.10
11-Dec-18	11:24:00	0.10
11-Dec-18	11:26:00	0.10
11-Dec-18	11:28:00	0.10
11-Dec-18	11:30:00	0.30
11-Dec-18	11:32:00	0.30
11-Dec-18	11:34:00	0.30
11-Dec-18	11:36:00	0.30
11-Dec-18	11:38:00	0.30
11-Dec-18	11:40:00	0.00
11-Dec-18	11:42:00	0.00
11-Dec-18	11:44:00	0.00
11-Dec-18	11:46:00	0.00
11-Dec-18	11:48:00	0.00
11-Dec-18	11:50:00	0.20
11-Dec-18	11:52:00	0.40
11-Dec-18	11:54:00	0.70
11-Dec-18	11:56:00	0.70
11-Dec-18	11:58:00	0.70
11-Dec-18	12:00:00	0.40
11-Dec-18	12:02:00	0.40
11-Dec-18	12:04:00	0.10
11-Dec-18	12:06:00	0.10
11-Dec-18	12:08:00	0.10
11-Dec-18	12:10:00	0.10
11-Dec-18	12:12:00	0.10
11-Dec-18	12:14:00	0.10

11-Dec-18	12:16:00	0.40
11-Dec-18	12:18:00	0.40
11-Dec-18	12:20:00	0.40
11-Dec-18	12:22:00	0.40
11-Dec-18	12:24:00	0.40
11-Dec-18	12:26:00	0.10
11-Dec-18	12:28:00	0.10
11-Dec-18	12:30:00	0.10
11-Dec-18	12:32:00	0.10
11-Dec-18	12:34:00	0.10
11-Dec-18	12:36:00	0.00
11-Dec-18	12:38:00	0.00
11-Dec-18	12:40:00	0.00
11-Dec-18	12:42:00	0.00
11-Dec-18	12:44:00	0.00
11-Dec-18	12:46:00	5.90
11-Dec-18	12:48:00	5.00
11-Dec-18	12:50:00	4.70
11-Dec-18	12:52:00	4.10
11-Dec-18	12:54:00	4.10
11-Dec-18	12:56:00	3.80
11-Dec-18	12:58:00	3.50
11-Dec-18	13:00:00	3.50
11-Dec-18	13:02:00	3.50
11-Dec-18	13:04:00	3.50
11-Dec-18	13:06:00	3.50
11-Dec-18	13:08:00	3.50
11-Dec-18	13:10:00	3.50
11-Dec-18	13:12:00	3.50
11-Dec-18	13:14:00	3.50
11-Dec-18	13:16:00	3.50
11-Dec-18	13:18:00	0.10
11-Dec-18	13:20:00	0.10
11-Dec-18	13:22:00	0.10
11-Dec-18	13:24:00	0.10
11-Dec-18	13:26:00	0.10
11-Dec-18	13:28:00	0.00
11-Dec-18	13:30:00	0.00
11-Dec-18	13:32:00	0.00
11-Dec-18	13:34:00	0.00
11-Dec-18	13:36:00	0.00
11-Dec-18	13:38:00	0.00
11-Dec-18	13:40:00	0.00
11-Dec-18	13:42:00	0.00
11-Dec-18	13:44:00	0.00
11-Dec-18	13:46:00	0.00
11-Dec-18	13:48:00	0.00

11-Dec-18	13:50:00	0.00
11-Dec-18	13:52:00	0.00
11-Dec-18	13:54:00	0.00
11-Dec-18	13:56:00	0.00
11-Dec-18	13:58:00	0.00
11-Dec-18	14:00:00	0.00
11-Dec-18	14:02:00	0.00
11-Dec-18	14:04:00	0.00
11-Dec-18	14:06:00	0.00
11-Dec-18	14:08:00	0.00
11-Dec-18	14:10:00	0.00
11-Dec-18	14:12:00	0.00
11-Dec-18	14:14:00	0.00
11-Dec-18	14:16:00	0.00
11-Dec-18	14:18:00	0.00
11-Dec-18	14:20:00	0.00
11-Dec-18	14:22:00	0.00
11-Dec-18	14:24:00	0.00
11-Dec-18	14:26:00	0.00
11-Dec-18	14:28:00	0.00
11-Dec-18	14:30:00	0.00
11-Dec-18	14:32:00	0.00
11-Dec-18	14:34:00	0.00
11-Dec-18	14:36:00	0.00
11-Dec-18	14:38:00	0.00
11-Dec-18	14:40:00	0.00
11-Dec-18	14:42:00	0.00
11-Dec-18	14:44:00	0.00
11-Dec-18	14:46:00	0.00
11-Dec-18	14:48:00	0.00
11-Dec-18	14:50:00	0.00
11-Dec-18	14:52:00	0.00
11-Dec-18	14:54:00	0.00
11-Dec-18	14:56:00	0.00
11-Dec-18	14:58:00	0.00
11-Dec-18	15:00:00	0.00
11-Dec-18	15:02:00	0.00
11-Dec-18	15:04:00	0.00
11-Dec-18	15:06:00	0.00
11-Dec-18	15:08:00	0.00
11-Dec-18	15:10:00	0.00
11-Dec-18	15:12:00	0.00
11-Dec-18	15:14:00	0.00
11-Dec-18	15:16:00	0.00
11-Dec-18	15:18:00	0.00
11-Dec-18	15:20:00	0.00
11-Dec-18	15:22:00	0.00

11-Dec-18	15:24:00	0.00
11-Dec-18	15:26:00	0.00
11-Dec-18	15:28:00	0.00
11-Dec-18	15:30:00	0.00
11-Dec-18	15:32:00	0.00
11-Dec-18	15:34:00	0.00
11-Dec-18	15:36:00	0.00
11-Dec-18	15:38:00	0.00
11-Dec-18	15:40:00	0.00
11-Dec-18	15:42:00	0.00
11-Dec-18	15:44:00	0.00
11-Dec-18	15:46:00	0.00
11-Dec-18	15:48:00	0.00
11-Dec-18	15:50:00	0.00
11-Dec-18	15:52:00	0.00
11-Dec-18	15:54:00	0.00
11-Dec-18	15:56:00	0.00
11-Dec-18	15:58:00	0.00
11-Dec-18	16:00:00	0.00
11-Dec-18	16:02:00	0.00
11-Dec-18	16:04:00	0.00
11-Dec-18	16:06:00	0.00
11-Dec-18	16:08:00	0.00
11-Dec-18	16:10:00	0.00
11-Dec-18	16:12:00	0.00
11-Dec-18	16:14:00	0.00
11-Dec-18	16:16:00	0.00
11-Dec-18	16:18:00	0.00
11-Dec-18	16:20:00	0.00
11-Dec-18	16:22:00	0.00
11-Dec-18	16:24:00	0.00
11-Dec-18	16:26:00	0.00
11-Dec-18	16:28:00	0.00
11-Dec-18	16:30:00	0.00
11-Dec-18	16:32:00	0.00
11-Dec-18	16:34:00	0.00
11-Dec-18	16:36:00	0.00
11-Dec-18	16:38:00	0.00
11-Dec-18	16:40:00	0.00
11-Dec-18	16:42:00	0.00
11-Dec-18	16:44:00	0.00
11-Dec-18	16:46:00	0.00
11-Dec-18	16:48:00	0.00
11-Dec-18	16:50:00	0.00
11-Dec-18	16:52:00	0.00
11-Dec-18	16:54:00	0.00
11-Dec-18	16:56:00	0.00

11-Dec-18	16:58:00	0.00
11-Dec-18	17:00:00	0.00
11-Dec-18	17:02:00	0.00
11-Dec-18	17:04:00	0.00
11-Dec-18	17:06:00	0.00
11-Dec-18	17:08:00	0.00
11-Dec-18	17:10:00	0.00
11-Dec-18	17:12:00	0.00
11-Dec-18	17:14:00	0.00
11-Dec-18	17:16:00	0.00
11-Dec-18	17:18:00	0.00
11-Dec-18	17:20:00	0.00
11-Dec-18	17:22:00	0.00
11-Dec-18	17:24:00	0.00
11-Dec-18	17:26:00	0.00
11-Dec-18	17:28:00	0.00
11-Dec-18	17:30:00	0.00
11-Dec-18	17:32:00	0.00
11-Dec-18	17:34:00	0.00
11-Dec-18	17:36:00	0.00
11-Dec-18	17:38:00	0.00
11-Dec-18	17:40:00	0.00
11-Dec-18	17:42:00	0.00
11-Dec-18	17:44:00	0.00
11-Dec-18	17:46:00	0.00
11-Dec-18	17:48:00	0.00
11-Dec-18	17:50:00	0.00
11-Dec-18	17:52:00	0.00
11-Dec-18	17:54:00	0.00
11-Dec-18	17:56:00	0.00
11-Dec-18	17:58:00	0.00
11-Dec-18	18:00:00	0.00
11-Dec-18	18:02:00	0.00
11-Dec-18	18:04:00	0.00
11-Dec-18	18:06:00	0.00
11-Dec-18	18:08:00	0.00
11-Dec-18	18:10:00	0.00
11-Dec-18	18:12:00	0.00
11-Dec-18	18:14:00	0.00
11-Dec-18	18:16:00	0.00
11-Dec-18	18:18:00	0.00
11-Dec-18	18:20:00	0.00
11-Dec-18	18:22:00	0.00
11-Dec-18	18:24:00	0.00
11-Dec-18	18:26:00	0.00
11-Dec-18	18:28:00	0.00
11-Dec-18	18:30:00	0.00

11-Dec-18	18:32:00	0.00
11-Dec-18	18:34:00	0.00
11-Dec-18	18:36:00	0.00
11-Dec-18	18:38:00	0.00
11-Dec-18	18:40:00	0.00
11-Dec-18	18:42:00	0.00
11-Dec-18	18:44:00	0.00
11-Dec-18	18:46:00	0.00
11-Dec-18	18:48:00	0.10
11-Dec-18	18:50:00	0.10
11-Dec-18	18:52:00	0.10
11-Dec-18	18:54:00	0.10
11-Dec-18	18:56:00	0.10
11-Dec-18	18:58:00	0.10
11-Dec-18	19:00:00	0.10
12-Dec-18	6:00:00	0.00
12-Dec-18	6:02:00	0.00
12-Dec-18	6:04:00	0.00
12-Dec-18	6:06:00	0.00
12-Dec-18	6:08:00	0.00
12-Dec-18	6:10:00	0.00
12-Dec-18	6:12:00	0.00
12-Dec-18	6:14:00	0.00
12-Dec-18	6:16:00	0.00
12-Dec-18	6:18:00	0.00
12-Dec-18	6:20:00	0.00
12-Dec-18	6:22:00	0.00
12-Dec-18	6:24:00	0.00
12-Dec-18	6:26:00	0.00
12-Dec-18	6:28:00	0.00
12-Dec-18	6:30:00	0.00
12-Dec-18	6:32:00	0.00
12-Dec-18	6:34:00	0.00
12-Dec-18	6:36:00	0.00
12-Dec-18	6:38:00	0.00
12-Dec-18	6:40:00	0.00
12-Dec-18	6:42:00	0.00
12-Dec-18	6:44:00	0.00
12-Dec-18	6:46:00	0.00
12-Dec-18	6:48:00	0.00
12-Dec-18	6:50:00	0.00
12-Dec-18	6:52:00	0.00
12-Dec-18	6:54:00	0.00
12-Dec-18	6:56:00	0.00
12-Dec-18	6:58:00	0.00
12-Dec-18	7:00:00	0.00
12-Dec-18	7:02:00	0.00

12-Dec-18	7:04:00	0.00
12-Dec-18	7:06:00	0.00
12-Dec-18	7:08:00	0.00
12-Dec-18	7:10:00	0.00
12-Dec-18	7:12:00	0.00
12-Dec-18	7:14:00	0.00
12-Dec-18	7:16:00	0.00
12-Dec-18	7:18:00	0.00
12-Dec-18	7:20:00	0.00
12-Dec-18	7:22:00	0.00
12-Dec-18	7:24:00	0.00
12-Dec-18	7:26:00	0.00
12-Dec-18	7:28:00	0.00
12-Dec-18	7:30:00	0.10
12-Dec-18	7:32:00	0.10
12-Dec-18	7:34:00	0.10
12-Dec-18	7:36:00	0.10
12-Dec-18	7:38:00	0.10
12-Dec-18	7:40:00	0.20
12-Dec-18	7:42:00	0.20
12-Dec-18	7:44:00	0.20
12-Dec-18	7:46:00	0.20
12-Dec-18	7:48:00	0.20
12-Dec-18	7:50:00	0.20
12-Dec-18	7:52:00	0.20
12-Dec-18	7:54:00	0.20
12-Dec-18	7:56:00	0.20
12-Dec-18	7:58:00	0.20
12-Dec-18	8:00:00	0.20
12-Dec-18	8:02:00	0.20
12-Dec-18	8:04:00	0.20
12-Dec-18	8:06:00	0.20
12-Dec-18	8:08:00	0.20
12-Dec-18	8:10:00	0.20
12-Dec-18	8:12:00	0.20
12-Dec-18	8:14:00	0.20
12-Dec-18	8:16:00	0.20
12-Dec-18	8:18:00	0.20
12-Dec-18	8:20:00	0.20
12-Dec-18	8:22:00	0.20
12-Dec-18	8:24:00	0.20
12-Dec-18	8:26:00	0.20
12-Dec-18	8:28:00	0.20
12-Dec-18	8:30:00	0.20
12-Dec-18	8:32:00	0.20
12-Dec-18	8:34:00	0.20
12-Dec-18	8:36:00	0.20

12-Dec-18	8:38:00	0.20
12-Dec-18	8:40:00	0.20
12-Dec-18	8:42:00	0.20
12-Dec-18	8:44:00	0.20
12-Dec-18	8:46:00	0.20
12-Dec-18	8:48:00	0.20
12-Dec-18	8:50:00	0.30
12-Dec-18	8:52:00	0.30
12-Dec-18	8:54:00	0.30
12-Dec-18	8:56:00	0.30
12-Dec-18	8:58:00	0.30
12-Dec-18	9:00:00	0.20
12-Dec-18	9:02:00	0.20
12-Dec-18	9:04:00	0.20
12-Dec-18	9:06:00	0.20
12-Dec-18	9:08:00	0.20
12-Dec-18	9:10:00	0.30
12-Dec-18	9:12:00	0.30
12-Dec-18	9:14:00	0.30
12-Dec-18	9:16:00	0.30
12-Dec-18	9:18:00	6.60
12-Dec-18	9:20:00	6.30
12-Dec-18	9:22:00	5.70
12-Dec-18	9:24:00	5.40
12-Dec-18	9:26:00	5.10
12-Dec-18	9:28:00	4.70
12-Dec-18	9:30:00	4.70
12-Dec-18	9:32:00	4.70
12-Dec-18	9:34:00	4.70
12-Dec-18	9:36:00	4.70
12-Dec-18	9:38:00	4.70
12-Dec-18	9:40:00	5.10
12-Dec-18	9:42:00	5.70
12-Dec-18	9:44:00	6.30
12-Dec-18	9:46:00	6.60
12-Dec-18	9:48:00	6.60
12-Dec-18	9:50:00	6.60
12-Dec-18	9:52:00	6.60
12-Dec-18	9:54:00	1.10
12-Dec-18	9:56:00	0.80
12-Dec-18	9:58:00	1.10
12-Dec-18	10:00:00	1.10
12-Dec-18	10:02:00	1.10
12-Dec-18	10:04:00	1.10
12-Dec-18	10:06:00	0.80
12-Dec-18	10:08:00	0.80
12-Dec-18	10:10:00	0.80

12-Dec-18	10:12:00	0.50
12-Dec-18	10:14:00	0.50
12-Dec-18	10:16:00	0.50
12-Dec-18	10:18:00	0.50
12-Dec-18	10:20:00	0.50
12-Dec-18	10:22:00	0.50
12-Dec-18	10:24:00	0.80
12-Dec-18	10:26:00	0.80
12-Dec-18	10:28:00	0.80
12-Dec-18	10:30:00	0.50
12-Dec-18	10:32:00	0.20
12-Dec-18	10:34:00	0.20
12-Dec-18	10:36:00	0.20
12-Dec-18	10:38:00	0.80
12-Dec-18	10:40:00	0.80
12-Dec-18	10:42:00	0.80
12-Dec-18	10:44:00	0.50
12-Dec-18	10:46:00	0.50
12-Dec-18	10:48:00	0.10
12-Dec-18	10:50:00	0.10
12-Dec-18	10:52:00	0.10
12-Dec-18	10:54:00	0.10
12-Dec-18	10:56:00	0.10
12-Dec-18	10:58:00	0.00
12-Dec-18	11:00:00	0.00
12-Dec-18	11:02:00	0.00
12-Dec-18	11:04:00	0.00
12-Dec-18	11:06:00	0.00
12-Dec-18	11:08:00	0.00
12-Dec-18	11:10:00	0.00
12-Dec-18	11:12:00	0.00
12-Dec-18	11:14:00	0.00
12-Dec-18	11:16:00	0.00
12-Dec-18	11:18:00	0.00
12-Dec-18	11:20:00	0.00
12-Dec-18	11:22:00	0.00
12-Dec-18	11:24:00	0.00
12-Dec-18	11:26:00	0.00
12-Dec-18	11:28:00	0.00
12-Dec-18	11:30:00	0.00
12-Dec-18	11:32:00	0.00
12-Dec-18	11:34:00	0.00
12-Dec-18	11:36:00	0.00
12-Dec-18	11:38:00	0.00
12-Dec-18	11:40:00	0.00
12-Dec-18	11:42:00	0.00
12-Dec-18	11:44:00	0.00

12-Dec-18	11:46:00	0.00
12-Dec-18	11:48:00	0.10
12-Dec-18	11:50:00	0.10
12-Dec-18	11:52:00	0.10
12-Dec-18	11:54:00	0.10
12-Dec-18	11:56:00	0.10
12-Dec-18	11:58:00	0.00
12-Dec-18	12:00:00	0.00
12-Dec-18	12:02:00	0.00
12-Dec-18	12:04:00	0.00
12-Dec-18	12:06:00	0.00
12-Dec-18	12:08:00	0.00
12-Dec-18	12:10:00	0.00
12-Dec-18	12:12:00	0.00
12-Dec-18	12:14:00	0.00
12-Dec-18	12:16:00	0.00
12-Dec-18	12:18:00	0.00
12-Dec-18	12:20:00	0.00
12-Dec-18	12:22:00	0.00
12-Dec-18	12:24:00	0.00
12-Dec-18	12:26:00	0.00
12-Dec-18	12:28:00	0.00
12-Dec-18	12:30:00	0.00
12-Dec-18	12:32:00	0.00
12-Dec-18	12:34:00	0.00
12-Dec-18	12:36:00	0.00
12-Dec-18	12:38:00	0.00
12-Dec-18	12:40:00	0.00
12-Dec-18	12:42:00	0.00
12-Dec-18	12:44:00	0.00
12-Dec-18	12:46:00	0.00
12-Dec-18	12:48:00	0.00
12-Dec-18	12:50:00	0.00
12-Dec-18	12:52:00	0.00
12-Dec-18	12:54:00	0.00
12-Dec-18	12:56:00	0.00
12-Dec-18	12:58:00	0.00
12-Dec-18	13:00:00	0.00
12-Dec-18	13:02:00	0.00
12-Dec-18	13:04:00	0.00
12-Dec-18	13:06:00	0.00
12-Dec-18	13:08:00	0.00
12-Dec-18	13:10:00	0.00
12-Dec-18	13:12:00	0.00
12-Dec-18	13:14:00	0.00
12-Dec-18	13:16:00	0.00
12-Dec-18	13:18:00	0.00

12-Dec-18	13:20:00	0.00
12-Dec-18	13:22:00	0.00
12-Dec-18	13:24:00	0.00
12-Dec-18	13:26:00	0.00
12-Dec-18	13:28:00	0.00
12-Dec-18	13:30:00	0.00
12-Dec-18	13:32:00	0.00
12-Dec-18	13:34:00	0.00
12-Dec-18	13:36:00	0.00
12-Dec-18	13:38:00	0.00
12-Dec-18	13:40:00	0.00
12-Dec-18	13:42:00	0.00
12-Dec-18	13:44:00	0.00
12-Dec-18	13:46:00	0.00
12-Dec-18	13:48:00	0.00
12-Dec-18	13:50:00	0.00
12-Dec-18	13:52:00	0.00
12-Dec-18	13:54:00	0.00
12-Dec-18	13:56:00	0.00
12-Dec-18	13:58:00	0.10
12-Dec-18	14:00:00	0.10
12-Dec-18	14:02:00	0.10
12-Dec-18	14:04:00	0.10
12-Dec-18	14:06:00	0.10
12-Dec-18	14:08:00	0.00
12-Dec-18	14:10:00	0.00
12-Dec-18	14:12:00	0.00
12-Dec-18	14:14:00	0.00
12-Dec-18	14:16:00	0.00
12-Dec-18	14:18:00	0.10
12-Dec-18	14:20:00	0.10
12-Dec-18	14:22:00	0.10
12-Dec-18	14:24:00	0.10
12-Dec-18	14:26:00	0.10
12-Dec-18	14:28:00	0.00
12-Dec-18	14:30:00	0.00
12-Dec-18	14:32:00	0.00
12-Dec-18	14:34:00	0.00
12-Dec-18	14:36:00	0.00
12-Dec-18	14:38:00	0.00
12-Dec-18	14:40:00	0.00
12-Dec-18	14:42:00	0.00
12-Dec-18	14:44:00	0.00
12-Dec-18	14:46:00	0.00
12-Dec-18	14:48:00	0.00
12-Dec-18	14:50:00	0.00
12-Dec-18	14:52:00	0.00

12-Dec-18	14:54:00	0.00
12-Dec-18	14:56:00	0.00
12-Dec-18	14:58:00	0.00
12-Dec-18	15:00:00	0.00
12-Dec-18	15:02:00	0.00
12-Dec-18	15:04:00	0.00
12-Dec-18	15:06:00	0.00
12-Dec-18	15:08:00	0.00
12-Dec-18	15:10:00	0.00
12-Dec-18	15:12:00	0.00
12-Dec-18	15:14:00	0.00
12-Dec-18	15:16:00	0.00
12-Dec-18	15:18:00	0.00
12-Dec-18	15:20:00	0.00
12-Dec-18	15:22:00	0.00
12-Dec-18	15:24:00	0.00
12-Dec-18	15:26:00	0.00
12-Dec-18	15:28:00	0.10
12-Dec-18	15:30:00	0.10
12-Dec-18	15:32:00	0.10
12-Dec-18	15:34:00	0.10
12-Dec-18	15:36:00	0.10
12-Dec-18	15:38:00	0.10
12-Dec-18	15:40:00	0.10
12-Dec-18	15:42:00	0.10
12-Dec-18	15:44:00	0.10
12-Dec-18	15:46:00	0.10
12-Dec-18	15:48:00	0.00
12-Dec-18	15:50:00	0.00
12-Dec-18	15:52:00	0.00
12-Dec-18	15:54:00	0.00
12-Dec-18	15:56:00	0.00
12-Dec-18	15:58:00	0.00
12-Dec-18	16:00:00	0.00
12-Dec-18	16:02:00	0.00
12-Dec-18	16:04:00	0.00
12-Dec-18	16:06:00	0.00
12-Dec-18	16:08:00	0.00
12-Dec-18	16:10:00	0.00
12-Dec-18	16:12:00	0.00
12-Dec-18	16:14:00	0.00
12-Dec-18	16:16:00	0.00
12-Dec-18	16:18:00	0.00
12-Dec-18	16:20:00	0.00
12-Dec-18	16:22:00	0.00
12-Dec-18	16:24:00	0.00
12-Dec-18	16:26:00	0.00

12-Dec-18	16:28:00	0.00
12-Dec-18	16:30:00	0.00
12-Dec-18	16:32:00	0.00
12-Dec-18	16:34:00	0.00
12-Dec-18	16:36:00	0.00
12-Dec-18	16:38:00	0.00
12-Dec-18	16:40:00	0.00
12-Dec-18	16:42:00	0.00
12-Dec-18	16:44:00	0.00
12-Dec-18	16:46:00	0.00
12-Dec-18	16:48:00	0.00
12-Dec-18	16:50:00	0.00
12-Dec-18	16:52:00	0.00
12-Dec-18	16:54:00	0.00
12-Dec-18	16:56:00	0.00
12-Dec-18	16:58:00	0.00
12-Dec-18	17:00:00	0.00
12-Dec-18	17:02:00	0.00
12-Dec-18	17:04:00	0.00
12-Dec-18	17:06:00	0.00
12-Dec-18	17:08:00	0.00
12-Dec-18	17:10:00	0.00
12-Dec-18	17:12:00	0.00
12-Dec-18	17:14:00	0.00
12-Dec-18	17:16:00	0.00
12-Dec-18	17:18:00	0.00
12-Dec-18	17:20:00	0.00
12-Dec-18	17:22:00	0.00
12-Dec-18	17:24:00	0.00
12-Dec-18	17:26:00	0.00
12-Dec-18	17:28:00	0.00
12-Dec-18	17:30:00	0.00
12-Dec-18	17:32:00	0.00
12-Dec-18	17:34:00	0.00
12-Dec-18	17:36:00	0.00
12-Dec-18	17:38:00	0.00
12-Dec-18	17:40:00	0.00
12-Dec-18	17:42:00	0.00
12-Dec-18	17:44:00	0.00
12-Dec-18	17:46:00	0.00
12-Dec-18	17:48:00	0.00
12-Dec-18	17:50:00	0.00
12-Dec-18	17:52:00	0.00
12-Dec-18	17:54:00	0.00
12-Dec-18	17:56:00	0.00
12-Dec-18	17:58:00	0.00
12-Dec-18	18:00:00	0.00

12-Dec-18	18:02:00	0.00
12-Dec-18	18:04:00	0.00
12-Dec-18	18:06:00	0.00
12-Dec-18	18:08:00	0.00
12-Dec-18	18:10:00	0.00
12-Dec-18	18:12:00	0.00
12-Dec-18	18:14:00	0.00
12-Dec-18	18:16:00	0.00
12-Dec-18	18:18:00	0.00
12-Dec-18	18:20:00	0.00
12-Dec-18	18:22:00	0.00
12-Dec-18	18:24:00	0.00
12-Dec-18	18:26:00	0.00
12-Dec-18	18:28:00	0.10
12-Dec-18	18:30:00	0.10
12-Dec-18	18:32:00	0.10
12-Dec-18	18:34:00	0.10
12-Dec-18	18:36:00	0.10
12-Dec-18	18:38:00	0.00
12-Dec-18	18:40:00	0.00
12-Dec-18	18:42:00	0.00
12-Dec-18	18:44:00	0.00
12-Dec-18	18:46:00	0.00
12-Dec-18	18:48:00	0.00
12-Dec-18	18:50:00	0.00
12-Dec-18	18:52:00	0.00
12-Dec-18	18:54:00	0.00
12-Dec-18	18:56:00	0.00
12-Dec-18	18:58:00	0.00
12-Dec-18	19:00:00	0.00
14-Dec-18	6:00:00	0.00
14-Dec-18	6:02:00	0.00
14-Dec-18	6:04:00	0.00
14-Dec-18	6:06:00	0.00
14-Dec-18	6:08:00	0.00
14-Dec-18	6:10:00	0.00
14-Dec-18	6:12:00	0.00
14-Dec-18	6:14:00	0.00
14-Dec-18	6:16:00	0.00
14-Dec-18	6:18:00	0.00
14-Dec-18	6:20:00	0.00
14-Dec-18	6:22:00	0.00
14-Dec-18	6:24:00	0.00
14-Dec-18	6:26:00	0.00
14-Dec-18	6:28:00	0.00
14-Dec-18	6:30:00	0.00
14-Dec-18	6:32:00	0.00

14-Dec-18	6:34:00	0.00
14-Dec-18	6:36:00	0.00
14-Dec-18	6:38:00	0.00
14-Dec-18	6:40:00	0.00
14-Dec-18	6:42:00	0.00
14-Dec-18	6:44:00	0.00
14-Dec-18	6:46:00	0.00
14-Dec-18	6:48:00	0.00
14-Dec-18	6:50:00	0.00
14-Dec-18	6:52:00	0.00
14-Dec-18	6:54:00	0.00
14-Dec-18	6:56:00	0.00
14-Dec-18	6:58:00	0.00
14-Dec-18	7:00:00	0.00
14-Dec-18	7:02:00	0.00
14-Dec-18	7:04:00	0.00
14-Dec-18	7:06:00	0.00
14-Dec-18	7:08:00	0.00
14-Dec-18	7:10:00	0.00
14-Dec-18	7:12:00	0.00
14-Dec-18	7:14:00	0.00
14-Dec-18	7:16:00	0.00
14-Dec-18	7:18:00	0.00
14-Dec-18	7:20:00	0.00
14-Dec-18	7:22:00	0.00
14-Dec-18	7:24:00	0.00
14-Dec-18	7:26:00	0.00
14-Dec-18	7:28:00	0.10
14-Dec-18	7:30:00	0.10
14-Dec-18	7:32:00	0.10
14-Dec-18	7:34:00	0.10
14-Dec-18	7:36:00	0.10
14-Dec-18	7:38:00	0.10
14-Dec-18	7:40:00	0.10
14-Dec-18	7:42:00	0.10
14-Dec-18	7:44:00	0.10
14-Dec-18	7:46:00	0.10
14-Dec-18	7:48:00	0.20
14-Dec-18	7:50:00	0.20
14-Dec-18	7:52:00	0.20
14-Dec-18	7:54:00	0.20
14-Dec-18	7:56:00	0.20
14-Dec-18	7:58:00	0.20
14-Dec-18	8:00:00	0.20
14-Dec-18	8:02:00	0.20
14-Dec-18	8:04:00	0.20
14-Dec-18	8:06:00	0.20

14-Dec-18	8:08:00	0.10
14-Dec-18	8:10:00	0.10
14-Dec-18	8:12:00	0.10
14-Dec-18	8:14:00	0.10
14-Dec-18	8:16:00	0.10
14-Dec-18	8:18:00	0.20
14-Dec-18	8:20:00	0.20
14-Dec-18	8:22:00	0.20
14-Dec-18	8:24:00	0.20
14-Dec-18	8:26:00	0.20
14-Dec-18	8:28:00	0.20
14-Dec-18	8:30:00	0.20
14-Dec-18	8:32:00	0.20
14-Dec-18	8:34:00	0.20
14-Dec-18	8:36:00	0.20
14-Dec-18	8:38:00	0.10
14-Dec-18	8:40:00	0.10
14-Dec-18	8:42:00	0.10
14-Dec-18	8:44:00	0.10
14-Dec-18	8:46:00	0.10
14-Dec-18	8:48:00	0.20
14-Dec-18	8:50:00	0.20
14-Dec-18	8:52:00	0.20
14-Dec-18	8:54:00	0.20
14-Dec-18	8:56:00	0.20
14-Dec-18	8:58:00	0.20
14-Dec-18	9:00:00	0.20
14-Dec-18	9:02:00	0.20
14-Dec-18	9:04:00	0.20
14-Dec-18	9:06:00	0.20
14-Dec-18	9:08:00	0.20
14-Dec-18	9:10:00	0.20
14-Dec-18	9:12:00	0.20
14-Dec-18	9:14:00	0.20
14-Dec-18	9:16:00	0.20
14-Dec-18	9:18:00	0.20
14-Dec-18	9:20:00	0.20
14-Dec-18	9:22:00	0.20
14-Dec-18	9:24:00	0.20
14-Dec-18	9:26:00	0.20
14-Dec-18	9:28:00	0.20
14-Dec-18	9:30:00	0.30
14-Dec-18	9:32:00	0.30
14-Dec-18	9:34:00	0.30
14-Dec-18	9:36:00	0.30
14-Dec-18	9:38:00	0.30
14-Dec-18	9:40:00	7.00

14-Dec-18	9:42:00	7.00
14-Dec-18	9:44:00	7.40
14-Dec-18	9:46:00	7.60
14-Dec-18	9:48:00	7.60
14-Dec-18	9:50:00	7.30
14-Dec-18	9:52:00	7.00
14-Dec-18	9:54:00	7.00
14-Dec-18	9:56:00	7.00
14-Dec-18	9:58:00	6.70
14-Dec-18	10:00:00	6.70
14-Dec-18	10:02:00	6.70
14-Dec-18	10:04:00	6.40
14-Dec-18	10:06:00	5.80
14-Dec-18	10:08:00	5.40
14-Dec-18	10:10:00	5.40
14-Dec-18	10:12:00	5.80
14-Dec-18	10:14:00	5.80
14-Dec-18	10:16:00	5.80
14-Dec-18	10:18:00	5.80
14-Dec-18	10:20:00	5.80
14-Dec-18	10:22:00	5.40
14-Dec-18	10:24:00	5.40
14-Dec-18	10:26:00	5.40
14-Dec-18	10:28:00	5.10
14-Dec-18	10:30:00	5.10
14-Dec-18	10:32:00	5.10
14-Dec-18	10:34:00	5.10
14-Dec-18	10:36:00	4.80
14-Dec-18	10:38:00	4.80
14-Dec-18	10:40:00	4.80
14-Dec-18	10:42:00	4.80
14-Dec-18	10:44:00	3.40
14-Dec-18	10:46:00	0.00
14-Dec-18	10:48:00	0.00
14-Dec-18	10:50:00	0.00
14-Dec-18	10:52:00	0.00
14-Dec-18	10:54:00	0.00
14-Dec-18	10:56:00	0.00
14-Dec-18	10:58:00	0.00
14-Dec-18	11:00:00	0.20
14-Dec-18	11:02:00	0.20
14-Dec-18	11:04:00	0.20
14-Dec-18	11:06:00	0.20
14-Dec-18	11:08:00	0.20
14-Dec-18	11:10:00	0.40
14-Dec-18	11:12:00	0.40
14-Dec-18	11:14:00	0.40

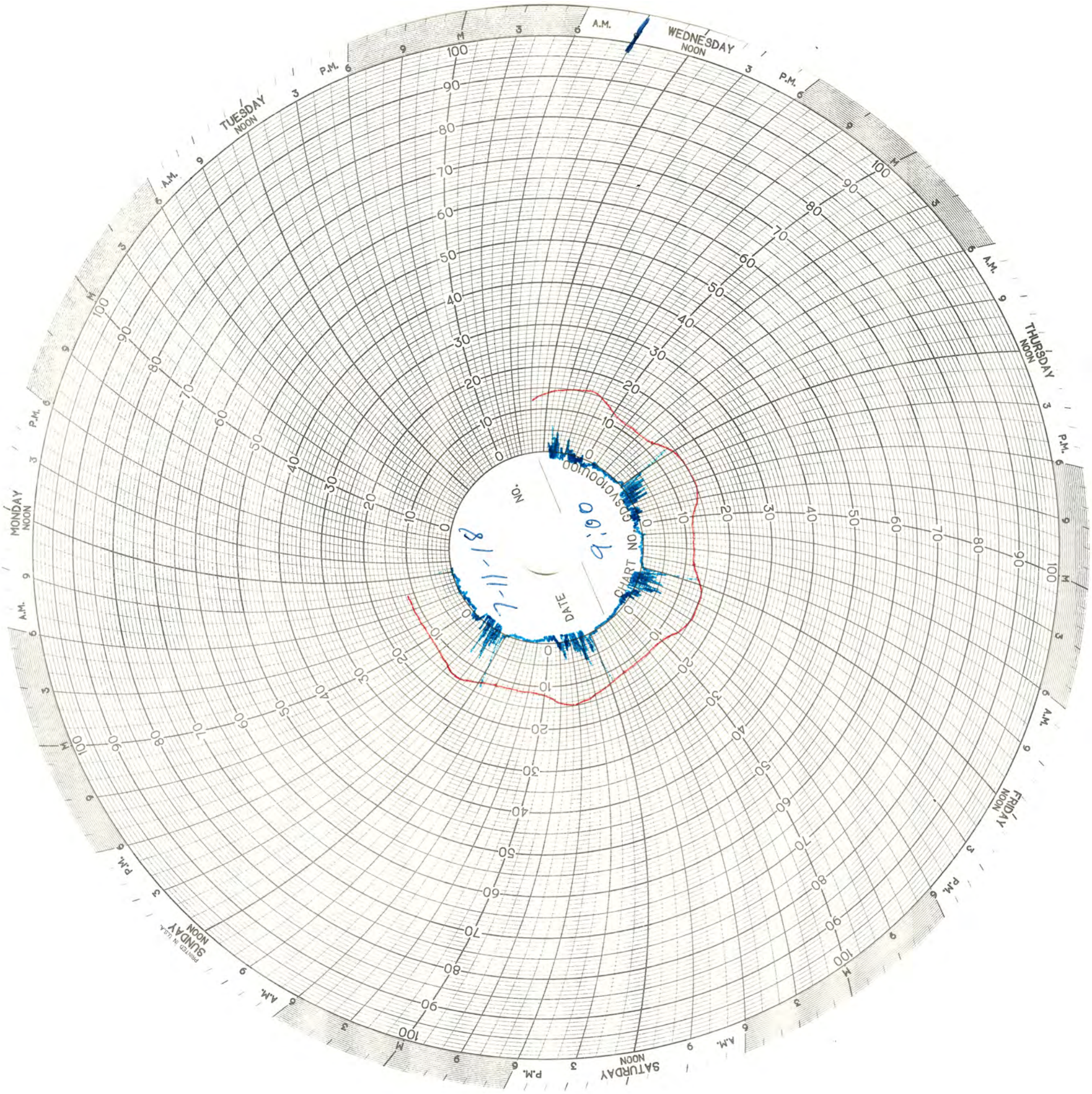
14-Dec-18	11:16:00	0.40
14-Dec-18	11:18:00	0.40
14-Dec-18	11:20:00	0.20
14-Dec-18	11:22:00	0.20
14-Dec-18	11:24:00	0.20
14-Dec-18	11:26:00	0.20
14-Dec-18	11:28:00	0.20
14-Dec-18	11:30:00	0.20
14-Dec-18	11:32:00	0.20
14-Dec-18	11:34:00	0.20
14-Dec-18	11:36:00	0.20
14-Dec-18	11:38:00	0.20
14-Dec-18	11:40:00	0.00
14-Dec-18	11:42:00	0.00
14-Dec-18	11:44:00	0.00
14-Dec-18	11:46:00	0.00
14-Dec-18	11:48:00	0.00
14-Dec-18	11:50:00	0.00
14-Dec-18	11:52:00	0.00
14-Dec-18	11:54:00	0.00
14-Dec-18	11:56:00	0.00
14-Dec-18	11:58:00	0.00
14-Dec-18	12:00:00	0.00
14-Dec-18	12:02:00	0.00
14-Dec-18	12:04:00	0.00
14-Dec-18	12:06:00	0.00
14-Dec-18	12:08:00	0.00
14-Dec-18	12:10:00	0.00
14-Dec-18	12:12:00	0.00
14-Dec-18	12:14:00	0.00
14-Dec-18	12:16:00	0.00
14-Dec-18	12:18:00	0.00
14-Dec-18	12:20:00	0.00
14-Dec-18	12:22:00	0.00
14-Dec-18	12:24:00	0.00
14-Dec-18	12:26:00	0.00
14-Dec-18	12:28:00	0.00
14-Dec-18	12:30:00	0.00
14-Dec-18	12:32:00	0.00
14-Dec-18	12:34:00	0.00
14-Dec-18	12:36:00	0.00
14-Dec-18	12:38:00	0.00
14-Dec-18	12:40:00	0.00
14-Dec-18	12:42:00	0.00
14-Dec-18	12:44:00	0.00
14-Dec-18	12:46:00	0.00
14-Dec-18	12:48:00	0.00

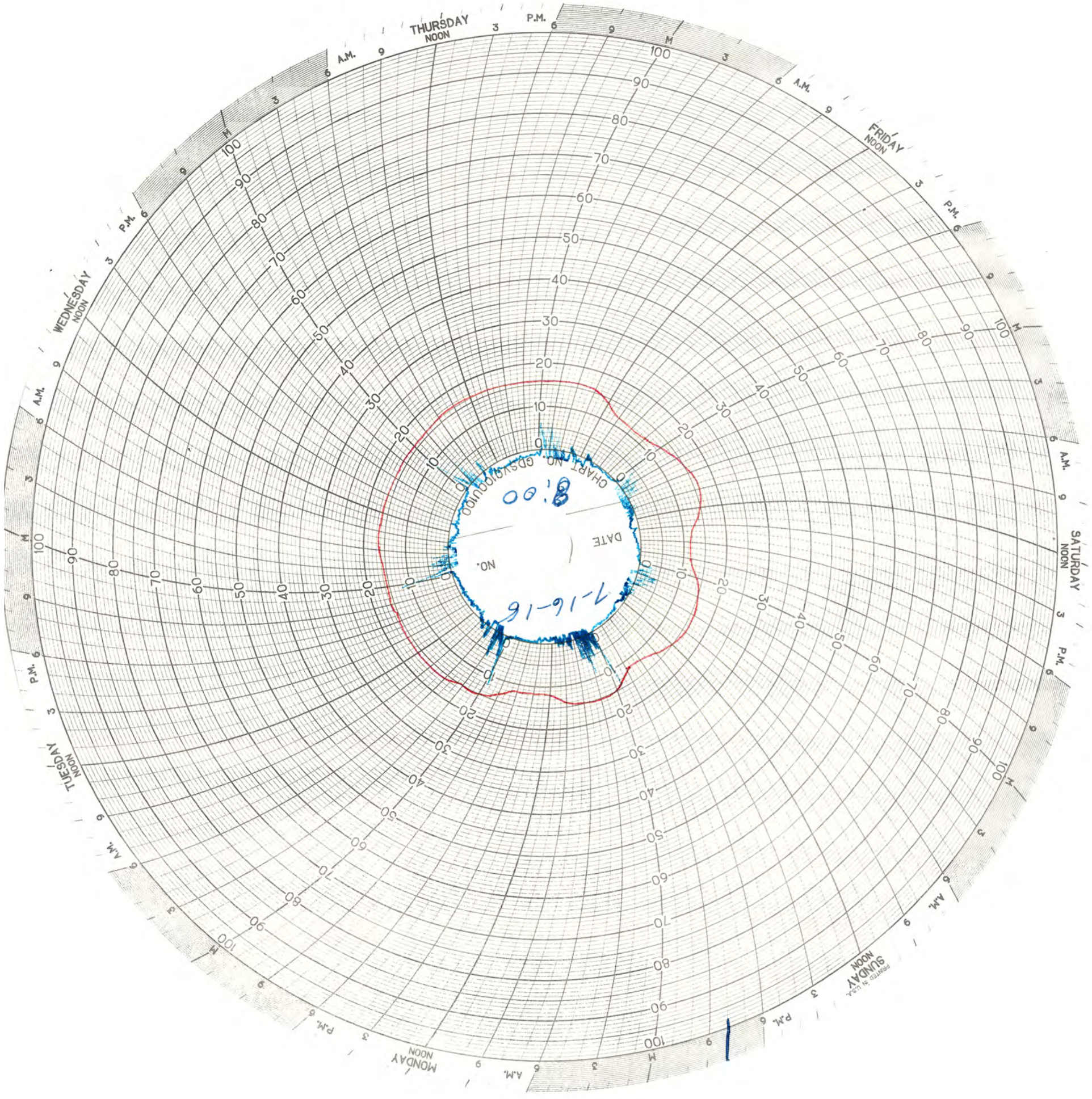
14-Dec-18	12:50:00	0.00
14-Dec-18	12:52:00	0.00
14-Dec-18	12:54:00	0.00
14-Dec-18	12:56:00	0.00
14-Dec-18	12:58:00	0.00
14-Dec-18	13:00:00	0.00
14-Dec-18	13:02:00	0.00
14-Dec-18	13:04:00	0.00
14-Dec-18	13:06:00	0.00
14-Dec-18	13:08:00	0.00
14-Dec-18	13:10:00	0.00
14-Dec-18	13:12:00	0.00
14-Dec-18	13:14:00	0.00
14-Dec-18	13:16:00	0.00
14-Dec-18	13:18:00	0.00
14-Dec-18	13:20:00	0.00
14-Dec-18	13:22:00	0.00
14-Dec-18	13:24:00	0.00
14-Dec-18	13:26:00	0.00
14-Dec-18	13:28:00	0.00
14-Dec-18	13:30:00	0.00
14-Dec-18	13:32:00	0.00
14-Dec-18	13:34:00	0.00
14-Dec-18	13:36:00	0.00
14-Dec-18	13:38:00	0.00
14-Dec-18	13:40:00	0.00
14-Dec-18	13:42:00	0.00
14-Dec-18	13:44:00	0.00
14-Dec-18	13:46:00	0.00
14-Dec-18	13:48:00	0.00
14-Dec-18	13:50:00	0.00
14-Dec-18	13:52:00	0.00
14-Dec-18	13:54:00	0.00
14-Dec-18	13:56:00	0.00
14-Dec-18	13:58:00	0.00
14-Dec-18	14:00:00	0.00
14-Dec-18	14:02:00	0.00
14-Dec-18	14:04:00	0.00
14-Dec-18	14:06:00	0.00
14-Dec-18	14:08:00	0.00
14-Dec-18	14:10:00	0.00
14-Dec-18	14:12:00	0.00
14-Dec-18	14:14:00	0.00
14-Dec-18	14:16:00	0.00
14-Dec-18	14:18:00	0.00
14-Dec-18	14:20:00	0.00
14-Dec-18	14:22:00	0.00

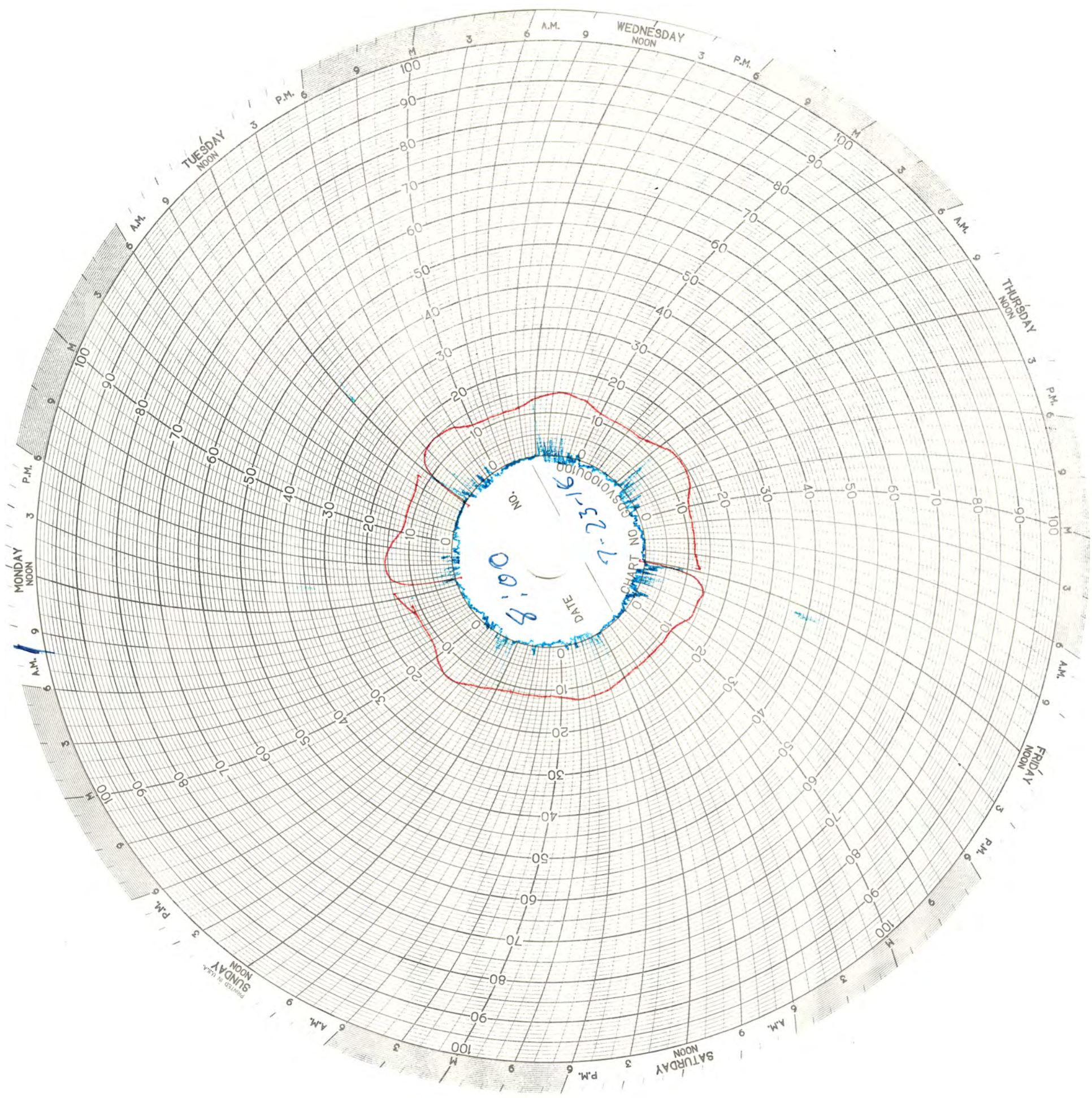
14-Dec-18	14:24:00	0.00
14-Dec-18	14:26:00	0.00
14-Dec-18	14:28:00	0.00
14-Dec-18	14:30:00	0.00
14-Dec-18	14:32:00	0.00
14-Dec-18	14:34:00	0.00
14-Dec-18	14:36:00	0.00
14-Dec-18	14:38:00	0.00
14-Dec-18	14:40:00	0.00
14-Dec-18	14:42:00	0.00
14-Dec-18	14:44:00	0.00
14-Dec-18	14:46:00	0.00
14-Dec-18	14:48:00	0.00
14-Dec-18	14:50:00	0.00
14-Dec-18	14:52:00	0.00
14-Dec-18	14:54:00	0.00
14-Dec-18	14:56:00	0.00
14-Dec-18	14:58:00	0.00
14-Dec-18	15:00:00	0.00
14-Dec-18	15:02:00	0.00
14-Dec-18	15:04:00	0.00
14-Dec-18	15:06:00	0.00
14-Dec-18	15:08:00	0.00
14-Dec-18	15:10:00	0.00
14-Dec-18	15:12:00	0.00
14-Dec-18	15:14:00	0.00
14-Dec-18	15:16:00	0.00
14-Dec-18	15:18:00	0.00
14-Dec-18	15:20:00	0.00
14-Dec-18	15:22:00	0.00
14-Dec-18	15:24:00	0.00
14-Dec-18	15:26:00	0.00
14-Dec-18	15:28:00	0.00
14-Dec-18	15:30:00	0.00
14-Dec-18	15:32:00	0.00
14-Dec-18	15:34:00	0.00
14-Dec-18	15:36:00	0.00
14-Dec-18	15:38:00	0.00
14-Dec-18	15:40:00	0.00
14-Dec-18	15:42:00	0.00
14-Dec-18	15:44:00	0.00
14-Dec-18	15:46:00	0.00
14-Dec-18	15:48:00	0.00
14-Dec-18	15:50:00	0.00
14-Dec-18	15:52:00	0.00
14-Dec-18	15:54:00	0.00
14-Dec-18	15:56:00	0.00

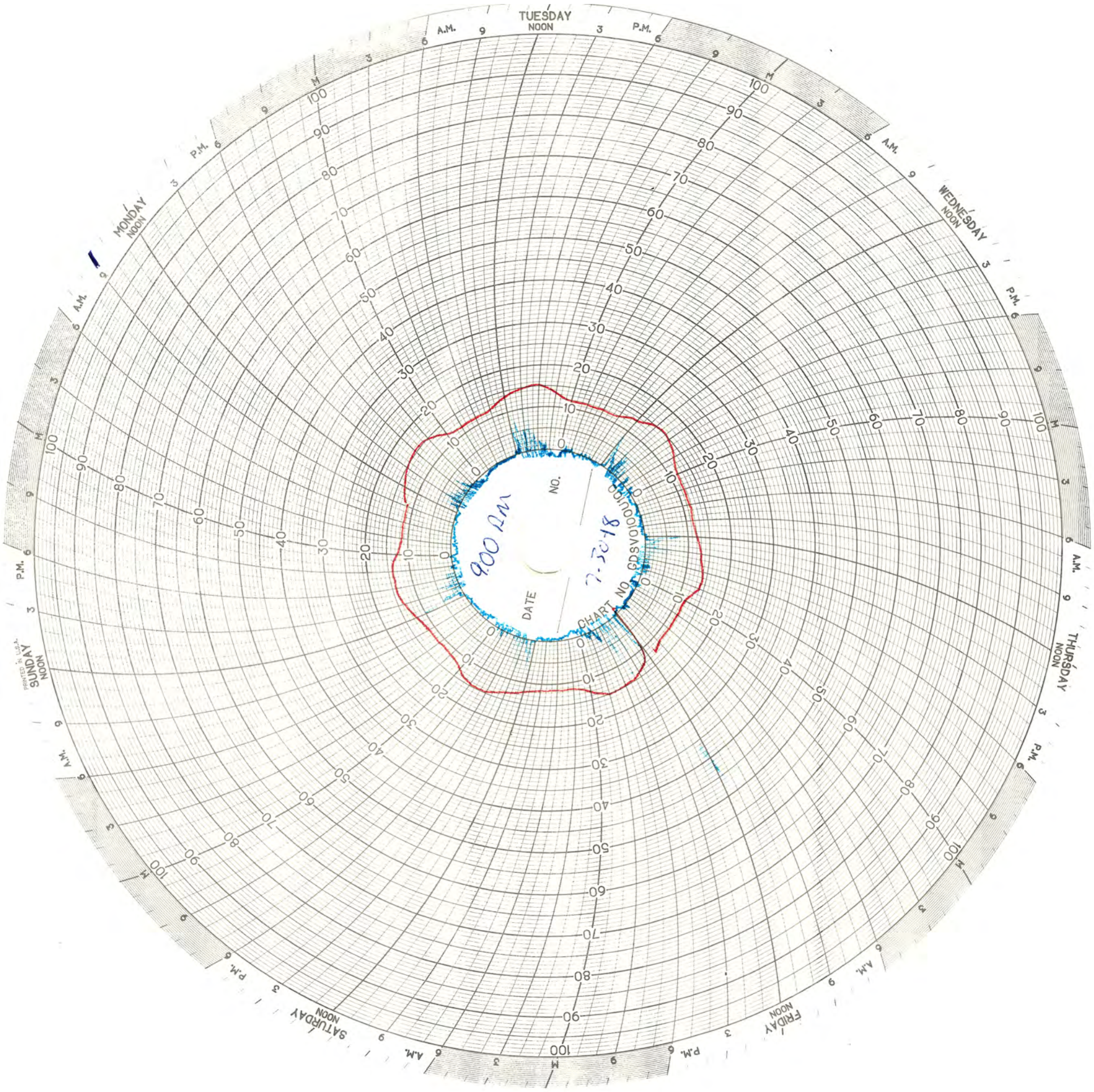
14-Dec-18	15:58:00	0.00
14-Dec-18	16:00:00	0.00
14-Dec-18	16:02:00	0.00
14-Dec-18	16:04:00	0.00
14-Dec-18	16:06:00	0.00
14-Dec-18	16:08:00	0.00
14-Dec-18	16:10:00	0.00
14-Dec-18	16:12:00	0.00
14-Dec-18	16:14:00	0.00
14-Dec-18	16:16:00	0.00
14-Dec-18	16:18:00	0.00
14-Dec-18	16:20:00	0.00
14-Dec-18	16:22:00	0.00
14-Dec-18	16:24:00	0.00
14-Dec-18	16:26:00	0.00
14-Dec-18	16:28:00	0.00
14-Dec-18	16:30:00	0.00
14-Dec-18	16:32:00	0.00
14-Dec-18	16:34:00	0.00
14-Dec-18	16:36:00	0.00
14-Dec-18	16:38:00	0.00
14-Dec-18	16:40:00	0.00
14-Dec-18	16:42:00	0.00
14-Dec-18	16:44:00	0.00
14-Dec-18	16:46:00	0.00
14-Dec-18	16:48:00	0.00
14-Dec-18	16:50:00	0.00
14-Dec-18	16:52:00	0.00
14-Dec-18	16:54:00	0.00
14-Dec-18	16:56:00	0.00
14-Dec-18	16:58:00	0.00
14-Dec-18	17:00:00	0.00
14-Dec-18	17:02:00	0.00
14-Dec-18	17:04:00	0.00
14-Dec-18	17:06:00	0.00
14-Dec-18	17:08:00	0.00
14-Dec-18	17:10:00	0.00
14-Dec-18	17:12:00	0.00
14-Dec-18	17:14:00	0.00
14-Dec-18	17:16:00	0.00
14-Dec-18	17:18:00	0.00
14-Dec-18	17:20:00	0.00
14-Dec-18	17:22:00	0.00
14-Dec-18	17:24:00	0.00
14-Dec-18	17:26:00	0.00
14-Dec-18	17:28:00	0.00
14-Dec-18	17:30:00	0.00

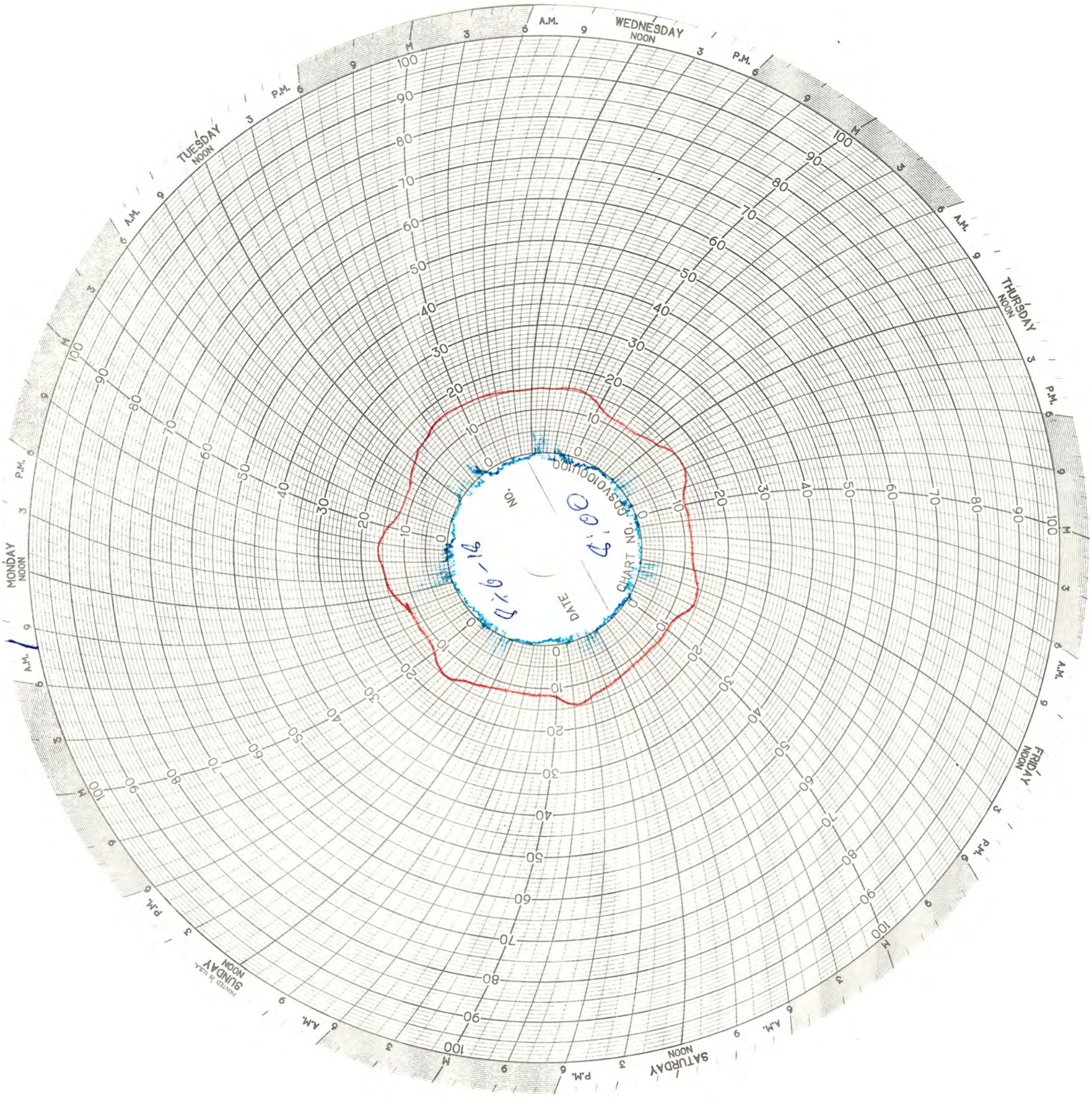
14-Dec-18	17:32:00	0.00
14-Dec-18	17:34:00	0.00
14-Dec-18	17:36:00	0.00
14-Dec-18	17:38:00	0.00
14-Dec-18	17:40:00	0.00
14-Dec-18	17:42:00	0.00
14-Dec-18	17:44:00	0.00
14-Dec-18	17:46:00	0.00
14-Dec-18	17:48:00	0.00
14-Dec-18	17:50:00	0.00
14-Dec-18	17:52:00	0.00
14-Dec-18	17:54:00	0.00
14-Dec-18	17:56:00	0.00
14-Dec-18	17:58:00	0.00
14-Dec-18	18:00:00	0.00
14-Dec-18	18:02:00	0.00
14-Dec-18	18:04:00	0.00
14-Dec-18	18:06:00	0.00
14-Dec-18	18:08:00	0.00
14-Dec-18	18:10:00	0.00
14-Dec-18	18:12:00	0.00
14-Dec-18	18:14:00	0.00
14-Dec-18	18:16:00	0.00
14-Dec-18	18:18:00	0.00
14-Dec-18	18:20:00	0.00
14-Dec-18	18:22:00	0.00
14-Dec-18	18:24:00	0.00
14-Dec-18	18:26:00	0.00
14-Dec-18	18:28:00	0.00
14-Dec-18	18:30:00	0.00
14-Dec-18	18:32:00	0.00
14-Dec-18	18:34:00	0.00
14-Dec-18	18:36:00	0.00
14-Dec-18	18:38:00	0.00
14-Dec-18	18:40:00	0.00
14-Dec-18	18:42:00	0.00
14-Dec-18	18:44:00	0.00
14-Dec-18	18:46:00	0.00
14-Dec-18	18:48:00	0.00
14-Dec-18	18:50:00	0.00
14-Dec-18	18:52:00	0.00
14-Dec-18	18:54:00	0.00
14-Dec-18	18:56:00	0.00
14-Dec-18	18:58:00	0.00
14-Dec-18	19:00:00	0.00

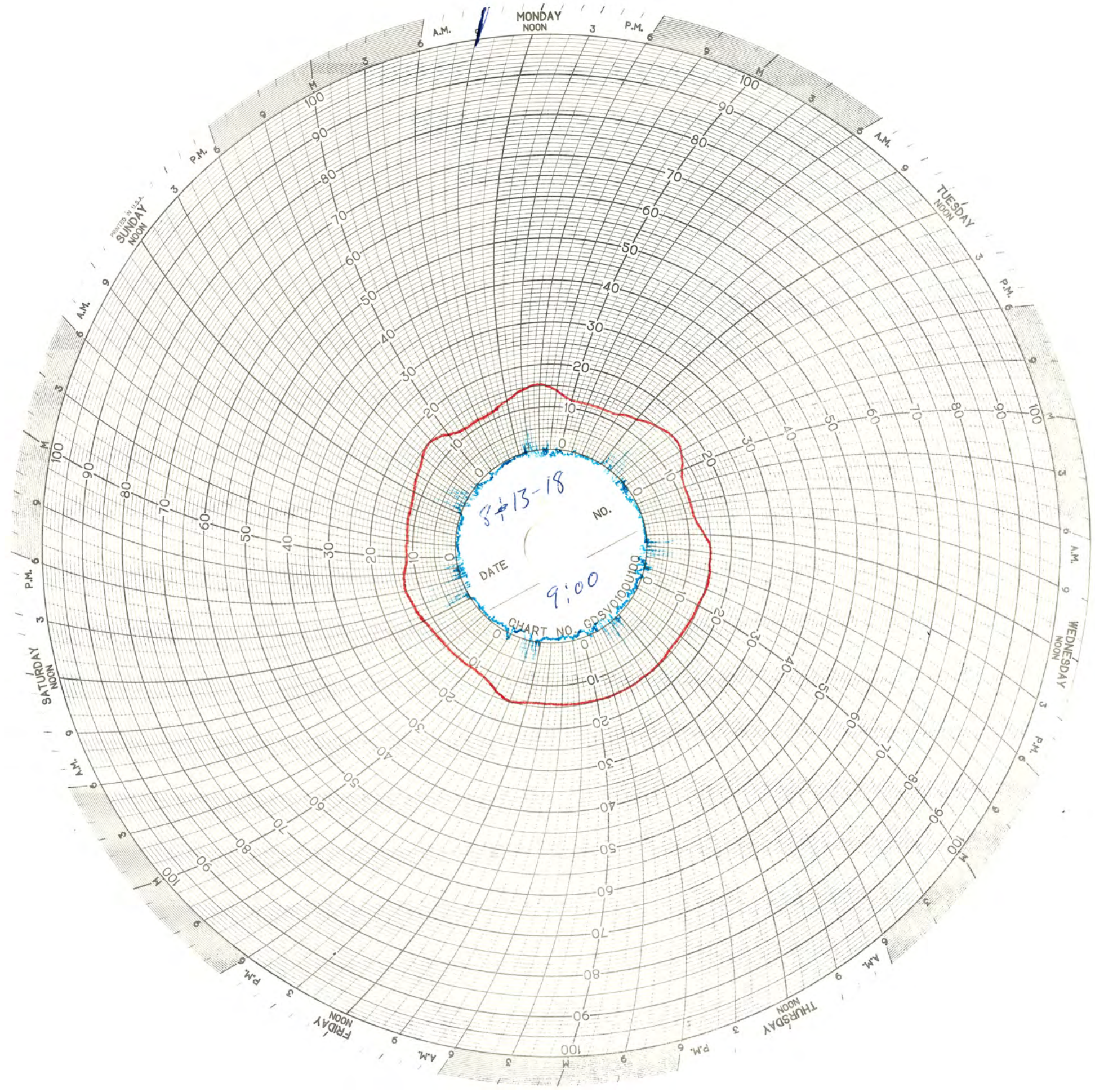

WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
SATURDAY
NOON
SUNDAY
NOON
MONDAY
NOON
TUESDAY
NOON
A.M.
P.M.
CHART NO. GDSV0100U100
DATE
NO.
7-11-18
9:00

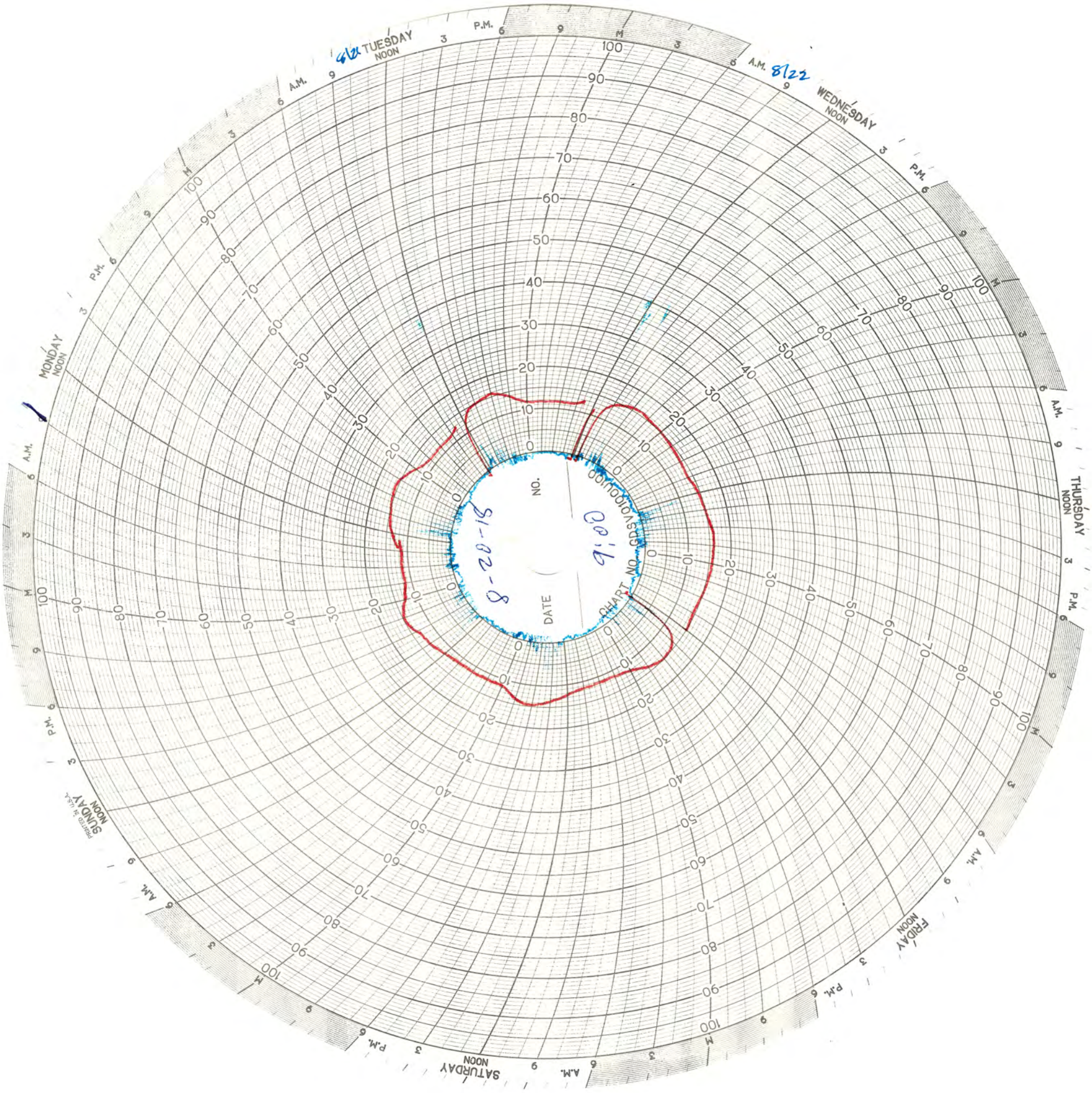

THURSDAY
NOON
FRIDAY
NOON
SATURDAY
NOON
SUNDAY
NOON
MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
A.M.
P.M.
CHART NO. GDSV0100UQ
DATE
NO.
8:00
7-16-16


WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
SATURDAY
NOON
SUNDAY
NOON
MONDAY
NOON
TUESDAY
NOON
A.M.
P.M.
DATE
CHART NO.
8:00
7-23-16

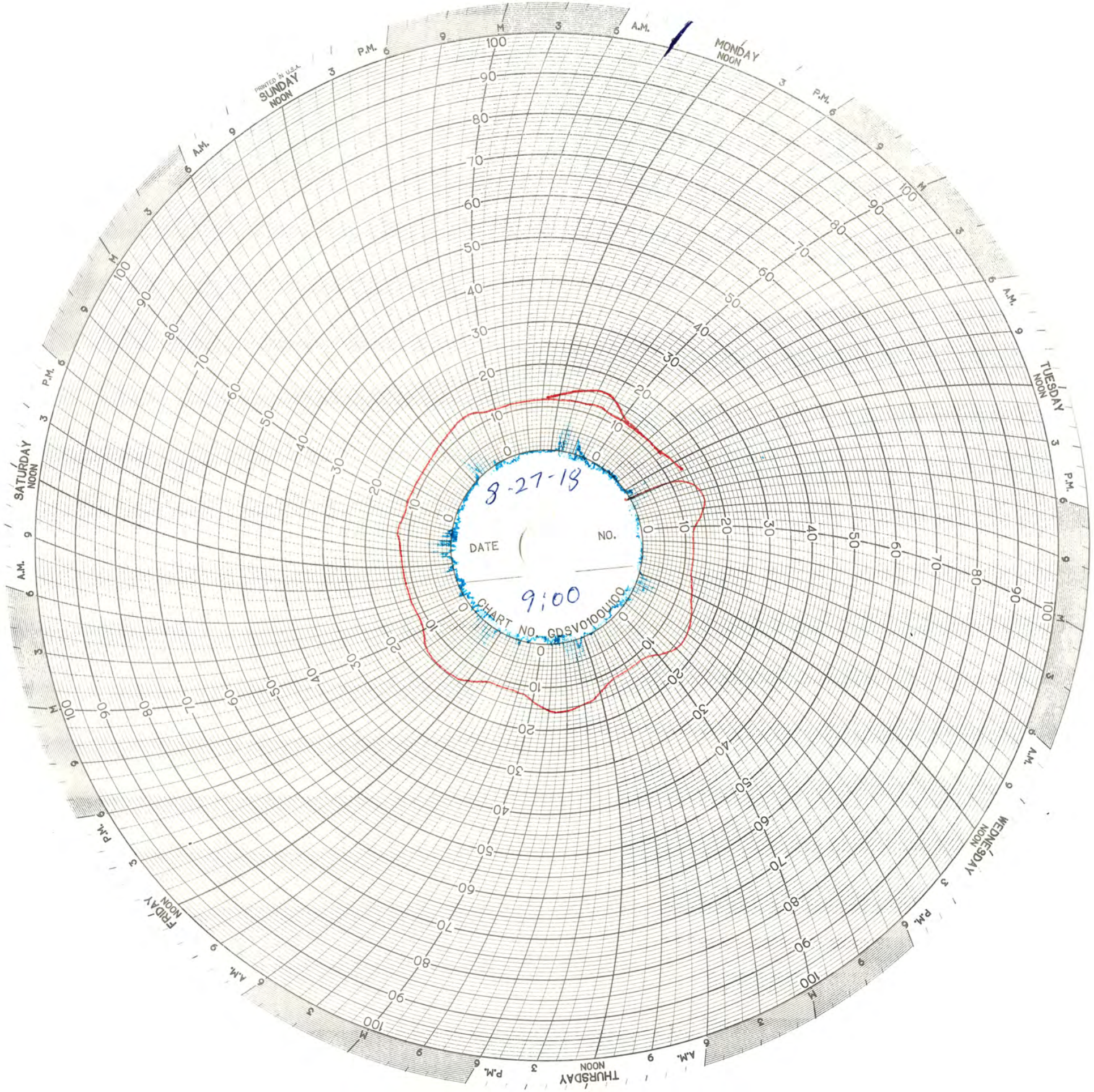

TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
SATURDAY
NOON
SUNDAY
NOON
MONDAY
NOON
A.M.
P.M.
DATE
NO.
CHART NO.
9.00 AM
7-30-18


WEDNESDAY
NOON
A.M.
P.M.
TUESDAY
NOON
THURSDAY
NOON
MONDAY
NOON
FRIDAY
NOON
SUNDAY
NOON
SATURDAY
NOON
PRINTED IN U.S.A.
CHART NO.
DATE
NO.

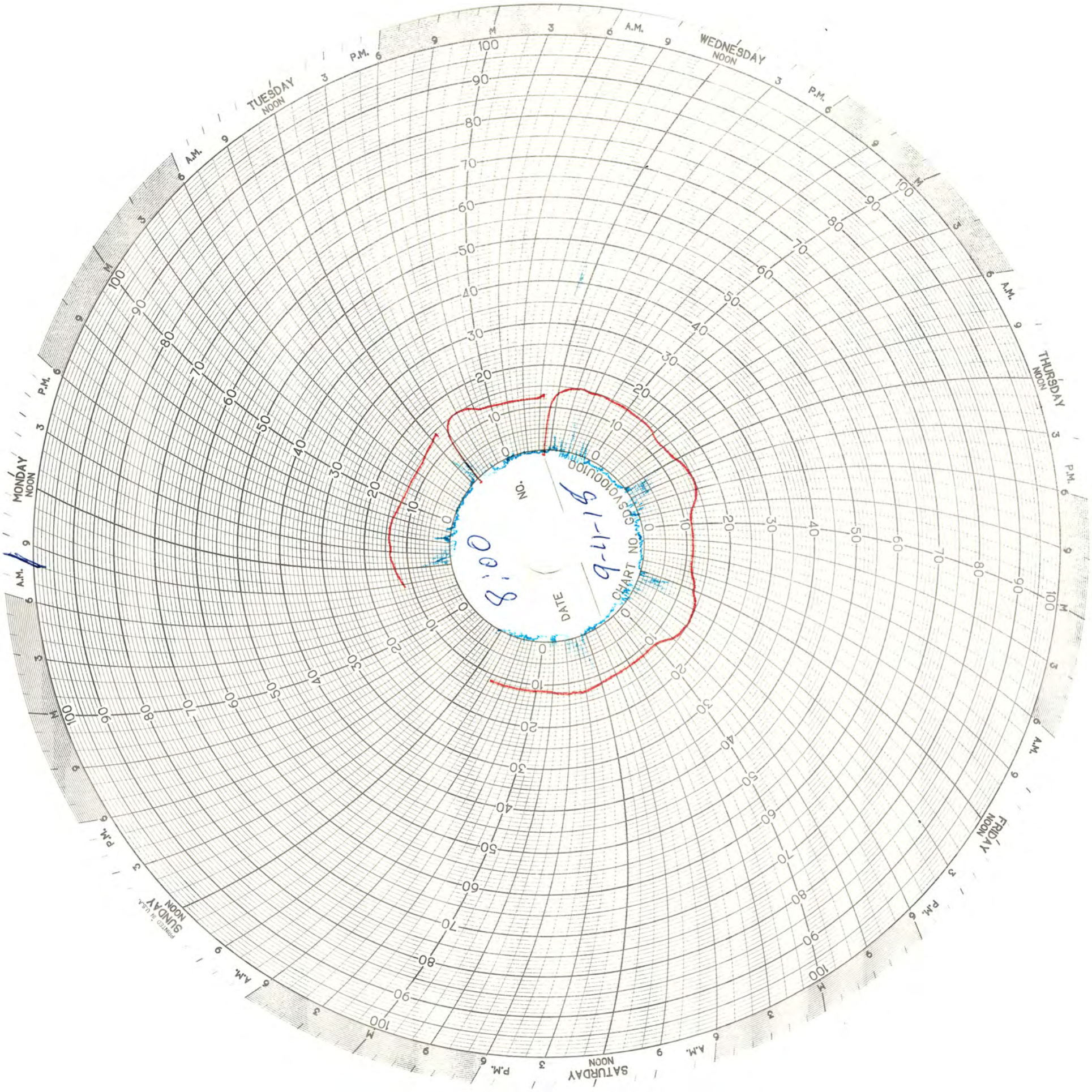

MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
SATURDAY
NOON
SUNDAY
NOON
A.M.
P.M.
PRINTED IN U.S.A.
8-13-18
9:00
DATE
NO.
CHART NO. GDSV010QU100



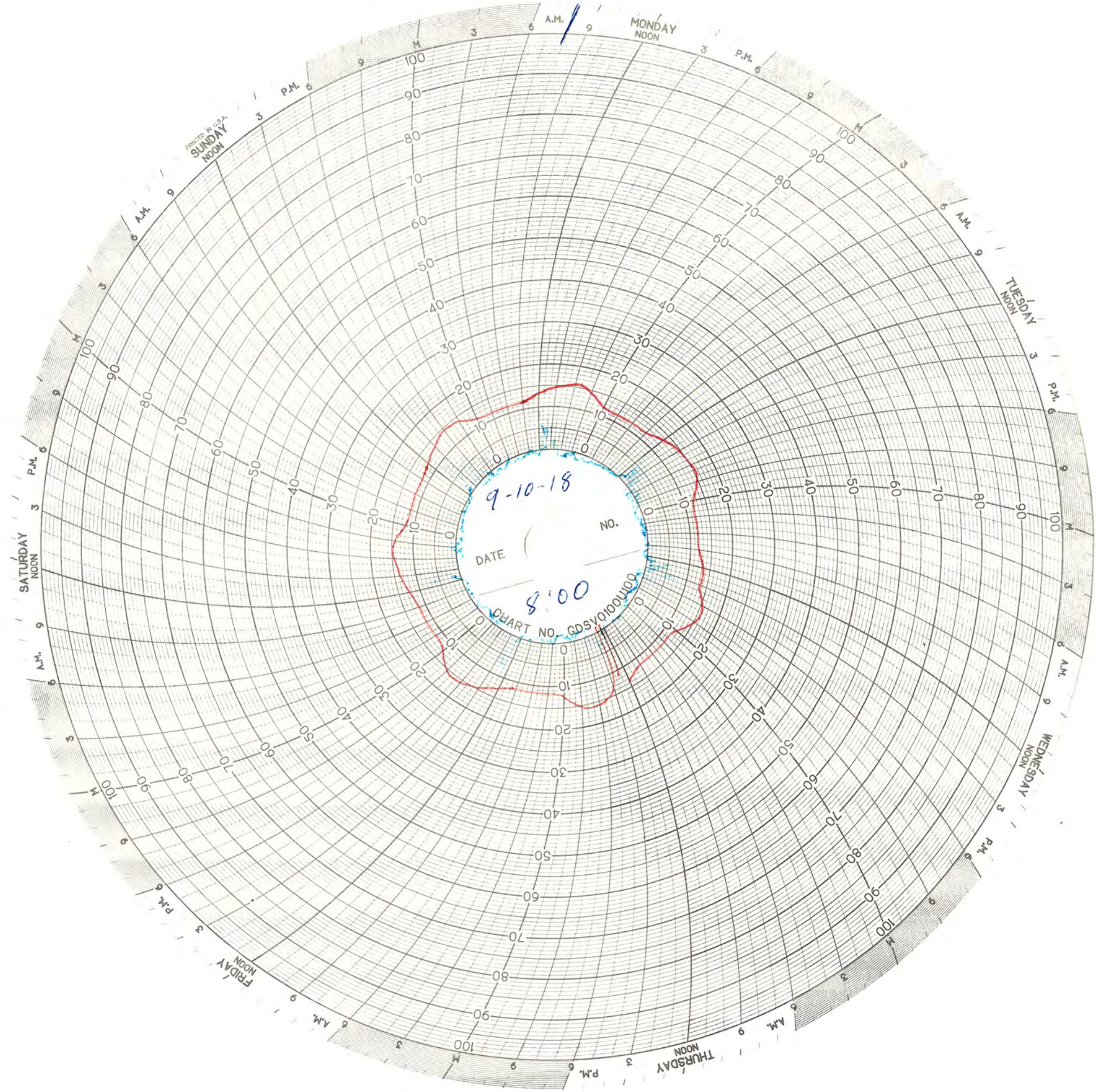
8/21 TUESDAY
8/22
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
SUNDAY
MONDAY
NOON
A.M.
P.M.
DATE
NO.
CHART NO. GDSV0100
8-20-18
9:00



PRINTED IN U.S.A.
SUNDAY NOON
MONDAY NOON
TUESDAY NOON
WEDNESDAY NOON
THURSDAY NOON
FRIDAY NOON
SATURDAY NOON
8-27-18
DATE
NO.
9:00
CHART NO. GDSV0100U100



TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
SUNDAY
MONDAY
NOON
A.M.
P.M.
CHART NO. GDSV0100U100
DATE
NO.
9-11-18
8:00
PRINTED IN U.S.A.


PRINTED IN U.S.A.
SUNDAY NOON
MONDAY NOON
TUESDAY NOON
WEDNESDAY NOON
THURSDAY NOON
FRIDAY NOON
SATURDAY NOON
A.M.
P.M.
M
9-10-18
DATE
NO.
8:00
CHART NO. GDSV0100U00

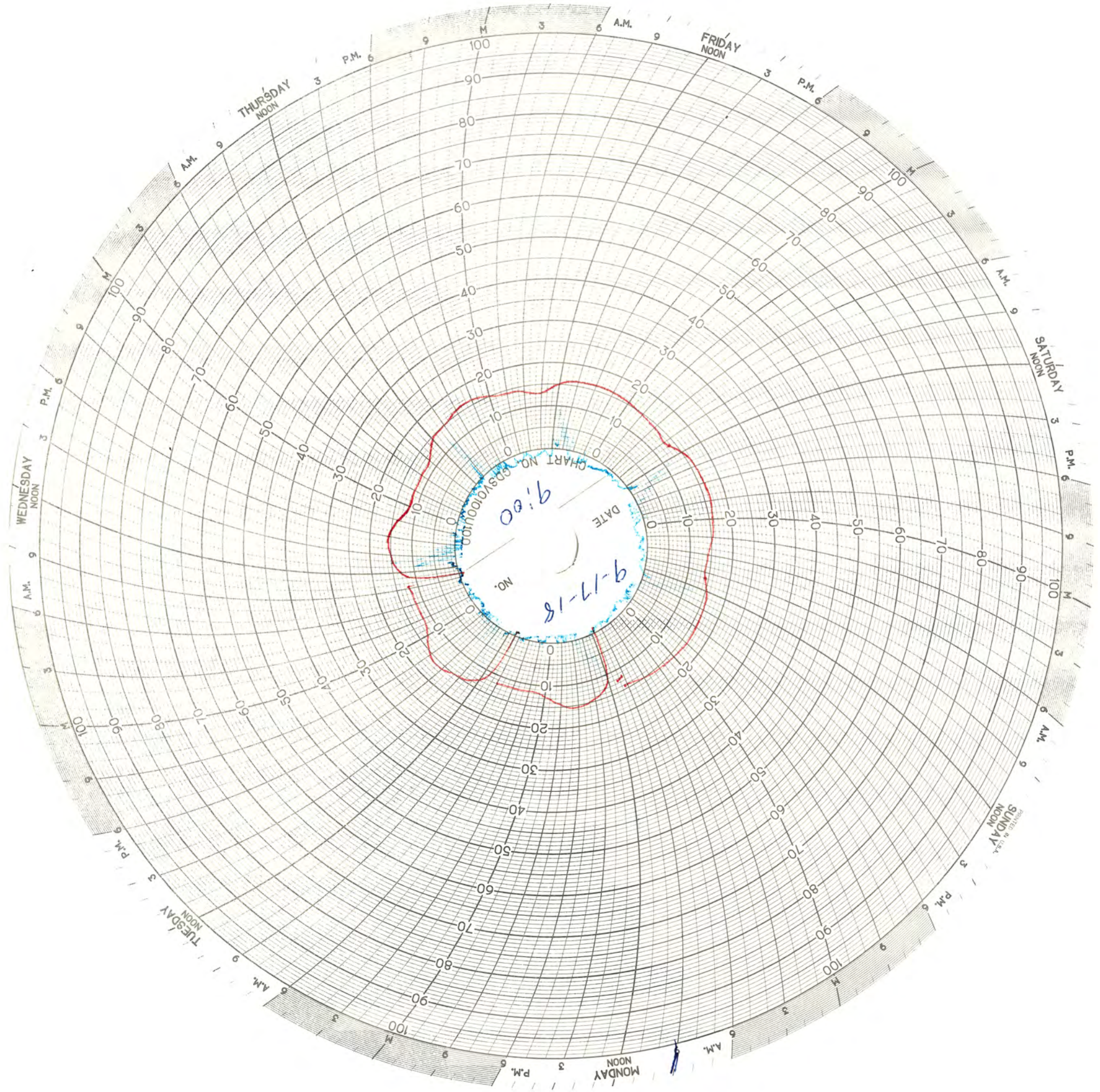
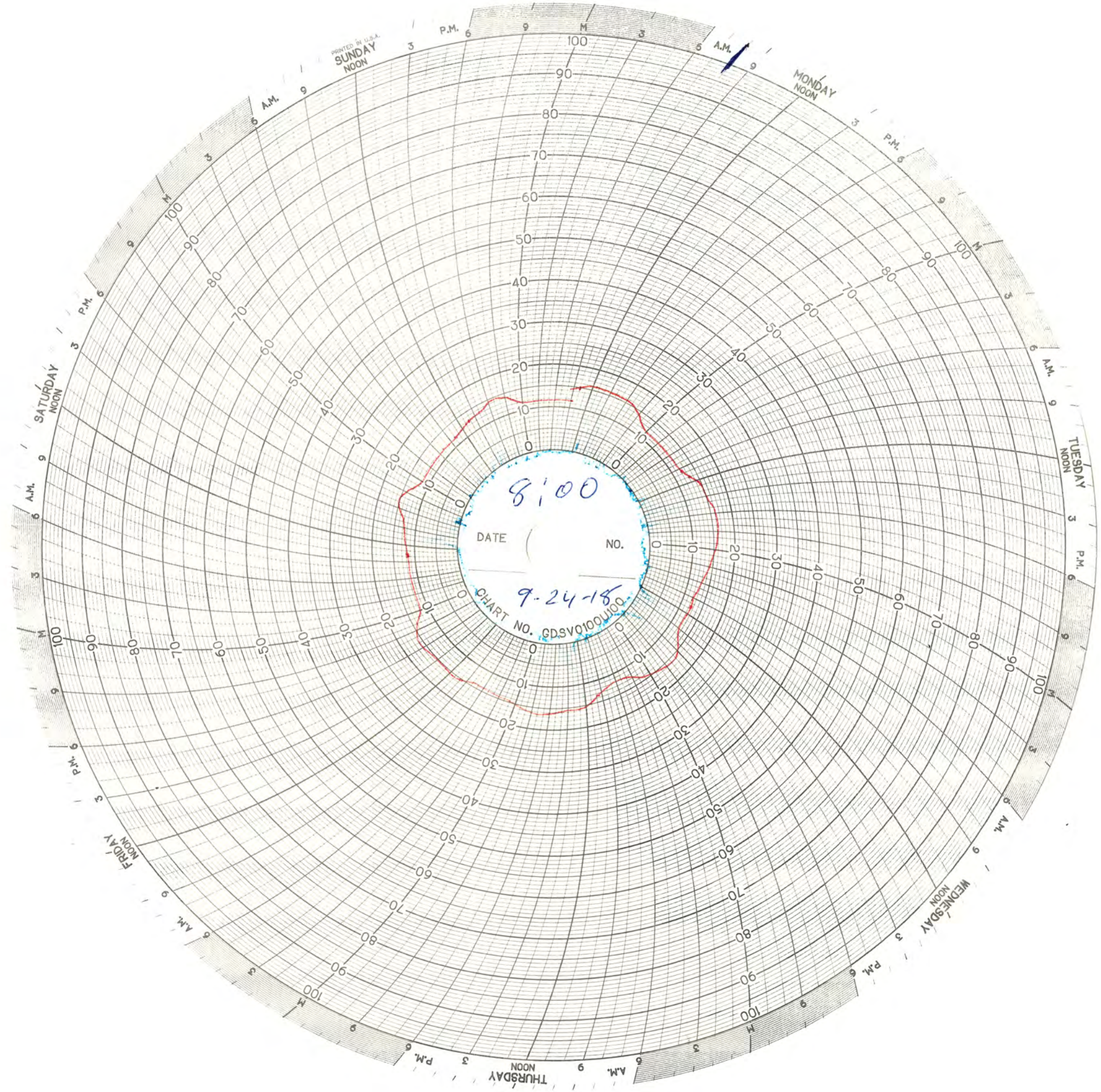
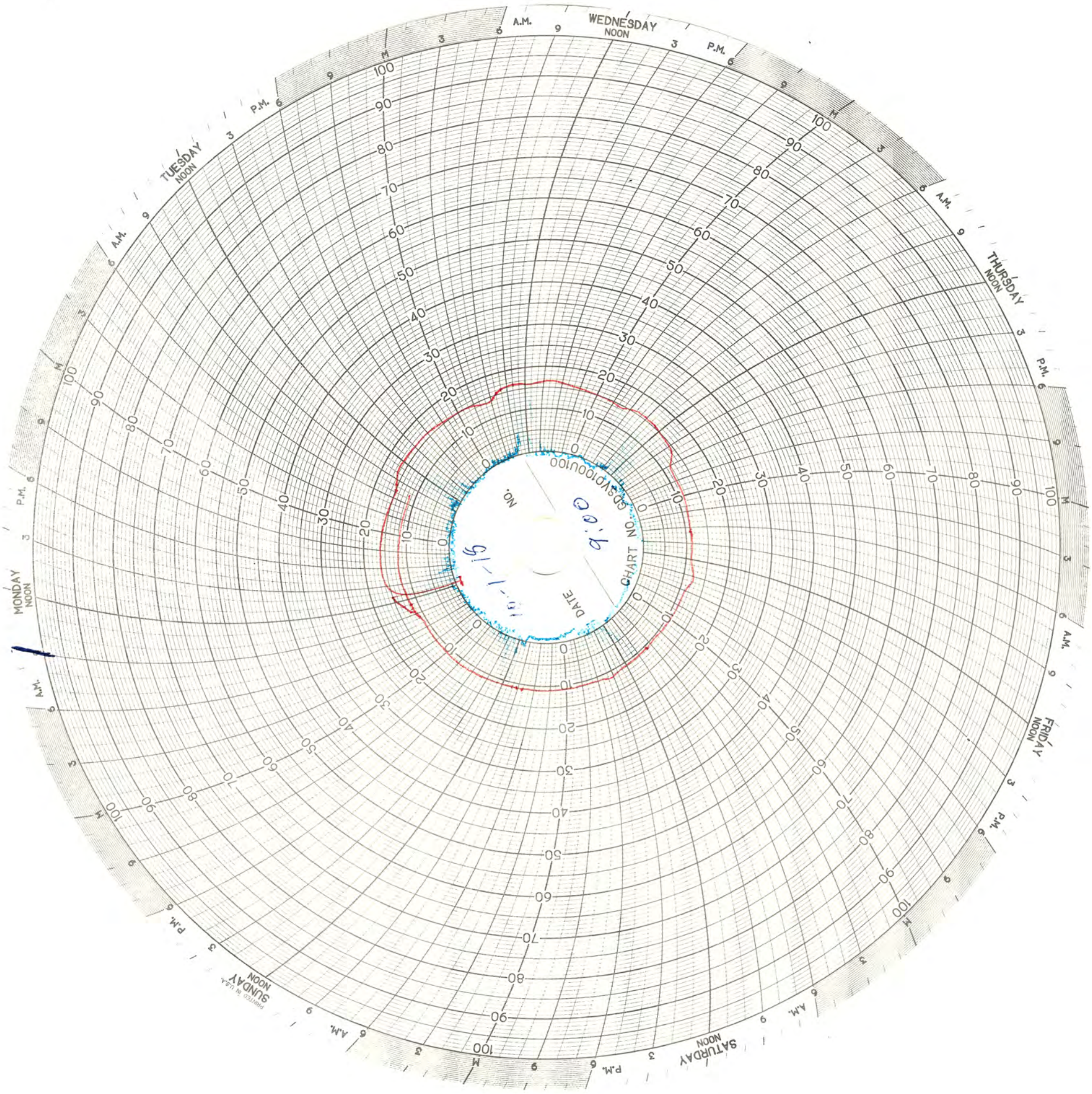
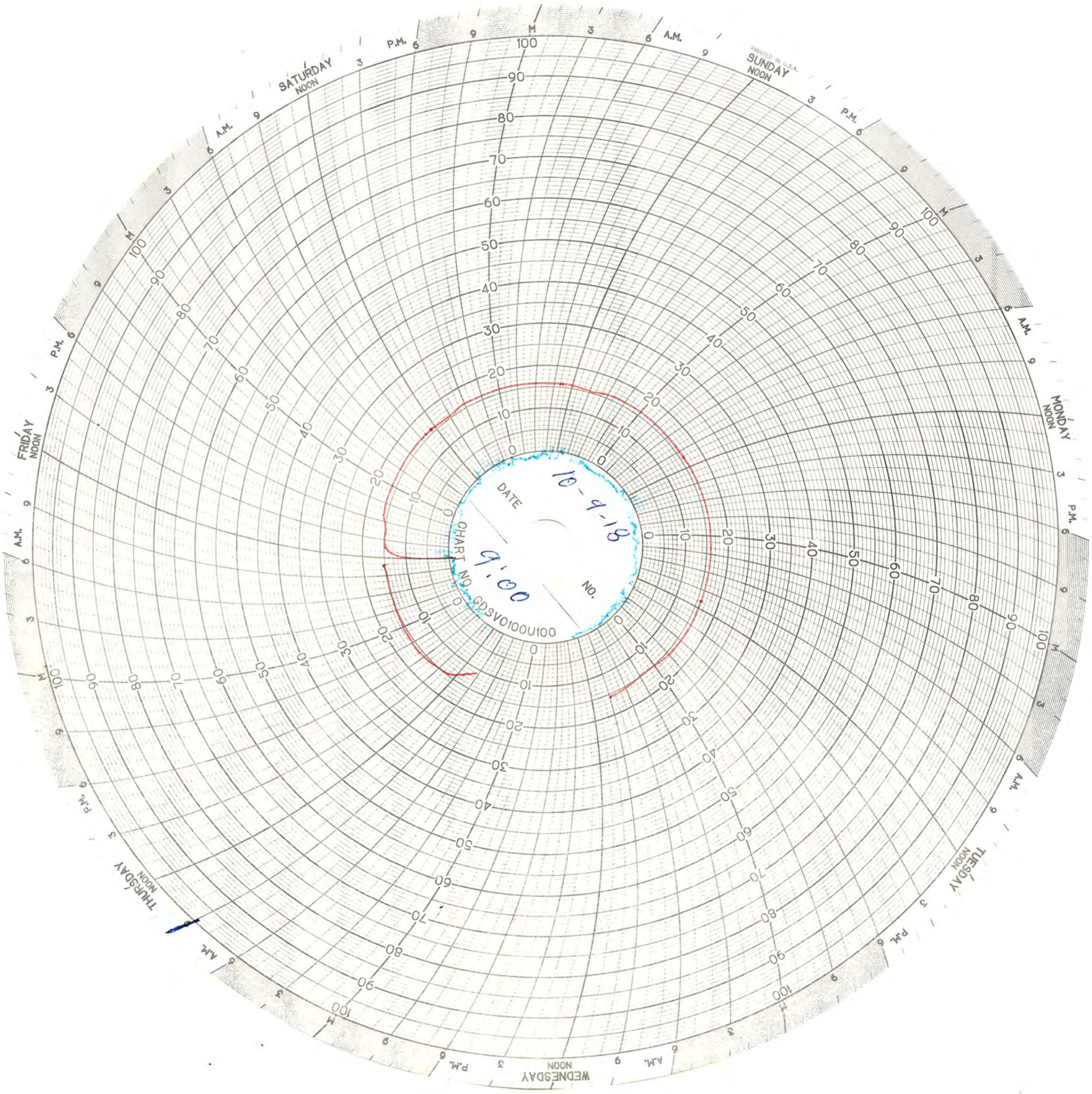
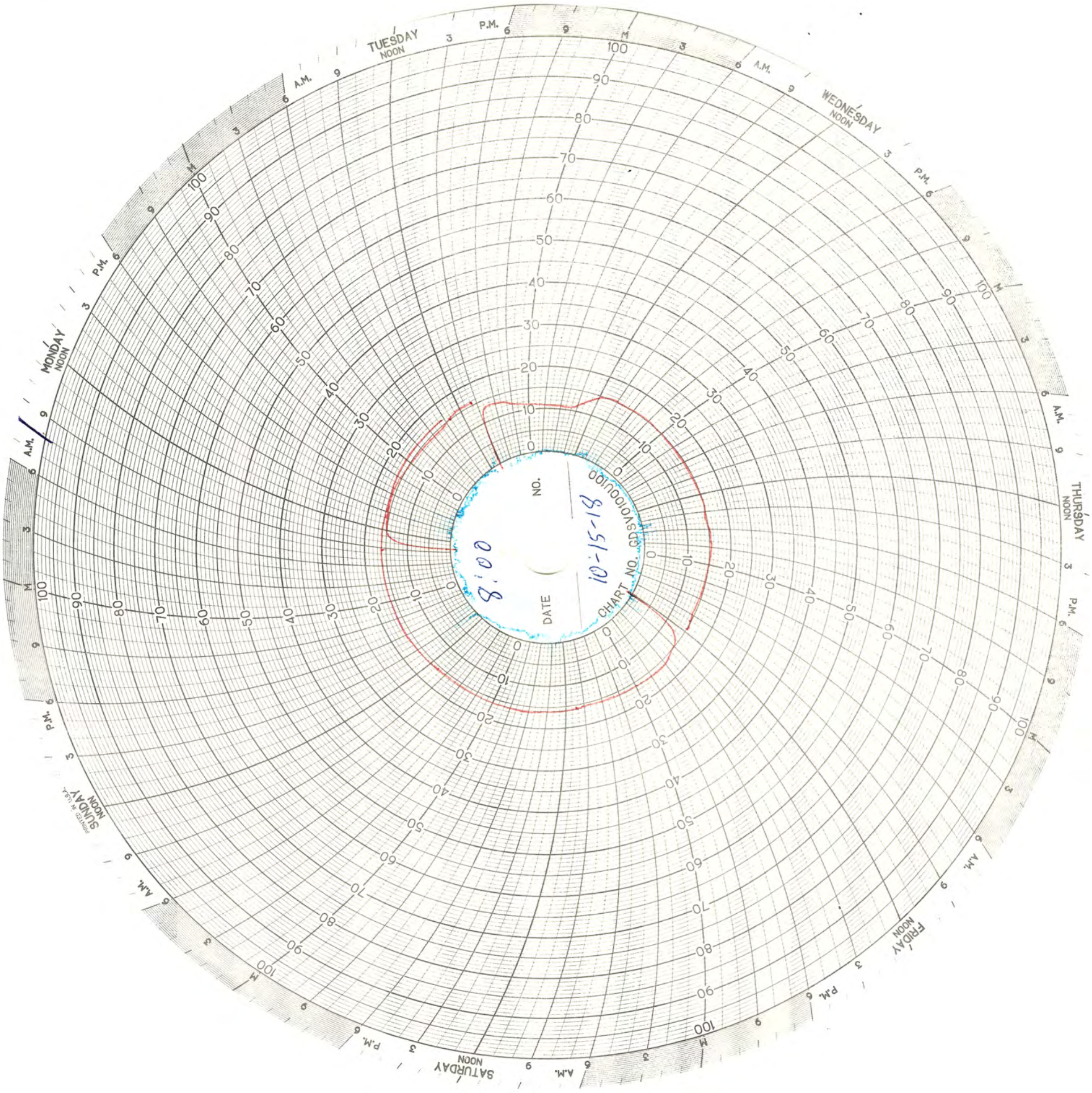


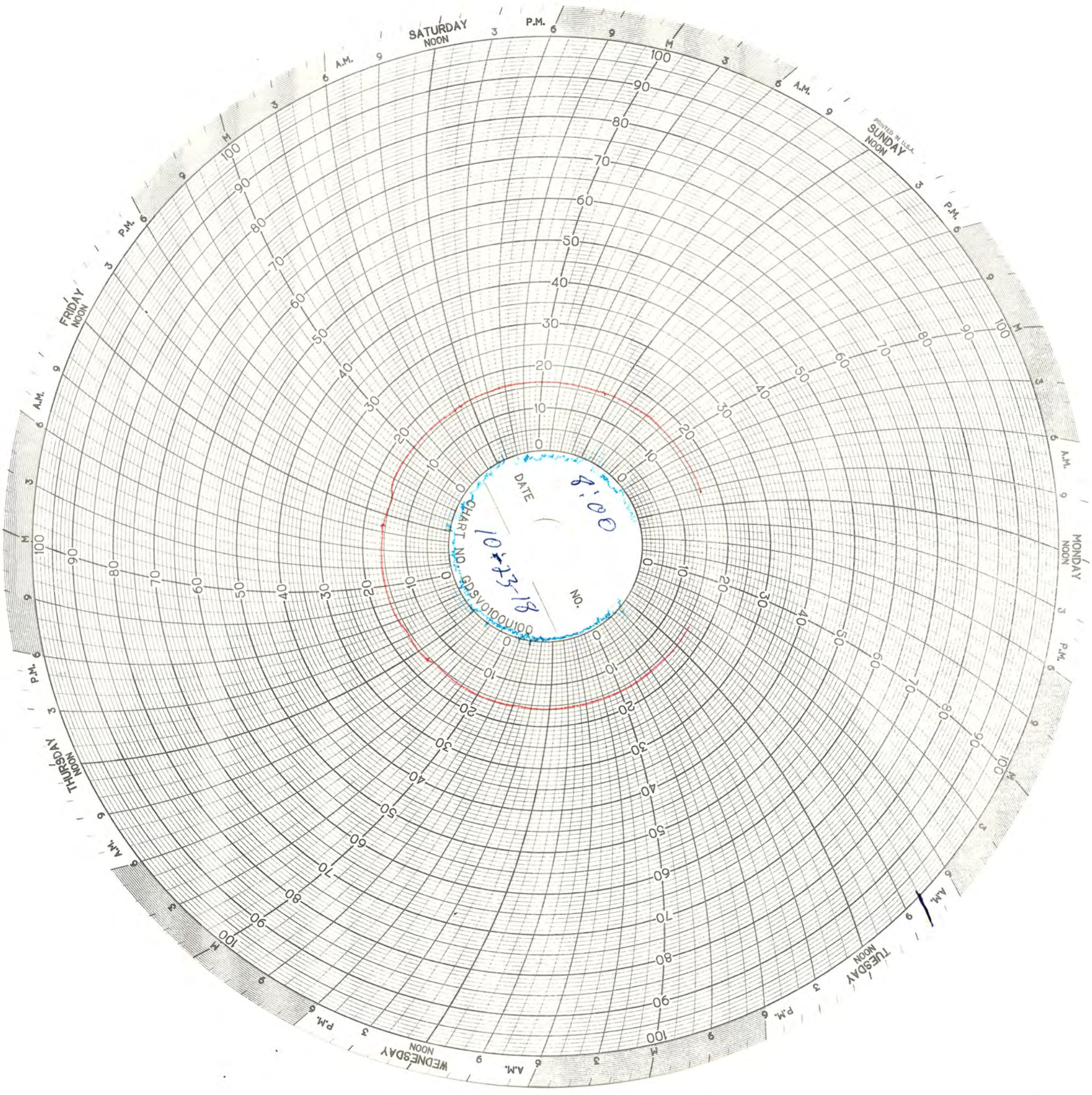
CHART NO. PHYSIOGRAPH
DATE
NO.
9:00
9-17-18
WEDNESDAY NOON
THURSDAY NOON
FRIDAY NOON
SATURDAY NOON
SUNDAY NOON
MONDAY NOON
TUESDAY NOON
A.M.
P.M.
M
100
90
80
70
60
50
40
30
20
10
0

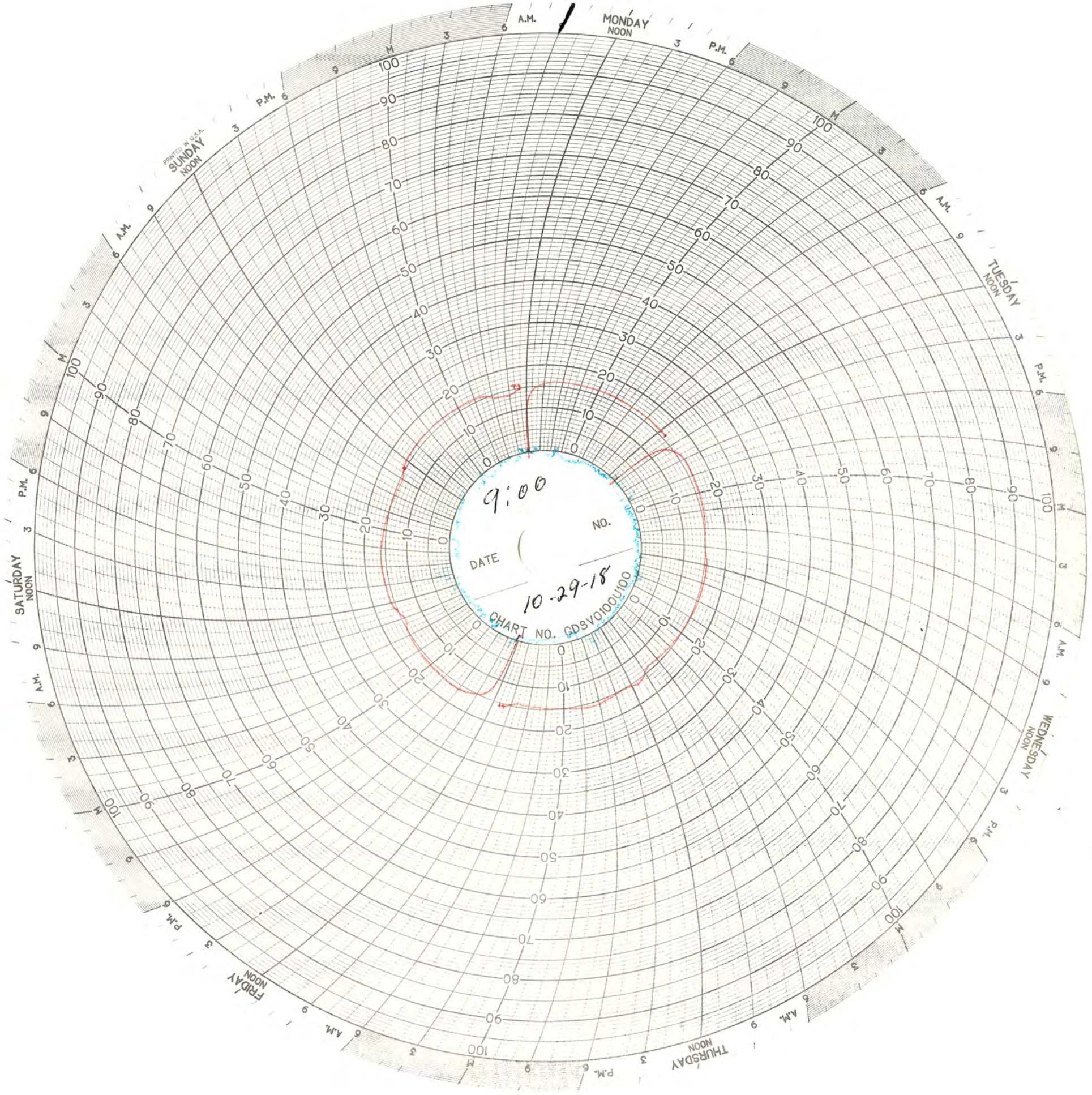

PRINTED IN U.S.A.
SUNDAY
NOON
MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
SATURDAY
NOON
A.M.
P.M.
8:00
DATE
NO.
9-24-18
CHART NO. GDSV0100U100

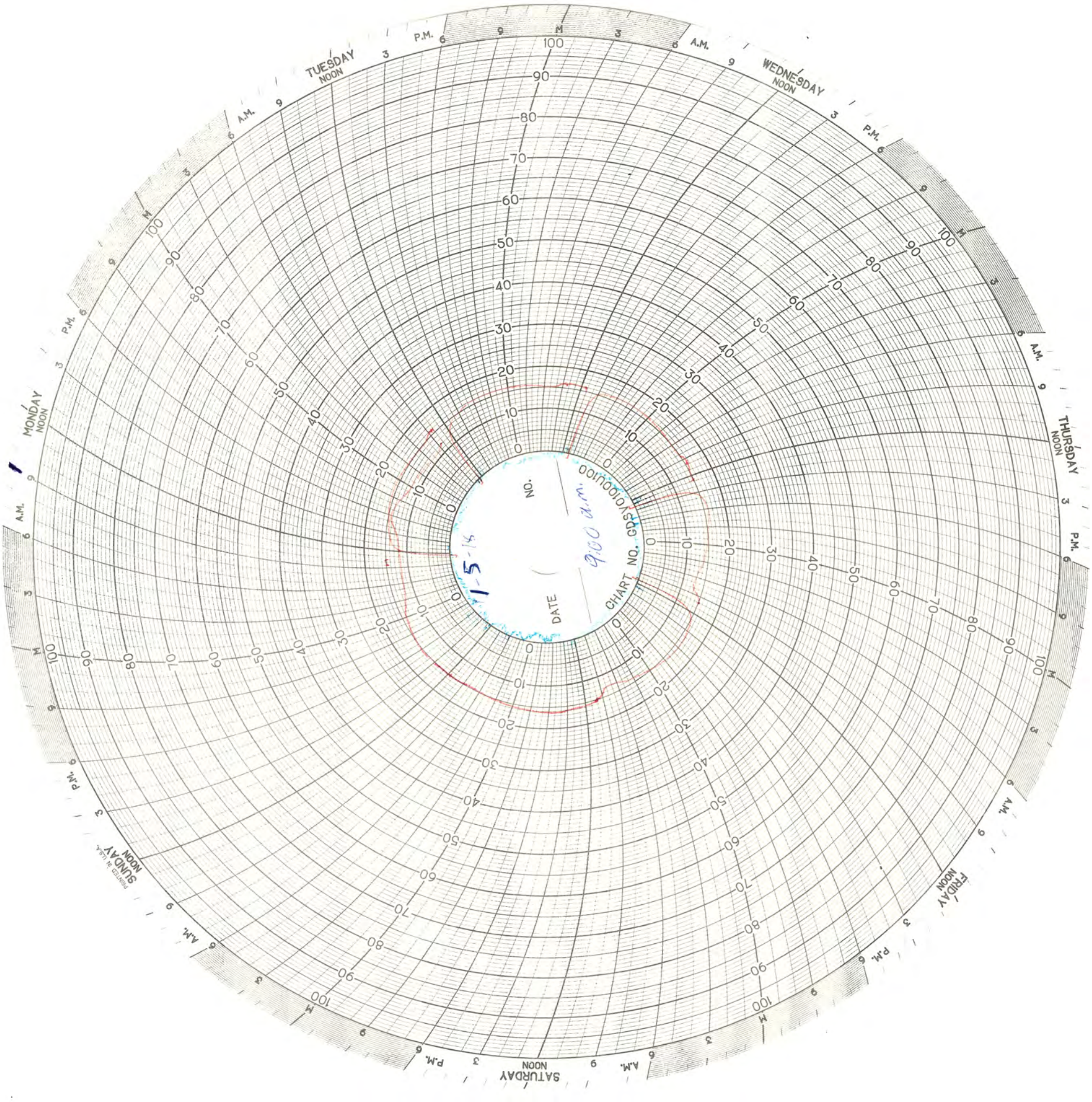

WEDNESDAY
NOON
A.M.
P.M.
TUESDAY
NOON
THURSDAY
NOON
MONDAY
NOON
FRIDAY
NOON
SUNDAY
NOON
SATURDAY
NOON
CHART NO.
DATE
NO.
10-1-15
9:00


SATURDAY
NOON
SUNDAY
NOON
MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
A.M.
P.M.
M
DATE
10-9-18
9:00
CHART NO. GDSV0100U100
NO.

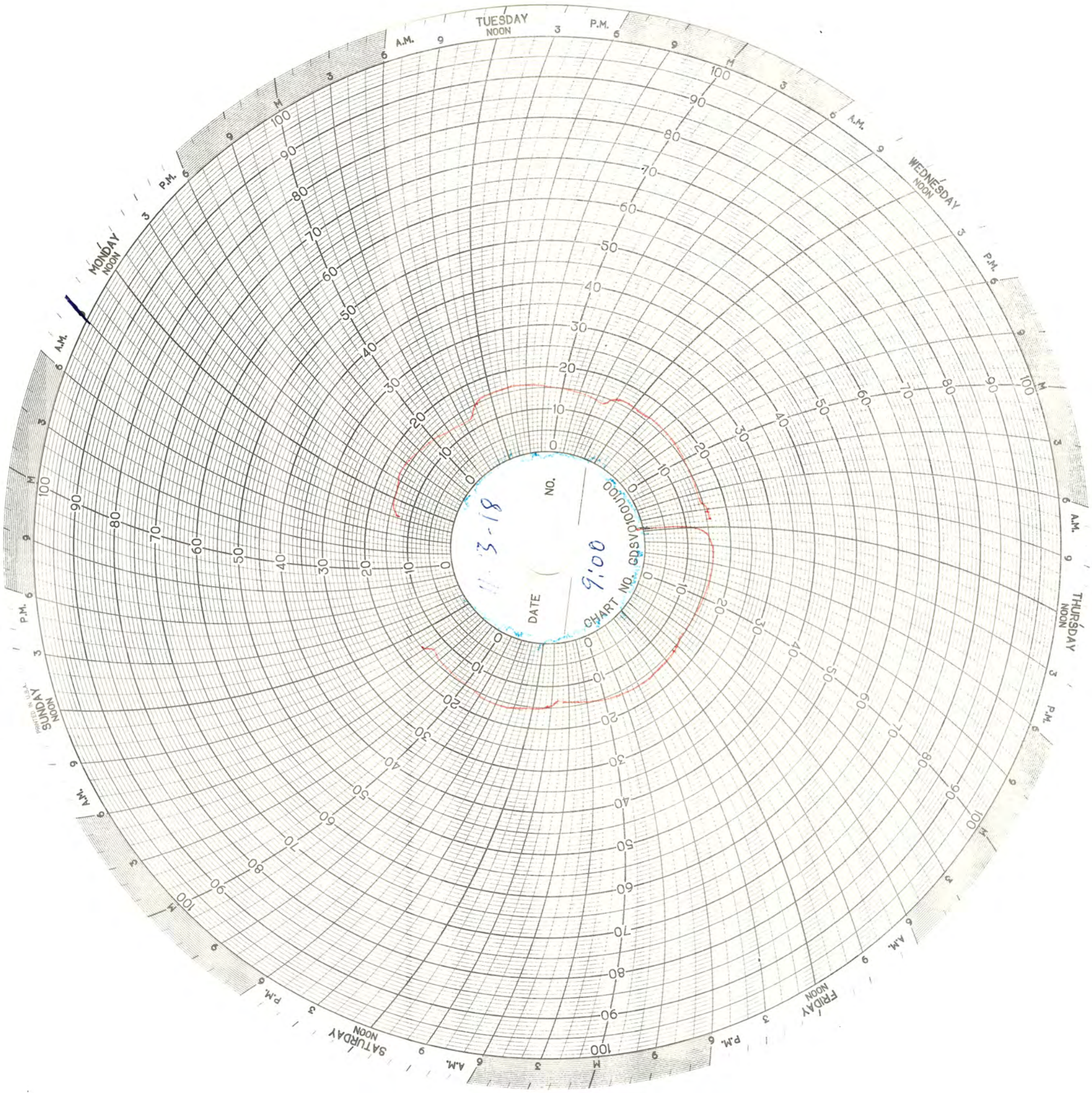

TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
SUNDAY
MONDAY
NOON
A.M.
P.M.
DATE
NO.
CHART NO. GDSV0100U100
8:00
10-15-18

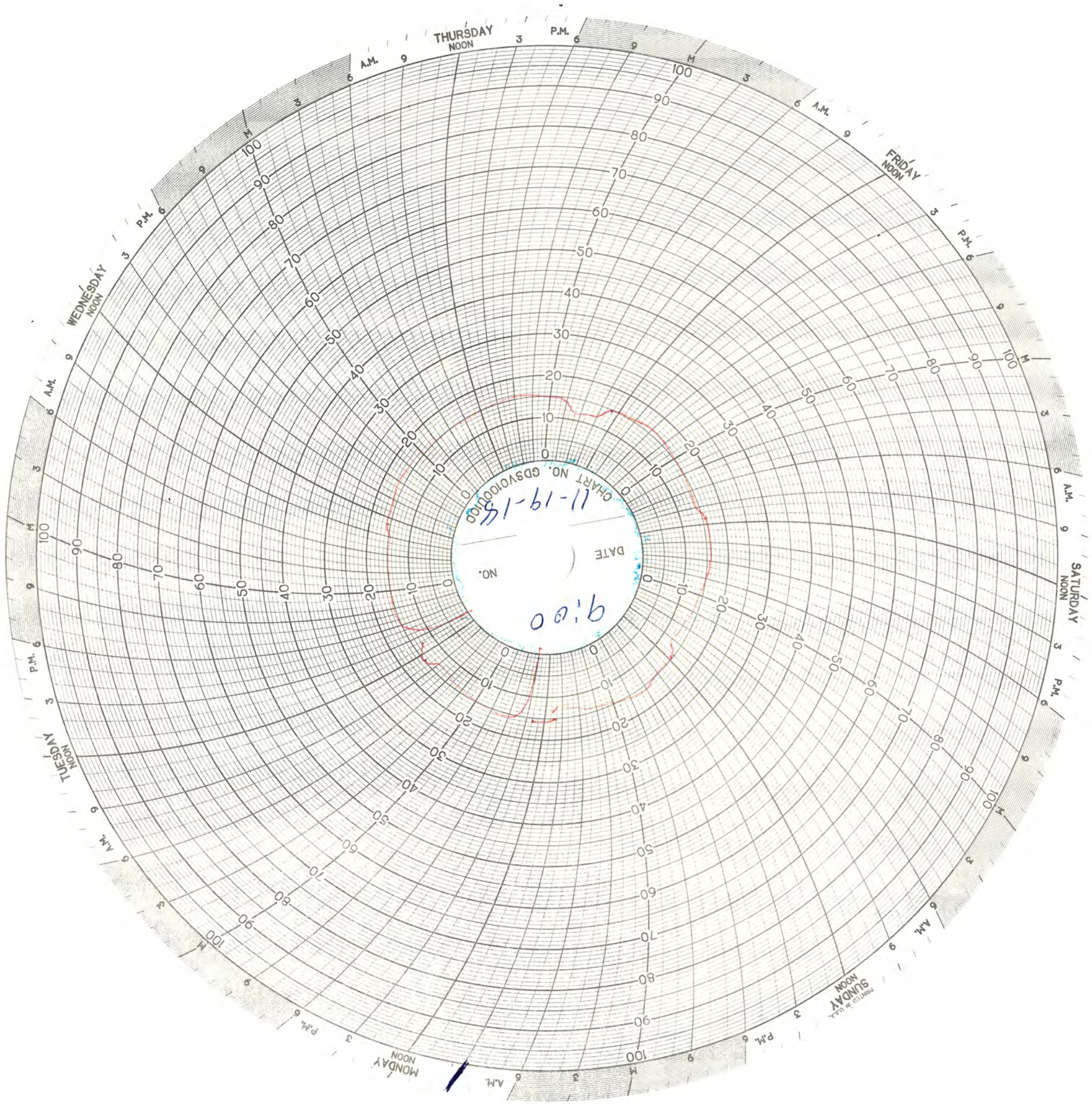

SATURDAY
NOON
SUNDAY
NOON
MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
PRINTED IN U.S.A.
DATE
NO.
CHART NO. GDSV0100U100
8:00
10-23-18

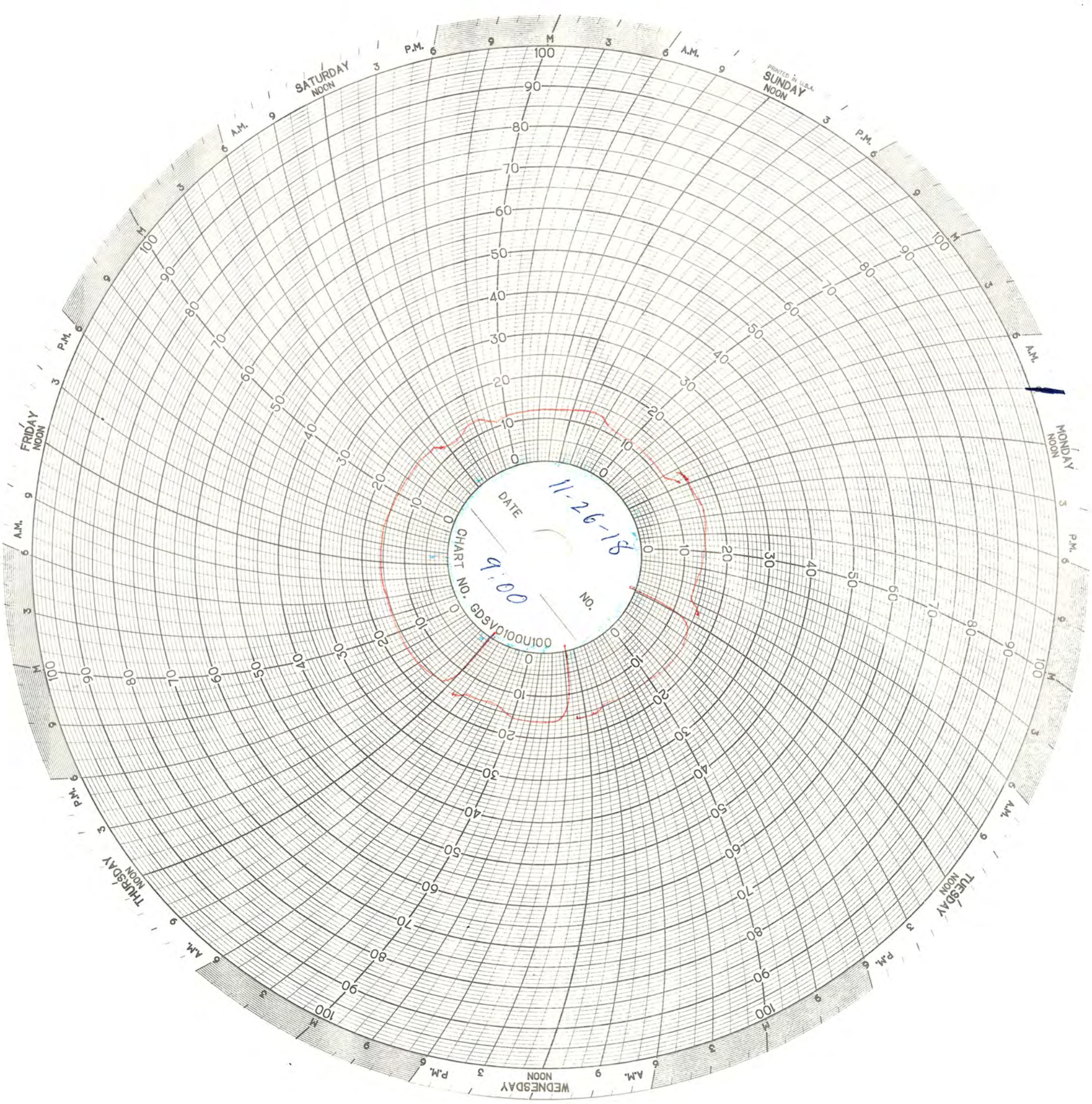

MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
SATURDAY
NOON
SUNDAY
NOON
PRINTED IN U.S.A.
A.M.
P.M.
9:00
DATE
NO.
10-29-18
CHART NO. GDSV0100U100

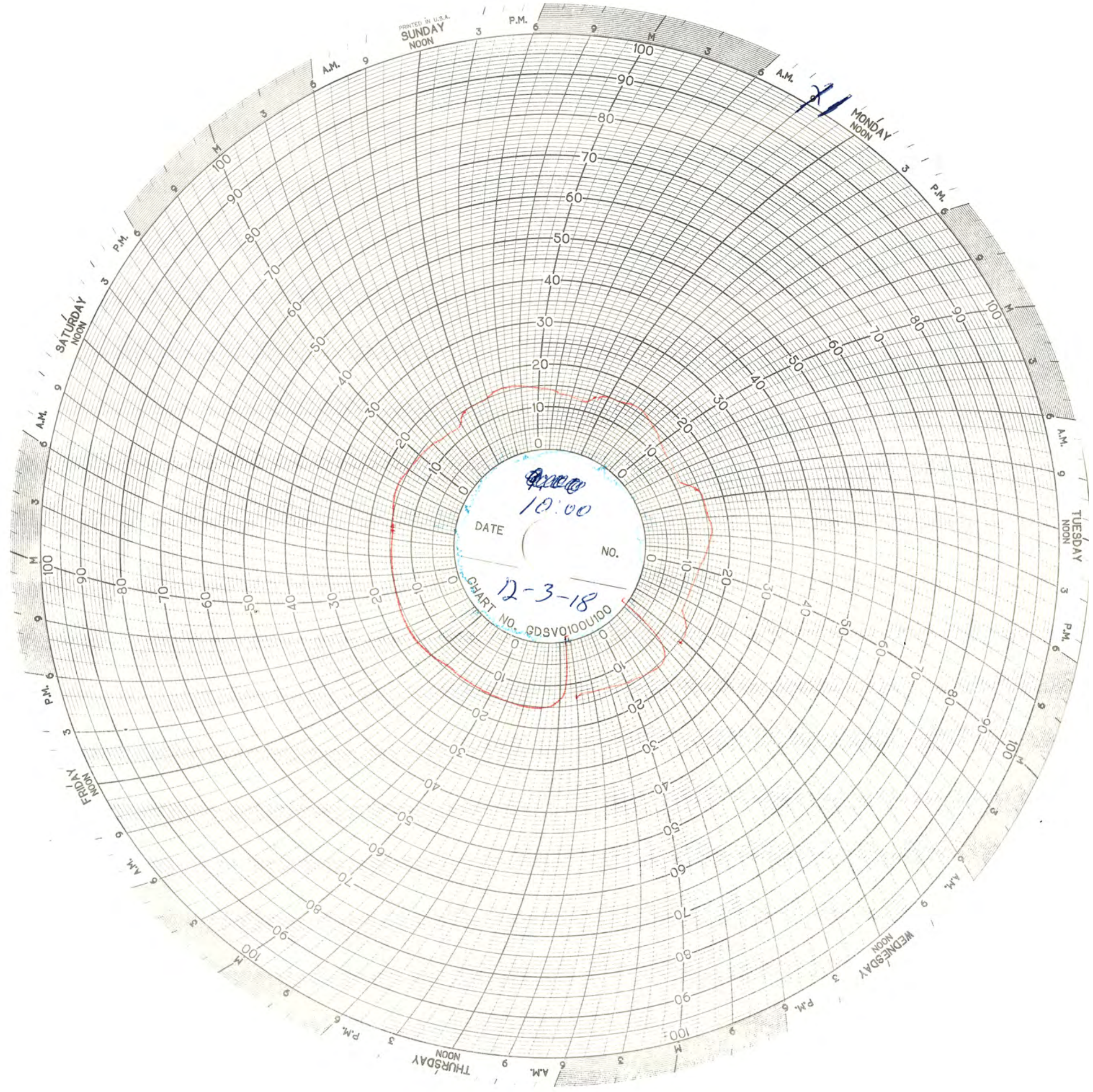


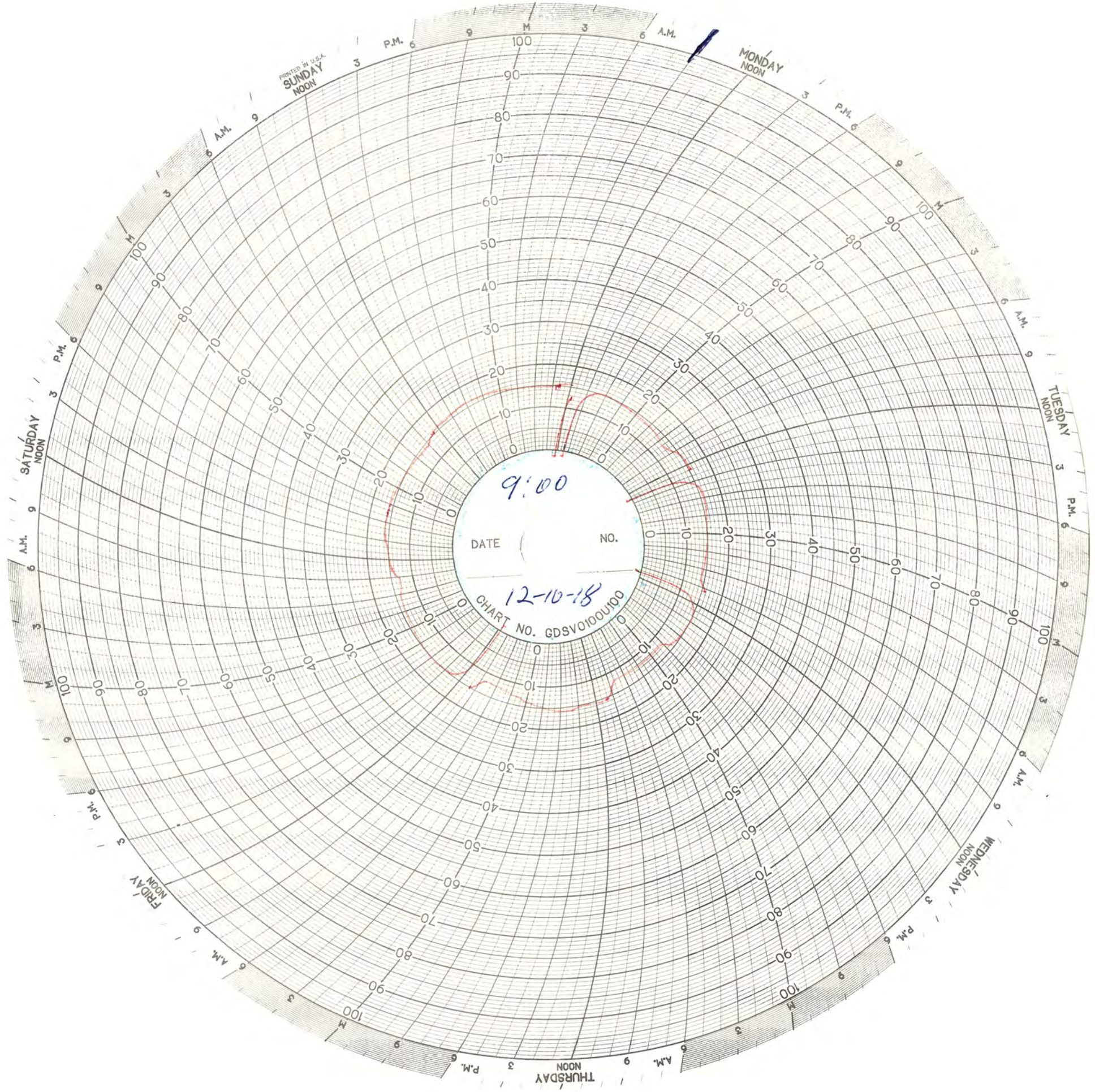
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
SUNDAY
MONDAY
NOON
A.M.
P.M.
DATE
NO.
CHART NO. GDSY0100U100
1-5-14
9:00 a.m.
PRINTED IN U.S.A.


TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
SATURDAY
NOON
SUNDAY
NOON
MONDAY
NOON
A.M.
P.M.
DATE
NO.
CHART NO.
3-18
9:00

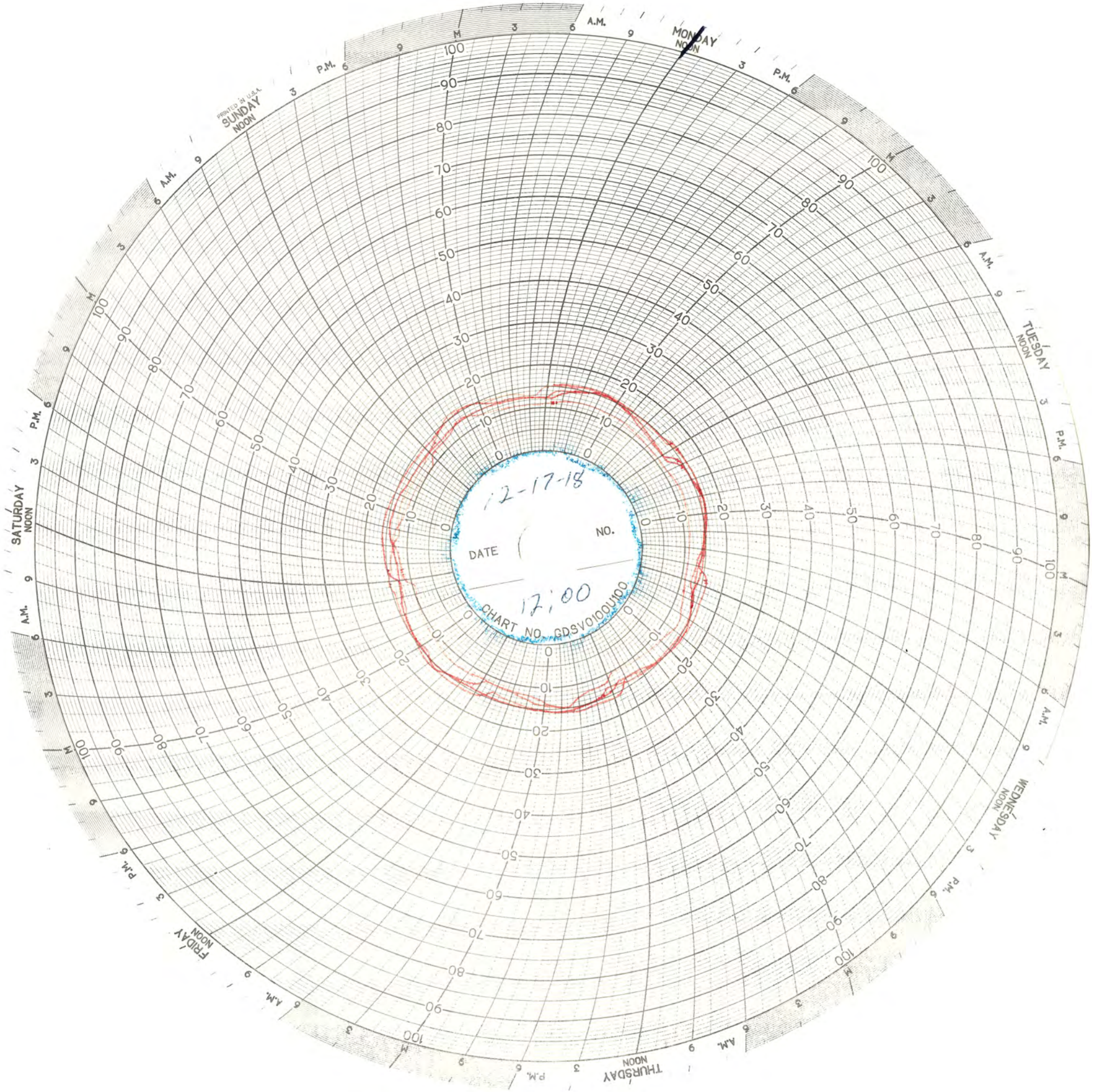

THURSDAY
NOON
FRIDAY
NOON
SATURDAY
NOON
SUNDAY
NOON
MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
A.M.
P.M.
CHART NO. GDSV0100U100
DATE
NO.
11-19-18
9:00


SATURDAY
NOON
SUNDAY
NOON
PRINTED IN U.S.A.
MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
DATE
11-26-18
9:00
NO.
CHART NO. GDSV0100U100


PRINTED IN U.S.A.
SUNDAY NOON
MONDAY NOON
TUESDAY NOON
WEDNESDAY NOON
THURSDAY NOON
FRIDAY NOON
SATURDAY NOON
A.M.
P.M.
M
DATE
NO.
10:00
12-3-18
CHART NO. CDSVQ100U100



PRINTED IN U.S.A.
SUNDAY NOON
MONDAY NOON
TUESDAY NOON
WEDNESDAY NOON
THURSDAY NOON
FRIDAY NOON
SATURDAY NOON
9:00
DATE
NO.
12-10-18
CHART NO. GDSV0100U100



MONDAY
NOON
TUESDAY
NOON
WEDNESDAY
NOON
THURSDAY
NOON
FRIDAY
NOON
SATURDAY
NOON
SUNDAY
NOON
PRINTED IN U.S.A.
A.M.
P.M.
12-17-18
DATE
NO.
17:00
CHART NO. GDSV0100U100

ATTACHMENT A607.C.

Asphalt Plant

EPA Method 9 Opacity Reports

Los Alamos

LOS ALAMOS NATIONAL LABORATORY (LANL)
VISIBLE EMISSION OBSERVATION FORM (6 MINUTE)

Source Name: TA-60 Asphalt Batch Plant

Source Location: TA-60-233

Type of Source: Asphalt Plant

Type of Control Equipment: Bag house

Describe Emission Point (Top of stack, etc.): Bag house Stack

Height Above Ground Level: 33 Feet

Height Relative to Observer: 28 Feet

Distance From Observer: 75 Feet

Direction of Source From Observer: NW

Description of Plume (stack exit only)
☐Looping ☐Trapping ☐Looping ☐Fanning ☐Coning
☑No Plume Present

Emission Color: NA

Plume Type ☑No Plume Present
☐Continuous ☐ Fugitive ☐Intermittent

Water Droplets Present?
☑NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined?
2 ft above Stack top

Describe Background (i.e. blue sky, trees, etc.)
Blue Sky

Background Color: Blue Sky

Sky Conditions: Clear

Wind Speed: 6-12 mph

Wind Direction (provide from/to, i.e. from North to South): SSE

Ambient Temperature: 70 °F

Relative Humidity: 50 %

Additional Comments/Information:

Observation Date: 7/24/2018

Start Time: 10:25 a.m.

End Time: 10:31 a.m.

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Average 6-Minute Opacity: 0

Range of Opacity Readings: Min. 0 Max. 0

OBSERVER (please print)
Name: Leonard F. Sandoval Title: DEP

Signature: [signature]

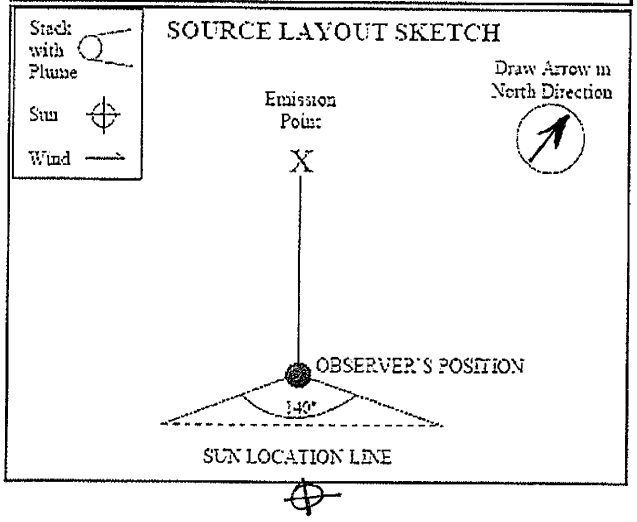
Date: 7/24/2018

Observer Organization: DESH-UIS

Certified by: ETA

Certification Date: 8/23/2017

SOURCE LAYOUT SKETCH



THIS FORM IS FROM EAQ-307, R4

Lab Home | Phone | Search

Date: Tuesday, July 24, 2018 | Time: 10:00 MDT (16:00 UTC) | Time Note »

The Weather Machine

LOS ALAMOS NATIONAL LABORATORY

LANL Observations | Regional/U.S. Observations | Forecast Products | LANL Climatology | Data Requests

LANL Welcome... Today's Weather Almanac »

Welcome to the Weather Machine! The Weather Machine provides access to the latest meteorological observations, climatological information, and weather forecast products for the Los Alamos area. Questions/Comments? Contact us »

Hover over image for caption...

LANL Current Conditions... More Data »

Tower (tower):	TA6	TA49	TA53	TA54
Date (mm/dd):	7/24	7/19	7/24	7/24
Time (hh:mm):	08:45	16:15	08:45	08:45
Temp (°F):	68.0	92.3	69.3	70.5
Wind Chill (°F):	68.0	92.3	69.3	70.5
Dew Point (°F):	50.4	92.3	51.8	55.8
RH (%):	53	*	53	59
Speed (mph):	5.8	12.1	6.5	5.8
Dir (from):	SSE	SSE	SSE	SSE
Precip Today (in):	0.00	0.00	0.01	0.00

NOTE: All times are reported in MST.

Weather Related Links...

- Los Alamos 7-Day Forecast
- Zone Forecast for Jemez Mountains
- Zone Forecast for Lower Chama Valley
- Zone Forecast for Santa Fe Metro Area
- Hazardous Weather Outlook
- NOAA Albuquerque Forecast Office

NATIONAL WEATHER SERVICE - LOS ALAMOS FORECAST

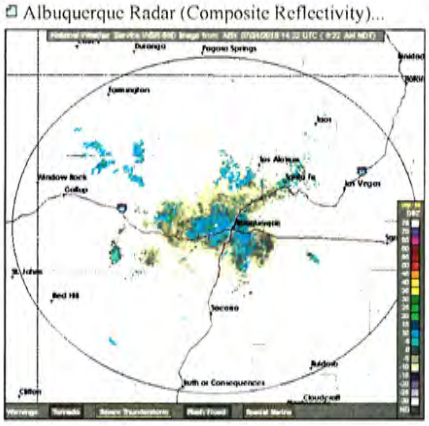
For the most current and accurate weather information including forecasts, watches, warnings and advisories for the Los Alamos area, please go to the **National Weather Service** Site

Regional Weather Forecast Map...

SHOW/HIDE LEGEND

Click city to view National Weather Service Data.

Albuquerque Radar (Composite Reflectivity)...



Click map to view other radar options.

About Us | Contact Us | Documentation Analyses

Los Alamos NATIONAL LABORATORY EST 1943

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

Outside | © Copyright 2018 LANS LLC All rights reserved | Disclaimer Privacy

505-667-7079 | weather@lanl.gov | webmaster:weather@lanl.gov

Weather Home | Lab Home

Los Alamos NATIONAL LABORATORY

LOS ALAMOS NATIONAL LABORATORY (LANL)
VISIBLE EMISSION OBSERVATION FORM (6 MINUTE)

Source Name: TA-60 Asphalt Batch Plant

Source Location: TA-60-233

Type of Source: Asphalt Plant

Type of Control Equipment: Baghouse

Describe Emission Point (Top of stack, etc.): Top of baghouse Stack.

Height Above Ground Level: 33 Feet

Height Relative to Observer: 26 Feet

Distance From Observer: 70 Feet

Direction of Source From Observer: W - NW

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☑No Plume Present

Emission Color: N/A

Plume Type ☑No Plume Present ☐Continuous ☐ Fugitive ☐Intermittent

Water Droplets Present?
☑NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined? 6" above stack height

Describe Background (i.e. blue sky, trees, etc.): Blue Sky

Background Color: Blue

Sky Conditions: Clear (above stack)

Wind Speed: 10.1 mph

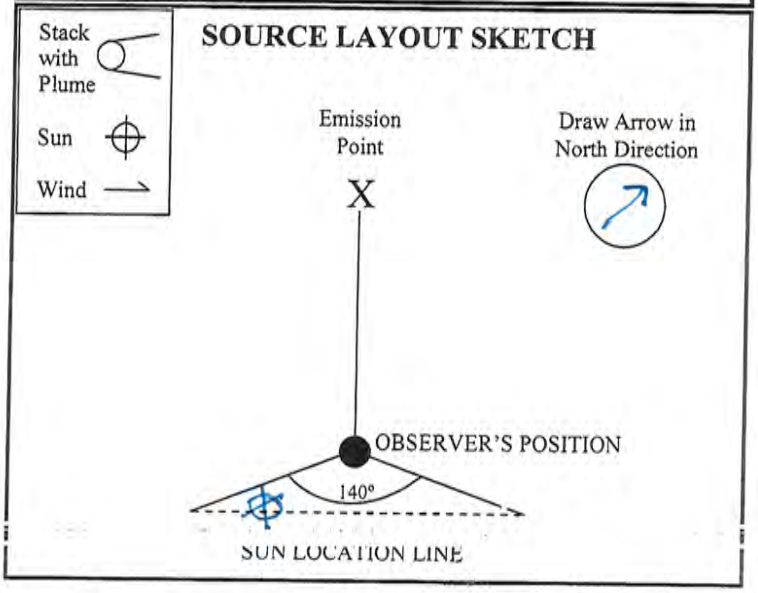
Wind Direction (provide from/to, i.e. from North to South): W to E

Ambient Temperature: 81.5 °F

Relative Humidity: 11 %

Additional Comments/Information:

SOURCE LAYOUT SKETCH



Observation Date: 8/28/18 | Start Time: 1:37pm | End Time: 1:43pm

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Average 6-Minute Opacity: 0

Range of Opacity Readings: Min. 0 Max. 0

OBSERVER (please print)
Name: Jillian Burgin
Title: DEP

Signature: JBurgin

Date: 8/28/18

Observer Organization: DESHS-UIS

Certified by: ETA

Certification Date: 8/23/18

The Weather Machine

LOS ALAMOS NATIONAL LABORATORY

LANL Observations > Table Summaries

The table below provides a snapshot of current conditions at each tower location. Wind variables are measured at 11 meters above the ground (36 meters at PJMT) and the atmospheric state variables (temperature, humidity, and pressure) are measured at 1.2 meters above the ground (2 meters at PJMT).

Other Text Summaries Available: 15-Minute Short Summary (English)

Current Observations: English | Metric

Tower (tower)	TA6	TA49	TA53	TA54
Date (mm/dd)	08/28	08/28	08/28	08/28
Time (hhmm)	1300	1300	1300	1300
Wind Speed (mph)	10.7	10.1	10.1	9.4
Wind Direction (deg)	292	281	264 °W	279
Max Gust (mph)	30.4	31.3	33.1	28.4
Max Gust Direction (deg)	289	282	293	291
Time of Max Gust (hhmm)	15		200	115
Temperature (deg-F)	77.5	80.2	81.5	83.7
Max Temp Since Midnight (deg-F)	78.3	80.2	81.5	83.7
Time of Max Temp (hhmm)	1245	1300	1300	1300
Min Temp Since Midnight (deg-F)	59.7	60.6	61.5	53.2
Time of Min Temp (hhmm)	615	545	615	545
Pressure (mb)	779.2	-	-	802.6
Relative Humidity (%)	12	10	11	9
Dew Point Temperature (deg-F)	22.5	19.4	23.4	19.8
Precip Last 15 Minutes (in)	0.00	0.00	0.00	0.00
Precip Since Midnight (in)	0.00	0.00	0.00	0.00
Downwelling Shortwave (BTU/hr*ft^2)	317	311	335	319
Wind Chill (deg-F)	77.5	80.2	81.5	83.7

NOTE: All times are reported in Mountain Standard Time (MST).

Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

Los Alamos NATIONAL LABORATORY EST 1943

Outside | © Copyright 2018 LANS LLC All rights reserved | Disclaimer/Privacy

Los Alamos NATIONAL LABORATORY

LOS ALAMOS NATIONAL LABORATORY (LANL)
VISIBLE EMISSION OBSERVATION FORM (6 MINUTE)

Source Name: TA-60 Asphalt Batch Plant

Source Location: TA-60-233

Type of Source: Asphalt Plant

Type of Control Equipment: Baghouse

Describe Emission Point (Top of stack, etc.): Above Stack Top

Height Above Ground Level: 33 Feet

Height Relative to Observer: 26 Feet

Distance From Observer: 70 Feet

Direction of Source From Observer: W/NW

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☑No Plume Present

Emission Color: N/A

Plume Type ☑No Plume Present ☐Continuous ☐ Fugitive ☐Intermittent

Water Droplets Present?
☑NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined? 6" Above Stack Height

Describe Background (i.e. blue sky, trees, etc.): Blue Sky

Background Color: Blue

Sky Conditions: Clear

Wind Speed: 8.3 mph

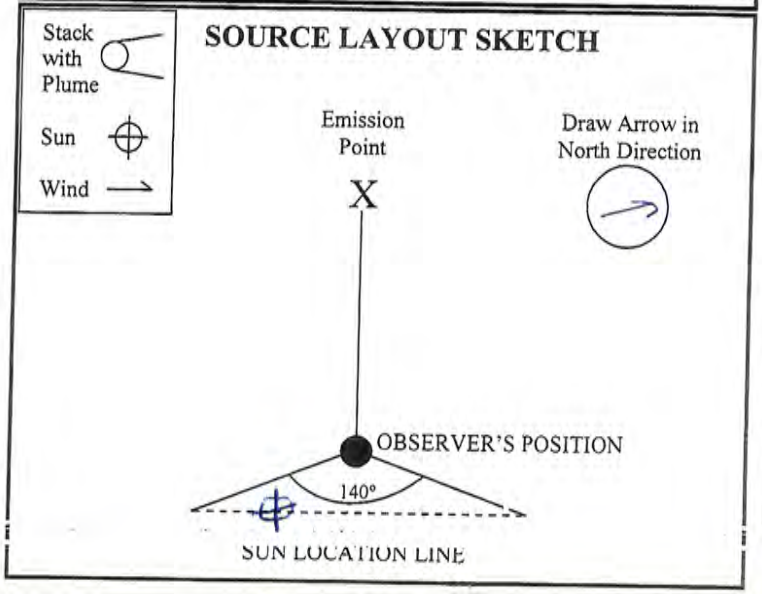
Wind Direction (provide from/to, i.e. from North to South): W to E

Ambient Temperature: 77 °F

Relative Humidity: 13 %

Additional Comments/Information:

SOURCE LAYOUT SKETCH



Observation Date: 9/13/18

Start Time: 11:40

End Time: 11:46

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Average 6-Minute Opacity: 0

Range of Opacity Readings: Min. 0 Max. 0

OBSERVER (please print)
Name: Jillian Burgin
Title: DEP

Signature: JBurgin

Date: 9/13/18

Observer Organization: DESHS-UIS

Certified by: ETH

Certification Date: 8/22/18

Date: Thursday, September 13, 2018 | Time: 12:04 MDT (18:04 UTC) | **Time Note »**

The Weather Machine

LOS ALAMOS NATIONAL LABORATORY

LANL Observations > Table Summaries

The table below provides a snapshot of current conditions at each tower location. Wind variables are measured at 11 meters above the ground (36 meters at PJMT) and the atmospheric state variables (temperature, humidity, and pressure) are measured at 1.2 meters above the ground (2 meters at PJMT).

Other Text Summaries Available: 15-Minute Short Summary (English)

Current Observations: English | Metric

Tower (tower)	TA6	TA49	TA53	TA54
Date (mm/dd)	09/13	09/13	09/13	09/13
Time (hhmm)	1045	1045	1045	1045
Wind Speed (mph)	9.2	7.2	8.3	8.9
Wind Direction (deg)	294	298	261	328
Max Gust (mph)	24.6	26.6	23.3	20.6
Max Gust Direction (deg)	318	311	339	96
Time of Max Gust (hhmm)	245	245	230	1030
Temperature (deg-F)	74.8	77.7	78.4	79.5
Max Temp Since Midnight (deg-F)	74.8	77.7	78.4	79.5
Time of Max Temp (hhmm)	1045	1045	1045	1045
Min Temp Since Midnight (deg-F)	61.7	62.2	62.2	53.8
Time of Min Temp (hhmm)	515	445	330	600
Pressure (mb)	780.5	-	-	804.1
Relative Humidity (%)	14	12	13	13
Dew Point Temperature (deg-F)	23.7	21.4	23.7	25.5
Precip Last 15 Minutes (in)	0.00	0.00	0.00	0.00
Precip Since Midnight (in)	0.00	0.00	0.00	0.00
Downwelling Shortwave (BTU/hr*ft^2)	286	276	301	283
Wind Chill (deg-F)	74.8	77.7	78.4	79.5

NOTE: All times are reported in Mountain Standard Time (MST).

LOS ALAMOS NATIONAL LABORATORY (LANL)
VISIBLE EMISSION OBSERVATION FORM (6 MINUTE)

Source Name: TA-60 Asphalt Batch Plant

Source Location: TA-60-233

Type of Source: Asphalt Plant

Type of Control Equipment: Baghouse

Describe Emission Point (Top of stack, etc.): Top of Stack

Height Above Ground Level: 33 Feet

Height Relative to Observer: 26 Feet

Distance From Observer: 70 Feet

Direction of Source From Observer: W-NW

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☑No Plume Present

Emission Color: N/A

Plume Type ☑No Plume Present ☐Continuous ☐ Fugitive ☐Intermittent

Water Droplets Present?
☑NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined? No Plume - 6" above Stack

Describe Background (i.e. blue sky, trees, etc.): Blue Sky

Background Color: Blue

Sky Conditions: Clear

Wind Speed: 6 mph

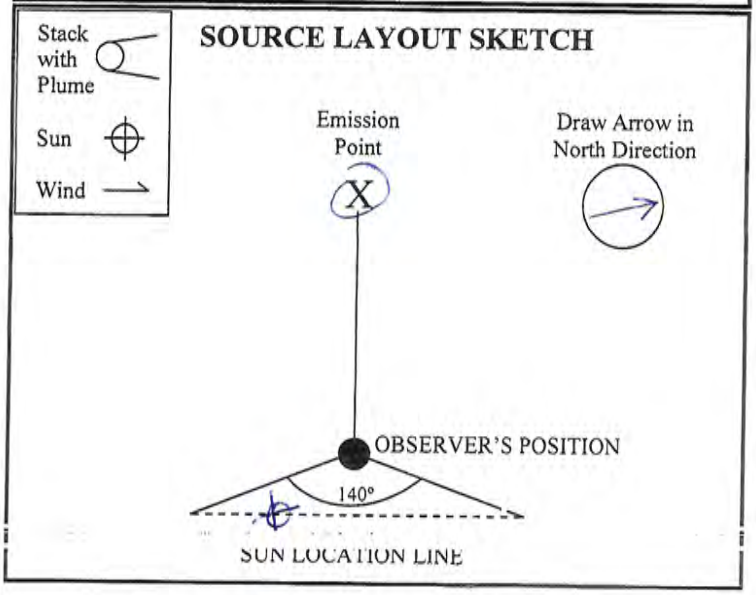
Wind Direction (provide from/to, i.e. from North to South): ESE

Ambient Temperature: 55 °F

Relative Humidity: 39 %

Additional Comments/Information:

SOURCE LAYOUT SKETCH



Observation Date: 10/29/18

Start Time: 11:05

End Time: 11:11

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Average 6-Minute Opacity: 0

Range of Opacity Readings: Min. 0 Max. 0

OBSERVER (please print)
Name: Jillian Burgin
Title: DEP

Signature: JBurgin

Date: 10/29/18

Observer Organization: DESHS-HIS

Certified by: ETH

Certification Date: 8/22/18

ENV CP Form 1005 04/2015

Daily Observations

Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Precip Accum
12:15 AM	55 ° F	18 ° F	24 %	CALM	0 mph	0 mph	23.3 in	0.0 in	0.0 in
12:35 AM	54 ° F	15 ° F	22 %	CALM	0 mph	0 mph	23.3 in	0.0 in	0.0 in
12:55 AM	56 ° F	17 ° F	22 %	E	3 mph	0 mph	23.3 in	0.0 in	0.0 in
1:15 AM	55 ° F	17 ° F	22 %	SE	6 mph	0 mph	23.3 in	0.0 in	0.0 in
1:35 AM	52 ° F	13 ° F	22 %	SSW	6 mph	0 mph	23.2 in	0.0 in	0.0 in
1:55 AM	54 ° F	13 ° F	20 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
2:10 AM	53 ° F	13 ° F	21 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
2:35 AM	55 ° F	14 ° F	20 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
2:55 AM	54 ° F	15 ° F	21 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
3:15 AM	54 ° F	17 ° F	24 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
3:35 AM	53 ° F	19 ° F	27 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
3:55 AM	53 ° F	20 ° F	28 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
4:15 AM	51 ° F	20 ° F	30 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
4:35 AM	51 ° F	19 ° F	29 %	WNW	3 mph	0 mph	23.2 in	0.0 in	0.0 in
4:55 AM	50 ° F	19 ° F	30 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
5:15 AM	50 ° F	20 ° F	31 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
5:35 AM	49 ° F	21 ° F	33 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
5:55 AM	50 ° F	22 ° F	33 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
6:15 AM	49 ° F	21 ° F	34 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
6:35 AM	48 ° F	28 ° F	45 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
6:55 AM	47 ° F	24 ° F	40 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
7:15 AM	47 ° F	23 ° F	39 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
7:35 AM	46 ° F	24 ° F	42 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
7:55 AM	46 ° F	24 ° F	42 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
8:15 AM	47 ° F	25 ° F	42 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
8:35 AM	47 ° F	25 ° F	43 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
8:55 AM	47 ° F	24 ° F	40 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
9:15 AM	48 ° F	24 ° F	38 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
9:35 AM	50 ° F	24 ° F	37 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
9:55 AM	51 ° F	26 ° F	38 %	CALM	0 mph	0 mph	23.2 in	0.0 in	0.0 in
10:15 AM	52 ° F	28 ° F	40 %	SE	3 mph	0 mph	23.2 in	0.0 in	0.0 in
10:35 AM	53 ° F	28 ° F	38 %	SSE	3 mph	0 mph	23.2 in	0.0 in	0.0 in
10:55 AM	55 ° F	29 ° F	38 %	ESE	3 mph	0 mph	23.2 in	0.0 in	0.0 in
11:15 AM	55 ° F	31 ° F	39 %	ESE	6 mph	0 mph	23.2 in	0.0 in	0.0 in
11:35 AM	56 ° F	31 ° F	38 %	ESE	6 mph	0 mph	23.2 in	0.0 in	0.0 in
11:55 AM	57 ° F	31 ° F	36 %	SSE	5 mph	0 mph	23.2 in	0.0 in	0.0 in
12:15 PM	58 ° F	32 ° F	37 %	SE	7 mph	0 mph	23.2 in	0.0 in	0.0 in

LOS ALAMOS NATIONAL LABORATORY (LANL)
VISIBLE EMISSION OBSERVATION FORM (6 MINUTE)

Source Name: TA-60 Asphalt Batch Plant

Source Location: TA-60-233

Type of Source: Asphalt Plant

Type of Control Equipment: Baghouse

Describe Emission Point (Top of stack, etc.): Top of Stack

Height Above Ground Level: 33 Feet

Height Relative to Observer: 26 Feet

Distance From Observer: 65 Feet

Direction of Source From Observer: W/NW

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☑No Plume Present

Emission Color:

Plume Type: ☑No Plume Present ☐Continuous ☐ Fugitive ☐Intermittent

Water Droplets Present?
☑NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined? 6" above stack height

Describe Background (i.e. blue sky, trees, etc.): Blue Sky / White Clouds

Background Color: Blue / White

Sky Conditions: Broken

Wind Speed: 5 mph

Wind Direction (provide from/to, i.e. from North to South): ENE to WSW

Ambient Temperature: 48 °F

Relative Humidity: 41 %

Additional Comments/Information:
Steam only - from weather conditions.

Observation Date: 11/8/18

Start Time: 12:50

End Time: 12:56

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Average 6-Minute Opacity: 0

Range of Opacity Readings: Min. 0 Max. 0

OBSERVER (please print)
Name: Jillian Bursin
Title: DEP

Signature: JBursin

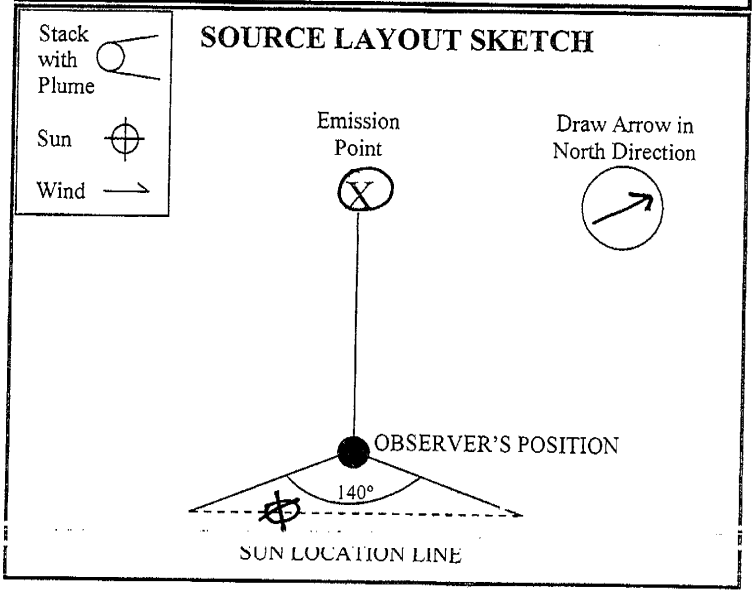
Date: 11/8/18

Observer Organization: DESH-ULS

Certified by: ETA

Certification Date: ETA 8/23/18

SOURCE LAYOUT SKETCH



Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Precip Acc
12:15 PM	48 ° F	25 ° F	41 %	NE	6 mph	0 mph	23.1 in	0.0 in	0.0 in
12:35 PM	48 ° F	23 ° F	37 %	NE	3 mph	0 mph	23.1 in	0.0 in	0.0 in
12:55 PM	48 ° F	25 ° F	41 %	ENE	5 mph	0 mph	23.1 in	0.0 in	0.0 in
1:15 PM	47 ° F	22 ° F	36 %	NE	3 mph	0 mph	23.1 in	0.0 in	0.0 in
1:35 PM	48 ° F	22 ° F	36 %	N	6 mph	0 mph	23.1 in	0.0 in	0.0 in
1:55 PM	48 ° F	22 ° F	37 %	N	6 mph	0 mph	23.1 in	0.0 in	0.0 in
2:15 PM	50 ° F	20 ° F	31 %	ENE	6 mph	0 mph	23.1 in	0.0 in	0.0 in
2:35 PM	52 ° F	4 ° F	14 %	W	15 mph	24 mph	23.1 in	0.0 in	0.0 in
2:55 PM	53 ° F	4 ° F	14 %	WNW	12 mph	24 mph	23.1 in	0.0 in	0.0 in
3:15 PM	52 ° F	5 ° F	15 %	WNW	15 mph	20 mph	23.1 in	0.0 in	0.0 in
3:35 PM	51 ° F	4 ° F	15 %	W	14 mph	17 mph	23.1 in	0.0 in	0.0 in
3:55 PM	49 ° F	2 ° F	14 %	W	9 mph	24 mph	23.1 in	0.0 in	0.0 in
4:15 PM	49 ° F	2 ° F	15 %	W	8 mph	0 mph	23.1 in	0.0 in	0.0 in
4:35 PM	47 ° F	1 ° F	15 %	WNW	3 mph	0 mph	23.1 in	0.0 in	0.0 in
4:55 PM	46 ° F	0 ° F	15 %	NW	3 mph	0 mph	23.1 in	0.0 in	0.0 in
5:15 PM	45 ° F	2 ° F	17 %	NW	8 mph	0 mph	23.1 in	0.0 in	0.0 in
5:35 PM	44 ° F	-1 ° F	15 %	N	8 mph	0 mph	23.1 in	0.0 in	0.0 in
5:55 PM	43 ° F	-4 ° F	14 %	W	9 mph	0 mph	23.1 in	0.0 in	0.0 in
6:15 PM	41 ° F	-5 ° F	14 %	WSW	9 mph	0 mph	23.1 in	0.0 in	0.0 in
6:35 PM	41 ° F	-6 ° F	14 %	W	15 mph	0 mph	23.1 in	0.0 in	0.0 in
6:55 PM	40 ° F	-2 ° F	17 %	NE	5 mph	0 mph	23.1 in	0.0 in	0.0 in
7:15 PM	39 ° F	-2 ° F	18 %	N	8 mph	0 mph	23.2 in	0.0 in	0.0 in
7:35 PM	38 ° F	-5 ° F	16 %	NNW	12 mph	18 mph	23.2 in	0.0 in	0.0 in
7:55 PM	37 ° F	-5 ° F	16 %	NNW	10 mph	17 mph	23.2 in	0.0 in	0.0 in
8:15 PM	37 ° F	-8 ° F	14 %	NNW	7 mph	0 mph	23.2 in	0.0 in	0.0 in
8:35 PM	37 ° F	-7 ° F	15 %	NNW	3 mph	0 mph	23.2 in	0.0 in	0.0 in
8:55 PM	34 ° F	-3 ° F	20 %	ENE	7 mph	0 mph	23.2 in	0.0 in	0.0 in
9:15 PM	34 ° F	-4 ° F	19 %	NNE	6 mph	0 mph	23.2 in	0.0 in	0.0 in
9:35 PM	36 ° F	-4 ° F	18 %	N	8 mph	0 mph	23.2 in	0.0 in	0.0 in
9:55 PM	35 ° F	-3 ° F	19 %	N	6 mph	0 mph	23.2 in	0.0 in	0.0 in
10:15 PM	34 ° F	-2 ° F	21 %	ENE	3 mph	0 mph	23.2 in	0.0 in	0.0 in
10:35 PM	33 ° F	-2 ° F	23 %	NE	6 mph	0 mph	23.2 in	0.0 in	0.0 in
10:55 PM	33 ° F	-1 ° F	24 %	NNE	6 mph	0 mph	23.2 in	0.0 in	0.0 in
11:15 PM	33 ° F	0 ° F	25 %	N	7 mph	0 mph	23.2 in	0.0 in	0.0 in
11:35 PM	33 ° F	1 ° F	26 %	N	6 mph	0 mph	23.2 in	0.0 in	0.0 in
11:55 PM	32 ° F	1 ° F	27 %	NNW	7 mph	0 mph	23.2 in	0.0 in	0.0 in

Los Alamos

LOS ALAMOS NATIONAL LABORATORY (LANL)
VISIBLE EMISSION OBSERVATION FORM (6 MINUTE)

Source Name: TA-60 Asphalt Batch Plant

Source Location: TA-60-233

Type of Source: Asphalt Plant

Type of Control Equipment: Baghouse

Describe Emission Point (Top of stack, etc.): Top of Stack

Height Above Ground Level: 53 Feet

Height Relative to Observer: 26 Feet

Distance From Observer: 70 Feet

Direction of Source From Observer: W/NW

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☑No Plume Present

Emission Color: N/A

Plume Type ☑No Plume Present ☐Continuous ☐ Fugitive ☐Intermittent

Water Droplets Present?
☑NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined? 6" above stack height

Describe Background (i.e. blue sky, trees, etc.): Blue Sky / White Clouds

Background Color: Blue/White

Sky Conditions: Broken

Wind Speed: 5 mph

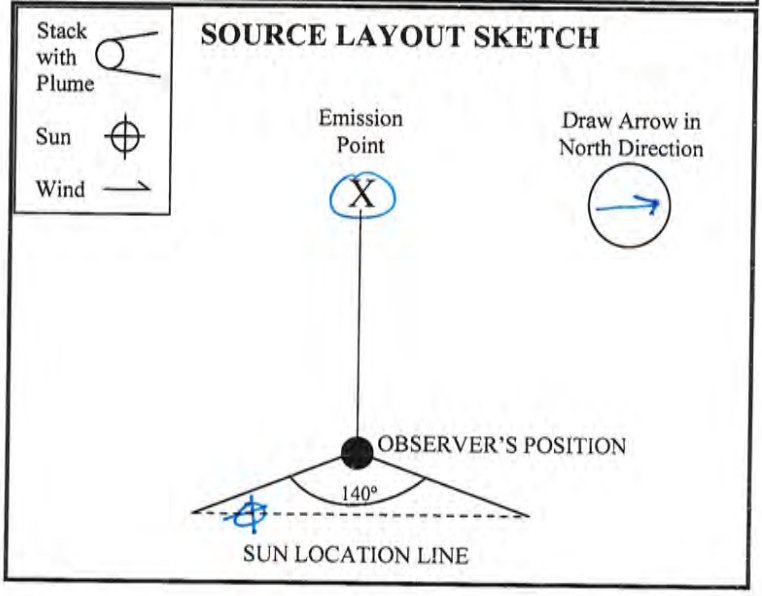
Wind Direction (provide from/to, i.e. from North to South): ESE to WNW

Ambient Temperature: 37 °F

Relative Humidity: 30 %

Additional Comments/Information:
Steam only - from weather conditions.

SOURCE LAYOUT SKETCH



Observation Date: 12/5/18

Start Time: 12:51

End Time: 12:57

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Average 6-Minute Opacity: 0

Range of Opacity Readings: Min. 0 Max. 0

OBSERVER (please print)
Name: Jillian Burgin
Title: DEP

Signature: JBurgin

Date: 12/5/18

Observer Organization: DESH-UIS

Certified by: ETA

Certification Date: 8/23/18

Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Precip Acc
12:15 PM	34 ° F	9 ° F	34 %	ENE	5 mph	0 mph	23.1 in	0.0 in	0.0 in
12:35 PM	35 ° F	7 ° F	32 %	E	3 mph	0 mph	23.1 in	0.0 in	0.0 in
12:55 PM	37 ° F	8 ° F	30 %	ESE	5 mph	0 mph	23.1 in	0.0 in	0.0 in
1:15 PM	37 ° F	8 ° F	30 %	SSE	6 mph	0 mph	23.1 in	0.0 in	0.0 in
1:35 PM	38 ° F	8 ° F	29 %	S	7 mph	0 mph	23.1 in	0.0 in	0.0 in
1:55 PM	38 ° F	8 ° F	28 %	SSE	3 mph	0 mph	23.1 in	0.0 in	0.0 in
2:15 PM	38 ° F	8 ° F	29 %	S	6 mph	0 mph	23.1 in	0.0 in	0.0 in
2:35 PM	38 ° F	9 ° F	30 %	SSE	6 mph	0 mph	23.1 in	0.0 in	0.0 in
2:55 PM	39 ° F	11 ° F	31 %	S	6 mph	0 mph	23.1 in	0.0 in	0.0 in
3:15 PM	39 ° F	11 ° F	32 %	S	5 mph	0 mph	23.1 in	0.0 in	0.0 in
3:35 PM	39 ° F	11 ° F	32 %	SSE	6 mph	0 mph	23.1 in	0.0 in	0.0 in
3:55 PM	38 ° F	11 ° F	33 %	S	7 mph	0 mph	23.1 in	0.0 in	0.0 in
4:15 PM	37 ° F	11 ° F	34 %	S	6 mph	0 mph	23.1 in	0.0 in	0.0 in
4:35 PM	36 ° F	9 ° F	33 %	S	8 mph	0 mph	23.1 in	0.0 in	0.0 in
4:55 PM	35 ° F	9 ° F	35 %	S	9 mph	0 mph	23.1 in	0.0 in	0.0 in
5:15 PM	34 ° F	9 ° F	36 %	S	8 mph	0 mph	23.1 in	0.0 in	0.0 in
5:35 PM	33 ° F	9 ° F	36 %	S	7 mph	0 mph	23.1 in	0.0 in	0.0 in
5:55 PM	33 ° F	9 ° F	37 %	SSW	7 mph	0 mph	23.1 in	0.0 in	0.0 in
6:15 PM	32 ° F	10 ° F	39 %	SSW	8 mph	0 mph	23.1 in	0.0 in	0.0 in
6:35 PM	32 ° F	11 ° F	41 %	W	5 mph	0 mph	23.1 in	0.0 in	0.0 in
6:55 PM	34 ° F	12 ° F	41 %	W	3 mph	0 mph	23.1 in	0.0 in	0.0 in
7:15 PM	35 ° F	12 ° F	38 %	CALM	0 mph	0 mph	23.1 in	0.0 in	0.0 in
7:35 PM	34 ° F	12 ° F	41 %	CALM	0 mph	0 mph	23.1 in	0.0 in	0.0 in
7:55 PM	34 ° F	13 ° F	42 %	SW	3 mph	0 mph	23.1 in	0.0 in	0.0 in
8:15 PM	35 ° F	13 ° F	40 %	WSW	3 mph	0 mph	23.1 in	0.0 in	0.0 in
8:35 PM	36 ° F	12 ° F	38 %	CALM	0 mph	0 mph	23.1 in	0.0 in	0.0 in
8:55 PM	35 ° F	14 ° F	41 %	CALM	0 mph	0 mph	23.1 in	0.0 in	0.0 in
9:15 PM	34 ° F	14 ° F	44 %	SSW	6 mph	0 mph	23.1 in	0.0 in	0.0 in
9:35 PM	34 ° F	12 ° F	42 %	SW	3 mph	0 mph	23.1 in	0.0 in	0.0 in
9:55 PM	33 ° F	13 ° F	43 %	CALM	0 mph	0 mph	23.1 in	0.0 in	0.0 in
10:15 PM	32 ° F	13 ° F	46 %	CALM	0 mph	0 mph	23.1 in	0.0 in	0.0 in
10:35 PM	32 ° F	13 ° F	45 %	CALM	0 mph	0 mph	23.1 in	0.0 in	0.0 in
10:55 PM	32 ° F	13 ° F	45 %	CALM	0 mph	0 mph	23.1 in	0.0 in	0.0 in
11:15 PM	32 ° F	12 ° F	44 %	CALM	0 mph	0 mph	23.1 in	0.0 in	0.0 in
11:35 PM	32 ° F	13 ° F	45 %	CALM	0 mph	0 mph	23.1 in	0.0 in	0.0 in
11:55 PM	32 ° F	12 ° F	44 %	CALM	0 mph	0 mph	23.1 in	0.0 in	0.0 in

ATTACHMENT A607.E.

Asphalt Plant

Daily Operation Log and 12-Month Rolling Production

2018 TA-60 BDM Asphalt Plant

Data Reviewed By / Date: Ashley Bruggeman 1/17/2019

Month	Data Entry Asphalt Produced (Tons)	12-Month Rolling Total	Month	Data Entry Asphalt Produced (Tons)	12-Month Rolling Total
January	12	706	**July**	45	847
February	20	619	**August**	49	839
March	193	772	**September**	28	797
April	55	785	**October**	63	769
May	116	873	**November**	72	743
June	38	841	**December**	94	785
6 mo. Total	434		**6 mo. Total:**	351	

Annual Hours			
Month	**Hours**	**Month**	**Hours**
Jan	2.0	Jul	3.8
Feb	2.4	Aug	6.3
Mar	15.1	Sep	4.5
Apr	7.1	Oct	4.4
May	8.8	Nov	8.3
Jun	2.5	Dec	5.9
Total:	37.8	Total:	33.2

2018 Asphalt Produced (Tons):	**785**

12-Month Rolling Production Permit Limit is 6,000 Tons

Annual Total (to date): **71.1** Hours

Hours are Limited to 4,380 per Year

Logistics Division
Asphalt Batch Plant Operations
41-20-001.2: Asphalt Batch Plant Daily Operating Log

Jul 18

Date	Hours of Operation			Asphalt Produced (tons)	Number of Truck Trips to Plant	Haul Road Swept? (check one)		Pressure Drop Across Baghouse				Operator's Initials (Person Taking Readings)
								Start		End		
	Start Time	End Time	Total (hrs.)			Yes	No	Pressure	Time	Pressure	Time	
7-2-18	100	133	0.55	5	1			3.58	111	3.38	128	AM
7-3-18	1245	1.40	0.92	13	1			3.78	105	3:61	1:30	AM
7-5-18	1250	115	0.42	4	1			3.27	1258	2.91	108	AM
7-23-18	12:44	1:10	0.43	3	1			3.41	12:54	3:47	1:01	Leslie
7-24-18	10:00	1054	0.90	12	1			3.58	1029	3.46	1035	AM
7-27-18	10:38	11:13	0.58	8	1			3.71	1046	3.66	11:07	Leslie
			TOTALS	45	6							
			3.8	TONS	TRIPS							

Operation of the plant is limited to 1/2 hour after sunrise to 1/2 hour before sunset.

The data in this log is required by NMED Title V Operating Permit (Air Quality) and must be maintained on site for a minimum of 5 years.

Logistics Division
Asphalt Batch Plant Operations
41-20-001.2: Asphalt Batch Plant Daily Operating Log Aug 2018

Date	Hours of Operation			Asphalt Produced (tons)	Number of Truck Trips to Plant	Haul Road Swept? (check one)		Pressure Drop Across Baghouse				Operator's Initials (Person Taking Readings)
								Start		End		
	Start Time	End Time	Total (hrs.)			Yes	No	Pressure	Time	Pressure	Time	
8-3-18	10:01	10:48	0.78	11	1			3.69	10:23	3.71	10:34	Leslie
8-21-18	9:36	10:13	0.62	5	1			3.69	9:58	3.65	10:04	Leslie
8-22-18	9:31	10:37	1.1	15	1			3.50	10:10	3.49	10:20	Leslie
8-22-18	11:37	12:08	0.52	5	1			3.69	11:51	3.71	11:57	Leslie
8-24-18	11:12	11:58	1.77	9	1			3.10	11:18	3.18	11:40	Leslie
8-28-18	1:27	1:57	1.5	4	1			2.99	1:35	3.07	1:42	Leslie
			TOTALS	49	6							
				TONS	TRIPS							
			6.29									

Operation of the plant is limited to 1/2 hour after sunrise to 1/2 hour before sunset.

The data in this log is required by NMED Title V Operating Permit (Air Quality) and must be maintained on site for a minimum of 5 years.

Logistics Division
Asphalt Batch Plant Operations
41-20-001.2: Asphalt Batch Plant Daily Operating Log Sept. 2018

Date	Hours of Operation			Asphalt Produced (tons)	Number of Truck Trips to Plant	Haul Road Swept? (check one)		Pressure Drop Across Baghouse				Operator's Initials (Person Taking Readings)
								Start		End		
	Start Time	End Time	Total (hrs.)			Yes	No	Pressure	Time	Pressure	Time	
9-5-18	1:07	1:42	0.58	6	1			4.33	1:25	3.05	1:36	Leslie
9-6-18	9:37	10:09	0.53	5	1			3.83	9:55	3.57	10:05	Leslie
9-13-18	11:37	13	1.6	3	1	✓		3.79	11:45	3.67	11:1	Anthony
9-17-18	10:15	10:54	0.65	5	1			4.48	1:33	4.39	10:48	Anthony
9-18-18	9:40	930	0.73	5	1			3.89	900	3.72	920	Anthony
9-19-18	9:12	9:36	0.4	4	1			4.28	9:24	3.73	9:32	Leslie
			TOTALS. 4.49	28 TONS	6 TRIPS							

Operation of the plant is limited to 1/2 hour after sunrise to 1/2 hour before sunset.

The data in this log is required by NMED Title V Operating Permit (Air Quality) and must be maintained on site for a minimum of 5 years.

Logistics Division
Asphalt Batch Plant Operations
41-20-001.2: Asphalt Batch Plant Daily Operating Log

Oct 2018

Date	Hours of Operation			Asphalt Produced (tons)	Number of Truck Trips to Plant	Haul Road Swept? (check one)		Pressure Drop Across Baghouse				Operator's Initials (Person Taking Readings)
								Start		End		
	Start Time	End Time	Total (hrs.)			Yes	No	Pressure	Time	Pressure	Time	
10-1-18	12:55	2:30	1.58	4.5	3	✓		3.67	3:35	3.27	2:04	Leslie
10-10-18	10:31	11:10	0.65	6	1			4.18	10:54	4.02	11:02	Leslie
10-15-18	9:00	9:39	0.65	0	0							Leslie
10-19-18	1120	1150	0.5	4	1			3.72	1130	3.67	1144	Anthony
10-29-18	1100	11:38	0.63	4	1			3.55	11:13	5.66	11:30	Anthony
10-30-18	1:09	1:34	0.42	4	1			3.42	1:19	3.63	1:28	Leslie
			TOTALS:	63	7							
				TONS	TRIPS							
			4.43									

Operation of the plant is limited to 1/2 hour after sunrise to 1/2 hour before sunset.

The data in this log is required by NMED Title V Operating Permit (Air Quality) and must be maintained on site for a minimum of 5 years.

Logistics Division
Asphalt Batch Plant Operations
41-20-001.2: Asphalt Batch Plant Daily Operating Log NOV 2018

Date	Hours of Operation			Asphalt Produced (tons)	Number of Truck Trips to Plant	Haul Road Swept? (check one)		Pressure Drop Across Baghouse				Operator's Initials (Person Taking Readings)
								Start		End		
	Start Time	End Time	Total (hrs.)			Yes	No	Pressure	Time	Pressure	Time	
11-2-18	10:42	11:57	1.25	16	1			3.54	1100	3.68	150	Anthony
11-5-18	10:30	11:36	1.10	9	2			3.36	10:52	3.79	1115	Anthony
11-6-18	945	10:30	0.75	4	1			3.89	956	3.81	10:19	Anthony
11-7-18	1245	1:41	0.43	3	1			3.91	1256	3.87	105	Anthony
11-8-18	12:38	1:28	0.87	11	1			3.93	1:53	3.79	123	Leslie
11-9-18	9:53	10:24	0.52	4	1			3.82	10:05	4.05	10:18	Leslie
11-16-18	10:55	11:26	0.52	3	1			3.54	11:07	3.52	11:16	Leslie
11-19-18	1:09	1:51	0.70	9	1			3.62	1:22	3.79	1:37	John V
11-20-18	12:33	1:10	0.62	3	1			3.79	12:56	3.69	103	John V
11-27-18	9:56	10:32	0.60	4	1			3.80	10:17	3.88	10:22	Leslie
11-28-18	12:45	1:10	0.42	3	1			3.25	12:55	3.23	1:02	Leslie
11-29-18	9:42	10:13	0.52	4	1			4.24	9:58	3.29	10:04	Leslie
			TOTALS:	72 TONS	13 TRIPS							
			8.3									

Operation of the plant is limited to 1/2 hour after sunrise to 1/2 hour before sunset.

The data in this log is required by NMED Title V Operating Permit (Air Quality) and must be maintained on site for a minimum of 5 years.

Logistics Division
Asphalt Batch Plant Operations
41-20-001.2: Asphalt Batch Plant Daily Operating Log DEC 2018

Date	Hours of Operation			Asphalt Produced (tons)	Number of Truck Trips to Plant	Haul Road Swept? (check one)		Pressure Drop Across Baghouse				Operator's Initials (Person Taking Readings)
								Start		End		
	Start Time	End Time	Total (hrs.)			Yes	No	Pressure	Time	Pressure	Time	
12-5-18	12:42	1:48	1.1	16	1			3.58	1:17	3.78	1:29	Leslie
12-6-18	9:00	9:58	0.97	20	1			4.68	9:20	4.90	9:48	Leslie
12-10-18	10:21	11:18	0.95	16	1			4.26	10:45	4.60	11:02	Leslie
12-10-18	12:40	1:27	0.78	11	1			3.40	12:59	3.20	1:15	Leslie
12-11-18	12:47	11:20	0.55	6	1			3.55	1:09	3.53	1:14	Leslie
12-12-18	9:23	9:55	0.53	5	1			4.66	9:30	4.70	9:47	Leslie
12-14-18	9:44	10:45	1.02	20	1			3.56	10:20	5.00	10:30	Leslie
			TOTALS: 5.9	94 TONS	7 TRIPS							

Operation of the plant is limited to 1/2 hour after sunrise to 1/2 hour before sunset.

The data in this log is required by NMED Title V Operating Permit (Air Quality) and must be maintained on site for a minimum of 5 years.

ATTACHMENT A607.F.

Asphalt Plant

Maintenance and Delivery Records

Los Alamos NATIONAL LABORATORY	*Maintenance & Site Services* Preventative Maintenance Instruction **Asphalt Plant Operation** **PM INSPECTION & LUBRICATION**	41-20-001.3 R1 Page 1 of 2

-20-001.3 R1 | **PM DATE:** 7-18-2018 | NEXT SCHEDULED PM DATE: 2-18-2019

TA- 60 **BLDG-** 0233 **EQUIP. ID:** 993752 HOT PLANT **PM #:** 993752

Place a Checkmark under "S" if the condition is SATISFACTORY or "U" if the condition is UNSATISFACTORY. Note actions required or general remarks in "Comments" as applicable. Mark "N/A" under comments if not applicable. Advise the foreman or supervisor of problems involving imminent danger.

ASPHALT BATCH PLANT PREVENTATIVE MAINTENANCE INSPECTION AND LUBRICATION

STEP	ACTION / DESCIPTION	S	U	Comments
1.0	***PRE-MAINTENANCE INSTRUCTIONS***	✓		
1.1	Before beginning maintenance, follow applicable LO/TO procedures at the main control panel	✓		
2.0	***ASPHALT PLANT MAINTENANCE***			
2.1	Perform preventative maintenance checks/inspections and lubricate the asphalt plant every 100 hours of operating time or 6 calendar months, whichever occurs first.	✓		
3.0	***LUBE/INSPECTION POINTS***			
	FEEDER			
3.1	8 Pillow Blocks	✓		
3.2	1 Gear Box (Check Oil) ***Add if Necessary***	✓		
3.3	2 Wheel bearings	✓		
3.4	Clear away stones and dust build up from any moving parts	✓		
	CONVEYOR BELT	✓		
3.5	4 Pillow Blocks	✓		
3.6	1 Gear Box (Check Oil) ***Add if Necessary***	✓		
3.7	Clear away stones and dust build up from any moving parts	✓		
	DRIER			
	12 Pillow Blocks	✓		
[illegible]	1 Gear Box (Check Oil) ***Add if Necessary***	✓		
3.10	Clear away stones and dust build up from any moving parts	✓		
3.11	Inspect the drum roller drive chain for mechanical integrity. Replace or repair any broken parts	✓		
3.12	Lube chain and idle gear	✓		
	HOT ELEVATOR			
3.13	2 Pillow Blocks	✓		
3.14	2 Flat Bearings	✓		
3.15	1 Gear Box (Check Oil) ***Add if Necessary***	✓		
3.16	Clear away stones and dust build up from any moving parts	✓		
3.17	Inspect the elevator chain under the buckets for proper tension and mechanical integrity. Ensure no broken parts or damage exists. Adjust/replace if necessary	✓		
3.18	Inspect elevator buckets for aggregate buildup and metal wear. Repair and/or clean parts if necessary.	✓		
3.19	Inspect elevator bottom for excessive aggregate buildup. Remove and/or clean if evident.	✓		
	SHAKER AND SCREENING PLANT			
3.20	2 Bearing on Electric Motor	✓		
3.21	1 Gear Box (Check Oil) ***Add if Necessary***	✓		
3.22	Screen Cloth Tension	✓		
3.23	Inspect even material feed and distribution into screen.			
3.24	Tighten Loose Bolts	✓		
3.25	Drive Belt Tension	✓		
3.26	Support Springs	✓		
	Clear away stones and dust build up from any moving parts	✓		
3.28	Inside the screen, inspect the feed and discharge wear plates for excessive buildup and wear. Repair and/or clean as needed	✓		

ASPHALT BATCH PLANT PREVENTATIVE MAINTENANCE INSPECTION AND LUBRICATION

STEP	ACTION / DESCIPTION	S	U	Comments
	PUG MILL			
3.29	4 Pillow Blocks	✓		
3.30	1 Gear Box (Check Oil) ***Add if Necessary***	✓		
3.31	Clear away stones and dust build up from any moving parts	✓		
3.32	Inside the mill, inspect the 2 paddle assemblies and wear plates under the paddles for excessive buildup and wear. Repair and/or clean as needed	✓		
	BAG HOUSE			
3.33	3 Flat Bearings	✓		
3.34	4 Gear Box (Check Oil) ***Add if Necessary***	✓		
	EXHAUST FAN			
3.35	2 Pillow Blocks	✓		
3.36	2 Fittings on Electric Motor	✓		
	DAMPER CONTROL			
3.37	4 Flat Bearings	✓		
	AIR COMPRESSOR			
3.38	Clean Air Filter	✓		
3.39	Check Oil Level ***Add if Necessary***	✓		
	DUST RETURN SCREW			
3.40	1 Gear Box (Check Oil) ***Add if Necessary***	✓		
	HOT ASPHALT PUMP			
3.41	2 Fittings on Electric Motor	✓		
	HOT OIL PUMP AND ELECTRIC MOTOR			
	2 Fittings on Electric Motor	✓		
	PROPANE PUMP			
3.43	2 Fittings	✓		
4.0	***POST-MAINTENANCE INSTRUCTIONS***			
4.1	After completing maintenance, follow applicable LO/TO procedures at the main control panel			

REMARKS / ACTION REQUIRED:

VERIFICATION

CRAFT NAME: Elidoro A. Vasquez	Z-NUMBER	DATE 7-18-2018
CRAFT SIGNATURE: Elidoro A. Vasquez	238072	7-18-2018
SUPERINTENDENT NAME: GARY McMillan	Z-NUMBER	DATE
SUPERINTENDENT SIGNATURE: [signature]	241754	7/18/18

Los Alamos NATIONAL LABORATORY EST 1943	*Logistics Division* Maintenance Operating Instruction **Asphalt Batch Plant Operations** **41-20-001.3: ASPHALT BATCH PLANT PM INSPECTION & LUBRICATION CHECKLIST**

PM DATE: 12-20-18 | NEXT SCHEDULED PM DATE: 6-12-2019

TA- 60 **BLDG-** 0233 **EQUIP. ID:** 993752 Hot Plant **PM #:** 993752

Place a Checkmark under "S" if the condition is SATISFACTORY or "U" if the condition is UNSATISFACTORY. Note actions required or general remarks in "Comments" as applicable. Mark "N/A" under comments if not applicable. Advise the foreman or supervisor of problems involving imminent danger.

ASPHALT BATCH PLANT PREVENTATIVE MAINTENANCE INSPECTION AND LUBRICATION

STEP	ACTION / DESCIPTION	S	U	Comments
1.0	***PRE-MAINTENANCE INSTRUCTIONS***	✓		
1.1	Before beginning maintenance, follow applicable LO/TO procedures at the main control panel	✓		
2.0	***ASPHALT PLANT MAINTENANCE***			
2.1	Perform preventative maintenance of the asphalt plant equipment semi-annually.	✓		
3.0	***LUBE/INSPECTION POINTS***			
	FEEDER			
3.1	8 Pillow Blocks	✓		
3.2	1 Gear Box (Check Oil) ***Add if Necessary***	✓		
3.3	2 Wheel bearings	✓		
3.4	Clear away stones and dust build up from any moving parts	✓		
	CONVEYOR BELT	✓		
3.5	4 Pillow Blocks	✓		
3.6	1 Gear Box (Check Oil) ***Add if Necessary***	✓		
3.7	Clear away stones and dust build up from any moving parts	✓		
	DRIER			
3.8	12 Pillow Blocks	✓		
.9	1 Gear Box (Check Oil) ***Add if Necessary***	✓		
3.10	Clear away stones and dust build up from any moving parts	✓		
3.11	Inspect the drum roller drive chain for mechanical integrity. Replace or repair any broken parts	✓		
3.12	Lube chain and idle gear	✓		
	HOT ELEVATOR			
3.13	2 Pillow Blocks	✓		
3.14	2 Flat Bearings	✓		
3.15	1 Gear Box (Check Oil) ***Add if Necessary***	✓		
3.16	Clear away stones and dust build up from any moving parts	✓		
3.17	Inspect the elevator chain under the buckets for proper tension and mechanical integrity. Ensure no broken parts or damage exists. Adjust/replace if necessary	✓		
3.18	Inspect elevator buckets for aggregate buildup and metal wear. Repair and/or clean parts if necessary.	✓		
3.19	Inspect elevator bottom for excessive aggregate buildup. Remove and/or clean if evident.	✓		
	SHAKER AND SCREENING PLANT			
3.20	2 Bearing on Electric Motor	✓		
3.21	1 Gear Box (Check Oil) ***Add if Necessary***	✓		
3.22	Screen Cloth Tension	✓		
3.23	Inspect even material feed and distribution into screen.			
3.24	Tighten Loose Bolts	✓		
3.25	Drive Belt Tension	✓		
3.26	Support Springs	✓		
3.27	Clear away stones and dust build up from any moving parts	✓		

3.28	Inside the screen, inspect the feed and discharge wear plates for excessive buildup and wear. Repair and/or clean as needed			

ASPHALT BATCH PLANT PREVENTATIVE MAINTENANCE INSPECTION AND LUBRICATION

STEP	ACTION / DESCIPTION	S	U	Comments
	PUG MILL			
3.29	4 Pillow Blocks	✓		
3.30	1 Gear Box (Check Oil) *Add if Necessary*	✓		
3.31	Clear away stones and dust build up from any moving parts	✓		
3.32	Inside the mill, inspect the 2 paddle assemblies and wear plates under the paddles for excessive buildup and wear. Repair and/or clean as needed	✓		
	BAG HOUSE			
3.33	3 Flat Bearings	✓		
3.34	4 Gear Box Points (Check Oil) *Add if Necessary*	✓		
	EXHAUST FAN			
3.35	2 Pillow Blocks	✓		
3.36	2 Fittings on Electric Motor	✓		
	DAMPER CONTROL			
3.37	4 Flat Bearings	✓		
	AIR COMPRESSOR			
3.38	Clean Air Filter	✓		
3.39	Check Oil Level *Add if Necessary*	✓		
	DUST RETURN SCREW			
3.40	1 Gear Box (Check Oil) *Add if Necessary*	✓		
	HOT ASPHALT PUMP			
3.41	2 Fittings on Electric Motor	✓		
	HOT OIL PUMP AND ELECTRIC MOTOR			
3.42	2 Fittings on Electric Motor	✓		
	PROPANE PUMP			
3.43	2 Fittings	~~✓~~		N/A JS 12-20-18
4.0	***POST-MAINTENANCE INSTRUCTIONS***			
4.1	After completing maintenance, follow applicable LO/TO procedures at the main control panel			

REMARKS / ACTION REQUIRED:

VERIFICATION

CRAFT NAME: Victor Bustos	Z-NUMBER	DATE 12-20-18
CRAFT SIGNATURE: Victor Bustos	244917	12-20-18
SUPERINTENDENT NAME:	Z-NUMBER	DATE
SUPERINTENDENT SIGNATURE:		

ATTACHMENT A607.G.

Asphalt Plant

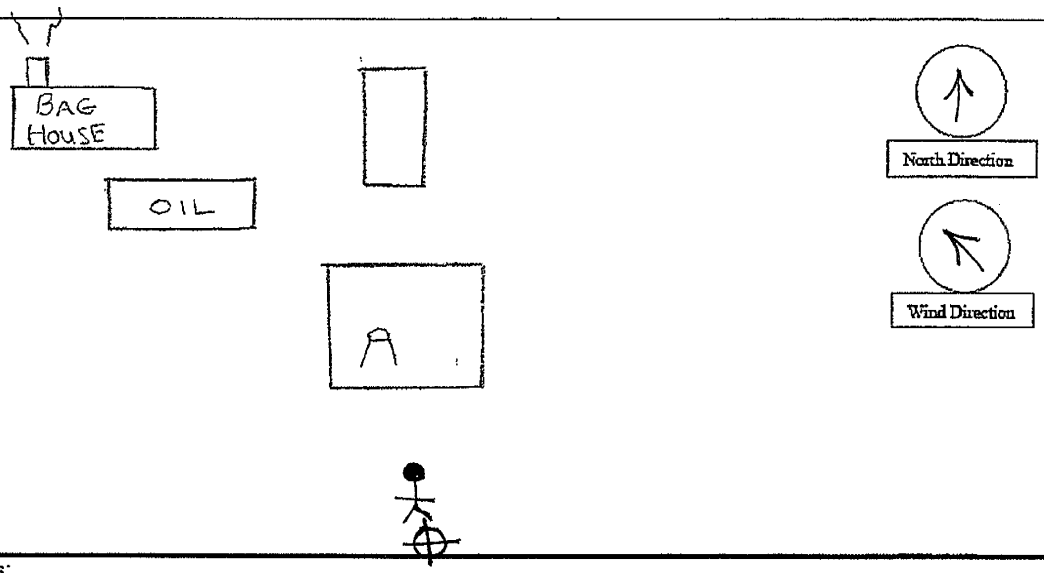
EPA Method 22 Opacity Reports

Los Alamos National Laboratory
METHOD 22 Visual Determination of Fugitive Emissions Form

Location: TA-60 Asphalt Batch Plant	**Observer Affiliation:** DESHS-UIS
Representative: Leonard F. Sandoval	**Date of Inspection:** 7/24/2018
Sky Conditions: Blue Sky	**Wind Direction:** SSE
Precipitation: 0	**Wind Speed:** 6-12 mph
Industry: LANL (DOE)	**Process Unit:** Fugitive Emissions

Sketch of Process Unit:

Indicate:
* observer position relative to source
* potential emission and/or actual emission points
* sun location
* wind direction
* North direction



Observations:

	Clock Time	Observation period duration (min:sec)	Accumulated Emission Time(min:sec)
Begin	10:32 a.m.		
		10:00 min	1.5=1.5%
End Observation	10:42 a.m.		

Notes:

This form is used to document fugitive visible emissions from outside air emission sources. If an emission is observed during the Method 22 inspection/observation period (which must be at least 6 minutes for the Asphalt Plant and 10 minutes for all other LANL sources), a Method 9 visible emission test may need to be performed.

SIGNATURE OF OBSERVER/INSPECTOR: [signature]

DATE: 7/24/2018

Los Alamos National Laboratory
METHOD 22 Visual Determination of Fugitive Emissions Form

Location: TA-60 Asphalt Plant	**Observer Affiliation:** DESHS-UIS
Representative: Jillian Burgin	**Date of Inspection:** 8/28/18
Sky Conditions: Clear	**Wind Direction:** W to E
Precipitation: 0	**Wind Speed:** 10.1 mph
Industry: DOE Nat'l Lab	**Process Unit:** Fugitive Emissions

Sketch of Process Unit:

Indicate:
* observer position relative to source
* potential emission and/or actual emission points
* sun location
* wind direction
* North direction

Observations:	Clock Time	Observation period duration (min:sec)	Accumulated Emission Time(min:sec)
Begin	1:37 pm		
		10 mins.	1.5 = 15%
End Observation	1:47 pm		

Notes:

This form is used to document fugitive visible emissions from outside air emission sources. If an emission is observed during the Method 22 inspection/observation period (which must be at least 6 minutes for the Asphalt Plant and 10 minutes for all other LANL sources), a Method 9 visible emission test may need to be performed.

SIGNATURE OF OBSERVER/INSPECTOR: JBurgin

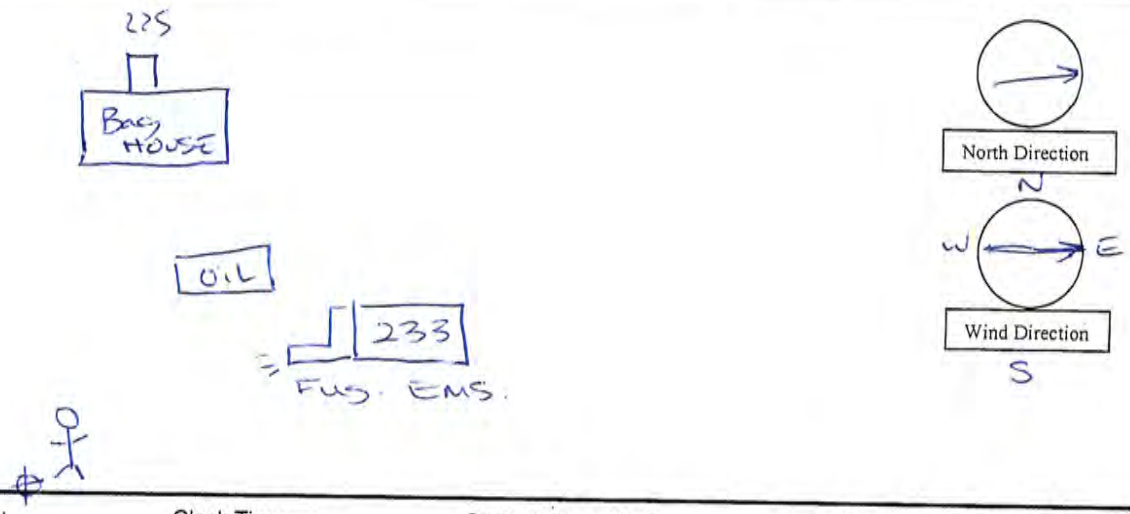
DATE 8/28/18

Los Alamos National Laboratory
METHOD 22 Visual Determination of Fugitive Emissions Form

Location: TA-60 Asphalt Plant	**Observer Affiliation:** DESHS-LLS
Representative: Jillian Bursin	**Date of Inspection:** 9/13/18
Sky Conditions: Blue / Clear	**Wind Direction:** W to E
Precipitation: 0	**Wind Speed:** 8.3 mph
Industry: DOE NATL LAB	**Process Unit:** Fugitive Emissions

Sketch of Process Unit:

Indicate:
* observer position relative to source
* potential emission and/or actual emission points
* sun location
* wind direction
* North direction



Observations:	Clock Time	Observation period duration (min:sec)	Accumulated Emission Time(min:sec)
Begin	11:40		
		10 mins.	1.5 = 15%
End Observation	11:50		

Notes:

This form is used to document fugitive visible emissions from outside air emission sources. If an emission is observed during the Method 22 inspection/observation period (which must be at least 6 minutes for the Asphalt Plant and 10 minutes for all other LANL sources), a Method 9 visible emission test may need to be performed.

SIGNATURE OF OBSERVER/INSPECTOR: JBursin

DATE 9/13/18

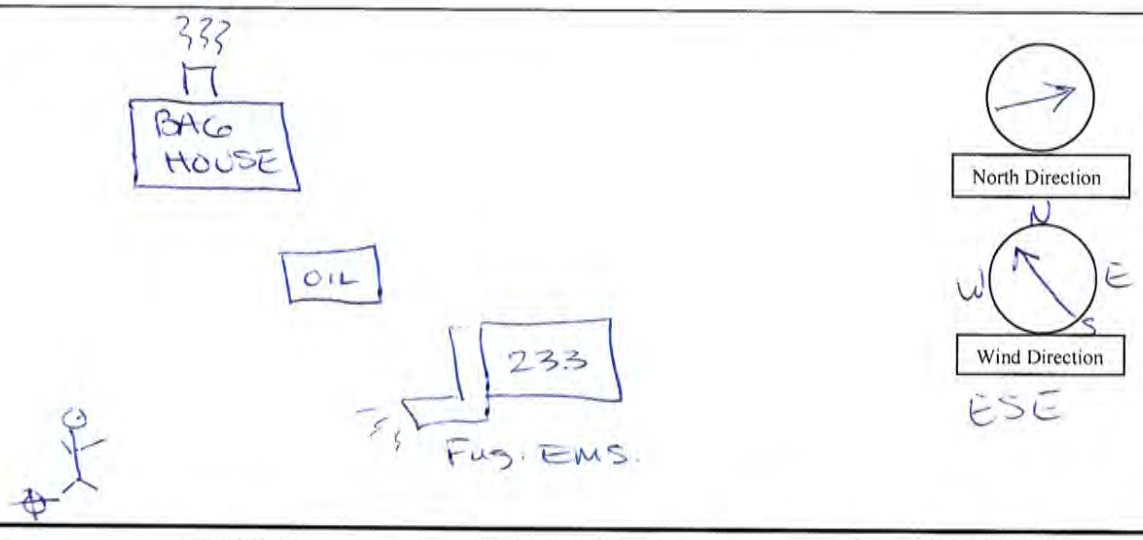
Los Alamos National Laboratory
METHOD 22 Visual Determination of Fugitive Emissions Form

Location: TA-60 Asphalt Plant	**Observer Affiliation:** DESHS-HIS
Representative: Jillian Burgin	**Date of Inspection:** 10/29/18
Sky Conditions: Clear / Blue	**Wind Direction:** ESE to WNW
Precipitation: 0	**Wind Speed:** 6 mph
Industry: DOE Nat'l Lab	**Process Unit:** Fugitive EMS.

Sketch of Process Unit:

Indicate:

* observer position relative to source
* potential emission and/or actual emission points
* sun location
* wind direction
* North direction



Observations:	Clock Time	Observation period duration (min:sec)	Accumulated Emission Time(min:sec)
Begin	11:05		
		10 Min.	1.5 = 15%
End Observation	11:15		

Notes:

This form is used to document fugitive visible emissions from outside air emission sources. If an emission is observed during the Method 22 inspection/observation period (which must be at least 6 minutes for the Asphalt Plant and 10 minutes for all other LANL sources), a Method 9 visible emission test may need to be performed.

SIGNATURE OF OBSERVER/INSPECTOR: JBurgin

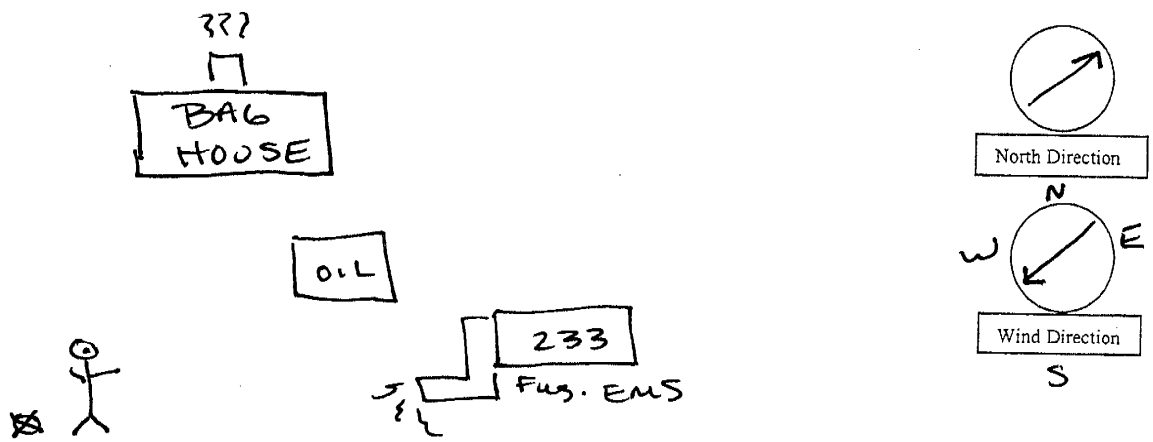
DATE 10/29/18

Los Alamos National Laboratory
METHOD 22 Visual Determination of Fugitive Emissions Form

Location: TA-60 Asphalt Plant	Observer Affiliation: DESH-UIS
Representative: Jillian Bursin	Date of Inspection: 11/8/18
Sky Conditions: Broken	Wind Direction: ENE
Precipitation: D	Wind Speed: 5 mph
Industry: DOE Nat'l Lab	Process Unit: Fugitive EMS.

Sketch of Process Unit:

Indicate:
* observer position relative to source
* potential emission and/or actual emission points
* sun location
* wind direction
* North direction



Observations:	Clock Time	Observation period duration (min:sec)	Accumulated Emission Time(min:sec)
Begin	12:50 pm		
		10 min.	1.5 = 15 %
End Observation	1:00 pm		

Notes:

This form is used to document fugitive visible emissions from outside air emission sources. If an emission is observed during the Method 22 inspection/observation period (which must be at least 6 minutes for the Asphalt Plant and 10 minutes for all other LANL sources), a Method 9 visible emission test may need to be performed.

SIGNATURE OF OBSERVER/INSPECTOR: JBursin

DATE 11/8/18

Los Alamos National Laboratory
METHOD 22 Visual Determination of Fugitive Emissions Form

Location: TA-60 Asphalt Plant	**Observer Affiliation:** DESH-UIS
Representative: Jillian Bursin	**Date of Inspection:** 12/5/18
Sky Conditions: Broken	**Wind Direction:** ESE
Precipitation: Ø	**Wind Speed:** 5 mph
Industry: DOE Nat'l lab	**Process Unit:** Fugitive EMS.

Sketch of Process Unit:

Indicate:
* observer position relative to source
* potential emission and/or actual emission points
* sun location
* wind direction
* North direction

Observations:	Clock Time	Observation period duration (min:sec)	Accumulated Emission Time(min:sec)
Begin	12:51		
		10 min	1.5 = 15 %
End Observation	1:01		

Notes:

This form is used to document fugitive visible emissions from outside air emission sources. If an emission is observed during the Method 22 inspection/observation period (which must be at least 6 minutes for the Asphalt Plant and 10 minutes for all other LANL sources), a Method 9 visible emission test may need to be performed.

SIGNATURE OF OBSERVER/INSPECTOR: JBursin

DATE: 12/5/18

ATTACHMENT A707.B.a.

Beryllium

TA-03-0066 Beryllium Logs

July 1, 2018 - December 31, 2018

Electroplating/Chemical Milling	Date	Weight of Beryllium Samples Processed (gm)	Controlled Emission Factor (gm emission/gm Used)	Controlled Be Emissions (gm)
	8/1/2018	49.5	1.20E-05	5.94E-04
	Total Beryllium Emissions from Electroplating/Chemical Milling			**5.94E-04**

Note: Information required under Title V Operating Permit P100-R2M2 & P100-R2M3, Section A707.B, Emissions Monitoring Requirements and A707.D, Reporting Requirements

July 1, 2018 - December 31, 2018

Metallography

Date	Number of Metallographic Specimens Used in the Polishing Operation	Weight of Each Specimen (gm) [1]	Total Weight of Specimen (gm)	Controlled Emission Factor (gm emission/gm Used)	Be Emissions (gm)
7/18/2018	5	20	100	3.50E-09	3.50E-07
7/25/2018	4	20	80	3.50E-09	2.80E-07
7/30/2018	9	20	180	3.50E-09	6.30E-07
Total Beryllium Emissions from Metallography					**1.26E-06**

Note: Information required under Title V Operating Permit P100-R2M2 & P100-R2M3, Section A707.B, Emissions Monitoring Requirements and A707.D, Reporting Requirements

Note: [1] The weight of specimen are conservative averages

July 1, 2018 - December 31, 2018

Machining	Date	Weight Beryllium Samples Used (gm)	Controlled Emission Factor (gm emission/gm Used)	Be Emissions (gm)
	No beryllium processed during this period.		1.75E-09	0.00E+00
			Total Beryllium Emissions from Machining	**0.00E+00**

Note: Information required under Title V Operating Permit P100-R2M2 & P100-R2M3, Section A707.B, Emissions Monitoring Requirements and A707.D, Reporting Requirements

July 1, 2018 - December 31, 2018

Arc Melting/Casting	Date	Weight of Beryllium Samples Used (gm)	Controlled Emission Factor (gm emission/gm Used)	Be Emissions (gm)
	No beryllium processed during this period.		1.75E-09	0.00E+00
			Total Beryllium Emissions from Arc Melting/Casting	**0.00E+00**

Note: Information required under Title V Operating Permit P100-R2M2 & P100-R2M3, Section A707.B, Emissions Monitoring Requirements and A707.D, Reporting Requirements

ATTACHMENT A707.B.b.

Beryllium

TA-35-0213 Beryllium Operating Log

TA-35-0213 Beryllium Operating Log
July 1 - December 31, 2018

July		August		September		October		November		December	
Date	**Hours**	**Date**	**Hours**	**Date**	**Hours**	**Date**	**Hours**	**Date**	**Hours**	**Date**	**Hours**
2-Jul-2018	6	6-Aug-2018	6	4-Sep-2018	6	1-Oct-2018	6	1-Nov-2018	5	3-Dec-2018	8
3-Jul-2018	6	7-Aug-2018	5	5-Sep-2018	7	2-Oct-2018	5	2-Nov-2018	6	4-Dec-2018	7
9-Jul-2018	7	8-Aug-2018	6	6-Sep-2018	7	3-Oct-2018	5	5-Nov-2018	7	5-Dec-2018	7
10-Jul-2018	5	9-Aug-2018	6	7-Sep-2018	4	4-Oct-2018	5	6-Nov-2018	5	6-Dec-2018	7
11-Jul-2018	5	10-Aug-2018	7	10-Sep-2018	6	5-Oct-2018	4	7-Nov-2018	5	10-Dec-2018	8
12-Jul-2018	6	13-Aug-2018	7	11-Sep-2018	6	9-Oct-2018	4	8-Nov-2018	6	11-Dec-2018	6
13-Jul-2018	7	14-Aug-2018	8	12-Sep-2018	6	10-Oct-2018	5	13-Nov-2018	7	12-Dec-2018	8
16-Jul-2018	6	15-Aug-2018	5	13-Sep-2018	5	11-Oct-2018	1	14-Nov-2018	3	13-Dec-2018	8
17-Jul-2018	7	16-Aug-2018	5	17-Sep-2018	5	15-Oct-2018	4	15-Nov-2018	5	14-Dec-2018	7
18-Jul-2018	5	20-Aug-2018	6	18-Sep-2018	7	16-Oct-2018	4	16-Nov-2018	6	17-Dec-2018	8
19-Jul-2018	5	21-Aug-2018	7	19-Sep-2018	7	17-Oct-2018	5	19-Nov-2018	5	18-Dec-2018	8
		22-Aug-2018	6	20-Sep-2018	4	18-Oct-2018	5	20-Nov-2018	4	19-Dec-2018	8
		23-Aug-2018	6	21-Sep-2018	3	19-Oct-2018	6	26-Nov-2018	5	20-Dec-2018	8
		24-Aug-2018	5	24-Sep-2018	5	22-Oct-2018	7	27-Nov-2018	6		
		27-Aug-2018	6	25-Sep-2018	6	23-Oct-2018	4	28-Nov-2018	7		
		28-Aug-2018	6	26-Sep-2018	6	24-Oct-2018	5	29-Nov-2018	7		
		29-Aug-2018	7	27-Sep-2018	7	25-Oct-2018	6	30-Nov-2018	6		
		30-Aug-2018	5			29-Oct-2018	6				
						30-Oct-2018	5				
						31-Oct-2018	5				
Total Hours	**65**		**109**		**97**		**97**		**95**		**98**

Total hours for July 1 - December 31, 2018: **561**

Reviewed by: __Ashley Bruggeman 1/09/2019_____

ATTACHMENT A707.C.a.

Beryllium

TA-03-0141 Beryllium HEPA Filter Differential Pressure Readings

NM STATE REPORTING

		HEPA 1	HEPA 2	DUST	YEAR
DAY 1	04:00	0.75	0.58	1.04	2018
	12:00	0.77	0.59	1.06	2018
	20:00	0.75	0.58	1.19	2018
DAY 2	04:00	0.74	0.58	1.00	2018
	12:00	0.77	0.59	1.14	2018
	20:00	0.75	0.59	1.16	2018
DAY 3	04:00	0.75	0.58	0.99	2018
	12:00	0.76	0.59	1.10	2018
	20:00	0.78	0.60	1.17	2018
DAY 4	04:00	0.75	0.58	1.00	2018
	12:00	0.76	0.59	1.10	2018
	20:00	0.75	0.59	1.17	2018
DAY 5	04:00	0.76	0.58	1.09	2018
	12:00	0.78	0.60	1.16	2018
	20:00	0.75	0.59	1.08	2018
DAY 6	04:00	0.75	0.58	0.97	2018
	12:00	0.77	0.60	1.08	2018
	20:00	0.76	0.58	1.09	2018
DAY 7	04:00	0.75	0.58	0.96	2018
	12:00	0.75	0.59	1.10	2018
	20:00	0.77	0.59	1.11	2018
DAY 8	04:00	0.74	0.58	0.98	2018
	12:00	0.76	0.59	1.11	2018
	20:00	0.76	0.59	1.13	2018
DAY 9	04:00	0.75	0.58	1.06	2018
	12:00	0.77	0.59	1.05	2018
	20:00	0.77	0.59	1.13	2018
DAY 10	04:00	0.74	0.58	0.96	2018
	12:00	0.77	0.59	1.08	2018
	20:00	0.76	0.58	1.15	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 11	04:00	0.74	0.57	1.02	2018
	12:00	0.78	0.61	1.13	2018
	20:00	0.77	0.59	1.14	2018
DAY 12	04:00	0.75	0.58	0.95	2018
	12:00	0.77	0.60	1.11	2018
	20:00	0.76	0.60	1.10	2018
DAY 13	04:00	0.75	0.58	0.99	2018
	12:00	0.77	0.59	1.13	2018
	20:00	0.75	0.58	1.12	2018
DAY 14	04:00	0.74	0.57	0.95	2018
	12:00	0.77	0.59	1.05	2018
	20:00	0.76	0.58	1.10	2018
DAY 15	04:00	0.74	0.57	0.96	2018
	12:00	0.77	0.58	1.07	2018
	20:00	0.76	0.58	1.08	2018
DAY 16	04:00	0.75	0.58	1.02	2018
	12:00	0.78	0.61	1.08	2018
	20:00	0.76	0.59	1.07	2018
DAY 17	04:00	0.74	0.58	0.96	2018
	12:00	0.75	0.58	1.06	2018
	20:00	0.75	0.58	1.06	2018
DAY 18	04:00	0.74	0.58	1.02	2018
	12:00	0.76	0.59	1.09	2018
	20:00	0.76	0.58	1.23	2018
DAY 19	04:00	0.75	0.58	1.09	2018
	12:00	0.76	0.58	1.18	2018
	20:00	0.75	0.58	1.15	2018
DAY 20	04:00	0.74	0.58	1.05	2018
	12:00	0.77	0.59	1.17	2018
	20:00	0.78	0.60	1.20	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 21	04:00	0.74	0.57	1.03	2018
	12:00	0.77	0.58	1.18	2018
	20:00	0.76	0.58	1.25	2018
DAY 22	04:00	0.75	0.58	1.06	2018
	12:00	0.76	0.59	1.17	2018
	20:00	0.76	0.58	1.26	2018
DAY 23	04:00	0.74	0.58	1.14	2018
	12:00	0.76	0.59	1.20	2018
	20:00	0.74	0.58	1.14	2018
DAY 24	04:00	0.74	0.58	0.99	2018
	12:00	0.76	0.58	1.11	2018
	20:00	0.78	0.61	1.06	2018
DAY 25	04:00	0.75	0.58	1.00	2018
	12:00	0.76	0.59	1.05	2018
	20:00	0.75	0.58	1.07	2018
DAY 26	04:00	0.74	0.58	1.03	2018
	12:00	0.77	0.60	1.04	2018
	20:00	0.75	0.58	1.07	2018
DAY 27	04:00	0.74	0.57	1.00	2018
	12:00	0.75	0.59	1.13	2018
	20:00	0.76	0.59	0.93	2018
DAY 28	04:00	0.72	0.56	0.87	2018
	12:00	0.76	0.59	0.95	2018
	20:00	0.76	0.58	1.05	2018
DAY 29	04:00	0.73	0.57	0.91	2018
	12:00	0.76	0.59	0.97	2018
	20:00	0.74	0.58	1.08	2018
DAY 30	04:00	0.75	0.58	0.99	2018
	12:00	0.77	0.60	1.04	2018
	20:00	0.77	0.59	1.10	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 31	04:00	0.74	0.57	0.98	2018
	12:00	0.77	0.59	1.05	2018
	20:00	0.72	0.57	1.09	2018

JAN FEB MAR

APR MAY JUN

JUL AUG SEP

OCT NOV DEC

MONTH DISPLAYED IS
JULY

PRINT SCREEN MAIN

NM STATE REPORTING

		HEPA 1	HEPA 2	DUST	YEAR
DAY 1	04:00	0.72	0.57	1.02	2018
	12:00	0.77	0.59	1.06	2018
	20:00	0.74	0.59	1.02	2018
DAY 2	04:00	0.73	0.57	1.00	2018
	12:00	0.76	0.59	1.03	2018
	20:00	0.73	0.56	1.08	2018
DAY 3	04:00	0.73	0.57	0.93	2018
	12:00	0.74	0.58	1.04	2018
	20:00	0.77	0.58	1.08	2018
DAY 4	04:00	0.74	0.57	0.92	2018
	12:00	0.74	0.58	1.05	2018
	20:00	0.73	0.56	1.06	2018
DAY 5	04:00	0.73	0.56	0.98	2018
	12:00	0.74	0.58	1.12	2018
	20:00	0.73	0.57	1.09	2018
DAY 6	04:00	0.73	0.57	0.90	2018
	12:00	0.74	0.57	1.07	2018
	20:00	0.74	0.56	1.16	2018
DAY 7	04:00	0.73	0.57	0.95	2018
	12:00	0.75	0.57	1.06	2018
	20:00	0.73	0.56	1.07	2018
DAY 8	04:00	0.73	0.57	0.94	2018
	12:00	0.75	0.58	1.09	2018
	20:00	0.74	0.57	1.03	2018
DAY 9	04:00	0.73	0.57	0.91	2018
	12:00	0.73	0.56	1.05	2018
	20:00	0.70	0.55	0.93	2018
DAY 10	04:00	0.72	0.56	0.87	2018
	12:00	0.75	0.58	1.10	2018
	20:00	0.72	0.56	0.85	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 11	04:00	0.71	0.56	0.83	2018
	12:00	0.74	0.57	0.83	2018
	20:00	0.74	0.57	0.95	2018
DAY 12	04:00	0.71	0.56	0.79	2018
	12:00	0.73	0.57	0.87	2018
	20:00	0.73	0.56	0.97	2018
DAY 13	04:00	0.71	0.56	0.90	2018
	12:00	0.74	0.57	0.96	2018
	20:00	0.72	0.55	0.98	2018
DAY 14	04:00	0.72	0.56	0.91	2018
	12:00	0.74	0.58	1.01	2018
	20:00	0.73	0.57	1.05	2018
DAY 15	04:00	0.73	0.57	0.91	2018
	12:00	0.74	0.57	1.02	2018
	20:00	0.72	0.57	0.92	2018
DAY 16	04:00	0.72	0.56	0.85	2018
	12:00	0.72	0.56	1.03	2018
	20:00	0.73	0.57	0.97	2018
DAY 17	04:00	0.71	0.56	0.86	2018
	12:00	0.73	0.57	0.92	2018
	20:00	0.73	0.57	0.95	2018
DAY 18	04:00	0.71	0.55	0.84	2018
	12:00	0.72	0.56	0.95	2018
	20:00	0.73	0.57	0.92	2018
DAY 19	04:00	0.73	0.57	0.84	2018
	12:00	0.74	0.57	0.98	2018
	20:00	0.73	0.56	1.05	2018
DAY 20	04:00	0.73	0.56	0.88	2018
	12:00	0.74	0.58	0.88	2018
	20:00	0.73	0.56	1.05	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 21	04:00	0.71	0.56	0.90	2018
	12:00	0.74	0.57	1.08	2018
	20:00	0.72	0.56	0.97	2018
DAY 22	04:00	0.71	0.56	0.85	2018
	12:00	0.75	0.58	0.89	2018
	20:00	0.72	0.57	0.91	2018
DAY 23	04:00	0.72	0.55	0.77	2018
	12:00	0.73	0.56	0.89	2018
	20:00	0.72	0.56	0.99	2018
DAY 24	04:00	0.71	0.55	0.88	2018
	12:00	0.73	0.57	0.97	2018
	20:00	0.72	0.56	0.94	2018
DAY 25	04:00	0.71	0.56	0.91	2018
	12:00	0.74	0.57	1.02	2018
	20:00	0.71	0.56	0.92	2018
DAY 26	04:00	0.71	0.55	0.82	2018
	12:00	0.73	0.57	0.94	2018
	20:00	0.71	0.56	1.00	2018
DAY 27	04:00	0.73	0.57	0.86	2018
	12:00	0.75	0.58	0.92	2018
	20:00	0.73	0.57	0.97	2018
DAY 28	04:00	0.79	0.60	0.86	2018
	12:00	0.73	0.57	1.00	2018
	20:00	0.74	0.57	1.02	2018
DAY 29	04:00	0.72	0.56	0.89	2018
	12:00	0.73	0.58	1.00	2018
	20:00	0.73	0.56	1.05	2018
DAY 30	04:00	0.72	0.56	0.93	2018
	12:00	0.74	0.56	0.96	2018
	20:00	0.74	0.57	1.02	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 31	04:00	0.74	0.57	0.96	2018
	12:00	0.76	0.58	1.08	2018
	20:00	0.74	0.57	0.99	2018

JAN FEB MAR

APR MAY JUN

JUL AUG SEP

OCT NOV DEC

MONTH DISPLAYED IS
AUGUST

PRINT SCREEN MAIN

NM STATE REPORTING

		HEPA 1	HEPA 2	DUST	YEAR
DAY 1	04:00	0.72	0.56	0.82	2018
	12:00	0.73	0.56	0.86	2018
	20:00	0.72	0.57	0.85	2018
DAY 2	04:00	0.72	0.57	0.73	2018
	12:00	0.73	0.57	0.86	2018
	20:00	0.72	0.56	0.83	2018
DAY 3	04:00	0.72	0.55	0.78	2018
	12:00	0.73	0.57	0.80	2018
	20:00	0.72	0.57	0.78	2018
DAY 4	04:00	0.72	0.56	0.79	2018
	12:00	0.74	0.57	0.88	2018
	20:00	0.73	0.57	0.78	2018
DAY 5	04:00	0.73	0.56	0.76	2018
	12:00	0.74	0.57	0.91	2018
	20:00	0.73	0.57	0.80	2018
DAY 6	04:00	0.71	0.55	0.79	2018
	12:00	0.78	0.60	0.97	2018
	20:00	0.77	0.59	0.96	2018
DAY 7	04:00	0.76	0.59	0.98	2018
	12:00	0.78	0.60	1.01	2018
	20:00	0.73	0.56	0.91	2018
DAY 8	04:00	0.72	0.56	0.78	2018
	12:00	0.78	0.60	0.94	2018
	20:00	0.72	0.56	0.93	2018
DAY 9	04:00	0.70	0.56	0.81	2018
	12:00	0.74	0.57	0.86	2018
	20:00	0.72	0.56	0.87	2018
DAY 10	04:00	0.72	0.56	0.78	2018
	12:00	0.76	0.58	0.90	2018
	20:00	0.72	0.57	0.97	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 11	04:00	0.72	0.56	0.80	2018
	12:00	0.74	0.57	0.91	2018
	20:00	0.72	0.56	1.01	2018
DAY 12	04:00	0.74	0.57	0.86	2018
	12:00	0.73	0.57	0.96	2018
	20:00	0.72	0.56	1.01	2018
DAY 13	04:00	0.76	0.59	0.89	2018
	12:00	0.75	0.58	0.92	2018
	20:00	0.74	0.57	0.97	2018
DAY 14	04:00	0.71	0.55	0.87	2018
	12:00	0.73	0.56	0.92	2018
	20:00	0.72	0.55	0.97	2018
DAY 15	04:00	0.71	0.55	0.84	2018
	12:00	0.72	0.56	0.93	2018
	20:00	0.73	0.56	0.96	2018
DAY 16	04:00	0.71	0.55	0.86	2018
	12:00	0.73	0.57	0.93	2018
	20:00	0.74	0.57	1.04	2018
DAY 17	04:00	0.72	0.55	0.87	2018
	12:00	0.73	0.57	0.99	2018
	20:00	0.73	0.56	1.01	2018
DAY 18	04:00	0.72	0.56	0.89	2018
	12:00	0.74	0.57	0.99	2018
	20:00	0.73	0.56	1.03	2018
DAY 19	04:00	0.72	0.56	0.92	2018
	12:00	0.74	0.56	1.13	2018
	20:00	0.72	0.56	1.01	2018
DAY 20	04:00	0.72	0.56	0.83	2018
	12:00	0.73	0.57	0.82	2018
	20:00	0.73	0.56	0.91	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 21	04:00	0.72	0.56	0.81	2018
	12:00	0.74	0.57	0.96	2018
	20:00	0.74	0.57	0.89	2018
DAY 22	04:00	0.72	0.56	0.77	2018
	12:00	0.78	0.59	0.93	2018
	20:00	0.72	0.56	0.89	2018
DAY 23	04:00	0.71	0.56	0.78	2018
	12:00	0.73	0.56	0.83	2018
	20:00	0.72	0.56	0.92	2018
DAY 24	04:00	0.72	0.55	0.79	2018
	12:00	0.73	0.57	1.18	2018
	20:00	0.72	0.56	0.89	2018
DAY 25	04:00	0.77	0.59	0.78	2018
	12:00	0.73	0.57	1.02	2018
	20:00	0.73	0.57	0.87	2018
DAY 26	04:00	0.72	0.56	0.74	2018
	12:00	0.78	0.59	0.90	2018
	20:00	0.73	0.57	0.89	2018
DAY 27	04:00	0.73	0.56	0.78	2018
	12:00	0.77	0.60	0.94	2018
	20:00	0.72	0.56	0.90	2018
DAY 28	04:00	0.74	0.57	0.85	2018
	12:00	0.72	0.55	0.86	2018
	20:00	0.72	0.56	0.95	2018
DAY 29	04:00	0.72	0.56	0.72	2018
	12:00	0.71	0.56	0.84	2018
	20:00	0.72	0.56	0.93	2018
DAY 30	04:00	0.74	0.57	0.91	2018
	12:00	0.72	0.56	0.91	2018
	20:00	0.73	0.56	0.99	2018

JAN FEB MAR

APR MAY JUN

JUL AUG SEP

OCT NOV DEC

MONTH DISPLAYED IS
SEPTEMBER

PRINT SCREEN MAIN

NM STATE REPORTING

		HEPA 1	HEPA 2	DUST	YEAR
DAY 1	04:00	0.72	0.55	0.89	2018
	12:00	0.74	0.57	1.04	2018
	20:00	0.72	0.56	0.99	2018
DAY 2	04:00	0.72	0.55	0.82	2018
	12:00	0.74	0.57	0.88	2018
	20:00	0.71	0.56	0.87	2018
DAY 3	04:00	0.71	0.56	0.76	2018
	12:00	0.74	0.57	0.89	2018
	20:00	0.73	0.57	0.94	2018
DAY 4	04:00	0.72	0.56	0.84	2018
	12:00	0.74	0.57	0.92	2018
	20:00	0.72	0.56	0.98	2018
DAY 5	04:00	0.72	0.56	0.74	2018
	12:00	0.73	0.57	0.87	2018
	20:00	0.72	0.56	0.83	2018
DAY 6	04:00	0.72	0.57	0.68	2018
	12:00	0.78	0.60	0.97	2018
	20:00	0.72	0.57	0.83	2018
DAY 7	04:00	0.77	0.59	0.91	2018
	12:00	0.78	0.59	0.96	2018
	20:00	0.73	0.57	0.77	2018
DAY 8	04:00	0.79	0.61	0.91	2018
	12:00	0.78	0.59	0.89	2018
	20:00	0.77	0.59	0.93	2018
DAY 9	04:00	0.75	0.58	0.91	2018
	12:00	0.76	0.59	0.86	2018
	20:00	0.76	0.58	0.84	2018
DAY 10	04:00	0.76	0.58	0.83	2018
	12:00	0.77	0.59	0.87	2018
	20:00	0.77	0.60	0.87	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 11	04:00	0.76	0.58	0.88	2018
	12:00	0.76	0.58	0.92	2018
	20:00	-0.0	-0.0	-0.0	2018
DAY 12	04:00	-0.0	-0.0	-0.0	2018
	12:00	-0.0	-0.0	-0.0	2018
	20:00	-0.0	-0.0	-0.2	2018
DAY 13	04:00	-0.0	-0.0	-0.0	2018
	12:00	-0.0	-0.0	-0.0	2018
	20:00	-0.0	-0.0	-0.2	2018
DAY 14	04:00	-0.0	-0.0	-0.1	2018
	12:00	-0.0	-0.0	-0.1	2018
	20:00	-0.0	-0.0	-0.1	2018
DAY 15	04:00	-0.0	-0.0	-0.1	2018
	12:00	-0.0	-0.0	-0.2	2018
	20:00	-0.0	-0.0	-0.2	2018
DAY 16	04:00	-0.0	-0.0	-0.1	2018
	12:00	-0.0	-0.0	-0.1	2018
	20:00	-0.0	-0.0	-0.1	2018
DAY 17	04:00	-0.0	-0.0	-0.1	2018
	12:00	-0.0	-0.0	-0.1	2018
	20:00	-0.0	-0.0	-0.1	2018
DAY 18	04:00	-0.0	-0.0	-0.0	2018
	12:00	-0.0	-0.0	-0.1	2018
	20:00	-0.0	-0.0	-0.1	2018
DAY 19	04:00	-0.0	-0.0	-0.1	2018
	12:00	-0.0	-0.0	-0.1	2018
	20:00	-0.0	-0.0	-0.2	2018
DAY 20	04:00	-0.0	-0.0	-0.1	2018
	12:00	-0.0	-0.0	-0.1	2018
	20:00	-0.0	-0.0	-0.1	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 21	04:00	-0.0	-0.0	-0.1	2018
	12:00	-0.0	-0.0	-0.2	2018
	20:00	-0.0	-0.0	-0.1	2018
DAY 22	04:00	-0.0	-0.0	-0.1	2018
	12:00	-0.0	-0.0	-0.1	2018
	20:00	-0.0	-0.0	-0.2	2018
DAY 23	04:00	-0.0	-0.0	-0.1	2018
	12:00	-0.0	-0.0	-0.1	2018
	20:00	-0.0	-0.0	-0.1	2018
DAY 24	04:00	-0.0	-0.0	-0.1	2018
	12:00	-0.0	-0.0	-0.2	2018
	20:00	-0.0	-0.0	-0.1	2018
DAY 25	04:00	-0.0	-0.0	-0.1	2018
	12:00	-0.0	-0.0	-0.1	2018
	20:00	0.77	0.58	0.74	2018
DAY 26	04:00	0.75	0.57	0.70	2018
	12:00	0.76	0.58	0.75	2018
	20:00	0.76	0.58	0.77	2018
DAY 27	04:00	0.76	0.58	0.66	2018
	12:00	0.76	0.59	0.84	2018
	20:00	0.76	0.58	0.81	2018
DAY 28	04:00	0.77	0.59	0.69	2018
	12:00	0.76	0.58	0.78	2018
	20:00	0.76	0.58	0.78	2018
DAY 29	04:00	0.76	0.58	0.72	2018
	12:00	0.76	0.58	0.78	2018
	20:00	0.78	0.59	0.84	2018
DAY 30	04:00	0.77	0.59	0.73	2018
	12:00	0.77	0.59	0.80	2018
	20:00	0.78	0.60	0.69	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 31	04:00	0.75	0.59	0.75	2018
	12:00	0.78	0.60	0.60	2018
	20:00	0.75	0.59	0.80	2018

JAN FEB MAR

APR MAY JUN

JUL AUG SEP

OCT NOV DEC

MONTH DISPLAYED IS
OCTOBER

PRINT SCREEN MAIN

NM STATE REPORTING

		HEPA 1	HEPA 2	DUST	YEAR
DAY 1	04:00	0.75	0.57	0.85	2018
	12:00	0.77	0.60	0.72	2018
	20:00	0.78	0.60	0.67	2018
DAY 2	04:00	0.76	0.58	0.80	2018
	12:00	0.77	0.59	0.66	2018
	20:00	0.78	0.59	0.63	2018
DAY 3	04:00	0.76	0.58	0.66	2018
	12:00	0.77	0.59	0.65	2018
	20:00	0.78	0.60	0.63	2018
DAY 4	04:00	0.75	0.57	0.83	2018
	12:00	0.77	0.59	0.70	2018
	20:00	0.76	0.58	0.71	2018
DAY 5	04:00	0.76	0.59	0.56	2018
	12:00	0.76	0.58	0.68	2018
	20:00	0.77	0.60	0.70	2018
DAY 6	04:00	0.76	0.58	0.67	2018
	12:00	0.76	0.58	0.71	2018
	20:00	0.77	0.59	0.70	2018
DAY 7	04:00	0.76	0.60	0.67	2018
	12:00	0.77	0.60	0.93	2018
	20:00	0.78	0.60	0.69	2018
DAY 8	04:00	0.77	0.59	0.68	2018
	12:00	0.77	0.60	0.69	2018
	20:00	0.79	0.61	0.62	2018
DAY 9	04:00	0.75	0.58	0.72	2018
	12:00	0.78	0.60	0.61	2018
	20:00	0.77	0.59	0.71	2018
DAY 10	04:00	0.76	0.59	0.68	2018
	12:00	0.77	0.58	0.72	2018
	20:00	0.76	0.59	0.65	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 11	04:00	0.75	0.57	0.86	2018
	12:00	0.77	0.59	0.68	2018
	20:00	0.77	0.59	0.85	2018
DAY 12	04:00	0.76	0.58	0.88	2018
	12:00	0.77	0.60	0.78	2018
	20:00	0.77	0.60	0.72	2018
DAY 13	04:00	0.77	0.59	0.86	2018
	12:00	0.75	0.59	0.73	2018
	20:00	0.76	0.59	0.83	2018
DAY 14	04:00	0.75	0.58	0.87	2018
	12:00	0.76	0.58	0.73	2018
	20:00	0.76	0.59	0.72	2018
DAY 15	04:00	0.76	0.59	0.62	2018
	12:00	0.77	0.59	0.65	2018
	20:00	0.77	0.59	0.66	2018
DAY 16	04:00	0.76	0.59	0.72	2018
	12:00	0.76	0.60	0.67	2018
	20:00	0.77	0.59	0.72	2018
DAY 17	04:00	0.77	0.59	0.61	2018
	12:00	0.77	0.60	0.71	2018
	20:00	0.77	0.60	0.66	2018
DAY 18	04:00	0.77	0.59	0.63	2018
	12:00	0.78	0.59	0.84	2018
	20:00	0.76	0.58	0.61	2018
DAY 19	04:00	0.77	0.59	0.72	2018
	12:00	0.78	0.59	0.70	2018
	20:00	0.76	0.59	0.72	2018
DAY 20	04:00	0.74	0.58	0.83	2018
	12:00	0.76	0.60	0.73	2018
	20:00	0.78	0.59	0.65	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 21	04:00	0.77	0.60	0.65	2018
	12:00	0.77	0.60	0.70	2018
	20:00	0.78	0.60	0.65	2018
DAY 22	04:00	0.76	0.59	0.69	2018
	12:00	0.77	0.59	0.65	2018
	20:00	0.79	0.60	0.78	2018
DAY 23	04:00	0.76	0.58	0.76	2018
	12:00	0.76	0.59	0.70	2018
	20:00	0.77	0.60	0.64	2018
DAY 24	04:00	0.73	0.57	0.85	2018
	12:00	0.77	0.59	0.85	2018
	20:00	0.77	0.60	0.72	2018
DAY 25	04:00	0.76	0.58	0.75	2018
	12:00	0.75	0.58	0.81	2018
	20:00	0.75	0.59	0.82	2018
DAY 26	04:00	0.76	0.59	0.88	2018
	12:00	0.77	0.59	0.68	2018
	20:00	0.76	0.59	0.77	2018
DAY 27	04:00	0.76	0.59	0.65	2018
	12:00	0.77	0.60	0.73	2018
	20:00	0.77	0.60	0.62	2018
DAY 28	04:00	0.77	0.59	0.65	2018
	12:00	0.76	0.60	0.67	2018
	20:00	0.78	0.60	0.67	2018
DAY 29	04:00	0.77	0.60	0.62	2018
	12:00	0.78	0.60	0.72	2018
	20:00	0.78	0.60	0.71	2018
DAY 30	04:00	0.76	0.59	0.56	2018
	12:00	0.77	0.60	0.62	2018
	20:00	0.77	0.59	0.64	2018

JAN FEB MAR

APR MAY JUN

JUL AUG SEP

OCT NOV DEC

MONTH DISPLAYED IS
NOVEMBER

PRINT SCREEN MAIN

NM STATE REPORTING

		HEPA 1	HEPA 2	DUST	YEAR
DAY 1	04:00	0.77	0.59	0.66	2018
	12:00	0.76	0.59	0.81	2018
	20:00	0.76	0.59	0.82	2018
DAY 2	04:00	0.75	0.58	0.79	2018
	12:00	0.78	0.60	0.63	2018
	20:00	0.76	0.59	0.72	2018
DAY 3	04:00	0.75	0.58	0.91	2018
	12:00	0.77	0.59	0.78	2018
	20:00	0.78	0.60	0.65	2018
DAY 4	04:00	0.77	0.58	0.89	2018
	12:00	0.76	0.59	1.04	2018
	20:00	0.74	0.58	0.61	2018
DAY 5	04:00	0.76	0.58	0.93	2018
	12:00	0.77	0.59	0.84	2018
	20:00	0.77	0.60	0.75	2018
DAY 6	04:00	0.76	0.59	0.72	2018
	12:00	0.77	0.60	0.84	2018
	20:00	0.75	0.58	0.69	2018
DAY 7	04:00	0.77	0.60	0.67	2018
	12:00	0.78	0.61	0.79	2018
	20:00	0.77	0.59	0.68	2018
DAY 8	04:00	0.75	0.59	0.68	2018
	12:00	0.75	0.58	0.60	2018
	20:00	0.75	0.58	0.75	2018
DAY 9	04:00	0.77	0.59	0.71	2018
	12:00	0.75	0.58	0.74	2018
	20:00	0.76	0.58	0.81	2018
DAY 10	04:00	0.76	0.58	0.67	2018
	12:00	0.77	0.59	0.69	2018
	20:00	0.76	0.58	0.73	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 11	04:00	0.74	0.58	0.87	2018
	12:00	0.77	0.59	0.63	2018
	20:00	0.76	0.59	0.64	2018
DAY 12	04:00	0.77	0.59	0.59	2018
	12:00	0.76	0.59	0.71	2018
	20:00	0.75	0.58	0.62	2018
DAY 13	04:00	0.78	0.60	0.84	2018
	12:00	0.77	0.60	0.68	2018
	20:00	0.78	0.60	0.78	2018
DAY 14	04:00	0.76	0.59	0.88	2018
	12:00	0.76	0.59	0.79	2018
	20:00	0.77	0.58	0.63	2018
DAY 15	04:00	0.76	0.59	0.93	2018
	12:00	0.76	0.58	0.68	2018
	20:00	0.76	0.59	0.63	2018
DAY 16	04:00	0.77	0.60	0.77	2018
	12:00	0.76	0.59	0.72	2018
	20:00	0.77	0.59	0.69	2018
DAY 17	04:00	0.76	0.59	0.87	2018
	12:00	0.76	0.59	0.65	2018
	20:00	0.77	0.60	0.63	2018
DAY 18	04:00	0.74	0.57	0.83	2018
	12:00	0.78	0.60	0.92	2018
	20:00	0.76	0.59	0.62	2018
DAY 19	04:00	0.75	0.59	0.62	2018
	12:00	0.74	0.58	0.77	2018
	20:00	0.77	0.60	0.56	2018
DAY 20	04:00	0.76	0.59	0.64	2018
	12:00	0.76	0.59	0.63	2018
	20:00	0.76	0.59	0.53	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 21	04:00	0.76	0.58	0.87	2018
	12:00	0.76	0.59	0.59	2018
	20:00	0.78	0.60	0.65	2018
DAY 22	04:00	0.77	0.59	0.61	2018
	12:00	0.77	0.60	0.64	2018
	20:00	0.79	0.61	0.59	2018
DAY 23	04:00	0.75	0.58	0.64	2018
	12:00	0.75	0.58	0.79	2018
	20:00	0.75	0.58	0.85	2018
DAY 24	04:00	0.73	0.58	0.78	2018
	12:00	0.78	0.60	0.60	2018
	20:00	0.76	0.59	0.62	2018
DAY 25	04:00	0.77	0.59	0.76	2018
	12:00	0.77	0.59	0.60	2018
	20:00	0.75	0.58	0.66	2018
DAY 26	04:00	0.76	0.59	0.86	2018
	12:00	0.76	0.58	0.80	2018
	20:00	0.76	0.58	0.76	2018
DAY 27	04:00	0.77	0.59	0.88	2018
	12:00	0.78	0.60	0.71	2018
	20:00	0.78	0.58	0.67	2018
DAY 28	04:00	0.77	0.60	0.93	2018
	12:00	0.76	0.58	0.93	2018
	20:00	0.76	0.59	0.93	2018
DAY 29	04:00	0.76	0.59	0.88	2018
	12:00	0.76	0.58	0.87	2018
	20:00	0.76	0.59	0.85	2018
DAY 30	04:00	0.76	0.59	0.91	2018
	12:00	0.75	0.59	0.90	2018
	20:00	0.76	0.59	0.95	2018

		HEPA 1	HEPA 2	DUST	YEAR
DAY 31	04:00	0.75	0.58	0.88	2018
	12:00	0.77	0.60	0.78	2018
	20:00	0.77	0.59	0.84	2018

JAN FEB MAR

APR MAY JUN

JUL AUG SEP

OCT NOV DEC

MONTH DISPLAYED IS
DECEMBER

PRINT SCREEN MAIN

ATTACHMENT A707.C.b.

Beryllium

TA-55-PF4 Annual HEPA Filter Challenge Test Reports

Attachment B, Surveillance Training Checklist

(Page 1 of 2)

Procedure title:	1DD AREA GLOVEBOX EXH IN-PLACE HEPA FILTER TESTING
Procedure no.:	TA55-STP-114A R3.3
Date of issue:	9/4/18
Working copy issued to:	M IRISH
Working copy issued by:	A JAURIGUE
	Certified Operations Center Operator (OCO)

Procedure is the current revision listed in Documentum: ☑ Yes ☐ Documentum Unavailable

Performance Type: ☑ Scheduled ☐ Partial ☐ Other *If partial or other list reason in Comments below*

Comments: *(Document TSR Status Board tracking date here if different from completion date.)*

Training Checklist:

Workers Performing Surveillance	Applicable Surveillance Training Current	
	OCO Initials	Date
M IRISH	ARJ	9/4/18
D HEINTSCHEL	ARJ	9/4/18
K BAILEY	ARJ	9/4/18
R MARTINEZ	ARJ	9/4/18

OC Reviews Complete and TSR Status Board Updated

OCO Signature 9/4/18 Date

For Information Only

Attachment A, 100 Area Glovebox Exhaust FF-852 Data Sheet

(Page 1 of 3)

Step 3.1[3]	Obtain Permission to conduct STP	**Initials** MMT	**Step 3.1[2]**	Obtain current copy of STP	**Initials** [illegible]
Step 5.1[2]	Plenum (Circle One) SAT UNSAT	**Initial** DH			

Valve	Required Position	Initials Step 5.1[3]
V-852-H	**Closed and Locked**	RM
V-852-G	**Closed**	RM
V-852-F	**Closed**	RM
V-852-D	**Closed**	RM
V-852-C	**Closed**	RM
V-852-B	**Closed**	RM
V-852-A	**Closed**	RM
V-852-AA	**Closed**	RM
TP-852-1	**Closed and Capped**	RM
TP-852-2	**Closed and Capped**	RM
TP-852-3	**Closed and Capped**	RM

Step 5.1[4]	Visually inspect the bag-out doors between the air plenum and the bag-out boxes (both sides). Ensure that the seals are intact and the doors are securely **dogged shut.**	**Initials** DH

Date: 9/4/18 **5.1[6][a]** **Photometer Cal. Expiration Date:** 2/20/19 **5.1[6][b]** **Photometer Serial #** 26788 **5.1[6][c]**

For Information Only

Attachment A, 100 Area Glovebox Exhaust FF-852 Data Sheet

(Page 2 of 3)

Step	Item	FF-852	
5.2[1][b]	First-stage HEPA Filter ΔP	0.56	Inches wc
5.2[1][c]	Second-Stage HEPA Filter ΔP	0.50	Inches wc
5.2[2][d]	Third-Stage HEPA Filter ΔP	0.51	Inches wc

$	PLENUM EFFICIENCY TEST [SR #4.1.3.1.A, #4.1.3.1.B]
	Follow the HEPA test procedure
Cu = 48 ug/l(%) Final Stable Upstream Meter reading	**Acceptance: ≥ 30 meter reading**
Stable Downstream (Cd%) Meter reading = .001 (%)	
Removal Efficiency (%) =.100% - Cd% = 100% - .001 Cd% = 99.999%	
Acceptance: ≥ 99.95%	**Acceptable? (circle one)** YES NO

FIRST STAGE TEST [defense-in-depth]	
Follow the HEPA test procedure	
Cu = 48 ug/l(%) Final Stable Upstream Meter reading	**Acceptance: ≥ 30 meter reading**
Stable Downstream (Cd%) Meter reading = .008 (%)	
Removal Efficiency (%) =.100% - Cd% = 100% - .008 Cd% = 99.992%	
Acceptance: ≥ 99.95%	**Acceptable? (circle one)** YES NO

For Information Only

Attachment A, 100 Area Glovebox Exhaust FF-852 Data Sheet

(Page 3 of 3)

Valve	Required Position	Initials Step 5.2[4][c]	Independent Verification Step 5.2[4][d]
V-852-A	Closed	KGS	RLL
V-852-AA	Closed	KGS	RLL
TP-852-1	Closed and Capped	KGS	RLL
TP-852-2	Closed and Capped	KGS	RLL
TP-852-3	Closed and Capped	KGS	RLL

6.1.1 ISI 4				
Step 5.2[4][e]	Visually inspect that the fire screens downstream of the first stage filters are structurally sound and bolted down (e.g. the zone 1 exhaust fire screens are to be visually inspected for signs of wear or degradation).	SAT / UNSAT	KGS	N/A

$

Surveillance Test Procedure Acceptance			
Date of Test:	9/4/18	(unless already listed elsewhere on the attachment)	
Test Results:	SATISFACTORY / UNSATISFACTORY (circle one)		
Surveillance Personnel:	232795 9/4/18 / 183541 9.4.18 / RLL 184122 9-4-18 / 185560 9/4/18 Signature/Z#/date		
OC Operator:	9/4/18 Signature / Z# / Date	OC On-Duty Supervisor:	325500 9/4/18 Signature / Z# / Date
Surveillance Test Results Review			
System Engineer:	103949 / 10/15/18 Signature / Z# / Date		
Comments			

For Information Only

Attachment B, 100 Area Glovebox Exhaust FF-853 Data Sheet

(Page 1 of 3)

Step 3.1[3]	Obtain Permission to conduct STP	**Initials** [illegible]	**Step 3.1.[2]**	Obtain current copy of STP	**Initials** DM
Step 5.1[2]	Plenum (Circle One) **SAT** **UNSAT**	**Initial** DM			

Valve	Required Position	Initials Step 5.1[3]
V-853-H	**Closed and Locked**	RM
V-853-G	**Closed**	RM
V-853-F	**Closed**	RM
V-853-D	**Closed**	RM
V-853-C	**Closed**	RM
V-853-B	**Closed**	RM
V-853-A	**Closed**	RM
V-852-AA	**Closed**	RM
TP-853-1	**Closed and Capped**	RM
TP-853-2	**Closed and Capped**	RM
TP-853-3	**Closed and Capped**	RM

Step 5.1[4]	Visually inspect the bag-out doors between the air plenum and the bag-out boxes (both sides). Ensure that the seals are intact and the doors are securely **dogged shut.**	**Initials** DM

Date: 9/4/18 **5.1[6][a]** **Photometer Cal. Expiration Date:** 2/20/19 **5.1[6][b]** **Photometer Serial #** 26788 **5.1[6][c]**

For Information Only

Attachment B, 100 Area Glovebox Exhaust FF-853 Data Sheet

(Page 2 of 3)

Step	Item	FF-853	
5.3[1][b]	First-stage HEPA Filter ΔP	0.58	Inches wc
5.3[1][c]	Second-Stage HEPA Filter ΔP	0.54	Inches wc
5.3[1][d]	Third-Stage HEPA Filter ΔP	0.59	Inches wc

$	PLENUM EFFICIENCY TEST [SR #4.1.3.1.A, #4.1.3.1.B]	
	Follow the HEPA test procedure	
Cu = 39 ug/l(%) Final Stable Upstream Meter reading		**Acceptance: ≥ 30 meter reading**
Stable Downstream (Cd%) Meter reading = .002 (%)		
Removal Efficiency (%) =.100% - Cd% = 100% - KB 9.7.18 .002 Cd% = 99.998 %		
Acceptance: ≥ 99.95%	**Acceptable? (circle one)**	**YES** **NO**

FIRST STAGE TEST [defense-in-depth]		
Follow the HEPA test procedure		
Cu = 39 ug/l(%) Final Stable Upstream Meter reading		**Acceptance: ≥ 30 meter reading**
Stable Downstream (Cd%) Meter reading = .003 (%)		
Removal Efficiency (%) =.100% - Cd% = 100% - .003 Cd% = 99.997 %		
Acceptance: ≥ 99.95%	**Acceptable? (circle one)**	**YES** **NO**

For Information Only

Attachment B, 100 Area Glovebox Exhaust FF-853 Data Sheet

(Page 3 of 3)

Valve	Required Position	Initials Step 5.3[4][c]	Independent Verification Step 5.3[4][d]
V-853-A	Closed	KGB	RW
V-852-AA	Closed	KGB	RW
TP-853-1	Closed and Capped	KGB	RW
TP-853-2	Closed and Capped	KGB	RW
TP-853-3	Closed and Capped	KGB	RW

6.1.1 ISI 4

Step 5.3[4][e]	Visually inspect that the fire screens downstream of the first stage filters are structurally sound and bolted down (e.g. the zone 1 exhaust fire screens are to be visually inspected for signs of wear or degradation).	SAT / UNSAT	KGB	N/A

$

Surveillance Test Procedure Acceptance			
Date of Test:	9/4/18	(unless already listed elsewhere on the attachment)	
Test Results:	SATISFACTORY / UNSATISFACTORY (circle one)		
Surveillance Personnel:	232795 9/4/18 / 183541 9.4.18 / 184122 9-4-18 / 182280 9/4/18	Signature/Z#/date	
OC Operator:	9/4/18 2/2242	**OC On-Duty Supervisor:**	325500 9/4/18
	Signature / Z# / Date		Signature / Z# / Date
Surveillance Test Results Review			
System Engineer:	103949 10-15-18	Signature / Z# / Date	
Comments			

For Information Only

Attachment B, Surveillance Training Checklist

(Page 1 of 2)

Procedure title:	300 AREA GLOVEBOX EXHAUST IN PLACE HEPA TEST
Procedure no.:	TA55 STP 104 C R 3.3
Date of issue:	08-29-18
Working copy issued to:	K BAILEY
Working copy issued by:	B CHANCE
	Certified Operations Center Operator (OCO)

Procedure is the current revision listed in Documentum: ☑ Yes ☐ Documentum Unavailable

Performance Type: ☑ Scheduled ☐ Partial ☐ Other *If partial or other list reason in Comments below*

Comments: *(Document TSR Status Board tracking date here if different from completion date.)*

Training Checklist:

Workers Performing Surveillance	Applicable Surveillance Training Current	
	OCO Initials	Date
K BAILEY	BC	08-29-18
M IRISH	BC	08-29-18
D HEINSCHEL	BC	08-29-18

OC Reviews Complete and TSR Status Board Updated

OCO Signature 8/29/18 Date

Attachment A, Valve Alignment

Verify that the following valves on the aerosol injection ductwork are in the designated position:

Valve	Required Position	Initials Step 3.4[6]	Valve	Required Position	Initials Step 3.4[6]
V-854-J	**Closed and Locked**	DH	V-855-J	**Closed and Locked**	DH
V-854-H	**Closed**	DH	V-855-D	**Closed**	DH
V-854-G	**Closed**	DH	V-855-C	**Closed**	DH
V-854-D	**Closed**	DH	V-855-B	**Closed**	DH
V-854-C	**Closed**	DH	V-855-A	**Closed**	DH
V-854-B	**Closed**	DH	V-855-8	**Closed and Locked**	DH
V-854-A	**Closed**	DH	V-859-7	**Closed**	DH
V-854-8	**Closed and Locked**	DH	V-859-5	**Closed**	DH
V-858-7	**Closed**	DH	V-859-3	**Closed**	DH
V-858-5	**Closed**	DH	V-859-2	**Closed**	DH
V-858-3	**Closed**	DH	V-859-1	**Closed**	DH
V-858-2	**Closed**	DH			
V-858-1	**Closed**	DH			
V-854-AA	**Closed**	DH			

Ensure that the maintenance valves/doors are in the correct operating position:

Step 3.4[7]	Visually inspect the bag-out doors between the air plenum and the bag-out boxes (both sides). Ensure that the seals are intact and the doors are securely **dogged shut.**	**Initials** DH

Attachment B, 300 Area Glovebox Exhaust FF-854 Data Sheet

(Page 1 of 2)

Step 3.1[3]	Obtain Permission to conduct STP	Initials DH	Step 3.1[2]	Obtain current copy of STP	Initials DH
Step 5.1[2]	Plenum (Circle One) SAT UNSAT	Initial DH			

Date: 8/29/18 (5.1[4][a]) **Photometer Cal. Expiration Date:** 2/20/19 (5.1[4][b]) **Photometer Serial #** 26788 (5.1[4][c])

Step	Item	FF-854	
5.2[1]	First-stage HEPA Filter ΔP	0.1	Inches wc
5.2[2]	Second-Stage HEPA Filter ΔP	0.12	Inches wc
5.2[3]	Third-Stage HEPA Filter ΔP	0.1	Inches wc

$	**PLENUM EFFICIENCY TEST [SR #4.1.3.1.A, #4.1.3.1.B]**		
	Follow the HEPA test procedure		
Cu = 42 ug/l(%) Final Stable Upstream Meter reading		**Acceptance: ≥30 meter reading**	
Stable Downstream (Cd%) Meter reading = .001 (%)			
Removal Efficiency (%) =.100% - Cd% = 100% - .001 Cd% = 99.999 %			
Acceptance: ≥ 99.95%	**Acceptable? (circle one)**	**YES**	**NO**

FIRST STAGE TEST [defense-in-depth]			
Follow the HEPA test procedure			
Cu = 42 ug/l(%) Final Stable Upstream Meter reading		**Acceptance: ≥30 meter reading**	
Stable Downstream (Cd%) Meter reading = .001 (%)			
Removal Efficiency (%) =.100% - Cd% = 100% - .001 Cd% = 99.999 %			
Acceptance: ≥ 99.95%	**Acceptable? (circle one)**	**YES**	**NO**

Attachment B, 300 Area Glovebox Exhaust FF-854 Data Sheet

(Page 2 of 2)

Valve	Required Position	Initials Step 5.4[8]	Independent Verification Step 5.4[8][b]
V-854-A	Closed	DH	[illegible]
V-854-AA	Closed	DH	[illegible]
V-870A	Open	DH	[illegible]
V-890	Open	DH	[illegible]
TP-854-1	Closed and Capped	DH	[illegible]
TP-854-2	Closed and Capped	DH	[illegible]
TP-854-3	Closed and Capped	DH	[illegible]

6.1.1 ISI 4

$ Step 5.4[7]	Visually inspect that the fire screens downstream of the first stage filters are structurally sound and bolted down (e.g. the zone 1 exhaust fire screens are to be visually inspected for signs of wear or degradation).	SAT / UNSAT	KGB	N/A

Surveillance Test Procedure Acceptance			
Date of Test:	8/29/18	(unless already listed elsewhere on the attachment)	
Test Results:	SATISFACTORY / UNSATISFACTORY (circle one)		
Surveillance Personnel:	[signature] 232795 8/29/18 [signature] 1826480 8/29/18 [signature] 1835411 8.29.18 Signature/Z#/date		
OC Operator:	[signature] 319862 8/29/18 Signature / Z# / Date	**OC On-Duty Supervisor:**	[signature] 325500 8/29/18 Signature / Z# / Date

Surveillance Test Results Review	
System Engineer:	[signature] 103949 8/30/18 Signature / Z# / Date
Comments	

Attachment C, SRL Exhaust FF-858 Data Sheet

(Page 1 of 2)

Step		Initials	Step		Initials
3.1[3]	Obtain Permission to conduct STP	DH	3.1[2]	Obtain current copy of STP	DH
Step 5.1[2]	Plenum (Circle One) SAT UNSAT	Initial DH			

Date: 8/29/18 (5.1[4][a]) **Photometer Cal. Expiration Date:** 2/20/19 (5.1[4][b]) **Photometer Serial #** 26788 (5.1[4][c])

Step	Item	FF-858
5.3[3]	First-stage HEPA Filter ΔP	.08 Inches wc
5.3[4]	Second-Stage HEPA Filter ΔP	.02 Inches wc
5.3[5]	Third-Stage HEPA Filter ΔP	.02 Inches wc

$	PLENUM EFFICIENCY TEST [SR #4.1.3.1.A, #4.1.3.1.B]
	Follow the HEPA test procedure
Cu = 39 ug/l(%) Final Stable Upstream Meter reading	**Acceptance: ≥30 meter reading**
Stable Downstream (Cd%) Meter reading = .001 (%)	
Removal Efficiency (%) =.100% - Cd% = 100% - .001 Cd% = 99.999 %	
Acceptance: ≥ 99.95%	**Acceptable? (circle one)** YES NO

FIRST STAGE TEST [defense-in-depth]	
Follow the HEPA test procedure	
Cu = 39 ug/l(%) Final Stable Upstream Meter reading	**Acceptance: ≥30 meter reading**
Stable Downstream (Cd%) Meter reading = .001 (%)	
Removal Efficiency (%) =.100% - Cd% = 100% - .001 Cd% = 99.999 %	
Acceptance: ≥ 99.95%	**Acceptable? (circle one)** YES NO

Attachment C, SRL Exhaust FF-858 Data Sheet

(Page 2 of 2)

Valve	Required Position	Initials Step 5.4[8]	Independent Verification Step 5.4[8][b]
V-858-1	Closed	DH	
V-854-AA	Closed	DH	
V-870A	Open	DH	
V-890	Open	DH	
TP-858-1	Closed and Capped	DH	
TP-858-2	Closed and Capped	DH	
TP-854-3	Closed and Capped	DH	

6.1.1 ISI 4				
$ Step 5.4[7]	Visually inspect that the fire screens downstream of the first stage filters are structurally sound and bolted down (e.g. the zone 1 exhaust fire screens are to be visually inspected for signs of wear or degradation).	SAT / UNSAT	DH	N/A

Surveillance Test Procedure Acceptance			
Date of Test:	8/29/18	(unless already listed elsewhere on the attachment)	
Test Results:	SATISFACTORY / UNSATISFACTORY (circle one)		
Surveillance Personnel:	232795 8/29/18 / 183541 8.29.18 Signature/Z#/date		
OC Operator:	315500 8/29/18 Signature / Z# / Date	**OC On-Duty Supervisor:**	325500 8/29/18 Signature / Z# / Date
Surveillance Test Results Review			
System Engineer:	103949 1830.18 Signature / Z# / Date		
Comments			

Attachment D, 300 Area Glovebox Exhaust FF-855 Data Sheet

(Page 1 of 2)

Step		Initials	Step		Initials
3.1[3]	Obtain Permission to conduct STP	DH	3.1[2]	Obtain current copy of STP	DH
Step 5.1[2]	Plenum (Circle One) SAT UNSAT	Initial DH			

Date: 8/29/18 (5.5[4][a]) **Photometer Cal. Expiration Date:** 2/20/19 (5.5[4][b]) **Photometer Serial #** 26788 (5.5[4][c])

Step	Item	FF-855
5.6[1]	First-stage HEPA Filter ΔP	0.1 Inches wc
5.6[2]	Second-Stage HEPA Filter ΔP	0.1 Inches wc
5.6[3]	Third-Stage HEPA Filter ΔP	0.12 Inches wc

$	PLENUM EFFICIENCY TEST [SR #4.1.3.1.A, #4.1.3.1.B]
	Follow the HEPA test procedure
Cu = 30 ug/l(%) Final Stable Upstream Meter reading	**Acceptance: ≥30 meter reading**
Stable Downstream (Cd%) Meter reading = .001 (%)	
Removal Efficiency (%) =.100% - Cd% = 100% - .001 Cd% = 99.999 %	
Acceptance: ≥ 99.95%	**Acceptable? (circle one)** YES NO

FIRST STAGE TEST [defense-in-depth]	
Follow the HEPA test procedure	
Cu = 30 ug/l(%) Final Stable Upstream Meter reading	**Acceptance: ≥30 meter reading**
Stable Downstream (Cd%) Meter reading = .001 (%)	
Removal Efficiency (%) =.100% - Cd% = 100% - .001 Cd% = 99.999 %	
Acceptance: ≥ 99.95%	**Acceptable? (circle one)** YES NO

Attachment D, 300 Area Glovebox Exhaust FF-855 Data Sheet

(Page 2 of 2)

Valve	Required Position	Initials Step 5.8[8]	Independent Verification Step 5.8[8][b]
V-855-A	Closed	DH	KGB
V-854-AA	Closed	DH	KGB
V-870B	Open	DH	KGB
V-891	Open	DH	KGB
TP-855-1	Closed and Capped	DH	KGB
TP-855-2	Closed and Capped	DH	KGB
TP-855-3	Closed and Capped	DH	KGB

6.1.1 ISI 4

$ Step 5.8[7]	Visually inspect that the fire screens downstream of the first stage filters are structurally sound and bolted down (e.g. the zone 1 exhaust fire screens are to be visually inspected for signs of wear or degradation).	SAT / UNSAT	DH	N/A

Surveillance Test Procedure Acceptance			
Date of Test:	8/29/18	(unless already listed elsewhere on the attachment)	
Test Results:	SATISFACTORY / UNSATISFACTORY (circle one)		
Surveillance Personnel:	[signature] 232795 8/29/18 [signature] 183640 8/29/18 [signature] 783541 8.29.18 Signature/Z#/date		
OC Operator:	[signature] 319162 8/29/18 Signature / Z# / Date	**OC On-Duty Supervisor:**	[signature] 325500 8/29/18 Signature / Z# / Date

Surveillance Test Results Review	
System Engineer:	[signature] 103949 8-30-18 Signature / Z# / Date
Comments	

Attachment E, SRL Exhaust FF-859 Data Sheet

(Page 1 of 2)

Step		Initials	Step		Initials
3.1[3]	Obtain Permission to conduct STP	DH	3.1[2]	Obtain current copy of STP	DH
Step 5.1[2]	Plenum (Circle One) SAT UNSAT	Initial DH			

Date: 8/29/18 (5.5[4][a]) **Photometer Cal. Expiration Date:** 2/20/19 (5.5[4][b]) **Photometer Serial #** 26788 (5.5[4][c])

Step	Item	FF-859	
5.7[3]	First-stage HEPA Filter ΔP	0.49	Inches wc
5.7[4]	Second-Stage HEPA Filter ΔP	0.52	Inches wc
5.7[5]	Third-Stage HEPA Filter ΔP	0.50	Inches wc

$	**PLENUM EFFICIENCY TEST [SR #4.1.3.1.A, #4.1.3.1.B]**
	Follow the HEPA test procedure
Cu = 36 ug/l(%) Final Stable Upstream Meter reading	**Acceptance: ≥30 meter reading**
Stable Downstream (Cd%) Meter reading = .002 (%)	
Removal Efficiency (%) =.100% - Cd% = 100% - .002 Cd% = 99.998 %	
Acceptance: ≥ 99.95%	**Acceptable? (circle one)** YES NO

FIRST STAGE TEST [defense-in-depth]	
Follow the HEPA test procedure	
Cu = 36 ug/l(%) Final Stable Upstream Meter reading	**Acceptance: ≥30 meter reading**
Stable Downstream (Cd%) Meter reading = .008 (%)	
Removal Efficiency (%) =.100% - Cd% = 100% - .008 Cd% = 99.992 %	
Acceptance: ≥ 99.95%	**Acceptable? (circle one)** YES NO

Attachment E, SRL Exhaust FF-859 Data Sheet

(Page 2 of 2)

Valve	Required Position	Initials Step 5.8[8]	Independent Verification Step 5.8[8][b]
V-859-1	Closed	DH	KGB
V-854-AA	Closed	DH	KGB
V-870B	Open	DH	KGB
V-891	Open	DH	KGB
TP-859-1	Closed and Capped	DH	KGB
TP-859-2	Closed and Capped	DH	KGB
TP-855-3	Closed and Capped	DH	KGB

6.1.1 ISI 4

$ Step 5.8[7]	Visually inspect that the fire screens downstream of the first stage filters are structurally sound and bolted down (e.g. the zone 1 exhaust fire screens are to be visually inspected for signs of wear or degradation).	SAT / UNSAT	DH	N/A

Surveillance Test Procedure Acceptance			
Date of Test:	8/29/18	(unless already listed elsewhere on the attachment)	
Test Results:	SATISFACTORY / UNSATISFACTORY (circle one)		
Surveillance Personnel:	[signature] 232795 8/29/18 [signature] 8/29/18 [signature] 183541 8.29.18 Signature/Z#/date		
OC Operator:	[signature] 3/9/62 8/29/18 Signature / Z# / Date	OC On-Duty Supervisor:	[signature] 325500 8/29/18 Signature / Z# / Date
Surveillance Test Results Review			
System Engineer:	[signature] 103949 8-30-18 Signature / Z# / Date		
Comments			

ATTACHMENT A707.C.c.

Beryllium

TA-55-PF4 HEPA Filtration Differential Pressure Readings

Attachment B, Surveillance Training Checklist

(Page 1 of 2)

Procedure title:	SURVEILLANCE ROUNDS
Procedure no.:	TA55-STP-004, R19.1
Date of issue:	7/1/18
Working copy issued to:	C. COCHRAN
Working copy issued by:	F. SEYBERT
	Certified Operations Center Operator (OCO)

Procedure is the current revision listed in Documentum: ☒ Yes ☐ Documentum Unavailable

Performance Type: ☒ Scheduled ☐ Partial ☐ Other *If partial or other list reason in Comments below*

Comments: *(Document TSR Status Board tracking date here if different from completion date.)*

Training Checklist:

Workers Performing Surveillance	Applicable Surveillance Training Current	
	OCO Initials	Date
B. SHANCE	[signature]	7/1/18
C. COCHRAN	[signature]	
A. JAUREGUI	[signature]	
J. LOVATO	[signature]	
M. MILLER	[signature]	
A. ORTIZ	[signature]	
R. PRICE	[signature]	
F. SEYBERT	[signature]	7/1/18
A. DUNSEITH	[signature]	7/1/18

OC Reviews Complete and TSR Status Board Updated

[signature] 8/1/18

OCO Signature Date

Attachment B, Surveillance Training Checklist (continued)

(Page 2 of 2)

Training Checklist (continuation sheet)

Workers Performing Surveillance	Applicable Surveillance Training Current	
	Initials	Date
R. LUM		7/1/18
B. FORNHAM		7/1/18
D. HEINTSCHEL	002	7/1/18
R. HOHNER		7/1/18
M. IRISH		
T. LANGWORTHY		
J. MARTINEZ		
ANTHONY SANCHEZ		
A. TRUJILLO		
D. DURHAM		
M. WASHBURN		
C. VASQUEZ		
ALGER SANCHEZ		
A. ASHLEY		
R. MARTINEZ		
F. SMITH		7/1/18
F. GRIEGO		7/1/18

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																	
		Date:													~~7/4/18~~ 7/1/18		
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.		
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
		Initials:															
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**														
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]													-2.00	-2.00	
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]													-1.95	-1.95	
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]													-1.95	-1.95	
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]													-2.02	-2.03	
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]													-.18	0.18	
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]													-.23	0.23	
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]													-.20	0.20	
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]													-.20	0.20	
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc													-.15	0.15	
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc													-.09	0.09	
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc													-.08	0.08	
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc													-.14	0.102	

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:												7/1/19	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:													A	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:												7/1/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:													9	
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	**Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400**	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time															0724	1924

[1] Mode 2 acceptance criteria is < 0.00 in. wc.
[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [signature] Date 7/1/18 Time 1925 Reviewed by: [signature] Date: 7-1-18 Time: 0725
On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:							01/01/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:							MW
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA							005
	CP-305-H (LED Reading)								005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value							005
		≥ -0.1; ≤+0.1	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat
		Completion Time:							0807

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:							07/01/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:							[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc							.05
		PDI-894-2	≤2.0 & > 0[1] in. wc							.47
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc							.10
		PDI-895-2	≤2.0 & > 0[1] in. wc							.71
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc							.38
		PDI-817-2	≤2.0 & > 0[1] in. wc							.31
		PDI-817-4	≤2.0 & > 0[1] in. wc							.32
		PDI-817-5	≤2.0 & > 0[1] in. wc							.36
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc							.45
		PDI-819-3	≤2.0 & > 0[1] in. wc							.43
		PDI-819-4	≤2.0 & > 0[1] in. wc							.39
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc							Stby
		PDI-818-2	≤2.0 & > 0[1] in. wc							Stby
		PDI-818-4	≤2.0 & > 0[1] in. wc							Stby
		PDI-818-5	≤2.0 & > 0[1] in. wc							Stby
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc							Stby
		PDI-821-3	≤2.0 & > 0[1] in. wc							Stby
		PDI-821-4	≤2.0 & > 0[1] in. wc							Stby

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:							07/06/15
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:							MW
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc							.11
		PDI-822-2	≤2.0 & > 0[1] in. wc							.59
		PDI-822-4	≤2.0 & > 0[1] in. wc							.45
		PDI-822-5	≤2.0 & > 0[1] in. wc							.60
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc							Stby
		PDI-823-2	≤2.0 & > 0[1] in. wc							Stby
		PDI-823-4	≤2.0 & > 0[1] in. wc							Stby
		PDI-823—5	≤2.0 & > 0[1] in. wc							Stby
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc							.40
		PDI-830-2	≤2.0 & > 0[1] in. wc							.30
		PDI-830-3	≤2.0 & > 0[1] in. wc							.17
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc							.16
		PDI-836-2	≤2.0 & > 0[1] in. wc							.67
		PDI-836-3	≤2.0 & > 0[1] in. wc							.65
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc							.21
		PDI-837-2	≤2.0 & > 0[1] in. wc							.47
		PDI-837-3	≤2.0 & > 0[1] in. wc							.45

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:							07/01/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri	Sat.	Sun.
			Initials:							MW
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc							.55
		PDI-838-2	≤2.0 & > 0[1] in. wc							.60
		PDI-838-3	≤2.0 & > 0[1] in. wc							.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc							.41
		PDI-839-2	≤2.0 & > 0[1] in. wc							.52
		PDI-839-3	≤2.0 & > 0[1] in. wc							.52
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc							off
		PDI-810-2	≤2.0 & > 0[1] in. wc							off
		PDI-810-3	≤2.0 & > 0[1] in. wc							off
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc							.52
		PDI -811 -2	≤2.0 & > 0[1] in. wc							.53
		PDI -811 -3	≤2.0 & > 0[1] in. wc							.52
			Completion Time							0641
OC Operator Review and Page Count Complete (initials)										MW

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Michael Irish Date 7/1/18 Time 0641 Reviewed by: [signature] On-duty Supervisor Date: 7-3-18 Time: 0725

Comments 4.4.1.1 Flammable Gas Channel Check Out of Service

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:							07/01/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:							[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc							Stby
		PDI-840-2	≤2.0 & > 0 in[1]. wc							Stby
		PDI-840-3	≤2.0 & > 0[1] in. wc							Stby
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc							.47
		PDI-841-2	≤2.0 & > 0[1] in. wc							.57
		PDI-841-3	≤2.0 & > 0[1] in. wc							.52
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc							.34
		PDI-831-2	≤2.0 & > 0[1] in. wc							.42
		PDI-831-3	≤2.0 & > 0[1] in. wc							.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc							.44
		PDI-832-2	≤2.0 & > 0[1] in. wc							.68
		PDI-832-3	≤2.0 & > 0[1] in. wc							.62
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc							off
		PDI-807-2	≤2.0 & > 0[1] in. wc							off
		PDI-807-3	≤2.0 & > 0[1] in. wc							off
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc							.86
		PDI-809-2	≤2.0 & > 0[1] in. wc							.96
		PDI-809-3	≤2.0 & > 0[1] in. wc							.49

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:							01/06/13
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:							[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc							.21
		PDI-829-2	≤2.0 & > 0[1] in. wc							.40
		PDI-829-3	≤2.0 & > 0[1] in. wc							.32
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc							.67
		PDI-833-2	≤2.0 & > 0[1] in. wc							.52
		PDI-833-3	≤2.0 & > 0[1] in. wc							.56
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc							.05
		PDI-835-2	≤2.0 & > 0[1] in. wc							.56
		PDI-835-3	≤2.0 & > 0[1] in. wc							Stby
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc							Stby
		PDI-815-2	≤2.0 & > 0[1] in. wc							Stby
		PDI-815-4	≤2.0 & > 0[1] in. wc							Stby
		PDI-815-5	≤2.0 & > 0[1] in. wc							Stby
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc							.56
		PDI-816-2	≤2.0 & > 0[1] in. wc							.60
		PDI-816-4	≤2.0 & > 0[1] in. wc							.55
		PDI-816-5	≤2.0 & > 0[1] in. wc							.58

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:							01/01/19
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:							[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc							Stby
		PDI-812-2	≤2.0 & > 0[1] in. wc							Stby
		PDI-812-3	≤2.0 & > 0[1] in. wc							Stby
		PDI-812-4	≤2.0 & > 0[1] in. wc							Stby
		PDI-812-5	≤2.0 & > 0[1] in. wc							Stby
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc							.07
		PDI-813-2	≤2.0 & > 0[1] in. wc							.25
		PDI-813-3	≤2.0 & > 0[1] in. wc							.22
		PDI-813-4	≤2.0 & > 0[1] in. wc							.29
		PDI-813-5	≤2.0 & > 0[1] in. wc							.35
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc							.01
		PDI-865-2	≤2.0 & > 0[1] in. wc							.33
		PDI-865-3	≤2.0 & > 0[1] in. wc							.29
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc							.05
		PDI-863-2	≤2.0 & >0[1] in. wc							.29

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:							07/01/15
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:							[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc							.15
		PDI-857-2	≤ 2.0 & > 0[1] in. wc							.45
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤ 2.0 & > 0[1] in. wc							.09
		PDI-856-2	≤ 2.0 & > 0[1] in. wc							.58
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**							Set
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less							Set
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less							Set

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:							07/01/18
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:							[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3 5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less							Sat
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3 5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less							Sat
Completion time										[illegible] 07/01/18 0445 0445
OC Operator Review and Page Count Complete (initials)										[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Michael M Irish Date 7/1/18 Time 0445 Reviewed by: [signature] On-duty Supervisor Date: 7-5-18 Time: 0720

Comments: _____

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
			Date:	7-2-18		7-3-18		7/4/18		7/5/18		7/6/18		7/7/18		7/8/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	ARS	A	ARS	A	ARS	[illegible]	u	[illegible]	u	A	u	A	u	A
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**														
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.02	-1.95	-2.00	-2.01	-2.00	-2.00	-2.01	-2.01	-2.01	-2.00	-2.00	-2.01	-2.00	-2.02
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.95	-1.93	-1.94	-1.94	-1.94	-1.94	-1.95	-1.94	-1.94	-1.94	-1.95	-1.95	-1.95	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.95	-1.96	-1.95	-1.95	-1.95	-1.95	-1.95	-1.95	-1.95	-1.94	-1.95	-1.94	-1.95	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.02	-2.02	-2.02	-2.02	-2.03	-2.02	-2.02	-2.02	-2.01	-2.02	-2.01	-2.02	-2.02	-2.02
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-0.14	-.18	-0.18	-.18	-.18	-0.18	-.18	-0.18	-.18	-.18	-.18	-.18	-.18	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-0.24	-.22	-0.23	-.23	-.23	-0.23	-.24	-0.23	-.23	-.23	-.23	-.23	-.23	-.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-0.20	-.20	-0.20	-.20	-.20	-0.20	-.20	-0.20	-.20	-.20	-.20	-.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-0.20	-.20	-0.20	-.19	-.20	-0.20	-.20	-0.19	-.20	-.20	-.20	-.19	-.20	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-0.15	-.15	-0.15	-.15	-.15	-0.15	-.15	-0.15	-.15	-.15	-.15	-.15	-.16	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-0.09	-.09	-0.09	-.09	-.09	-0.09	-.10	-0.09	-.10	-.10	-.10	-.10	-.10	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-0.08	-.08	-0.08	-.08	-.08	-0.08	-.10	-0.08	-.10	-.10	-.10	-.09	-.10	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-0.086	.89	-0.086	-.093	-.099	-0.088	-.104	-0.088	-.095	-.094	-.089	-.088	-.091	-.092

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	7-2-18		7-3-18		7/4/18		7/5/18		7/6/18		7/7/18		7/8/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	JSC ARD	[illegible]	JSC ARD	[illegible]	ARD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	7-2-18		7-3-18		7/4/18		7/5/18		7/6/18		7/7/18		7/8/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	JSL ACJ	R	JSL AM	R	AM	[illegible]	[illegible]	[illegible]	[illegible]	R	[illegible]	R	[illegible]	R
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS** Sat / Unsat (circle one)													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0718	1930	0702	1930	0726	1927	0728	1916	0724	1930	0723	1930	0727	1930

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [signature] Date 7-8-18 Time 1930 Reviewed by: [signature] On-duty Supervisor Date: 7/9/18 Time: 0719

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	7/2/18	7-3-18	7/4/18	7-5-18	7-6-18	7/7/18	7/8/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	PT	DH	RM	PT	DH	DH
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0815	0822	0715	0755	0710	0708	0717

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	7/2/18	7-3-18	7/4/18	7-5-18	7-6-18	7/7/18	7/8/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	JR	PT	DH	RM	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.04	.04
		PDI-894-2	≤2.0 & > 0[1] in. wc	.46	.45	.46	.45	.45	.45	.45
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc	.10	.11	.10	.12	.11	.11	.10
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	.71	.71	.72	.71	.71	.71
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.28	.28	STBY	STBY	STBY	STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	.30	STBY	STBY	STBY	STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc	.32	.32	STBY	STBY	STBY	STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc	.31	.30	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-81 9-1	≤2.0 & > 0[1] in. wc	.43	.43	STBY	STBY	STBY	STBY	STBY
		PDI-81 9-3	≤2.0 & > 0[1] in. wc	.46	.44	STBY	STBY	STBY	STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	.40	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.25	.25	.25	.25	.25
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	STBY	.30	.32	.30	.31	.31
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	STBY	.29	.30	.30	.30	.30
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	STBY	.30	.30	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.42	.42	.41	.41	.41
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	STBY	.48	.46	.48	.48	.48
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	STBY	DH 7/4/18 ~~.30~~ .40	.41	.41	.41	.41

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	7/2/18	7-3-18	7/4/18	7-5-18	7-6-18	7/7/18	7/8/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	JM	PT	DH	RW	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.12	.12	STBY	STBY ~~.08~~ RW 7-5-18	STBY	STBY	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	.60	.60	STBY	STBY	STBY	STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	.45	.43	STBY	STBY	STBY	STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	.60	.60	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.06	.08	.06	.06	.06
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	STBY	.58	.58	.58	.58	.58
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	STBY	.52	.55	.52	.52	.52
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	STBY	.51	.55	.51	.51	.51
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.36	.31	.30	.30	.32	.31	.30
		PDI-830-2	≤2.0 & > 0[1] in. wc	.20	.19	.19	.19	.19	.19	.19
		PDI-830-3	≤2.0 & > 0[1] in. wc	.18	.15	.16	.18	.16	.16	.15
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.07	.07	.07	.07
		PDI-836-2	≤2.0 & > 0[1] in. wc	.67	.68	.68	.68	.68	.68	.68
		PDI-836-3	≤2.0 & > 0[1] in. wc	.65	.65	.65	.67	.66	.65	.65
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.48	.49	.49	.49	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.46	.45	.46	.48	.45	.45	.45

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	7/2/18	7-3-18	7/4/18	7-5-18	7-6-18	7/7/18	7/8/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	PT	DH	RM	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	7/2/18 ~~.41~~ .55	.55	.55	.58	.56	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	.60	.60	.61	.61	.60	.60
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.60	.60	.60	.60	.60	.60
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	.42	.41	.41
		PDI-839-2	≤2.0 & > 0[1] in. wc	.53	.52	.53	.54	.52	.52	.52
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	.52	.52	.52	.52	.52	.52
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	off	.16	.16	.18	.16	.16	.16
		PDI-810-2	≤2.0 & > 0[1] in. wc	off	.53	.54	.54	.53	.52	.52
		PDI-810-3	≤2.0 & > 0[1] in. wc	off	.51	.51	.50	.50	.50	.50
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.11	OFF	OFF	off	OFF	OFF	OFF
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.52	OFF	OFF	off	OFF	OFF	OFF
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.52	OFF	OFF	off	OFF	OFF	OFF
			Completion Time	0900	0836	0812	7/5/18 0715	0754	0802	0813
OC Operator Review and Page Count Complete (initials)				✓ ARJ	ARJ ✓	✓ ARJ	ARJ ✓	✓ ARJ	ARJ ✓	ARJ ✓

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [signature] Date 7/8/18 Time 0813 Reviewed by: [signature] On-duty Supervisor Date: 7/9/18 Time: 0720

Comments 7/2/18 4.1.1.1 out of service. Needs to be calibrated.

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	7/2/18	7/3/18	7/4/18	7-5-18	7-6-18	7/7/18	7/8/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	DH	RM	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	.17	.17	.18	.17	.17	.17
		PDI-840-2	≤2.0 & > 0 in[1]. wc	STBY	.58	.58	.59	.59	.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	.51	.51	.51	.51	.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.47	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc	.58	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	STBY	STBY	STBY	STBY	STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.33	.33	.34	.32	.34	.34	.34
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42	.41	.42	.42	.42	.41
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.40	.40	.41	.40	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.43	.43	.43	.42	.44	.44	.43
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	.68	.68	.69	.69	.68	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61	.62	.62	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	off	.11	.12	.12	.12	.11	.11
		PDI-807-2	≤2.0 & > 0[1] in. wc	off	.51	.51	.52	.52	.51	.51
		PDI-807-3	≤2.0 & > 0[1] in. wc	off	.49	.50	.50	.50	.50	.50
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.07	off	OFF	OFF	OFF	OFF	OFF
		PDI-809-2	≤2.0 & > 0[1] in. wc	.50	off	OFF	OFF	OFF	OFF	OFF
		PDI-809-3	≤2.0 & > 0[1] in. wc	.49	off	OFF	OFF	OFF	OFF	OFF

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	7/2/18	7/3/18	7/4/18	7-5-18	7-6-18	7/7/18	7/8/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	DH	[illegible]	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.21	.24	.24	.24	.24	.24	.24
		PDI-829-2	≤2.0 & > 0[1] in. wc	.39	.41	.41	.40	.41	.40	.41
		PDI-829-3	≤2.0 & > 0[1] in. wc	.31	.34	.32	.31	.33	.33	.34
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.07	.07	.07	.09	.08	.08	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.53	.54	.52	.55	.53	.52	.53
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.51	.50	.50	.51	.51	.51	.51
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	.27	.27	.25	.27	.27	.27
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	.59	.59	.57	.59	.59	.59
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	.51	.50	.51	.51	.50	.50
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	.51	.51	.51	.51	.51	.51
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.50	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	.60	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	.56	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	.58	STBY	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	7/2/18	7/3/18	7/4/18	7-5-18	7-6-18	7/7/18	7/8/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	DH	RJW	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	STBY	.13	.13	.10	.13	.14	.14
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	.30	.31	.32	.30	.30	.30
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	.30	.30	.32	.30	.30	.30
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	.30	.29	.30	.30	.30	.29
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	.35	.35	.35	.35	.35	.35
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.08	STBY	STBY	StBy	STBY	STBY	STBY
		PDI-813-2	≤2.0 & > 0[1] in. wc	.26	STBY	STBY	StBy	STBY	STBY	STBY
		PDI-813-3	≤2.0 & > 0[1] in. wc	.21	STBY	STBY	StBy	STBY	STBY	STBY
		PDI-813-4	≤2.0 & > 0[1] in. wc	.30	STBY	STBY	StBy	STBY	STBY	STBY
		PDI-813-5	≤2.0 & > 0[1] in. wc	.37	STBY	STBY	StBy	STBY	STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.03	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.32	.34	.32	.35	.33	.33	.33
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.30	.30	.31	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-863-2	≤2.0 & >0[1] in. wc	.28	.28	.29	.29	.29	.29	.29

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	7/2/18	7/3/18	7/4/18	7-5-18	7-6-18	7/7/18	7/8/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	DH	RM	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.13	.13	.13	.15	.15	.13	.13
		PDI-857-2	≤2.0 & > 0[1] in. wc	.46	.46	.46	.45	.45	.45	.45
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.09	.08	.08	.08	.08	.09	.09
		PDI-856-2	≤2.0 & > 0[1] in. wc	.58	.58	.59	.60	.59	.59	.59
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	7/2/18	7/3/18	7/4/18	7-5-18	7-6-18	7/7/18	7/8/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	DH	RM	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0845	0900	0829	1036	0755	0748	0744
			OC Operator Review and Page Count Complete (initials)	ARD ✓	ARD ✓	✓ ARD	ARD ✓	✓ ARD	ARD ✓	ARD ✓

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [signature] Date 7/8/18 Time 0744 Reviewed by: [signature] On-duty Supervisor Date: 7/9/18 Time: 0721

Comments: _____

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
		Date:	7-9-18		7-10-18		7-11-18		7-12-18		7-13-18		7/14/18		7/15/18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	JSC	BC	JSC	BC	JSC ATS	[illegible]	JSC	[illegible]	JSC	BC	[illegible]	BC	[illegible]	BC
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.01	-1.98	-2.00	-2.01	-2.00	-2.00	-2.00	-2.00	-2.01	-2.01	-2.00	-1.98	-2.01	-2.02
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.95	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.95	-1.95	-1.94	-1.95	-1.94	-1.95	-1.95	-1.95	-1.94	-1.95	-1.94	-1.95	-1.94	-1.95
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.02	-2.02	-2.02	-2.02	-2.02	-1.95	-2.02	-2.02	-2.02	-2.02	-2.03	-2.02	-2.02	-2.02
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-0.18	-.19	-0.18	-.18	-0.18	-.18	-0.18	-.18	-0.19	-.19	-0.18	-.19	-0.18	-.19
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-0.23	-.22	-0.24	-.24	-0.23	-.23	-0.22	-.23	-0.23	-.23	-0.23	-.24	-0.23	-.24
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-0.20	-.19	-0.20	-.20	-0.20	-.20	-0.20	-.21	-0.20	-.20	-0.20	-.20	-0.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-0.20	-.19	-0.19	-.20	-0.20	-.19	-0.19	-.20	-0.20	-.19	-0.19	-.20	-0.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-0.15	-.16	-0.15	-.15	-0.15	-.15	-0.09	-.15	-0.15	-.15	-0.15	-.16	-0.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-0.09	-.10	-0.09	-.09	-0.09	-.09	-0.09	-.09	-0.09	-.09	-0.09	-.10	-0.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-0.08	-.08	-0.08	-.08	-0.08	-.08	-0.080	-.08	-0.08	-.08	-0.08	-.08	-0.08	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-0.090	-.086	-0.088	-.089	-0.088	-.090	-0.090	-.090	-0.088	-.089	-0.086	-.087	-0.087	-.089

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	7-9-18		7-10-18		7-11-18		7-12-18		7-13-18		7/14/18		7/15/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	JSL	BC	JSL	BC	JSL AMD	[illegible]	JSL	[illegible]	JSL	BC	[illegible]	BC	[illegible]	BC
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note																	
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.				Date:	7-9-18		7-10-18		7-11-18		7-12-18		7-13-18		7/14/18		7/15/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	BC	BC	BC	BC	BC	[illegible]	BC	[illegible]	BC	BC	[illegible]	BC	[illegible]	BC
SRs	Description	Area	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS Sat / Unsat (circle one)													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0709	1920	0707	1921	0704	1934	0653	1930	0703	1921	0714	1918	0710	1919
					[illegible]				[illegible]						[illegible]	[illegible]	[illegible]	[illegible]

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: BC Date 07-15-18 Time 1919 Reviewed by: [illegible] Date: 7/16/18 Time: 0834

On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	7/9/18	7-10-18	7-11-18	7-12-18	7/13/18	7/14/18	7/15/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	BF	PT	PT	PT	[illegible]	[illegible]	[illegible]
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	~~Sat / Unsat~~ 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0757	0829	0815	0810	0815	0705	0700

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	7/9/18	7-10-18	7-11-18	7-12-18	7/13/18	7/14/18	7/15/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.04	.04
		PDI-894-2	≤2.0 & > 0[1] in. wc	.43	.43	.43	.43	.42	.42	.42
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.10	.11	.11	.12	.12	.11	.11
		PDI-895-2	≤2.0 & > 0[1] in. wc	.72	.72	.71	.71	.71	.71	.71
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.24	.24	.24	.24	.24	.24	.25
		PDI-818-2	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.31	.31	.31
		PDI-818-4	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.29	.29	.29
		PDI-818-5	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	.41	.41	.42
		PDI-821-3	≤2.0 & > 0[1] in. wc	.43	.48	.48	.48	.46	.46	.46
		PDI-821-4	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	7/9/18	7-10-18	7-11-18	7-12-18	7/13/18	7/14/18	7/15/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-823-2	≤2.0 & > 0[1] in. wc	.58	.58	.58	.58	.57	.57	.57
		PDI-823-4	≤2.0 & > 0[1] in. wc	.52	.52	.52	.51	.51	.52	.53
		PDI-823—5	≤2.0 & > 0[1] in. wc	.52	.52	.51	.51	.52	.53	.53
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.30	.26	.35	.33	.37	.29	.25
		PDI-830-2	≤2.0 & > 0[1] in. wc	.19	.15	.18	.18	.19	.17	.16
		PDI-830-3	≤2.0 & > 0[1] in. wc	.18	.12	.13	.13	.17	.12	.11
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06	.06	.07	.07	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.68	.68	.68	.68	.67	.67	.67
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	.67	.67	.66	.66	.66	.66
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.48	.48	.48
		PDI-837-3	≤2.0 & > 0[1] in. wc	.48	.48	.48	.48	.46	.46	.46

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	7/9/18	7-10-18	7-11-18	7-12-18	7/13/18	7/14/18	7/15/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.56	.56	.56	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	.60	.60	.60	.60	.60	.60
		PDI-838-3	≤2.0 & > 0[1] in. wc	.60	.60	.60	.60	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.41	.41	.41	.43	.43	.43	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc	.52	.52	.52	.55	.56	.56	.56
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	.52	.51	.54	.55	.55	.55
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.16	.16	.16	.16	.16	.16	.16
		PDI-810-2	≤2.0 & > 0[1] in. wc	.53	.52	.52	.55	.55	.52	.52
		PDI-810-3	≤2.0 & > 0[1] in. wc	.51	.50	.51	.51	.51	.50	.50
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	off	off	off
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	off	off	off
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	off	off	off
			Completion Time	0835	0844	0854	0825	0828	0743	0740
OC Operator Review and Page Count Complete (initials)				[illegible]	[illegible]	AMW	MJW	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Jerome H. Date 7/15/18 Time 0740 Reviewed by: [illegible] On-duty Supervisor Date: 7/16/18 Time: 0835

Comments SR 4.4.1.1 - Flam Gas Channel Check out of service

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	7/9/18	7-10-18	7-11-18	7-12-18	7/13/18	7/14/18	7/15/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.18	.17	.17	.17	.17	.17	.17
		PDI-840-2	≤2.0 & > 0 in[1] wc	.57	.58	.58	.58	.58	.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2 0 & > 0[1] in. wc	.34	.34	.34	.34	.34	.34	.34
		PDI-831-2	≤2 0 & > 0[1] in. wc	.43	.41	.41	.41	.41	.42	.42
		PDI-831-3	≤2 0 & > 0[1] in. wc	.41	.41	.41	.41	.41	.41	.41
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2 0 & > 0[1] in. wc	.43	.44	.44	.44	.43	.43	.43
		PDI-832-2	≤2 0 & > 0[1] in. wc	.67	.68	.68	.68	.68	.68	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc	.62	.62	.62	.61	.62	.62	.62
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	.12	.12	.12	.11	.11	.11
		PDI-807-2	≤2 0 & > 0[1] in. wc	.52	.52	.52	.52	.52	.52	.52
		PDI-807-3	≤2 0 & > 0[1] in. wc	.51	.51	.50	.50	.50	.50	.50
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2 0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	off	off	off
		PDI-809-2	≤2 0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	off	off	off
		PDI-809-3	≤2 0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	off	off	off

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	7/9/18	7-10-18	7-11-18	7-12-18	7/13/18	7/14/18	7/15/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.24	.24	.25	.26	.25	.26	.27
		PDI-829-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42	.45	.48
		PDI-829-3	≤2.0 & > 0[1] in. wc	.35	.33	.37	.37	.36	.37	.39
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.08	.08	.08	.08	.07	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.53	.53	.53	.53	.53	.53	.53
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.25	.28	.29	.29	.29	.29	.29
		PDI-815-2	≤2.0 & > 0[1] in. wc	.57	.57	.57	.57	.57	.57	.57
		PDI-815-4	≤2.0 & > 0[1] in. wc	.50	.51	.51	.51	.51	.51	.50
		PDI-815-5	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	7/9/18	7-10-18	7-11-18	7-12-18	7/13/18	7/14/18	7/15/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.12	.12	.12	.12	.14	.13	.14
		PDI-812-2	≤2.0 & > 0[1] in. wc	.33	.30	.29	.30	.31	.31	.31
		PDI-812-3	≤2.0 & > 0[1] in. wc	.31	.29	.30	.29	.31	.31	.31
		PDI-812-4	≤2.0 & > 0[1] in. wc	.30	.30	.29	.29	.29	.29	.29
		PDI-812-5	≤2.0 & > 0[1] in. wc	.37	.33	.32	.32	.35	.35	.35
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.35	.33	.33	.33	.34	.33	.33
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-863-2	≤2.0 & >0[1] in. wc	.29	.29	.29	.29	.29	.30	.30

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	7/9/18	7-10-18	7-11-18	7-12-18	7/13/18	7/14/18	7/15/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.12	.12	.12	.12	.12	.12	.13
		PDI-857-2	≤ 2.0 & > 0[1] in. wc	.47	.47	.45	.45	.45	.43	.43
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤ 2.0 & > 0[1] in. wc	.06	.09	.09	.09	.09	.09	.69
		PDI-856-2	≤ 2.0 & > 0[1] in. wc	.57	.58	.58	.58	.58	.58	.58
[1]NA	Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C		0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)	BF SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	BF SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	BF SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	7/9/18	7-10-18	7-11-18	7-12-18	7/13/18	7/14/18	7/15/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	BF SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	BF SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0820	0840	0855	0826	0900	0720	0725
			OC Operator Review and Page Count Complete (initials)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [illegible] Date 7/15/18 Time 0725 Reviewed by: [illegible] On-duty Supervisor Date: 7/16/18 Time: 0835

Comments: _____

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
			Date:	7-16-18		7-17-18		7-18-18		7-19-18		7/20/18		7/21/18		7/22/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	JSL		JSL		JSL		JSL							
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**														
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.00	-2.00	-2.02	-2.00	-2.02	-2.01	-2.01	-2.01	-2.00	-2.00	-2.00	-2.00	-2.01	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.95	-1.94	-1.94	-1.95	-1.94	-1.94	-1.94	-1.94	-1.94	-1.93	-1.95	-1.95	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.95	-1.94	-1.94	-1.95	-1.94	-1.95	-1.94	-1.94	-1.94	-1.94	-1.95	-1.95	-1.94	-1.94
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.03	-2.02	-2.02	-2.00	-2.02	-2.00	-2.02	-2.01	-2.05	-2.02	-2.02	-2.03	-2.00	-2.02
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-0.18	-.18	-0.18	-.18	-0.19	-.18	-0.19	-.20	-0.19	-.18	-.18	-.18	-.18	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-0.24	-.24	-0.24	-.23	-0.24	-.23	-0.23	-.25	-0.24	-.22	-.23	-.23	-.23	-.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-0.20	-.20	-0.20	-.20	-0.21	-.19	-0.20	-.21	-0.22	-.20	-.20	-.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-0.19	-.19	-0.19	-.19	-0.20	-.19	-0.19	-.20	-0.21	-.20	-.19	-.19	-.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-0.15	-.15	-0.17	-.15	-0.15	-.15	-0.15	-.15	-0.15	-.15	-.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-0.09	-.09	-0.09	-.10	-0.09	-.09	-0.09	-.09	-0.09	-.09	-.09	-.09	-.08	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-0.08	-.09	-0.08	-.10	-0.08	-.08	-0.08	-.08	-0.08	-.09	-.08	-.09	-.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-0.106	-.100	-0.098	-.104	-0.100	-.100	-0.092	-.105	-0.093	-.067	-.067	-.065	-.067	-.103

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note: Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	7-16-18		7-17-18		7-18-18		7-19-18		7/20/18		7/21/18		7/22/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	DSL MM	K	DSL MM	K	DSL	BC	DSL	BC	[illegible]	K	MM	K	MM	K
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	7-16-18		7-17-18		7-18-18		7-19-18		7/20/18		7/21/18		7/22/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	JSL	[illegible]	JSL	[illegible]	JSL	[illegible]	JSL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0710	1925	0712	1917	0712	0730	0714	1917	0721	1925	0733	1928	0733 1923	1920

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [illegible] Date 7/22/18 Time 1920 Reviewed by: [signature] Date: 8-1-18 Time: 1158
On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	7/16/18	7-17-18	7-18-18	7-19-18	7/20/18	7-21-18	7-22-18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	BF	PT	PT	PT	BF	PT	PT
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0745	0847	0852	0847	0712	0730	0725

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	7/16/18	7-17-18	7-18-18	7-19-18	7/20/18	7-21-18	7-22-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	BF	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.06
		PDI-894-2	≤2.0 & > 0[1] in. wc	.45	.43	.43	.45	.47	.44	.44
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.12	.12	.12	.13	.12	.13	.13
		PDI-895-2	≤2.0 & > 0[1] in. wc	.72	.72	.72	.72	.70	.72	.72
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.27	.28
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.31	.31
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.31	.31
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.42	.42
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.42	.42
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.39	.39
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.25	.25	.25	.25	.25	STBY	STBY
		PDI-818-2	≤2.0 & > 0[1] in. wc	.31	.30	.30	.30	.31	STBY	STBY
		PDI-818-4	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.29	STBY	STBY
		PDI-818-5	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.41	.41	.40	.41	.42	STBY	STBY
		PDI-821-3	≤2.0 & > 0[1] in. wc	.48	.48	.48	.48	.48	STBY	STBY
		PDI-821-4	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	.41	STBY	STBY

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	7/16/18	7-17-18	7-18-18	7-19-18	7/20/18	7-21-18	7-22-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	BF	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.13	.13
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.59	.59
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.43	.43
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.59	.59
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.07	.07	.07	.07	.07	STBY	STBY
		PDI-823-2	≤2.0 & > 0[1] in. wc	.60	.59	.59	.59	.59	STBY	STBY
		PDI-823-4	≤2.0 & > 0[1] in. wc	.53	.52	.52	.52	.53	STBY	STBY
		PDI-823—5	≤2.0 & > 0[1] in. wc	.53	.52	.52	.52	.52	STBY	STBY
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.24	.37	.12	.11	.36	.16	.16
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	.19	.09	.09	.19	.10	.10
		PDI-830-3	≤2.0 & > 0[1] in. wc	.11	.18	.08	.08	.17	.09	.09
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.09	.07	.07	.06	.06	.07	.07
		PDI-836-2	≤2.0 & > 0[1] in. wc	.67	.68	.68	.68	.68	.68	.68
		PDI-836-3	≤2.0 & > 0[1] in. wc	.65	.66	.65	.65	.65	.62	.62
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.48	.49	.49	.49	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	.48	.48	.48	.48	.48	.48

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	7/16/18	7-17-18	7-18-18	7-19-18	7-20-18	7-21-18	7-22-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	AS	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.56	.56	.56
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	.60	.60	.60	.59	.60	.60
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.60	.59	.60	.60
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.43	.43	.43	.43	.40	.40
		PDI-839-2	≤2.0 & > 0[1] in. wc	.56	.56	.56	.56	.55	.51	.51
		PDI-839-3	≤2.0 & > 0[1] in. wc	.57	.57	.56	.55	.55	.51	.51
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.15	.15	.16	.16	OFF	.18	.19
		PDI-810-2	≤2.0 & > 0[1] in. wc	.52	.52	.52	.52	OFF	.60	.60
		PDI-810-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.51	OFF	.58	.58
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	.11	OFF	OFF
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	.50	OFF	OFF
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	.50	OFF	OFF
			Completion Time	0830	0849	0846	0842	0727	0727	0721
OC Operator Review and Page Count Complete (initials)										

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Paul Trujillo Date 7-22-18 Time 0721 Reviewed by: _____ On-duty Supervisor Date: 8-1-18 Time: 1158

Comments SR 4.4.1.1 Flam Gas channel is "OUT OF SERVICE" NEEDS TO BE CALIBRATED

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	7/16/18	7-17-18	7-18-18	7-19-18	7-20-18	7-21-18	7-22-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	AS	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.17	.17	.17	.17	.17	STBY	STBY
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.58	.58	.59	.59	.59	STBY	STBY
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	STBY	STBY
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.47	.47
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.58	.58
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.51	.51
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.34	.55	.55	.55	.34	.35	.35
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	.41	.41	.41
		PDI-831-3	≤2.0 & > 0[1] in. wc	.41	.40	.40	.40	.40	.40	.41
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.43	.44	.44	.44	.44	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	.68	.68	.69	.68	.69	.69
		PDI-832-3	≤2.0 & > 0[1] in. wc	.62	.62	.62	.61	.61	.61	.62
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.11	.11	.11	.11	.11	OFF	OFF
		PDI-807-2	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	OFF	OFF
		PDI-807-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	OFF	OFF
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	.09	.09
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	.51	.51
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	.51	.51

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	7/16/18	7-17-18	7-18-18	7-19-18	7-20-18	7-21-18	7-22-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri	Sat.	Sun.
			Initials:	BF	PT	PT	PT	AB	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & >0[1] in. wc	.30	.24	.40	.38	.24	.21	.21
		PDI-829-2	≤2.0 & >0[1] in. wc	.50	.41	.60	.59	.41	.39	.39
		PDI-829-3	≤2.0 & >0[1] in. wc	.40	.33	.50	.49	.32	.31	.31
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & >0[1] in. wc	.07	.07	.07	.07	.08	.07	.08
		PDI-833-2	≤2.0 & >0[1] in. wc	.51	.52	.53	.52	.52	.52	.52
		PDI-833-3	≤2.0 & >0[1] in. wc	.50	.51	.51	.51	.50	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & >0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & >0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & >0[1] in. wc	.50	.50	.50	.51	.51	.51	.51
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & >0[1] in. wc	.25	.28	.28	.29	.30	STBY	STBY
		PDI-815-2	≤2.0 & >0[1] in. wc	.58	.58	.58	.58	.59	STBY	STBY
		PDI-815-4	≤2.0 & >0[1] in. wc	.51	.50	.50	.50	.50	STBY	STBY
		PDI-815-5	≤2.0 & >0[1] in. wc	.51	.50	.51	.50	.51	STBY	STBY
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.49	.49
		PDI-816-2	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.59	.59
		PDI-816-4	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.51	.51
		PDI-816-5	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.54	.54

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	7/16/18	7-17-18	7-18-18	7-19-18	7-20-18	7-21-18	7-22-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	AB	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.17	.15	.14	.14	.14	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.31	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc	.29	.30	.31	.30	.30	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc	.34	.37	.37	.35	.36	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.09	.09
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.29	.29
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.21	.21
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.30	.30
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.39	.39
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.01	.01	.01
		PDI-865-2	≤2.0 & > 0[1] in. wc	.33	.33	.35	.35	.32	.32	.32
		PDI-865-3	≤2.0 & > 0[1] in. wc	.31	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.05	.06	.06
		PDI-863-2	≤2.0 & >0[1] in. wc	.29	.29	.30	.30	.30	.30	.29

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	7/16/18	7-17-18	7-18-18	7-19-18	7-20-18	7-21-18	7-22-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	AS	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.12	.13	.12	.12	.15	.15	.15
		PDI-857-2	≤2.0 & > 0[1] in. wc	.43	.43	.43	.45	.45	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.09	.09	.09	.09	.10	.10	.10
		PDI-856-2	≤2.0 & > 0[1] in. wc	.58	.58	.58	.58	.59	.61	.61
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	7/16/18	7-17-18	7-18-18	7-19-18	7-20-18	7-21-18	7-22-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	AS	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT 7-20-18 AS ~~5770~~	SAT	SAT
			Completion time	0815	0850	0848	0852	0727	0800	0753
			OC Operator Review and Page Count Complete (initials)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Paul Trujillo Date 7-22-18 Time 0753 Reviewed by: [signature] Date: 8-1-18 Time: 1157

On-duty Supervisor

Comments: _____

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
			Date:	7-23-18		7-24-18		7-25-18		7-26-18		7/27/18		7/28/18		7/29/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	JSC	BC	JSC	BC	JSC	ADJ	JSC	ADJ	[illegible]	BC	[illegible]	BC	[illegible]	BC
SRs	**Description**	**Gauge Acceptance Criteria**		**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2	≤-1.0 in. wc[1]	-2.00	-2.00	-2.01	-1.99	-2.01	-2.01	-2.00	-2.02	-2.00	-2.00	-2.00	-2.00	-2.00	-1.99
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2	≤-1.0 in. wc[1]	-1.95	-1.94	-1.94	-1.94	-1.94	-1.94	-1.95	-1.95	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2	≤-1.0 in. wc[1]	-1.94	-1.94	-1.95	-1.94	-1.96	-1.94	-1.95	-1.95	-1.95	-1.95	-1.94	-1.94	-1.95	-1.94
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2	≤-1.0 in. wc[1]	-2.02	-2.00	-2.02	-2.03	-2.02	-2.01	-2.03	-2.02	-2.02	-2.03	-2.02	-2.03	-2.03	-2.03
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2	≤-0.05 in. wc[1]	-0.18	-.18	-0.18	-.18	-0.17	-.18	-0.18	-.17	-0.18	-.19	-0.18	-.18	-.18	-.19
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2	≤-0.05 in. wc[1]	-0.22	-.24	-0.23	-.25	-0.22	-.24	-0.23	-.21	-0.23	-.23	-0.23	-.23	-.23	-.24
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2	≤-0.05 in. wc[1]	-0.19	-.21	-0.20	-.21	-0.19	-.20	-0.20	-.18	-0.20	-.19	-0.20	-.20	-.20	-.22
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2	≤-0.05 in. wc[1]	-0.19	-.20	-0.19	-.21	-0.17	-.20	-0.19	-.21	-0.19	-.18	-0.19	-.20	-.19	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5	≤-0.05 in. wc	-0.15	-.15	-0.15	-.14	-0.15	-.15	-0.16	-.16	-0.15	-.16	-0.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2	< 0.00 in. wc	-0.09	-.09	-0.09	-.09	-0.09	-.10	-0.09	-.09	-0.09	-.10	-0.09	-.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2	< 0.00 in. wc	-0.08	-.08	-0.08	-.08	-0.08	-.08	-0.08	-.09	-0.08	-.09	-0.08	-.08	-.08	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901	< 0.00 in. wc	-0.089	-.084	-0.085	-.091	-0.093	-.075	-0.095	-.080	-0.098	-.105	-0.097	-.082	-.078	-.078

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	7-23-18		7-24-18		7-25-18		7-26-18		7/27/18		7/28/18		7/29/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	JSC	BC	JSC	BC	JSC	AM	JSC	AM	[illegible]	BC	[illegible]	BC	[illegible]	BC
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	7-23-18		7-24-18		7-25-18		7-26-18		7/27/18		7/28/18		7/29/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	JSL	BC	JSL	BC	JSL	ARJ	JSL	ARJ	[illegible]	BC	[illegible]	BC	[illegible]	BC
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0659	1927	0710	1921	0707	1920	0714	1925	0720	1923	0710	1922	0719	1926
					WS	WS	WS			JW	2010							

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: BC Date 07-29-18 Time 1926 Reviewed by: [signature] On-duty Supervisor Date: 7-31-18 Time: 0832

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	7/23/18	7/24/18	7-25-18	7-26-18	7/27/18	7/28/18	7/29/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	AS	PT	PT	[illegible]	[illegible]	DH
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0810	0854	0908	0854	0900	0740	0717

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	7/23/18	7/24/18	7-25-18	7-26-18	7/27/18	07/28/18	7/29/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	AS	PT	PT	[illegible]	[illegible]	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-894-2	≤2.0 & > 0[1] in. wc	.45	.46	.44	.43	.43	.42	.42
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.13	.12	.12	.12	.12	.11	.11
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	.69	.71	.71	.71	.71	.70
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.28	.27	.27	.28	.28	.28	.28
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.29	.30
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.31	.31	.31
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.44	.42	.42	.42	.42	.41	.41
		PDI-819-3	≤2.0 & > 0[1] in. wc	.45	.42	.42	.42	.45	.42	.42
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	.39	.39	.39	.39	.39	.39
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	7/23/18	7/24/18	7-25-18	7-26-18	7/27/18	7/28/18	7/29/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	AS	PT	PT	[illegible]	[illegible]	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.12	.12	.13	.13	.13	.12	.12
		PDI-822-2	≤2.0 & > 0[1] in. wc	.59	.60	.60	.59	.59	.60	.59
		PDI-822-4	≤2.0 & > 0[1] in. wc	.43	.42	.42	.42	.43	.42	.42
		PDI-822-5	≤2.0 & > 0[1] in. wc	.60	.59	.59	.59	.59	.59	.59
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.13	.36	.37	.31	.31	.36	.34
		PDI-830-2	≤2.0 & > 0[1] in. wc	.09	.19	.19	.18	.18	.20	.19
		PDI-830-3	≤2.0 & > 0[1] in. wc	.08	.18	.17	.12	.17	.18	.18
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.07	.06	.06	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.67	.68	.68	.68	.67	.68	.68
		PDI-836-3	≤2.0 & > 0[1] in. wc	.63	.66	.65	.65	.63	.65	.65
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.09	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.48	.45	.46	.46	.47	.46	.46

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	7/23/18	7/24/18	7-25-18	7-26-18	7/27/18	7/28/18	7/29/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	AS	PT	PT	[illegible]	[illegible]	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.56	.55	.55	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	.60	.60	.60	.60	.60	.60
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.60	.60	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.40	.44	.43	.43	.43	.43	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc	.52	.55	.55	.55	.56	.56	.55
		PDI-839-3	≤2.0 & > 0[1] in. wc	.51	.52	.52	.55	.55	.55	.55
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.15	OFF	.16	.16	.15	.16	.16
		PDI-810-2	≤2.0 & > 0[1] in. wc	.50	OFF	.53	.53	.52	.52	.52
		PDI-810-3	≤2.0 & > 0[1] in. wc	.49	OFF	.51	.51	.50	.50	.50
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	.11	OFF	OFF	OFF	OFF	OFF
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	.51	OFF	OFF	OFF	OFF	OFF
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	.50	OFF	OFF	OFF	OFF	OFF
			Completion Time	0901	0909	0900	0852	0850	0753	0751
OC Operator Review and Page Count Complete (initials)				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [illegible] Date 7/29/18 Time 0751 Reviewed by: [illegible] On-duty Supervisor Date: 7-31-18 Time: 0832

Comments 7/29/18 4.1.1.1 out of Service. Needs to be calibrated

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	7/23/18	7/24/18	PT 7-24-18 7-25-18	7-26-18	7/27/18	7/28/18	7/29/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	AS	PT	PT	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.17	.17	.17	.17	.17
		PDI-840-2	≤2.0 & > 0 in[1]. wc	STBY	STBY	.58	.58	.58	.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	STBY	.51	.51	.51	.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.47	.47	STBY	STBY	STBY	STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc	.58	.58	STBY	STBY	STBY	STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	.51	PT STBY .51	STBY	STBY	STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.33	.35	.35	.35	.34	.35	.34
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.41	.41	.41	.41	.41	.41
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.44	.45	.45	.44	.44	.44	.44
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	.69	.69	.69	.68	.68	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	off	OFF	.11	.11	.11	.11	.11
		PDI-807-2	≤2.0 & > 0[1] in. wc	off	OFF	.51	.51	.52	.52	.52
		PDI-807-3	≤2.0 & > 0[1] in. wc	off	OFF	.50	.50	.50	.50	.50
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.51	.58	OFF	OFF	off	OFF	OFF
		PDI-809-2	≤2.0 & > 0[1] in. wc	.51	.52	OFF	OFF	off	OFF	OFF
		PDI-809-3	≤2.0 & > 0[1] in. wc	.08	.52	OFF	OFF	off	OFF	OFF

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	7/23/18	7/24/18	7-25-18	7-26-18	7/27/18	7/28/18	7/29/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	AS	PT	PT	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.34	.21	.26	.24	.24	.24	.24
		PDI-829-2	≤2.0 & > 0[1] in. wc	.52	.39	.44	.40	.41	.41	.41
		PDI-829-3	≤2.0 & > 0[1] in. wc	.45	.30	.38	.32	.32	.32	.32
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.07	.08	.08	.08	.07	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	.52	.52	.52	.52	.52	.52
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.51	.51	.51	.51	.51
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.28	.28	.28	.28	.28
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	STBY	.58	.58	.58	.58	.58
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	STBY	.49	.50	.50	.49	.49
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	STBY	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.49 [illegible]	.49	STBY	STBY	STBY	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	.57	.58	STBY	STBY	STBY	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	.52	.51	STBY	STBY	STBY	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	.55	.55	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	7/23/18	7/24/18	7-25-18	7-26-18	7/27/18	7/28/18	7/29/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	AS	PT	PT	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.14	.14	.14	.14	.14
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	STBY	.30	.30	.31	.31	.31
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	STBY	.30	.30	.31	.30	.31
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	STBY	.30	.30	.30	.30	.30
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	STBY	.35	.34	.35	.35	.36
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.09	.09	STBY	STBY	STBY	STBY	STBY
		PDI-813-2	≤2.0 & > 0[1] in. wc	.27	.28	STBY	STBY	STBY	STBY	STBY
		PDI-813-3	≤2.0 & > 0[1] in. wc	.21	.21	STBY	STBY	STBY	STBY	STBY
		PDI-813-4	≤2.0 & > 0[1] in. wc	.30	.30	STBY	STBY	STBY	STBY	STBY
		PDI-813-5	≤2.0 & > 0[1] in. wc	.39	.39	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.01	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.33	.32	.34	.33	.33	.33	.34
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.29	.30	.30	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-863-2	≤2.0 & >0[1] in. wc	.29	.30	.30	.29	.30	.30	.30

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	7/23/18	7/24/18	7-25-18	7-26-18	7/27/18	7/28/18	7/29/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	RS	PT	PT	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.13	.15	.13	.13	.14	.13	.13
		PDI-857-2	≤2.0 & > 0[1] in. wc	.43	.44	.44	.44	.43	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.10	.10	.09	.09	.09	.09	.09
		PDI-856-2	≤2.0 & > 0[1] in. wc	.62	.62	.58	.58	.58	.58	.58
[1]NA	Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C		0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	7/23/18	7/24/18	7-25-18	7-26-18	7/27/18	7/28/18	7/29/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	AS	PT	PT	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[1]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[1]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0840	1304	0907	0856	0910	0808	0811
			OC Operator Review and Page Count Complete (initials)	[illegible]	[illegible]	[illegible]	[illegible] DAD	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [illegible] Date 7/29/18 Time 0811 Reviewed by: [illegible] On-duty Supervisor Date: 7-31-18 Time: 0834

Comments: _____

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
		Date:	7-30-18		7-31-18											
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	[illegible]	[illegible]	[illegible]	ARA										
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.00	-2.01	-2.01	-2.00										
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.94	-1.94	-1.94	-1.94										
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.94	-1.94	-1.94	-1.93										
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.02	-2.05	-2.03	-2.03										
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-0.18	-.18	-0.18	-.18										
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-0.23	-.23	-0.22	-.23										
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-0.20	-.20	-0.20	-.20										
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-0.19	-.19	-0.19	-.19										
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	0.15	-.15	-0.15	-.15										
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-0.09	-.09	-0.09	-.09										
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-0.08	-.09	-0.08	-.09										
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-0.083	-.086	-0.078	-.071										

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	7-30-18		7-31-18											
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	JSC	[illegible]	JSC	[illegible]										
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	7-30-18		7-31-18									
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	JSL	[illegible]	JSL	[illegible]										
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0704	1915	0713	1915										

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by [illegible] Date 7/31/18 Time 1915 Reviewed by: [illegible] Date: 8-1-18 Time: 1200
On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	7-30-18	7/31/18					
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	DS	JM					
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA	005	005					
	CP-305-H (LED Reading)		005	005					
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005					
		≥ -0.1; ≤+0.1	005 Sat / Unsat	005 Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat
		Completion Time:	0815	0815					

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	7-30-18	7/31/18					
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	[illegible]					
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.06	.05					
		PDI-894-2	≤2.0 & > 0[1] in. wc	.42	.42					
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.13	.12					
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	.71					
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.27	.27					
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	.30					
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	.31					
		PDI-817-5	≤2.0 & > 0[1] in. wc	.29	.30					
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.42	.42					
		PDI-819-3	≤2.0 & > 0[1] in. wc	.42	.44					
		PDI-819-4	≤2.0 & > 0[1] in. wc	.39	.39					
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	Stby	STBY					
		PDI-818-2	≤2.0 & > 0[1] in. wc	Stby	STBY					
		PDI-818-4	≤2.0 & > 0[1] in. wc	Stby	STBY					
		PDI-818-5	≤2.0 & > 0[1] in. wc	Stby	STBY					
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	Stby	STBY					
		PDI-821-3	≤2.0 & > 0[1] in. wc	Stby	STBY					
		PDI-821-4	≤2.0 & > 0[1] in. wc	Stby	STBY					

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	7-30-18	7/31/18					
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DJ	JW					
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.12	.13					
		PDI-822-2	≤2.0 & > 0[1] in. wc	.60	.59					
		PDI-822-4	≤2.0 & > 0[1] in. wc	.45	.45					
		PDI-822-5	≤2.0 & > 0[1] in. wc	.60	.60					
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	STBY					
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	STBY					
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	STBY					
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	STBY					
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.30	.32					
		PDI-830-2	≤2.0 & > 0[1] in. wc	.18	.18					
		PDI-830-3	≤2.0 & > 0[1] in. wc	.15	.15					
4.1.1.7[1]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.07	.07					
		PDI-836-2	≤2.0 & > 0[1] in. wc	.67	.67					
		PDI-836-3	≤2.0 & > 0[1] in. wc	.65	.64					
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04					
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49					
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	.47					

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	7-30-18	7/31/18					
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]					
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.55					
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	.60					
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59					
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.43					
		PDI-839-2	≤2.0 & > 0[1] in. wc	.55	.57					
		PDI-839-3	≤2.0 & > 0[1] in. wc	.55	.56					
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.16	.15					
		PDI-810-2	≤2.0 & > 0[1] in. wc	.52	.53					
		PDI-810-3	≤2.0 & > 0[1] in. wc	.50	.51					
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	OFF					
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	OFF					
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	OFF					
			Completion Time	1052	0910					
OC Operator Review and Page Count Complete (initials)				[illegible] CO	[illegible]					

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [signature] Date 7/31/18 Time 0910 Reviewed by: [signature] On-duty Supervisor Date: 8-1-18 Time: 1203

Comments _____

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	7-30-18	7/31/18					
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	Gn					
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.17	.17					
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.58	.57					
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	.51					
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	Stby	STBY					
		PDI-841-2	≤2.0 & > 0[1] in. wc	Stby	STBY					
		PDI-841-3	≤2.0 & > 0[1] in. wc	Stby	STBY					
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.35	.35					
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42					
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.41					
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.44	.44					
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	.68					
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61					
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.11	.12					
		PDI-807-2	≤2.0 & > 0[1] in. wc	.51	.52					
		PDI-807-3	≤2.0 & > 0[1] in. wc	.50	.50					
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	off	off					
		PDI-809-2	≤2.0 & > 0[1] in. wc	off	off					
		PDI-809-3	≤2.0 & > 0[1] in. wc	off	off					

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	7-30-18	7/31/18					
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	MJ	[illegible]					
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.24	.25					
		PDI-829-2	≤2.0 & > 0[1] in. wc	.41	.41					
		PDI-829-3	≤2.0 & > 0[1] in. wc	.32	.35					
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.09	.07					
		PDI-833-2	≤2.0 & > 0[1] in. wc	.55	.53					
		PDI-833-3	≤2.0 & > 0[1] in. wc	.50	.50					
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05					
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50					
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.51					
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.25	.24					
		PDI-815-2	≤2.0 & > 0[1] in. wc	.55	.55					
		PDI-815-4	≤2.0 & > 0[1] in. wc	.50	.50					
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	.50					
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	Stby	STBY					
		PDI-816-2	≤2.0 & > 0[1] in. wc	Stby	STBY					
		PDI-816-4	≤2.0 & > 0[1] in. wc	Stby	STBY					
		PDI-816-5	≤2.0 & > 0[1] in. wc	Stby	STBY					

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	7-30-18	7/31/18					
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]					
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.14	.13					
		PDI-812-2	≤2.0 & > 0[1] in. wc	.30	.30					
		PDI-812-3	≤2.0 & > 0[1] in. wc	.30	.30					
		PDI-812-4	≤2.0 & > 0[1] in. wc	.30	.29					
		PDI-812-5	≤2.0 & > 0[1] in. wc	.35	.33					
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	STBY					
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	STBY					
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	STBY					
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	STBY					
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	STBY					
4.1.3.4[2]	1FIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.01	.02					
		PDI-865-2	≤2.0 & > 0[1] in. wc	.35	.32					
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.30					
4.1.3.4[2]	1FIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.06	.06					
		PDI-863-2	≤2.0 & >0[1] in. wc	.30	.29					

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	7-30-18	7/31/18					
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	JH					
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.15	.14					
		PDI-857-2	≤2.0 & > 0[1] in. wc	.45	.44					
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.09	.09					
		PDI-856-2	≤2.0 & > 0[1] in. wc	.59	.58					
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	Sat	SAT					
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT					
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT					

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	7-30-18	7/31/18					
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	7-30-18	[illegible]					
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT					
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT					
			Completion time	0934	0830					
			OC Operator Review and Page Count Complete (initials)	[illegible]	[illegible]					

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Jerome M. Date 7/31/18 Time 0830 Reviewed by: [signature] Date: 8-1-18 Time: 1204

On-duty Supervisor

Comments: _____

ATTACHMENT D: Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 1 of 2)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials
*Note	Confinement DR-344	Southeast	Verify that the Astragals and Jamb-Seal features are in-place and cover the gaps present 1. Between the door leaves and 2. Between the frame and the door edge when the doors are in the closed position	Sat. / Unsat.	1420	7/26/18	RN
4.1.3.2[1]	Confinement Door DR-344	Southeast	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat. / Unsat.	1425	7/26/18	RN
4.1.3.2[1]	Confinement Door DR-149	Northeast	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat. Unsat.	1330	7/26/18	RN
*Note	Confinement DR-102	Northwest	Verify that the Astragals and Jamb-Seal features are in-place and cover the gaps present 1. Between the door leaves and 2. Between the frame and the door edge when the doors are in the closed position	Sat. / Unsat.	1344	7/26/18	RN
4.1.3.2[1]	Confinement Door DR-102	Northwest	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat. Unsat.	1345	7/26/18	RN
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) go to the fully closed position via the automatic door closure is ≤ 30 seconds. 4.5 Seconds	Sat. / Unsat.	1346	7/26/18	RN

*** Note:** Monthly Inspection of DR-344 and DR-102 in accordance with compensatory measure(s) from: *Request for Permanent Equivalency to OE Order 420.1B Chapter II, NFPA 80, NFPA 101 and IBC Requirements for LANL Building TA55-4 (PF-4); Installation of New Confinement Doors DR-102, DR-302, and DR-344 LANL-DOE-ORDER-420.1B-EO-2013-001*

ATTACHMENT D: Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 2 of 2)

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials
4.1.3.2[1]	Confinement Door DR-302	Southwest	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat / Unsat.	1356	7/26/18	RH
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) go to the fully closed position via the automatic door closure is ≤ 30 seconds. 6.4 Seconds	Sat / Unsat.	1352	7/26/18	RH
4.1.3.2[1]	Confinement Door DR-4	N Basement Personnel door DR-4	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure.	Sat / Unsat.	1100	7/26/18	RH
4.1.3.2[1]	Confinement Door DR-90	South Basement Door (Tunnel)	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat / Unsat.	1406	7/26/18	RH
OC Operator Review and Page Count Complete							MM

[1] SR 4.1.3.2 applies during both Mode 1 and Mode 2.

Completed by: RHohner Date 7/26/18 Time 1430 Reviewed by [illegible] Date 7/26/18 Time 1555

On-duty Supervisor Comments

Attachment B, Surveillance Training Checklist

(Page 1 of 2)

Procedure title:	SURVEILLANCE ROUNDS
Procedure no.:	TA 55 - STP - 004 R19.1
Date of issue:	8/1/18
Working copy issued to:	A. Jaurigue
Working copy issued by:	M. Miller
	Certified Operations Center Operator (OCO)

Procedure is the current revision listed in Documentum: ☑ Yes ☐ Documentum Unavailable

Performance Type: ☑ Scheduled ☐ Partial ☐ Other *If partial or other list reason in Comments below*

Comments: *(Document TSR Status Board tracking date here if different from completion date.)*

Training Checklist:

Workers Performing Surveillance	Applicable Surveillance Training Current	
	OCO Initials	Date
B CHANCE	ARJ	8/1/18
C COHRAN	ARJ	8/1/18
A JAURIGUE	ARJ	8/1/18
J LOVATO	ARJ	8/1/18
M MILLER	ARJ	8/1/18
A ORTIZ	ARJ	8/1/18
R PRICE	ARJ	8/1/18
E SEYBERT	ARJ	8/1/18
A DUNSEITH	ARJ	8/1/18

OC Reviews Complete and TSR Status Board Updated

[signature] 8/31/18

OCO Signature Date

For Information Only

Attachment B, Surveillance Training Checklist (continued)
(Page 2 of 2)

Training Checklist (continuation sheet)

Workers Performing Surveillance	Applicable Surveillance Training Current	
	Initials	Date
R LUM	ARJ	8/1/18
B FORDHAM	ARJ	
D HEINTSCHEL	ARJ	
R HOHNER	ARJ	
M IRISH	ARJ	
T LANGWORTHY	ARJ	
J MARTINEZ	ARJ	
ANTHONY SANCHEZ	ARJ	
P TRUJILLO	ARJ	
D DUNLAVY	ARJ	
M WASHBURN	ARJ	
C VALDEZ	ARJ	
AUGIE SANCHEZ	ARJ	
K ASHLEY	ARJ	
R MARTINEZ	ARJ	
J SMELTZ	ARJ	
J CECILLO	ARJ	
K.		

For Information Only

ATTACHMENT D: Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 1 of 2)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials
*Note	Confinement DR-344	Southeast	Verify that the Astragals and Jamb-Seal features are in-place and cover the gaps present 1. Between the door leaves and 2. Between the frame and the door edge when the doors are in the closed position	Sat / Unsat.	1446	8-23-18	PT
4.1.3.2[1]	Confinement Door DR-344	Southeast	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat. / Unsat.	1446	8-23-18	PT
4.1.3.2[1]	Confinement Door DR-149	Northeast	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat. / Unsat.	1335	8-23-18	PT
*Note	Confinement DR-102	Northwest	Verify that the Astragals and Jamb-Seal features are in-place and cover the gaps present 1. Between the door leaves and 2. Between the frame and the door edge when the doors are in the closed position	Sat / Unsat.	1349	8-23-18	PT
4.1.3.2[1]	Confinement Door DR-102	Northwest	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat / Unsat.	1349	8/23/18	PT
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) go to the fully closed position via the automatic door closure is ≤ 30 seconds. 4.7 Seconds	Sat / Unsat.	1344	8/23/18	[illegible]

*** Note:** Monthly Inspection of DR-344 and DR-102 in accordance with compensatory measure(s) from: *Request for Permanent Equivalency to OE Order 420.1B Chapter II, NFPA 80, NFPA 101 and IBC Requirements for LANL Building TA55-4 (PF-4); Installation of New Confinement Doors DR-102, DR-302, and DR-344 LANL-DOE-ORDER-420.1B-EQ-2013-001*

For Information Only

ATTACHMENT D: Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 2 of 2)

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials
4.1.3.2[1]	Confinement Door DR-302	Southwest	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat Unsat	1406	8-23-18	PT
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) go to the fully closed position via the automatic door closure is ≤ 30 seconds. 6.7 Seconds	Sat Unsat	1406	8-23-18	PT
4.1.3.2[1]	Confinement Door DR-4	N Basement Personnel door DR-4	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure.	Sat Unsat.	1428	8-23-18	PT
4.1.3.2[1]	Confinement Door DR-90	South Basement Door (Tunnel)	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat Unsat.	1418	8-23-18	PT
						OC Operator Review and Page Count Complete	✓

[1] SR 4.1.3.2 applies during both Mode 1 and Mode 2.

Completed by Paul Trujillo Date 8-23-18 Time 1446 Reviewed by Washburn Date 8/24/18 Time 1500

On-duty Supervisor Comments

For Information Only

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

For Information Only

Note: Gauge readings should be taken on rack #4 in the OC, whenever possible. Document if alternate PDIs are used.																
		Date:					8/1/18		8/2/18		8/3/18		8/4/18		8-5-18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:					[illegible]	BC	[illegible]	BC	[illegible]	ARS	A	ARS	A	ARS
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]					-2.01	-2.01	-2.01	-1.99	-1.99	-1.99	-1.98	-2.01	-2.01	-2.02
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]					-1.94	-1.94	-1.94	-1.94	-1.94	-1.93	-1.94	-1.95	-1.93	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]					-1.95	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.95	-1.95	-1.94
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]					-2.02	-2.02	-2.03	-2.02	-2.02	-2.02	-2.02	-2.02	-2.02	-2.03
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]					-0.18	-.17	-0.18	-.19	-0.18	-.18	-.18	-.18	-.18	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]					-0.23	-.22	-0.22	-.23	-0.23	-.23	-.20	-.23	-.23	-.22
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]					-0.20	-.20	-0.19	-.20	-0.20	-.20	-.23	-.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]					-0.19	-.19	-0.18	-.20	-0.19	-.19	-.19	-.18	-.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc					-0.15	-.15	-0.15	-.16	-0.15	-.14	-.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc					-0.09	-.10	-0.09	-.09	-0.09	-.09	-.09	-.10	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc					-0.08	-.09	-0.08	-.08	-0.08	-.08	-.08	-.08	-.09	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc					-0.097	-.100	-0.097	-.094	-0.099	-.100	-.090	-.098	-.095	-.097

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:					8/1/18		8/2/18		8/3/18		8/4/18		8-5-18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:					[illegible]	BC	[illegible]	BC	[illegible]	ARJ	MM	ARJ	[illegible]	ARJ
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

For Information Only

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:					8/1/18		8/2/18		8/3/18		8/4/18		8-5-18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:					[illegible]	BE	[illegible]	BE	[illegible]	ABS	[illegible]	ABS	[illegible]	ABS
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time							0723	1923	0717	1920	0718	1917	0729	1922	0730	1922

[1] Mode 2 acceptance criteria is < 0.00 in. wc.
[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by [illegible] Date 8/5/18 Time 1922 Reviewed by: [illegible] Date: 8/5/18 Time: 1235
On-duty Supervisor

Comments: _____

For Information Only

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:			8/1/18	8-2-18	8-3-18	8/4/18	8/5/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:			[illegible]	PT	PT	[illegible]	[illegible]
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA			.005	.005	.005	.005	.005
	CP-305-H (LED Reading)				.005	.005	.005	.005	.005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value			.005	.005	.005	.005	.005
		≥ -0.1; ≤+0.1	Sat / Unsat	Sat / Unsat	Sat / Unsat .005	Sat / Unsat .005	Sat / Unsat .005	Sat / Unsat .005	Sat / Unsat .005
		Completion Time:			0716	0851	0717	0711	0705

For Information Only

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

For Information Only

			Date:			8/1/18	8-2-18	8-3-18	8/4/18	8/5/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:			[illegible]	PT	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & >0[1] in. wc			.05	.05	.05	.05	.05
		PDI-894-2	≤2.0 & >0[1] in. wc			.42	.43	.44	.43	.43
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & >0[1] in. wc			.13	.13	.13	.13	.13
		PDI-895-2	≤2.0 & >0[1] in. wc			.71	.71	.71	.71	.71
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & >0[1] in. wc			.27	.27	.27	.27	.27
		PDI-817-2	≤2.0 & >0[1] in. wc			.30	.30	.30	.30	.30
		PDI-817-4	≤2.0 & >0[1] in. wc			.32	.32	.32	.32	.32
		PDI-817-5	≤2.0 & >0[1] in. wc			.30	.30	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & >0[1] in. wc			.42	.42	.42	.42	.42
		PDI-819-3	≤2.0 & >0[1] in. wc			.44	.44	.44	.44	.44
		PDI-819-4	≤2.0 & >0[1] in. wc			.39	.39	.39	.39	.39
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & >0[1] in. wc			STBY	STBY	STBY	STBY	STBY
		PDI-818-2	≤2.0 & >0[1] in. wc			STBY	STBY	STBY	STBY	STBY
		PDI-818-4	≤2.0 & >0[1] in. wc			STBY	STBY	STBY	STBY	STBY
		PDI-818-5	≤2.0 & >0[1] in. wc			STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & >0[1] in. wc			STBY	STBY	STBY	STBY	STBY
		PDI-821-3	≤2.0 & >0[1] in. wc			STBY	STBY	STBY	STBY	STBY
		PDI-821-4	≤2.0 & >0[1] in. wc			STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

For Information Only

			Date:			8/1/18	8-2-18	8-3-18	8/4/18	8/5/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:			[illegible]	PT	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc			.13	.13	.13	.13	.13
		PDI-822-2	≤2.0 & > 0[1] in. wc			.59	.59	.59	.59	.59
		PDI-822-4	≤2.0 & > 0[1] in. wc			.43	.42	.42	.42	.42
		PDI-822-5	≤2.0 & > 0[1] in. wc			.59	.59	.59	.59	.59
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc			STBY	STBY	STBY	STBY	STBY
		PDI-823-2	≤2.0 & > 0[1] in. wc			STBY	STBY	STBY	STBY	STBY
		PDI-823-4	≤2.0 & > 0[1] in. wc			STBY	STBY	STBY	STBY	STBY
		PDI-823—5	≤2.0 & > 0[1] in. wc			STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc			.25	.23	.24	.24	.26
		PDI-830-2	≤2.0 & > 0[1] in. wc			.13	.11	.11	.12	.13
		PDI-830-3	≤2.0 & > 0[1] in. wc			.11	.10	.11	.11	.11
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc			.06	.06	.07	.07	.07
		PDI-836-2	≤2.0 & > 0[1] in. wc			.67	.57	.67	.67	.67
		PDI-836-3	≤2.0 & > 0[1] in. wc			.65	.65	.65	.65	.65
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc			.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc			.49	.49	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc			.47	.47	.46	.46	.46

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:			8/1/18	8-2-18	8-3-18	8/4/18	8/5/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:			[illegible]	PT	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc			.55	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc			.60	.60	.60	.60	.60
		PDI-838-3	≤2.0 & > 0[1] in. wc			.59	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc			.43	.43	.43	.43	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc			.56	.56	.56	.56	.56
		PDI-839-3	≤2.0 & > 0[1] in. wc			.55	.55	.55	.55	.55
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc			.16	.16	.16	.16	.16
		PDI-810-2	≤2.0 & > 0[1] in. wc			.52	.52	.52	.52	.52
		PDI-810-3	≤2.0 & > 0[1] in. wc			.51	.51	.51	.51	.51
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc			off	OFF	OFF	off	off
		PDI -811 -2	≤2.0 & > 0[1] in. wc			off	OFF	OFF	off	off
		PDI -811 -3	≤2.0 & > 0[1] in. wc			off	OFF	OFF	off	off
			Completion Time			0755	0852	0821	0748	0743
OC Operator Review and Page Count Complete (initials)						[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [illegible] Date 8/5/18 Time 0743 Reviewed by: [illegible] On-duty Supervisor Date: 8/10/18 Time: 1235

Comments 8/1/18 44.1.1 out of service. Needs to be calibrated

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:			8/1/18	8-2-18	8-3-18	8/4/18	8/5/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:			[illegible]	PT	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc			.17	STBY	STBY	STBY	STBY
		PDI-840-2	≤2.0 & > 0 in[1]. wc			.58	STBY	STBY	STBY	STBY
		PDI-840-3	≤2.0 & > 0[1] in. wc			.51	STBY	STBY	STBY	STBY
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc			STBY	.46	.47	.47	.17
		PDI-841-2	≤2.0 & > 0[1] in. wc			STBY	.58	.58	.57	.57
		PDI-841-3	≤2.0 & > 0[1] in. wc			STBY	.51	.51	.51	.51
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc			.35	.35	.35	.35	.34
		PDI-831-2	≤2.0 & > 0[1] in. wc			.42	.42	.42	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc			.41	.41	.41	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc			.44	.45	.45	.45	.44
		PDI-832-2	≤2.0 & > 0[1] in. wc			.68	.67	.67	.68	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc			.61	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc			.12	OFF	OFF	off	off
		PDI-807-2	≤2.0 & > 0[1] in. wc			.52	OFF	OFF	off	off
		PDI-807-3	≤2.0 & > 0[1] in. wc			.50	OFF	OFF	off	off
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc			off	.09	.09	.09	.09
		PDI-809-2	≤2.0 & > 0[1] in. wc			off	.52	.52	.55	.55
		PDI-809-3	≤2.0 & > 0[1] in. wc			off	.53	.52	.52	.52

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:			8/1/18	8-2-18	8-3-18	8/4/18	8/5/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:			[illegible]	PT	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc			.29	.28	.27	.26	.25
		PDI-829-2	≤2.0 & > 0[1] in. wc			.39	.47	.47	.43	.43
		PDI-829-3	≤2.0 & > 0[1] in. wc			.39	.38	.38	.37	.36
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc			.07	.07	.07	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc			.53	.53	.53	.53	.52
		PDI-833-3	≤2.0 & > 0[1] in. wc			.50	.51	.51	.50	.50
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc			.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc			.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc			.51	.51	.51	.51	.51
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc			.75	STBY	STBY	STBY	STBY
		PDI-815-2	≤2.0 & > 0[1] in. wc			.55	STBY	STBY	STBY	STBY
		PDI-815-4	≤2.0 & > 0[1] in. wc			.50	STBY	STBY	STBY	STBY
		PDI-815-5	≤2.0 & > 0[1] in. wc			.50	STBY	STBY	STBY	STBY
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc			STBY	.49	.49	.49	.49
		PDI-816-2	≤2.0 & > 0[1] in. wc			STBY	.59	.59	.59	.57
		PDI-816-4	≤2.0 & > 0[1] in. wc			STBY	.52	.51	.52	.52
		PDI-816-5	≤2.0 & > 0[1] in. wc			STBY	.55	.54	.55	.54

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:			8/1/18	8-2-18	8-3-18	8/4/18	8/5/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:			[illegible]	PT	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc			.14	STBY	STBY	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc			.30	STBY	STBY	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc			.30	STBY	STBY	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc			.29	STBY	STBY	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc			.34	STBY	STBY	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc			STBY	.08	.08	.08	.08
		PDI-813-2	≤2.0 & > 0[1] in. wc			STBY	.28	.28	.26	.26
		PDI-813-3	≤2.0 & > 0[1] in. wc			STBY	.22	.22	.21	.21
		PDI-813-4	≤2.0 & > 0[1] in. wc			STBY	.29	.29	.29	.29
		PDI-813-5	≤2.0 & > 0[1] in. wc			STBY	.38	.38	.38	.38
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc			.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc			.34	.32	.32	.35	.34
		PDI-865-3	≤2.0 & > 0[1] in. wc			.30	.30	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (IIVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc			.05	.06	.06	.06	.06
		PDI-863-2	≤2.0 & >0[1] in. wc			.29	.29	.29	.30	.29

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:			8/1/18	8-2-18	8-3-18	8/4/18	8/5/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:			[illegible]	PT	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤2.0 & >0[1] in. wc			.14	.13	.13	.14	.13
		PDI-857-2	≤2.0 & >0[1] in. wc			.44	.42	.42	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & >0[1] in. wc			.09	.10	.10	.10	.10
		PDI-856-2	≤2.0 & >0[1] in. wc			.58	.61	.61	.61	.61
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**			SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less			SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less			SAT	SAT	SAT	SAT	SAT

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:			8/1/18	8-2-18	8-3-18	8/4/18	8/5/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:			[illegible]	PT	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less			SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less			SAT	SAT	SAT	SAT	SAT
			Completion time			0725	0947	0754	0730	0730
			OC Operator Review and Page Count Complete (initials)			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [illegible] Date 8/5/18 Time 0730 Reviewed by: [illegible] On-duty Supervisor Date: 8/13/18 Time: 1235

Comments: Step stool in Rm 204 mostly metal.

For Information Only

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

For Information Only

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																	
			Date:	8-6-18		8-7-18		8-8-18		8-9-18		8/10/18		08.11.18		8/12/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	JSC	[illegible]	JSC	[illegible]	JSC	[illegible]	JSC	ARD	MJW	[illegible]	BC	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2	≤-1.0 in. wc[1]	-2.00	-2.00	-2.01	-1.99	-1.99	-1.99	-2.02	-1.99	-2.00	-2.02	-2.00	-2.01	-2.00	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2	≤-1.0 in. wc[1]	-1.96	-1.95	-1.95	-1.93	-1.94	-1.94	-1.93	-1.93	-1.94	-1.94	-1.94	-1.94	-1.95	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2	≤-1.0 in. wc[1]	-1.94	-1.94	-1.95	-1.97	-1.95	-1.95	-1.95	-1.93	-1.94	-1.94	-1.95	-1.95	-1.95	-1.95
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2	≤-1.0 in. wc[1]	-2.02	-2.03	-2.02	-1.96	-2.03	-2.03	-2.02	-2.02	-2.03	-2.03	-2.03	-2.03	-1.94	-2.03
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2	≤-0.05 in. wc[1]	-0.18	-0.18	-0.18	-0.19	-0.19	-.18	-0.20	-.18	-0.18	-.18	-.18	-0.18	-.18	-0.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2	≤-0.05 in. wc[1]	-0.23	-0.23	-0.23	-0.26	-0.22	-.22	-0.23	-.22	-0.23	-.23	-.23	-0.23	-.23	-0.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2	≤-0.05 in. wc[1]	-0.20	-0.20	-0.20	-0.19	-0.20	-.20	-0.20	-.20	-0.20	-.20	-.20	-0.20	-.20	-0.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2	≤-0.05 in. wc[1]	-0.19	-0.19	-0.19	-0.20	-0.19	-.19	-0.19	-.19	-0.19	-.19	-.20	-0.19	-.19	-0.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5	≤-0.05 in. wc	-0.15	-0.15	-0.15	-0.15	-0.15	-.15	-0.15	-.15	-0.15	-.15	-.15	-0.15	-.15	-0.16
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2	< 0.00 in. wc	-0.09	-0.09	-0.09	-0.09	-0.09	-.10	-0.09	-.09	-0.09	-.10	-.09	-0.10	-.10	-0.10
	South basement ΔP	PDI-854-1 or PDI-854-2	< 0.00 in. wc	-0.09	-0.08	-0.08	-0.09	-0.08	-.10	-0.08	-.08	-0.08	-.08	-.09	-0.08	-.08	-0.08
	IRT Tunnel ΔP	PDT-901 or PDI-901	< 0.00 in. wc	-0.095	-0.087	-0.096	-0.088	-0.093	-.093	-0.097	-.082	-0.46	-.101	-.087	-0.101	-.087	-0.101

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

For Information Only

Note: Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	8-6-18		8-7-18		8-8-18		8-9-18		8/10/18		08.11.18		8/12/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	JSL	[illegible]	JSL	[illegible]	JSL	K	JSL	ADJ	MJW	[illegible]	BC	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	8-6-18		8-7-18		8-8-18		8-9-18		8/10/18		08-11-18		8/12/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	JSL	[illegible]	JSL	[illegible]	JSL	[illegible]	JSL	ACM	[illegible]	[illegible]	BC	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0728	1920	0708	1923	0712	1925	0716	1931	0655	1930	0728	1919	0716	1917
					WS	WS	WS				MW		a					

[1] Mode 2 acceptance criteria is < 0.00 in. wc.
[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [signature] Date 8/12/18 Time 1917 Reviewed by: [signature] On-duty Supervisor Date: 8/13/18 Time: 1215

Comments:

For Information Only

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	8-6-18	8/7/18	8/8/18	8/9/18	8/10/18	8-11-18	8 12 18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	AJ	[illegible]	[illegible]	[illegible]	[illegible]	PT	PT
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0755	0758	0811	1034	0824	0735	0743

For Information Only

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

For Information Only

			Date:	8-6-18	8/7/18	8/8/18	8/9/18	8/10/18	8-11-18	8-12-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	[illegible]	[illegible]	[illegible]	AS	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-894-2	≤2.0 & > 0[1] in. wc	.42	.45	.44	.44	.45	.44	.42
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.13	.13	.13	.13	.14	.14	.14
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	.71	.71	.71	.71	.71	.71
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.27	.27	.27	.27	.27	.27	.27
		PDI-817-2	≤2.0 & > 0[1] in. wc	.29	.30	.30	.30	.30	.30	.30
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.31	.31	.31
		PDI-817-5	≤2.0 & > 0[1] in. wc	.29	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42	.42	.42
		PDI-819-3	≤2.0 & > 0[1] in. wc	.43	.44	.44	.43	.42	.42	.42
		PDI-819-4	≤2.0 & > 0[1] in. wc	.39	.39	.39	.39	.39	.39	.39
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-818-2	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-818-4	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-818-5	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-821-3	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-821-4	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

For Information Only

			Date:	8-6-18	8/7/18	8/8/18	8/9/18	8/10/18	8-11-18	8-12-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	[illegible]	[illegible]	TRL	AS	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.13	.13	.13	.13	.13	.13	.13
		PDI-822-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.60	.59	.59
		PDI-822-4	≤2.0 & > 0[1] in. wc	.45	.43	.43	.45	.45	.44	.45
		PDI-822-5	≤2.0 & > 0[1] in. wc	.49	.60	.59	.60	.59	.59	.59
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-823-2	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-823-4	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-823—5	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.27	.25	.16	.25	.25	.30	.26
		PDI-830-2	≤2.0 & > 0[1] in. wc	.15	.12	.10	.11	.15	.15	.12
		PDI-830-3	≤2.0 & > 0[1] in. wc	.12	.10	.08	.10	.11	.12	.11
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.07	.07	.07	.07	.07	.07	.07
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	.66	.66	.67	.68	.68	.68
		PDI-836-3	≤2.0 & > 0[1] in. wc	.65	.65	.65	.63	.66	.63	.64
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.48	.49	.49	.50	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	.47	.47	.48	.45	.48	.48

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

For Information Only

			Date:	8-6-18	8/7/18	8/8/18	8/9/18	8/10/18	8-11-18	8-12-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	JM	JM	RH	AS	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & >0[1] in. wc	.55	.55	.55	.55	.56	.55	.55
		PDI-838-2	≤2.0 & >0[1] in. wc	.59	.59	.59	.60	.60	.60	.60
		PDI-838-3	≤2.0 & >0[1] in. wc	.59	.59	.59	.60	.60	.60	.60
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & >0[1] in. wc	.43	.43	.43	.43	.42	.44	.44
		PDI-839-2	≤2.0 & >0[1] in. wc	.55	.56	.56	.56	.55	.55	.55
		PDI-839-3	≤2.0 & >0[1] in. wc	.55	.55	.55	.54	.55	.55	.55
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & >0[1] in. wc	.16	.16	.16	.16	.17	.16	.17
		PDI-810-2	≤2.0 & >0[1] in. wc	.53	.56	.54	.53	.55	.53	.53
		PDI-810-3	≤2.0 & >0[1] in. wc	.50	.51	.51	.51	.51	.51	.51
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & >0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI -811 -2	≤2.0 & >0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI -811 -3	≤2.0 & >0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
			Completion Time	1000	0850	0832	1035	0835	0730	0733
OC Operator Review and Page Count Complete (initials)										

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Paul Trujillo Date 8-12-18 Time 0733 Reviewed by: _____ On-duty Supervisor Date: 8/13/18 Time: 1220

Comments 8/13/18 - LATE ENTRY: SR 4.4.1.1 - 005 needs to be calibrated.

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

For Information Only

			Date:	8-6-18	8/7/18	8/8/18	8/9/18	8/10/18	8-11-18	8-12-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	JM	JM	DH	AS	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-840-2	≤2.0 & > 0 in[1] wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-840-3	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.47	.47	.47	.47	.47	.47	.47
		PDI-841-2	≤2.0 & > 0[1] in. wc	.56	.57	.57	.58	.59	.59	.59
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.35	.35	.35	.35	.35	.35	.35
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.41	.42	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc	.39	.39	.39	.39	.39	.39	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	.68	.68	.69	.68	.69	.69
		PDI-832-3	≤2.0 & > 0[1] in. wc	.62	.62	.62	.61	.62	.62	.62
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.08	.08	.08	.08	.09	.09	.09
		PDI-809-2	≤2.0 & > 0[1] in. wc	.54	.55	.55	.53	.55	.55	.55
		PDI-809-3	≤2.0 & > 0[1] in. wc	.52	.53	.53	.51	.52	.52	.52

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	8-6-18	8/7/18	8/8/18	8/9/18	8/10/18	8-11-18	8-12-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DS	[illegible]	[illegible]	[illegible]	DS	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.25	.26	.26	.35	.27	.26	.27
		PDI-829-2	≤2.0 & > 0[1] in. wc	.43	.43	.42	.52	.45	.43	.45
		PDI-829-3	≤2.0 & > 0[1] in. wc	.35	.37	.35	.43	.38	.38	.38
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.07	.07	.07	.07	.08	.08	.08
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	.52	.52	.51	.52	.52	.52
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.50	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-815-2	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-815-4	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-815-5	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.45	.49	.49	.50	.50	.50	.50
		PDI-816-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.60	.60	.60	.60
		PDI-816-4	≤2.0 & > 0[1] in. wc	.52	.52	.52	.52	.55	.54	.54
		PDI-816-5	≤2.0 & > 0[1] in. wc	.52	.56	.56	.58	.59	.59	.58

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	8-6-18	8/7/18	8/8/18	8/9/18	8/10/18	8-11-18	8-12-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DJ	[illegible]	[illegible]	ZH	AS	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc	Stby	STBY	STBY	Stby	STBY	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.07	.07	.07	.08	.09	.09	.09
		PDI-813-2	≤2.0 & > 0[1] in. wc	.27	.26	.26	.28	.26	.28	.28
		PDI-813-3	≤2.0 & > 0[1] in. wc	.21	.21	.21	.21	.21	.21	.21
		PDI-813-4	≤2.0 & > 0[1] in. wc	.29	.29	.29	.30	.29	.29	.29
		PDI-813-5	≤2.0 & > 0[1] in. wc	.35	.36	.37	.39	.36	.38	.38
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.33	.33	.33	.32	.34	.32	.32
		PDI-865-3	≤2.0 & > 0[1] in. wc	.29	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.05	.05	.06
		PDI-863-2	≤2.0 & >0[1] in. wc	.29	.30	.30	.30	.30	.30	.29

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

For Information Only

			Date:	8-6-18	8/7/18	8/8/18	8/9/18	8/10/18	8-11-18	8-12-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.15	.13	.13	.13	.15	.15	.15
		PDI-857-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.11	.11	.11	.11	.11	.11	.11
		PDI-856-2	≤2.0 & > 0[1] in. wc	.62	.62	.62	.62	.61	.61	.61
[1]NA	Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C		0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)	Sat	SAT	SAT	Sat	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	Sat	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	Sat	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	8-6-18	8/7/18	8/8/18	8/9/18	8/10/18	8-11-17	8-12-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	AS	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	Sat	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	Sat	SAT	SAT	SAT
			Completion time	0816	0825	0820	1025	0824	0749	0746
			OC Operator Review and Page Count Complete (initials)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Paul Trujillo Date 8-12-18 Time 0746 Reviewed by: [signature] On-duty Supervisor Date: 8/13/18 Time: 1235

Comments:

For Information Only

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

For Information Only

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																	
			Date:	8/13/18		8/14/18		08-15-18		8/16/18		8/17/18		8/18/18		8/19/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	JSL	ABJ	JSL	[illegible]	[illegible]	MJW	[illegible]	[illegible]	JSL	ABJ	JSL	ABJ	JSL
SRs	**Description**	**Gauge Acceptance Criteria**		**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]		-2.00	-2.00	-1.99	-2.00	-2.00	-1.98	-1.98	-2.00	-2.00	-2.00	-1.99	-2.00	-2.00	-1.99
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]		-1.94	-1.92	-1.95	-1.94	-1.94	-1.94	-1.94	-1.96	-1.92	-1.94	-1.95	-1.94	-1.95	-1.93
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]		-1.96	-1.95	-1.95	-1.94	-1.94	-1.94	-1.94	-1.95	-1.95	-1.95	-1.95	-1.95	-1.95	-1.95
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]		-2.00	-2.02	-2.03	-2.02	-2.03	-2.04	-2.02	-2.02	-2.03	-2.03	-2.02	-2.03	-2.03	-2.03
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]		-.18	-0.14	-.17	-0.17	-.18	-0.18	-0.18	-.16	-.18	-0.18	-.18	-0.14	-.18	-0.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]		-.23	-0.23	-.22	-0.22	-.23	-0.23	-0.23	-.21	-.23	-0.23	-.23	-0.23	-.22	-0.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]		-.19	-0.14	-.19	-0.20	-.20	-0.19	-0.20	-.19	-.21	-0.20	-.20	-0.20	-.20	-0.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]		-.19	-0.17	-.19	-0.18	-.18	-0.17	-0.19	-.16	-.21	-0.19	-.19	-0.19	-.19	-0.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc		-.15	-0.15	-.15	-0.14	-.15	-0.15	-0.15	-.15	-.15	-0.15	-.15	-0.15	-.15	-0.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc		-.10	-0.10	-.09	-0.09	-.09	-0.10	-0.09	-.09	-.10	-0.09	-.09	-0.09	-.09	-0.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc		-.10	-0.08	-.09	-0.08	-.09	-0.08	-0.08	-.08	-.10	-0.08	-.08	-0.08	-.08	-0.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc		-.101	-0.090	-.101	-0.092	-.100	-0.077	-0.101	-.094	-.103	-0.104	-.149	-0.095	-.089	-0.091

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	8/13/18		8/14/18		08-15-18		8/16/18		8/17/18		8/18/18		8/19/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	JSC	AB	JSC	BC	[illegible]	[illegible]	[illegible]	[illegible]	JSC	AB	JSC	AB	JSC
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

For Information Only

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	8/13/18		8/14/18		08-15-18		8/16/18		8/17/18		8/18/18		8/19/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	K	JSC	ARJ	JSC	BC	[illegible]	MJW	C	K	JSC	ARJ	JSC	AR	JSC
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0770	1929	0730	1934	0729	1916	0701	1905 or 2/1/17	0727	1921	0717	1927	0725	1928

[1] Mode 2 acceptance criteria is < 0.00 in. wc.
[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [signature] Date 8-19-18 Time 1928 Reviewed by: [signature] On-duty Supervisor Date: 8-23-18 Time: 1022

Comments: _____

For Information Only

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	8/13/18	8/14/18	~~8-15-18~~ 8-15-18 ~~8-19-18~~	8-16-18	8-17-18	8/18/18	8/19/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	AS	AS	PT	AS	PT	DH	DH
	Description / Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (percentage)						
SR 4.4.1.1	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0911	0817	0830	0932	0725	0720	0708

For Information Only

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

For Information Only

			Date:	8/13/18	8/14/18	8-15-18	8-16-18	8-17-18	8/18/18	8/19/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	AS	PT	AS	PT	OH	OH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.05	.05	.05
		PDI-894-2	≤2.0 & > 0[1] in. wc	.45	.45	.44	.45	.43	.44	.44
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.14	.14	.14	.14	.14	.14	.14
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	.71	.71	.71	.71	.71	.71
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.27	.27	.27	.27	.27	.27	.27
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.29	.29
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.31	.31	.31
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.29	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.44	.44	.44	.42	.42	.42	.42
		PDI-819-3	≤2.0 & > 0[1] in. wc	.41	.42	.42	.42	.42	.42	.42
		PDI-819-4	≤2.0 & > 0[1] in. wc	.38	.38	.38	.38	.39	.39	.39
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	8/13/18	8/14/18	8-15-18	8-16-18	8-17-18	8/18/18	8/19/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	AS	PT	AS	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.13	.13	.13	.13	.13	.13	.13
		PDI-822-2	≤2.0 & > 0[1] in. wc	.60	.60	.60	.60	.60	.60	.60
		PDI-822-4	≤2.0 & > 0[1] in. wc	.45	.44	.43	.45	.44	.44	.44
		PDI-822-5	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.60	.60
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.20	.27	.23	.25	.26	.26	.25
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	.15	.12	.12	.12	.12	.12
		PDI-830-3	≤2.0 & > 0[1] in. wc	.11	.11	.11	.11	.11	.11	.11
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.07	.07	.07	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.68	.65	.67	.68	.66	.66	.66
		PDI-836-3	≤2.0 & > 0[1] in. wc	.65	.64	.65	.66	.62	.62	.62
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.50	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	.45	.46	.46	.48	.48	.48

For Information Only

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

For Information Only

			Date:	8/13/18	8/14/18	8-15-18	8-16-18	8-17-18	8/18/18	8/19/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	AS	PT	AS	PT	AH	AH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	.60	.60	.60	.59	.58	.58
		PDI-838-3	≤2.0 & > 0[1] in. wc	.60	.59	.60	.60	.60	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.43	.44	.44	.44	.44	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc	.56	.56	.56	.55	.59	.58	.58
		PDI-839-3	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.58	.58	.58
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.16	.16	.16	.16	.16	.16	.16
		PDI-810-2	≤2.0 & > 0[1] in. wc	.55	.52	.52	.52	.55	.55	.56
		PDI-810-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.50	.51	.51	.52
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
			Completion Time	0954	0812	0900	0932	0735	0756	0751
OC Operator Review and Page Count Complete (initials)				✓ ARS	ARS ✓	PC	MW	✓ ARS	ARS ✓	✓ ARS

[1] Non TSR requirement

AS 8-13-18 [2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [signature] Date 8/19/18 Time 0751 Reviewed by: [signature] On-duty Supervisor Date: 8-22-18 Time: 0657

Comments 8-13-18 4.4.1.7 out of Service, needs to be calibrated

300 Area Resin lighting lamp out

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

For Information Only

			Date:	8-13-18	8/14/18	8-15-18	8-16-18	8-17-18	8/18/18	8/19/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	AS	PT	AS	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-2	≤2.0 & > 0 in[1] wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.47	.47	.47	.48	.47	.47	.47
		PDI-841-2	≤2.0 & > 0[1] in. wc	.57	.58	.58	.58	.58	.58	.58
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.35	.35	.35	.36	.35	.35	.35
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc	.39	.39	.39	.39	.39	.39	.39
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	.68	.68	.68	.69	.68	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc	.62	.62	.62	.62	.62	.62	.62
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.09	.09	.09	.09	.09	.09	.08
		PDI-809-2	≤2.0 & > 0[1] in. wc	.55	.55	.55	.58	.55	.54	.54
		PDI-809-3	≤2.0 & > 0[1] in. wc	.52	.52	.52	.55	.52	.51	.51

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	8-13-18	8-14-18	8-15-18	8-16-18	8-17-18	8/18/18	8/19/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	MS	AS	PT	AS	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.27	.27	.26	.31	.26	.25	.26
		PDI-829-2	≤2.0 & > 0[1] in. wc	.46	.48	.45	.50	.42	.41	.42
		PDI-829-3	≤2.0 & > 0[1] in. wc	.39	.38	.38	.42	.35	.34	.35
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	~~.51~~ .08 DH 8-13-18	.08	.08	.08	.08	.08	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	~~.52~~ .52 DH 8-13-18	.52	.52	.52	.52	.52	.52
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.49	.49	.50	.50	.50	.50	.50
		PDI-816-2	≤2.0 & > 0[1] in. wc	.60	.59	.60	.60	.60	.59	.59
		PDI-816-4	≤2.0 & > 0[1] in. wc	.52	.55	.54	.55	.55	.55	.55
		PDI-816-5	≤2.0 & > 0[1] in. wc	.55	.58	.58	.59	.59	.59	.59

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	8-13-18	8-14-18	8-15-18	8-16-18	8-17-18	8/18/18	8/19/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	AS	PT	AS	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.08	.08	.08	.09	.09	.10	.10
		PDI-813-2	≤2.0 & > 0[1] in. wc	.28	.26	.28	.25	.28	.28	.28
		PDI-813-3	≤2.0 & > 0[1] in. wc	.21	.20	.22	.21	.21	.21	.21
		PDI-813-4	≤2.0 & > 0[1] in. wc	.29	.29	.29	.29	.30	.30	.30
		PDI-813-5	≤2.0 & > 0[1] in. wc	.37	.37	.38	.38	.39	.39	.38
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.01	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.35	.32	.31	.31	.32	.32	.32
		PDI-865-3	≤2.0 & > 0[1] in. wc	.29	.29	.29	.30	.30	.29	.29
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.05	.05	.05	.05
		PDI-863-2	≤2.0 & >0[1] in. wc	.29	.29	.29	.29	.29	.29	.29

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	8-13-18	8-14-18	8-15-18	8-16-18	8-17-18	8/18/18	8/19/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	OJ	AS	PT	AS	PT	OH	OH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.19	.15	.15	.15	.15	.15	.15
		PDI-857-2	≤ 2.0 & > 0[1] in. wc	.45	.45	.44	.45	.43	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤ 2.0 & > 0[1] in. wc	.12	.11	.11	.13	.12	.11	.11
		PDI-856-2	≤ 2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61	.61	.61
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	Sat	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	SAT	SAT	SAT	SAT

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	8-13-18	8-14-18	8-15-18	8-16-18	8-17-18	8/18/18	8/19/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	AS	PT	AS	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0954	0827	0907	0932	0755	0817	0835
			OC Operator Review and Page Count Complete (initials)	AD	AD	MW	MW	AD	AD	AD

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [signature] Date 8/19/18 Time 0835 Reviewed by: [signature] Date: 8-22-18 Time: 0658

On-duty Supervisor

Comments: 100 Recirc lamp out

For Information Only

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

For Information Only

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
			Date:	08.20.18		08.21.18		8/22/18		8/23/18		08.24.18		08.25.18		08.26.18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	BC	[illegible]	BC	[illegible]	[illegible]	JSC	[illegible]	JSC	BC	[illegible]	BC	[illegible]	BC	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**														
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.00	-2.00	-2.00	-1.99	-2.00	8-22-18 -2.00	-2.00	-1.99	-2.00	-2.01	-1.99	-1.97	-2.00	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.96	-1.96	-1.96	-1.96	-1.94	-1.96	-1.95	-1.95	-1.97	-1.96	-1.96	-1.96	-1.96	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.00	-2.03	-2.02	-2.02	-2.03	-2.02	-2.02	-2.04	-1.98	-2.03	-2.03	-2.02	-2.02	-2.03
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.18	-.19	-.19	-.18	-.18	-0.19	-.18	-0.18	-.18	-.18	-.18	-0.19	-.19	-0.19
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.23	-.24	-.24	-.23	-.23	-0.23	-.23	-0.24	-.23	-.23	-.23	-0.23	-.23	-0.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.20	-.21	-.21	-.21	-.20	-0.19	-.20	-0.20	-.20	-.20	-.20	-0.20	-.20	-0.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.19	-.20	-.20	-.20	-.19	-0.19	-.19	-0.19	-.18	-.19	-.19	-0.18	-.19	-0.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-.15	-.15	-.15	-.15	-0.15	-.15	-0.15	-.16	-.15	-.15	-0.15	-.15	-0.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-.09	-.09	-.09	-.09	-.10	-0.09	-.10	-0.09	-.09	-.09	-.09	-0.10	-.09	-0.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.08	-.08	-.08	-.08	-.10	-0.08	-.10	-0.08	-.08	-.08	-.08	-0.09	-.08	-0.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.104	-.088	-.103	-.088	-.088	-0.095	-.100	-0.106	-.108	-.103	-.102	-0.105	-.103	-0.100

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	08.20.18		08.21.18		8/22/18		8/23/18		08.24.18		08.25.18		08.26.18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	BC	[illegible]	BC	[illegible]	[illegible]	JSC	[illegible]	JSC	BC	[illegible]	BC	[illegible]	BC	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

For Information Only

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	08-20-18		08-21-18		8/22/18		8/23/18		08-24-18		08-25-18		08-26-18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	BC	C	BC	C	K	JSL	K	JSL	BC	C	BC	[illegible]	BC	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	**Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400**	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0720	1918	0717	1922	0730	1936	0725	1929	0723	1917	0720	1912	0723	1916

[1] Mode 2 acceptance criteria is < 0.00 in. wc.
[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: _____ Date 8/26/18 Time 1916 Reviewed by: _____ On-duty Supervisor Date: 8/27/18 Time: 1127

Comments: _____

For Information Only

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	8/20/18	8/21/18	8/22/18	8/23/18	8/24/18	08/25/18	8/26/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	TH	[illegible]	BF	BF	[illegible]	[illegible]	[illegible]
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0922	1009	0744	0740	0800	0715	0712

For Information Only

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

For Information Only

			Date:	8/20/18	8/21/18	8/22/18	8/23/18	8/24/18	08/25/18	8/26/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	RH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.05	.06	.05	.05	.05	.05	.05
		PDI-894-2	≤2.0 & > 0[1] in. wc	.45	.46	.45	.45	.42	.42	.43
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.16	.12	.12	.12	.13	.14	.14
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	.70	.70	.70	.70	.70	.70
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.27	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc	.29	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc	.33	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc	.36	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.42	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-819-3	≤2.0 & > 0[1] in. wc	.44	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	TH 8/20/18 Off STBY	.24	.24	.24	.24	.23	.23
		PDI-818-2	≤2.0 & > 0[1] in. wc	TH 8/20/18 Off STBY	.30	.30	.30	.30	.30	.30
		PDI-818-4	≤2.0 & > 0[1] in. wc	TH 8/20/18 Off STBY	.30	.29	.29	.29	.29	.29
		PDI-818-5	≤2.0 & > 0[1] in. wc	TH 8/20/18 Off STBY	.30	.29	.29	.29	.29	.29
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	TH 8/20/18 Off STBY	.40	.41	.41	.41	.40	.41
		PDI-821-3	≤2.0 & > 0[1] in. wc	TH 8/20/18 Off STBY	.47	.48	.48	.45	.45	.45
		PDI-821-4	≤2.0 & > 0[1] in. wc	TH 8/20/18 Off STBY	.40	.41	.41	.40	.40	.40

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

For Information Only

			Date:	8/20/18	8/21/18	8/22/18	8/23/18	8/24/18	08/25/18	8/26/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	BF	BF	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.11	STBY	STBY	STBY	STBY	stby	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	.60	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	.43	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	.58	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	~~OFF~~ STBY 8/20/18	.06	.06	.07	.07	.06	.07
		PDI-823-2	≤2.0 & > 0[1] in. wc	~~OFF~~ STBY 8/20/18	.60	.58	.58	.58	.58	.58
		PDI-823-4	≤2.0 & > 0[1] in. wc	~~OFF~~ STBY 8/20/18	.50	.52	.52	.52	.52	.52
		PDI-823—5	≤2.0 & > 0[1] in. wc	~~OFF~~ STBY 8/20/18	.52	.52	.52	.54	.54	.54
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.32	.21	.31	.21	.20	.25	.23
		PDI-830-2	≤2.0 & > 0[1] in. wc	.14	.11	.14	.12	.12	.14	.12
		PDI-830-3	≤2.0 & > 0[1] in. wc	.11	.10	.12	.10	.09	.10	.09
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.16	.06	.06	.06	.06	.06	.07
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	.65	.66	.65	.66	.65	.66
		PDI-836-3	≤2.0 & > 0[1] in. wc	.63	.62	.64	.63	.63	.63	.63
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.05	.05	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.48	.48	.48	.48	.48	.47	.48

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	8/20/18	8/21/18	8/22/18	8/23/18	8/24/18	08/25/18	8/26/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	TL	JH	BF	BF	JH	MW	JH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.55	.56	.56	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.57	.59	.59	.59	.58	.57	.58
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.43	.44	.44	.43	.43	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc	.58	.58	.59	.59	.58	.58	.58
		PDI-839-3	≤2.0 & > 0[1] in. wc	.56	.54	.57	.57	.57	.56	.56
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.16	.16	.16	.16	.16	.16	.16
		PDI-810-2	≤2.0 & > 0[1] in. wc	.55	.51	.53	.53	.54	.54	.53
		PDI-810-3	≤2.0 & > 0[1] in. wc	.51	.50	.51	.51	.51	.51	.51
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	Off	OFF	OFF	OFF	off	off	off
		PDI -811 -2	≤2.0 & > 0[1] in. wc	Off	OFF	OFF	OFF	off	off	off
		PDI -811 -3	≤2.0 & > 0[1] in. wc	Off	OFF	OFF	OFF	off	off	off
			Completion Time	1032	1009	0935	0905	0840	0800	0740
OC Operator Review and Page Count Complete (initials)				TL	BF	APJ	MW	JH	BF	JH

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [signature] Date ~~0740~~ 8/26/18 Time 0740 Reviewed by: [signature] Date: 8/27/18 Time: 1129
On-duty Supervisor

Comments 4.4.1.1 Meter is OOS, needs Calibration

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	8/20/18	8/21/18	8/22/18	8/23/18	8/24/18	8/25/18	8/26/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	TL TS 8/20/18	PH	BF	BF	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	TL 8/20/18 ~~OFF~~ STBY	.17	.17	.17	.17	.17	.17
		PDI-840-2	≤2.0 & > 0 in[1] wc	TL 8/20/18 ~~OFF~~ STBY	.58	.58	.58	.58	.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc	TL 8/20/18 ~~OFF~~ STBY	.51	.51	.51	.51	.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.47	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc	.58	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc	.52	STBY	STBY	STBY	STBY	STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.35	.34	.35	.35	.35	.34	.34
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.41	.42	.42	.42	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.39	.39
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.44	.46	.46	.44	.44	.44
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	.69	.69	.69	.68	.68	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.62	.62	.62	.62	.62
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	Off	OFF	OFF	.11	.11	.11	.11
		PDI-807-2	≤2.0 & > 0[1] in. wc	Off	OFF	OFF	.51	.51	.52	.52
		PDI-807-3	≤2.0 & > 0[1] in. wc	Off	OFF	OFF	.49	.50	.50	.51
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.08	.07	.07	OFF	off	off	off
		PDI-809-2	≤2.0 & > 0[1] in. wc	.55	.50	.50	OFF	off	off	off
		PDI-809-3	≤2.0 & > 0[1] in. wc	.53	.50	.50	OFF	off	off	off

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	8/20/18	8/21/18	8/22/18	8/23/18	8/24/18	08/25/18	8/26/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	BF	[illegible]	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.25	.28	.25	.28	.28	.29	.29
		PDI-829-2	≤2.0 & > 0[1] in. wc	.44	.48	.42	.48	.48	.48	.48
		PDI-829-3	≤2.0 & > 0[1] in. wc	.37	.39	.35	.40	.38	.39	.40
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.08	.08	.08	.08	.07	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	.52	.53	.53	.53	.53	.52
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.50	.51	.51	.51	.50	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.06	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.51	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.52	.51	.51	.52	.51	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	8/20/18 ~~OFF~~ STBY	.30	.33	.32	.32	.32	.32
		PDI-815-2	≤2.0 & > 0[1] in. wc	8/20/18 ~~OFF~~ STBY	.59	.58	.58	.58	.58	.58
		PDI-815-4	≤2.0 & > 0[1] in. wc	8/20/18 ~~OFF~~ STBY	.50	.50	.50	.51	.50	.51
		PDI-815-5	≤2.0 & > 0[1] in. wc	8/20/18 ~~OFF~~ STBY	.51	.51	.51	.51	.51	.51
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.50	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	.60	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	.52	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	.58	STBY	STBY	STBY	STBY	STBY	STBY

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	8/20/18	8/21/18	8/22/18	8/23/18	8/24/18	08/25/18	8/26/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	Th	[illegible]	BF	BF	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	~~OEE~~ STBY 8/20/18	.15	.15	.15	.14	.15	.14
		PDI-812-2	≤2.0 & > 0[1] in. wc	~~OEE~~ STBY 8/20/18	.31	.32	.32	.32	.31	.32
		PDI-812-3	≤2.0 & > 0[1] in. wc	~~OEE~~ STBY 8/20/18	.30	.32	.32	.32	.31	.32
		PDI-812-4	≤2.0 & > 0[1] in. wc	~~OEE~~ STBY 8/20/18	.31	.31	.31	.31	.31	.31
		PDI-812-5	≤2.0 & > 0[1] in. wc	~~OEE~~ STBY 8/20/18	.39	.38	.38	.38	.38	.38
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.10	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-2	≤2.0 & > 0[1] in. wc	.28	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-3	≤2.0 & > 0[1] in. wc	.21	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-4	≤2.0 & > 0[1] in. wc	.31	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-5	≤2.0 & > 0[1] in. wc	.40	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.34	.33	.35	.35	.32	.33	.32
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.30	.31	.32	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.06
		PDI-863-2	≤2.0 & >0[1] in. wc	.28	.29	.28	.29	.28	.29	.28

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	8/20/18	8/21/18	8/22/18	8/23/18	8/24/18	08/25/18	8/26/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	RHb	Bo	Br	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤2.0 & > 0[1] in. wc	.15	.16	.16	.17	.16	.15	.16
		PDI-857-2	≤2.0 & > 0[1] in. wc	.44	.44	.45	.45	.45	.44	.43
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.12	.10	.11	.11	.10	.10	.10
		PDI-856-2	≤2.0 & > 0[1] in. wc	.61	.59	.58	.58	.58	.58	.55
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	Sat	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	Sat	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	Sat	SAT

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	8/20/18	8/21/18	8/22/18	8/23/18	8/24/18	08/25/18	8/26/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	RH	BF	BF	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	1032	1017	0909	0810	0820	0744	0730
			OC Operator Review and Page Count Complete (initials)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [illegible] Date 8/26/18 Time 0730 Reviewed by: [illegible] On-duty Supervisor Date: 8/27/18 Time: 1130

Comments: 8/26/18 WestDoor for 201 is not at latching property. Needs to be looked at.

For Information Only

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

For Information Only

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																	
		Date:	8-27-18		8-28-18		08-29-18		8/30/18		8-31-18						
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.		
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
		Initials:	JSC	A	JSC	A	BC	[illegible]	MKW	G	JSC	[illegible]					
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**														
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.00	-2.01	-2.01	-2.01	-1.98	-1.99	-2.01	-1.99	-1.99	-2.05					
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.94	-1.94	-1.94	-1.94	-1.93	-1.93	-1.94	-1.94	-1.94	-1.94					
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.96	-1.95	-1.95	-1.95	-1.96	-1.96	-1.97	-1.95	-1.95	-1.95					
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.02	-2.03	-2.02	-2.02	-2.02	-1.96	-2.03	-2.02	-2.02	-2.02					
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-0.19	-.19	-0.19	-.18	-.20	-0.19	-0.19	-.19	-0.19	-0.19					
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-0.22	-.23	-0.23	-.23	-.25	-0.24	-0.23	-.23	-0.24	-0.24					
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-0.21	-.20	-0.20	-.20	-.21	-0.20	-0.20	-.20	-0.20	-0.20					
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-0.20	-.20	-0.19	-.19	-.21	-0.19	-0.19	-.19	-0.19	-0.20					
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-0.15	-.15	-0.15	-.15	-.15	-0.15	-0.15	-.15	-0.15	-0.15					
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-0.10	-.10	-0.09	-.09	-.09	-0.09	-0.09	-.01	-0.09	-0.01					
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-0.08	-.08	-0.08	-.08	-.08	-0.08	-0.08	-.08	-0.08	-0.08					
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-0.105	-.104	-0.101	-.096	-.087	-0.090	-0.101	-.102	-0.100	-.088					

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

For Information Only

Note: Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.																	
			Date:	8-27-18		8-28-18		08-29-18		8/30/18		8-31-18					
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	JSC	[illegible]	JSC	[illegible]	[illegible]	[illegible]	MW	[illegible]	JSC	[illegible]				
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	8-27-18		8-28-18		08-29-18		8/30/18		8-31-18			
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.	Sun.
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM PM	AM PM
				Initials:	JSC	[illegible]	JSC	[illegible]	BC	[illegible]	MJW	[illegible]	JSC	[illegible]		
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**											
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
				Completion Time	0726	1930	0723	1930	0719	A24	0702	0718	0702	A28		

[1] Mode 2 acceptance criteria is < 0.00 in. wc.
[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [signature] Date 8/31/18 Time 1928 Reviewed by: [signature] On-duty Supervisor Date: 8-31-18 Time: 1156

Comments: _____

For Information Only

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	8/27/18	8-28-18	8/29/18	8-30-18	8-31-18		
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	PT	[illegible]	PT	PT		
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005		
	CP-305-H (LED Reading)		005	005	005	005	005		
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005		
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat	Sat / Unsat
		Completion Time:	0820	0855	0810	0902	0839		

For Information Only

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

For Information Only

			Date:	8/27/18	8-28-18	8/29/18	8-30-18	8-31-18		
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	PT	[illegible]	PT	PT		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & >0[1] in. wc	.05	.05	.05	.06	.06		
		PDI-894-2	≤2.0 & >0[1] in. wc	.43	.43	.43	.43	.43		
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & >0[1] in. wc	.14	.14	.14	.14	.14		
		PDI-895-2	≤2.0 & >0[1] in. wc	.71	.71	.71	.71	.71		
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-817-2	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-817-4	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-817-5	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-819-3	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-819-4	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & >0[1] in. wc	.23	.23	.23	.23	.23		
		PDI-818-2	≤2.0 & >0[1] in. wc	.30	.30	.30	.30	.30		
		PDI-818-4	≤2.0 & >0[1] in. wc	.28	.28	.28	.29	.29		
		PDI-818-5	≤2.0 & >0[1] in. wc	.28	.29	.29	.29	.29		
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & >0[1] in. wc	.41	.41	.42	.42	.42		
		PDI-821-3	≤2.0 & >0[1] in. wc	.45	.45	.45	.45	.46		
		PDI-821-4	≤2.0 & >0[1] in. wc	.40	.41	.40	.40	.40		

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	8/27/18	8-28-18	8/29/18	8-30-18	8-31-18		
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	PT	[illegible]	PT	PT		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-822-2	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-822-4	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-822-5	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & >0[1] in. wc	.06	.06	.07	.06	.06		
		PDI-823-2	≤2.0 & >0[1] in. wc	.56	.59	.58	.58	.59		
		PDI-823-4	≤2.0 & >0[1] in. wc	.52	.51	.55	.51	.51		
		PDI-823—5	≤2.0 & >0[1] in. wc	.53	.52	.56	.52	.52		
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & >0[1] in. wc	.21	.21	.25	.21	.24		
		PDI-830-2	≤2.0 & >0[1] in. wc	.12	.12	.12	.12	.11		
		PDI-830-3	≤2.0 & >0[1] in. wc	.09	.10	.09	.10	.11		
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & >0[1] in. wc	.07	.07	.07	.07	.07		
		PDI-836-2	≤2.0 & >0[1] in. wc	.65	.65	.65	.65	.65		
		PDI-836-3	≤2.0 & >0[1] in. wc	.63	.63	.63	.63	.63		
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & >0[1] in. wc	.04	.04	.04	.04	.04		
		PDI-837-2	≤2.0 & >0[1] in. wc	.49	.49	.49	.49	.49		
		PDI-837-3	≤2.0 & >0[1] in. wc	.48	.48	.48	.48	.48		

For Information Only

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	8/27/18	8-28-18	8/29/18	8-30-18	8-31-18		
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	JM	PT	JM	PT	PT		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.53	.55	.55	.55	.55		
		PDI-838-2	≤2.0 & > 0[1] in. wc	.57	.58	.57	.58	.58		
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59		
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.43	.43	.43	.43		
		PDI-839-2	≤2.0 & > 0[1] in. wc	.58	.59	.58	.59	.59		
		PDI-839-3	≤2.0 & > 0[1] in. wc	.57	.58	.57	.58	.58		
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.17	.17	.17	.18	.16		
		PDI-810-2	≤2.0 & > 0[1] in. wc	.53	.53	.56	.53	.53		
		PDI-810-3	≤2.0 & > 0[1] in. wc	.51	.51	.52	.51	.51		
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	off	OFF	off	OFF	OFF		
		PDI -811 -2	≤2.0 & > 0[1] in. wc	off	OFF	off	OFF	OFF		
		PDI -811 -3	≤2.0 & > 0[1] in. wc	off	OFF	off	OFF	OFF		
			Completion Time	0855	0902	0850	0904	0810		
OC Operator Review and Page Count Complete (initials)				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Paul Trujillo Date 8-31-18 Time 0810 Reviewed by: [signature] On-duty Supervisor Date: 9-1-18 Time: 1157

Comments 8/27/18 4.4.1.1 out of service. Needs to be calibrated

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

For Information Only

			Date:	8/27/18	8-28-18	8/29/18	8-30-18	8-31-18		
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	PT	[illegible]	PT	PT		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.17	.17	.17	.17	.17		
		PDI-840-2	≤2.0 & > 0 in[1] wc	.57	.58	.57	.58	.58		
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51		
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.34	.34	.34	.34	.34		
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	.41	.42	.42	.42		
		PDI-831-3	≤2.0 & > 0[1] in. wc	.39	.39	.39	.39	.39		
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.44	.45	.44	.45	.45		
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	.68	.68	.68	.68		
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61		
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	.12	.12	.12	.12		
		PDI-807-2	≤2.0 & > 0[1] in. wc	.53	.53	.54	.52	.52		
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51		
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	off	OFF	off	OFF	OFF		
		PDI-809-2	≤2.0 & > 0[1] in. wc	off	OFF	off	OFF	OFF		
		PDI-809-3	≤2.0 & > 0[1] in. wc	off	OFF	off	OFF	OFF		

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	8/27/18	8-28-18	8/29/18	8-30-18	8-31-18		
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	PT	[illegible]	PT	PT		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & >0[1] in. wc	.28	.31	.30	.30	.30		
		PDI-829-2	≤2.0 & >0[1] in. wc	.49	.50	.49	.49	.49		
		PDI-829-3	≤2.0 & >0[1] in. wc	.39	.40	.39	.40	.40		
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & >0[1] in. wc	.08	.08	.08	.08	.08		
		PDI-833-2	≤2.0 & >0[1] in. wc	.53	.53	.54	.54	.54		
		PDI-833-3	≤2.0 & >0[1] in. wc	.51	.51	.51	.51	.51		
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & >0[1] in. wc	.05	.05	.05	.05	.05		
		PDI-835-2	≤2.0 & >0[1] in. wc	.50	.50	.50	.50	.50		
		PDI-835-3	≤2.0 & >0[1] in. wc	.50	.50	.50	.50	.50		
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & >0[1] in. wc	.28	.28	.28	.28	.29		
		PDI-815-2	≤2.0 & >0[1] in. wc	.58	.58	.58	.58	.58		
		PDI-815-4	≤2.0 & >0[1] in. wc	.50	.50	.50	.50	.50		
		PDI-815-5	≤2.0 & >0[1] in. wc	.50	.50	.50	.50	.50		
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-816-2	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-816-4	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-816-5	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY		

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	8/27/18	8-28-18	8/29/18	8-30-18	8-31-18		
			Weekday:	Mon	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	PT	[illegible]	PT	PT		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.14	.15	.14	.14	.15		
		PDI-812-2	≤2.0 & > 0[1] in. wc	.32	.31	.31	.31	.31		
		PDI-812-3	≤2.0 & > 0[1] in. wc	.32	.31	.31	.31	.31		
		PDI-812-4	≤2.0 & > 0[1] in. wc	.31	.31	.30	.31	.30		
		PDI-812-5	≤2.0 & > 0[1] in. wc	.38	.38	.37	.37	.37		
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02		
		PDI-865-2	≤2.0 & > 0[1] in. wc	.35	.34	.34	.34	.32		
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30		
4.1.3.4[2]	IFIT supply filter plenum (IIVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05		
		PDI-863-2	≤2.0 & >0[1] in. wc	.28	.28	.28	.29	.29		

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	8/27/18	8-28-18	8/29/18	8-30-18	8-31-18		
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JM	PT	JM	PT	PT		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.13	.13	.14	.14	.14		
		PDI-857-2	≤2.0 & > 0[1] in. wc	.44	.44	.45	.45	.45		
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.10	.10	.10	.10	.11		
		PDI-856-2	≤2.0 & > 0[1] in. wc	.56	.57	.58	.58	.58		
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT		
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT		
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT		

For Information Only

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	8/27/18	8-28-18	8/29/18	8-30-18	8-31-18		
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	PT	[illegible]	PT	PT		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT		
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT		
			Completion time	0850	0905	0930	1020	0810		
			OC Operator Review and Page Count Complete (initials)	ARJ [illegible]	[illegible] ARJ MJW	[illegible]	[illegible] MJW	ARJ [illegible]		

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Paul Trujillo Date 8-31-18 Time 0820 Reviewed by: [signature] On-duty Supervisor Date: 7-1-18 Time: 1157

Comments:

For Information Only

Attachment B, Surveillance Training Checklist

(Page 1 of 2)

Procedure title:	Surveillance Panels
Procedure no.:	TA55 - STP - 004, R.19.1
Date of issue:	9/1/18
Working copy issued to:	A. Sanrigue
Working copy issued by:	M. Miller
	Certified Operations Center Operator (OCO)

Procedure is the current revision listed in Documentum: ☑ Yes ☐ Documentum Unavailable

Performance Type: ☑ Scheduled ☐ Partial ☐ Other *If partial or other list reason in Comments below*

Comments: *(Document TSR Status Board tracking date here if different from completion date.)*

Training Checklist:

Workers Performing Surveillance	Applicable Surveillance Training Current	
	OCO Initials	Date
B. Chance	MM	9/1/18
C. Cochran	MM	↓
A. Sanrigue	MM	↓
J. Coyotto	MM	↓
M. Miller	MM	↓
R. Price	MM	↓
F. Seybert	MM	↓
A. DeSeith	MM	↓
B. Fordham	MM	↓

OC Reviews Complete and TSR Status Board Updated

OCO Signature — Date: 10-03-18

Attachment B, Surveillance Training Checklist (continued)
(Page 2 of 2)

Training Checklist (continuation sheet)

Workers Performing Surveillance	Applicable Surveillance Training Current	
	Initials	Date
D. Heintschel	MM	9/1/18
R. Hohner	MM	
M. Irish	MM	
T. Conguarthy	MM	
J. Martinez	MM	
Anthony Sanchez	MM	
P. Trujillo	MM	
D. Dunlavy	MM	
M. Washburn	MM	
C. Valdez	MM	
Augie Sandez	MM	
S. Oneil	MM	
R. Martinez	MM	
J. Smeltz	MM	
J. Cedillo	MM	
K. Ashley	MM	↓

Attachment A, Surveillance Due Date Change Request

(Page 1 of 1)

SI/STP/ISI #	Scheduled Due Date	Proposed Due Date	Maximum Allowable Extension of Due Date
STP-004	9/4/18 1100	9/4/18 1700	9/4/18 1700

Justification:

STP-004 ROUNDS NOT TURNED INTO OPS CENTER FOR VERIFICATION DUE TO ROOM 207 BEING RED LIT.

Prepared by: [signature] SAURIGUE 9/4/18
Preparer/System Engineer Date

Reviewed by: [signature] 9/9/18
Operations Center On-Duty Supervisor Date

Approved by: [signature] 9/9/18
Operations Manager Date

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		Date:											9/1/11		9/2/18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:											APJ	[illegible]	APJ	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]											-2.00	-1.99	-2.00	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]											-1.94	-1.94	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]											-1.96	-1.96	-1.96	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]											-2.03	-2.02	-2.02	-2.03
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]											-.18	-.18	-.19	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]											-.23	-.25	-.24	-.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]											-.20	-.20	-.21	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]											-.19	-.20	-.20	~~-.15~~ -.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc											-.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc											-.09	-.10	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc											-.09	-.08	-.08	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc											~~-.101~~ -.101	-.112	-.098	-.102

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:											9/1/18		9/2/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:											ARJ	dH	ARJ	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:											9/1/18		9/2/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:											ARJ	[illegible]	ARJ	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time													0730	1934	0729	1920

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [illegible] Date: 9/2/18 Time: 1920 Reviewed by: [illegible] Date: 9-2-18 Time: 0750

On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:						9-1-18	9-2-18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:						PT	PT
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA						0.05	0.05
	CP-305-H (LED Reading)							0.05	0.05
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value						0.05	0.05
		≥ -0.1; ≤+0.1	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat 0.05	Sat / Unsat 0.05
		Completion Time:						0736	0723

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:						9-1-18	9-2-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc						.05	.05
		PDI-894-2	≤2.0 & > 0[1] in. wc						.42	.42
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc						.14	.14
		PDI-895-2	≤2.0 & > 0[1] in. wc						.71	.71
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc						STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-819-3	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc						STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc						.23	.23
		PDI-818-2	≤2.0 & > 0[1] in. wc						.30	.30
		PDI-818-4	≤2.0 & > 0[1] in. wc						.29	.29
		PDI-818-5	≤2.0 & > 0[1] in. wc						.29	.29
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc						.40	.40
		PDI-821-3	≤2.0 & > 0[1] in. wc						.45	.45
		PDI-821-4	≤2.0 & > 0[1] in. wc						.40	.40

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:						9-1-18	9-2-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc						PT STBY ~~.06~~ 9-1-18	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc						PT STBY ~~.58~~ 9-1-18	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc						STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc						.06	.06
		PDI-823-2	≤2.0 & > 0[1] in. wc						.58	.58
		PDI-823-4	≤2.0 & > 0[1] in. wc						.51	.51
		PDI-823—5	≤2.0 & > 0[1] in. wc						.51	.52
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc						.29	.27
		PDI-830-2	≤2.0 & > 0[1] in. wc						.13	.12
		PDI-830-3	≤2.0 & > 0[1] in. wc						.11	.11
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc						.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc						.64	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc						.63	.63
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc						.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc						.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc						.48	.49

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:						9-1-18	9-2-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc						.55	.51
		PDI-838-2	≤2.0 & > 0[1] in. wc						.59	.59
		PDI-838-3	≤2.0 & > 0[1] in. wc						.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc						.44	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc						.59	.59
		PDI-839-3	≤2.0 & > 0[1] in. wc						.58	.58
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc						.17	.17
		PDI-810-2	≤2.0 & > 0[1] in. wc						.53	.53
		PDI-810-3	≤2.0 & > 0[1] in. wc						.51	.51
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc						OFF	OFF
		PDI -811 -2	≤2.0 & > 0[1] in. wc						OFF	OFF
		PDI -811 -3	≤2.0 & > 0[1] in. wc						OFF	OFF
			Completion Time						0734	0720
OC Operator Review and Page Count Complete (initials)									APS	APS

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Paul Trujillo Date 9-2-18 Time 0720 Reviewed by: _____ Date: 9-5-18 Time: 0651
On-duty Supervisor

Comments Flammable Gas channel need to be calibrated.

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:						9-1-18	9-2-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc						.17	.17
		PDI-840-2	≤2.0 & > 0 in[1]. wc						.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc						.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc						STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc						.34	.34
		PDI-831-2	≤2.0 & > 0[1] in. wc						.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc						.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc						.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc						.69	.69
		PDI-832-3	≤2.0 & > 0[1] in. wc						.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc						.12	.12
		PDI-807-2	≤2.0 & > 0[1] in. wc						.52	.52
		PDI-807-3	≤2.0 & > 0[1] in. wc						.51	.51
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc						OFF	OFF
		PDI-809-2	≤2.0 & > 0[1] in. wc						OFF	OFF
		PDI-809-3	≤2.0 & > 0[1] in. wc						OFF	OFF

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:						9-1-18	9.2.18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc						.29	.30
		PDI-829-2	≤2.0 & > 0[1] in. wc						.48	.49
		PDI-829-3	≤2.0 & > 0[1] in. wc						.39	.40
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc						.08	.08
		PDI-833-2	≤2.0 & > 0[1] in. wc						.52	.52
		PDI-833-3	≤2.0 & > 0[1] in. wc						.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc						.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc						.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc						.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc						.28	.28
		PDI-815-2	≤2.0 & > 0[1] in. wc						.58	.58
		PDI-815-4	≤2.0 & > 0[1] in. wc						.50	.50
		PDI-815-5	≤2.0 & > 0[1] in. wc						.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc						STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:						9-1-18	9-2-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc						.15	.15
		PDI-812-2	≤2.0 & > 0[1] in. wc						.31	.31
		PDI-812-3	≤2.0 & > 0[1] in. wc						.31	.31
		PDI-812-4	≤2.0 & > 0[1] in. wc						.31	.31
		PDI-812-5	≤2.0 & > 0[1] in. wc						.38	.38
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-813-2	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-813-3	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-813-4	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-813-5	≤2.0 & > 0[1] in. wc						STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc						.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc						.32	.32
		PDI-865-3	≤2.0 & > 0[1] in. wc						.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc						.06	.06
		PDI-863-2	≤2.0 & >0[1] in. wc						.29	.29

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:						9-1-18	9-2-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc						.17	.16
		PDI-857-2	≤2.0 & > 0[1] in. wc						.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc						.11	.10
		PDI-856-2	≤2.0 & > 0[1] in. wc						.58	.57
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**						SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less						SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less						SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:						9-1-18	9-2-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less						SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less						SAT	SAT
Completion time									0819	0735
OC Operator Review and Page Count Complete (initials)									AM	AM

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Paul Trujillo Date 9-2-18 Time 0735 Reviewed by: _____ Date: 9-5-18 Time: 0652

On-duty Supervisor

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	AMJ 9/1/18 ~~103764~~ 103765	V-701 Thermistor File No.:	AMJ 9/1/18 ~~103765~~ 103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	AMJ 9/1/18 ~~040375~~ 105353	V-704 Thermistor File No.:	AMJ 9/1/18 ~~105353~~ 040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature										
Daily (September through April only)		Date:							9/1/18	9-2-18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.		Sat.	Sun.
		Initials:							AMJ	JSC
SR	**Description**	**Acceptance Criteria**								
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT		SAT UNSAT	SAT UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F							69.10	68.84
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F							71.47	70.783
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F							71.60	70.42
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F							70.86	69.81
		Completion Time:							0830	0831
OC Operator Review and Page Count Complete (initials)									AMJ	AMJ

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: JOHN CEDILLO _____ Date 9-2-18 Time 0831

Reviewed by: _____ Date: 9-3-18 Time: 0653
On-duty Supervisor

Comments: _____

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		**Date:**	9/3/18		9/4/18		9-5-18		9-6-18		9/7/18		9/8/18		9/9/18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-1.98	-2.02	-1.98	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-1.99	-1.99	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.94	-1.94	-1.93	-1.95	-1.93	-1.92	-1.94	-1.95	-1.94	-1.95	-1.93	-1.95	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.96	-1.96	-1.96	-1.96	-1.96	-1.96	-1.96	-1.96	-1.96	-1.96	-1.96	-1.94	-1.96	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.03	-2.02	-2.02	-2.02	-2.01	-2.02	-2.03	-2.03	-2.02	-2.02	-2.03	-2.03	-2.03	-2.02
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.18	-0.18	-.18	-0.18	-0.18	-0.18	-0.19	-.18	-0.18	-.19	-0.19	-.19	-0.19	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.23	-0.23	-.23	-0.23	-0.23	-0.23	-0.24	-.24	-0.24	-.24	-0.23	-.24	-0.24	-.24
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.21	-0.20	-.20	-0.20	-0.20	-0.20	-0.20	-.20	-0.20	-.21	-0.20	-.20	-0.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.20	-0.19	-.19	-0.19	-0.19	-0.19	-0.19	-.20	-0.19	-.20	-0.19	-.19	-0.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-0.15	-.15	-0.14	-0.15	-0.15	-0.15	-.16	-0.15	-.15	-0.15	-.15 ~~-.16~~	-0.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-.09	-0.10	-.09	-0.09	-0.04	-0.09	-0.09	-.09	-0.09	-.09	-0.09	-.09	-0.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.08	-0.09	-.08	-0.08	-0.04	-0.09	-0.08	-.09	-0.09	-.09	-0.08	-.08	-0.08	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.104	-0.101	-.101	-0.099	-0.090	-0.097	-0.089	-.102	-0.106	-.102	-0.104	-.09 ~~-.10~~	-0.103	-.104

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	9/3/18		9/4/18		9-5-18		9-6-18		9/7/18		9/8/18		9/9/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	JSL	[illegible]	JSL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	9/3/18		9/4/18		9-5-18		9-6-18		9/7/18		9/8/18		9/9/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:														
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0724	1915	0710	1920	0711	1924	0704	1934	0776	1925	0725	1931	0718	1920

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: _____ Date 9/9/18 Time 1900 Reviewed by: _____ Date: 9/18/18 Time: 0853
On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	9/3/18	9/4/18	9/5/18	9-6-18	9/7/18	9/8/18	9/9/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	DH	RH	BF	PT	BF	DH	DH
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / ~~Unsat~~ 005	Sat / ~~Unsat~~ 005	Sat / ~~Unsat~~ 005	Sat / Unsat 005	Sat / ~~Unsat~~ 005	Sat / ~~Unsat~~ 005	Sat / ~~Unsat~~ 005
		Completion Time:	0720	0830	0845	0832	0722	0718	0725

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	9/3/18	9/4/18	9/5/18	9-6-18	9/7/18	9/8/18	9/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DW	RH	BF	PT	BF	DW	DW
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-894-2	≤2.0 & > 0[1] in. wc	.44	.43	.45	.42	.42	.42	.42
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc	.14	.14	.14	.14	.14	.14	.14
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	.70	.71	.71	.71	.71	.71
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-81 9-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-81 9-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.23	.23	.23	.23	.24	.23	.23
		PDI-818-2	≤2.0 & > 0[1] in. wc	.29	.30	.30	.30	.30	.30	.30
		PDI-818-4	≤2.0 & > 0[1] in. wc	.29	.29	.29	.29	.29	.29	.29
		PDI-818-5	≤2.0 & > 0[1] in. wc	.29	.30	.30	.30	.30	.29	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.40	.40	.41	.40	.41	.41	.41
		PDI-821-3	≤2.0 & > 0[1] in. wc	.44	.45	.45	.45	.45	.45	.45
		PDI-821-4	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	9/3/18	9/4/18	9/5/18	9-6-18	9/7/18	9/8/18	9/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DH	ZH	BF	PT	BF	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-823-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.58
		PDI-823-4	≤2.0 & > 0[1] in. wc	.51	.51	.53	.51	.52	.51	.52
		PDI-823—5	≤2.0 & > 0[1] in. wc	.52	.52	.53	.52	.52	.52	.52
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.24	.15	.20	.23	.23	.25	.25
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	.10	.12	.12	.12	.11	.11
		PDI-830-3	≤2.0 & > 0[1] in. wc	.11	.09	.10	.10	.08	.10	.10
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06	.06	.07	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	.65	.66	.66	.65	.65	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc	.64	.63	.65	.63	.63	.64	.64
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.48	.49	.49	.49	.49	.49	.48

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	9/3/18	9/4/18	9/5/18	9-6-18	9/7/18	9/8/18	9/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DH	DH	BF	PT	BF	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59	.59	.58	.59	.59	.59	.59
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.60	.60	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.43	.43	.44	.44	.43	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc	.58	.59	.59	.59	.59	.58	.58
		PDI-839-3	≤2.0 & > 0[1] in. wc	.56	.57	.58	.58	.59	.58	.58
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.16	.16	.16	.16	.16	.16	.16
		PDI-810-2	≤2.0 & > 0[1] in. wc	.54	.52	.52	.53	.53	.54	.54
		PDI-810-3	≤2.0 & > 0[1] in. wc	.51	.50	.51	.51	.51	.51	.51
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
			Completion Time	0815	0959	0911	0827	0801	0753	0810
OC Operator Review and Page Count Complete (initials)				ARS	ARS	W ARS	W ARS	[illegible]	[illegible]	[illegible]
				VS	VS	MJW	MJW	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [signature] Date 9/9/18 Time 0810 Reviewed by: [signature] Date: 9/18/18 Time: 0854

On-duty Supervisor

Comments Pg. 23 - SR 4.4.1.1 - FSTF DETECTOR OOS - AWAITING REPAIR

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	9/3/18	9/4/18	9-5-18	9-6-18	9-7-18	9/8/18	9/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DH	DH	MS	PT	MS	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.17	.17	.17	.17	.17	.17	.17
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.58	.59	.58	.59	.58	.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	.50	.51	.51	.51	.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	STBY	Stby	STBY	Stby	STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	STBY	Stby	STBY	Stby	STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	STBY	Stby	STBY	Stby	STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.34	.34	.34	.34	.34	.34	.34
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.41	.41	.41	.41	.41	.41
		PDI-831-3	≤2.0 & > 0[1] in. wc	.39	.40	.39	.40	.39	.39	.39
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.44	.44	.45	.45	.45	.45	.44
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	.68	.68	.68	.68	.68	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.11	.12	.12	.11	.11	.11	.11
		PDI-807-2	≤2.0 & > 0[1] in. wc	.52	.52	.52	.52	.52	.52	.52
		PDI-807-3	≤2.0 & > 0[1] in. wc	.50	.50	.51	.51	.51	.50	.50
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	OFF	off	OFF	off	OFF	OFF
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	OFF	off	OFF	off	OFF	OFF
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	OFF	off	OFF	off	OFF	OFF

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	9/3/18	9/4/18	9-5-18	9-6-18	9-7-18	9/8/18	9/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DH	RK	DS	PT	AS	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.30	.30	.30	.32	.38	.30	.30
		PDI-829-2	≤2.0 & > 0[1] in. wc	.49	.51	.50	.50	.59	.49	.49
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	.42	.40	.41	.49	.40	.40
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.07	.08	.07	.08	.08	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.54	.53	.53	.53	.53	.54	.53
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.50	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.49	.50	.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.26	.24	STBY	STBY	STBY	STBY	STBY
		PDI-815-2	≤2.0 & > 0[1] in. wc	.58	.58	STBY	STBY	STBY	STBY	STBY
		PDI-815-4	≤2.0 & > 0[1] in. wc	.50	.50	STBY	STBY	STBY	STBY	STBY
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	.50	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.49	.49	.49	.49	.49
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	STBY	.59	.59	.59	.59	.59
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	STBY	.52	.52	.52	.52	.52
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	STBY	.55	.55	.55	.55	.55

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	9/3/18	9/4/18	9-5-18	9-6-18	9-7-18	9/8/18	9/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DH	ZH	AS	PT	AS	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.14	.14	.14	.14	.16	.15	.16
		PDI-812-2	≤2.0 & > 0[1] in. wc	.32	.32	.32	.31	.32	.32	.32
		PDI-812-3	≤2.0 & > 0[1] in. wc	.30	.30	.30	.31	.32	.31	.31
		PDI-812-4	≤2.0 & > 0[1] in. wc	.30	.30	.31	.31	.31	.31	.31
		PDI-812-5	≤2.0 & > 0[1] in. wc	.38	.39	.38	.38	.39	.39	.39
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.32	.32	.32	.32	.32	.32	.32
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-863-2	≤2.0 & >0[1] in. wc	.29	.29	.29	.29	.29	.29	.29

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	9/3/18	9/4/18	9-5-18	9-6-18	9-7-18	9/8/18	9/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DH	RH	AS	PT	AS	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.12	.12	.12	.15	.15	.14	.14
		PDI-857-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.11	.11	.11	.10	.11	.10	.10
		PDI-856-2	≤2.0 & > 0[1] in. wc	.56	.56	.56	.56	.56	.56	.56
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	Sat	SAT	Sat	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	Sat	SAT	Sat	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	Sat	SAT	Sat	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	9/3/18	9/4/18	9-5-18	9-6-18	9-7-18	9/8/18	9/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DH	[illegible]	AS	PT	AS	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	Sat	SAT	Sat	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	Sat	SAT	Sat	SAT	SAT
			Completion time	0822	1059	0904	0835	0820	0744	0811
			OC Operator Review and Page Count Complete (initials)	ARS	ARS	[illegible]	ARS	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [signature] Date 9/9/18 Time 0811 Reviewed by: [signature] On-duty Supervisor Date: 9/18/18 Time: 0855

Comments:

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	9/3/18	9/4/18	9/5/18	9/6/18	9/7/18	9/8/18	9/9/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	68.3	67.5	66.9	66.1	66.0	65.4	67.1
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	70.1	69.4	68.5	67.4	66.8	67.0	~~68.0~~ 65.5
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	70.1	70.1	67.6	66.4	67.6	67.4	68.0
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	68.7	68.1	66.7	66.5	66.2	66.8	67.7
		Completion Time:	0915	0830	0815	0846	0756	0944	0940
OC Operator Review and Page Count Complete (initials)			AM [illegible]	[illegible] AM	[illegible] MJW	[illegible] AM	[illegible]	[illegible]	[illegible]

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [signature] Date 9/9/18 Time 0940

Reviewed by: [signature] On-duty Supervisor Date: 9/12/18 Time: 0743

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		**Date:**	9/10/18		9-11-18		9/12/18		9/13/18		9-14-18		9/15/18		9/16/18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	ARJ	[illegible]	JSL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	JSL	[illegible]	[illegible]	[illegible]	ARJ	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.00	-2.00	-1.99	-2.00	-2.02	-2.00	-2.00	-2.02	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.93	-1.94	-1.95	-1.92	-1.94	-1.94	-1.95	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.95	-1.95	-1.94	-1.95	-1.96	-1.97	-1.97	-1.95	-1.97	-1.98	-1.97	-1.97	-1.97	-1.97
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.03	-2.00	-2.01	-2.06	-2.03	-2.03	-2.03	-2.03	-2.03	-2.03	-2.02	-2.02	-2.03	-2.02
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.18	-.19	-0.19	-.19	-0.18	-.18	-0.18	-.19	-0.18	-.19	-.19	-.19	-.19	-.19
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.24	-.23	-0.25	-.24	-0.23	-.23	-0.23	-.24	-0.23	-.23	-.23	-.23	-.24	-.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.21	-.20	-0.23	-.20	-0.20	-.20	-0.21	-.20	-0.20	-.20	-.20	-.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.20	-.19	-0.21	-.19	-0.19	-.19	-0.20	-.19	-0.19	-.19	-.19	-.19	-.20	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-.15	-0.15	-.15	-0.16	-.15	-0.15	-.15	-0.15	-.15	-.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-.09	-.10	-0.09	-.10	-0.09	-.09	-0.09	-.09	-0.09	-.10	-.09	-.10	-.09	-.10
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.08	-.10	-0.08	-.10	-0.08	-.08	-0.08	-.08	-0.08	-.10	-.08	-.10	-.09	-.10
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.091	-.096	-0.087	-.104	-0.091	-.103	-0.103	-.100	-0.095	-.102 ~~-.105~~ 9/19/18	-.103	-.090	-.090 ~~-0.90~~ ARJ 9/16/18	-.102

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	9/10/18		9-11-18		9/12/18		9/13/18		9-14-18		9/15/18		9/16/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	AFY	[illegible]	JSL	[illegible]	[illegible]	BC	[illegible]	BC	JSL	[illegible]	[illegible]	[illegible]	AFY	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	9/10/18		9-11-18		9/12/18		9/13/18		9-14-18		9/15/18		9/16/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	APJ	u	JSC	u		BC		BC	JSC	u	MM	u	APJ	u
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS** Sat / Unsat (circle one)													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0725	1920	0728	1926	0751	1930	0726	1925	0726	1934	0735	1927	0732	1928
									DBO		MJW		CA		CA			

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: u Date 9/16/18 Time 1928 Reviewed by: DO D O On-duty Supervisor Date: 9/19/18 Time: 0746

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	9-10-18	9-11-18	9-12-18	9-13-18	Ø9/14/18	9/15/18	9-16-18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	PT	PT	PT	PT	MW	OH	PT
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0815	0833	0826	0839	Ø714	1722	0728

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	9-10-18	9-11-18	9-12-18	9-13-18	09/14/18	9/15/18	9-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	[illegible]	[illegible]	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-894-2	≤2.0 & > 0[1] in. wc	.42	.42	.43	.43	.43	.43	.43
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc	.14	.14	.14	.14	.14	.14	.14
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	.71	.71	.71	.69	.70	.70
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	Stby	STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	Stby	STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	Stby	STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	Stby	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-81 9-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	Stby	STBY	STBY
		PDI-81 9-3	≤2 0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	Stby	STBY	STBY
		PDI-819-4	≤2 0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	Stby	STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.23	.24	.24	.24	.24	.24	.24
		PDI-818-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
		PDI-818-4	≤2.0 & > 0[1] in. wc	.29	.29	.29	.29	.29	.29	.29
		PDI-818-5	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.29	.29	.29
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.40	.40	.40	.41	.40	.40	.40
		PDI-821-3	≤2.0 & > 0[1] in. wc	.46	.46	.46	.46	.46	.46	.46
		PDI-821-4	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	9-10-18	9-11-18	9-12-18	9-13-18	09/14/18	9/15/18	9-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	[illegible]	[illegible]	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	Stby	STBY	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	Stby	STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	Stby	STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	Stby	STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.05	.06	.06
		PDI-823-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
		PDI-823-4	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.50	.51	.51
		PDI-823—5	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.24	.21	.24	.23	.25	.25	.25
		PDI-830-2	≤2.0 & > 0[1] in. wc	.11	.11	.11	.11	.12	.11	.11
		PDI-830-3	≤2.0 & > 0[1] in. wc	.10	.10	.11	.10	.10	.10	.11
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.64	.64	.64	.65	.64	.64	.64
		PDI-836-3	≤2.0 & > 0[1] in. wc	.63	.63	.62	.62	.63	.63	.63
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.48	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.49	.49	.48	.48	.45	.48	.48

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	9-10-18	9-11-18	9-12-18	9-13-18	9/14/18	9/15/18	9-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	[illegible]	DH	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.56	.55	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.58	.58
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.43	.43	.43	.43	.43	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc	.58	.58	.58	.59	.54	.54	.59
		PDI-839-3	≤2.0 & > 0[1] in. wc	.58	.58	.58	.58	.55	.58	.58
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.16	.17	.16	.16	off	OFF	OFF
		PDI-810-2	≤2.0 & > 0[1] in. wc	.56	.56	.54	.54	off	OFF	OFF
		PDI-810-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	off	OFF	OFF
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	.11	.11	.11
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	.51	.50	.50
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	.50	.50	.50
			Completion Time	0810	0827	0825	0826	0731	1206	0725
OC Operator Review and Page Count Complete (initials)				APJ	APJ	APJ	APJ	APJ	APJ	APJ

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Paul Trujillo Date 9-16-18 Time 0725 Reviewed by: [signature] Date: 9/18/18 Time: 0906
SR 4.4.1.1 On-duty Supervisor

Comments Flammable gas Detector is OOS. Needs to be Calibrated.

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	9-10-18	9-11-18	9-12-18	9-13-18	9-14-18	9/15/18	9-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	AS	DH	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[1]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.17	.17	.17	.17	.17	.17	.17
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.58	.59	.59	.59	.58	.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.50	.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.33	.33	.34	.34	.34	.34	.34
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	.41	.41	.41
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.39	.39	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.44	.45	.45	.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.69	.69	.69	.69	.68	.68	.69
		PDI-832-3	≤2.0 & > 0[1] in. wc	.62	.61	.61	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.11	.11	.12	.12	.12	.12	.12
		PDI-807-2	≤2.0 & > 0[1] in. wc	.52	.52	.52	.52	.52	.52	.52
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.50	.51	.51
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	9-10-18	9-11-18	9-12-18	9-13-18	9-14-18	9/15/18	9-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri	Sat.	Sun.
			Initials:	PT	PT	PT	PT	AS	DH	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.31	.31	.31	.30	.30	.30	.29
		PDI-829-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.49	.49	.49	.49
		PDI-829-3	≤2.0 & > 0[1] in. wc	.41	.40	.40	.40	.40	.40	.39
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	~~.51~~ .08 PT	.08	.08	.08	.08	.08	.08
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	.52	.53	.53	.52	.52	.52
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.50	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.51	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.05	.21	.24
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.55	.55	.55
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.49	.49	.49
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.49	.49	.49	.48	STBY	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.58	STBY	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	.52	.52	.52	.51	STBY	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	.57	.56	.56	.52	STBY	STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	9-10-18	9-11-18	9-12-18	9-13-18	9-14-18 ~~9-17~~ AB	9/15/18	9-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	AB	AH	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.15	.15	.16	.16	.15	.15	.16
		PDI-812-2	≤2.0 & > 0[1] in. wc	.31	.32	.32	.32	.32	.32	.32
		PDI-812-3	≤2.0 & > 0[1] in. wc	.32	.32	.32	.32	.31	.32	.32
		PDI-812-4	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.31	.31	.31
		PDI-812-5	≤2.0 & > 0[1] in. wc	.39	.39	.39	.39	.40	.40	.40
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.35	.34	.34	.33	.32	.31	.32
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.05	.05	.06
		PDI-863-2	≤2.0 & >0[1] in. wc	.29	.29	.29	.29	.29	.29	.29

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	9-10-18	9-11-18	9-12-18	9-13-18	9-14-18	9/15/18	9-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	AS	DH	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.15	.15	.15	.15	.15	.15	.15
		PDI-857-2	≤2.0 & > 0[1] in. wc	.42	.42	.44	.45	.45	.44	.43
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.10	.10	.11	.11	.10	.10	.11
		PDI-856-2	≤2.0 & > 0[1] in. wc	.56	.51	.58	.58	.58	.58	.58
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	9-10-18	9-11-18	9-12-18	9-13-18	9-14-18	9/15/18	9-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	AS	DH	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0940	0940	0812	0843	0743	1153	0810
			OC Operator Review and Page Count Complete (initials)	ARJ	ARJ	ARJ	ARJ	ARJ	ARJ	ARJ

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Paul Trujillo Date 9-16-18 Time 0810 Reviewed by: On-duty Supervisor Date: 9/18/18 Time: 0907

Comments:

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039745 039740	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature										
Daily (September through April only)		Date:	9/10/18	9/11/18	9/12/18	9/13/18	9/14/18	9-15-18	9/16/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	SO	SO	[illegible]	[illegible]	SO	[illegible]	[illegible]
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	65.0	65.4	66.0	68.3	66.9	67.37	67.33
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	66.6	67.1	67.5	66.5	68.6	69.44	69.29
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	67.1	69.6	71.6	72.4	72.5	73.23	72.09
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	66.8	69.2	71.3	72.3	72.6	72.26	71.24
		Completion Time:	0912	0843	0844	0822	0720	1030	0830
OC Operator Review and Page Count Complete (initials)			SO ATM	ATM	ATM	ATM		ATM	ATM

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: JAUREGUI Date 9/16/18 Time 0830

Reviewed by: [illegible] Date: 9/13/18 Time: 0856
On-duty Supervisor

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.															
		Date:	9/17/18		9/18/18		9-19-18		9-20-18		9/21/18		9/22/18		9/23/18
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.01	-2.01	-1.99	-2.01	-1.99	-2.00	-2.00	-2.00	-2.00	-2.00	-2.01	-2.00	-1.99	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.93	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.98	-1.97	-1.97	-1.98	-1.97	-1.97	-1.98	-1.97	-1.97	-1.97	-1.96	-1.97	-1.97	-1.97
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.02	-2.03	-2.02	-2.03	-2.03	-2.03	-2.02	-2.03	-2.03	-2.02	-2.03	-2.03	-2.03	-2.02
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-0.19	-.18	-.18	-.20	-0.18	-.18	-0.18	-.18	-.18	-.18	-0.19	-.18	-0.18	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-0.24	-.22	-.23	-.24	-0.22	-.22	-0.23	-.23	-.23	-.23	-0.23	-.23	-0.23	-.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-0.21	-.20	-.20	-.20	-0.20	-.21	-0.20	-.20	-.20	-.20	-0.21	-.20	-0.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-0.20	-.19	-.19	-.19	-0.19	-.20	-0.19	-.19	-.19	-.19	-0.20	-.19	-0.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-0.15	-.15	-.15	-.16	[illegible]	-.16	-0.16	-.16	-.15	-.15	-0.15	-.15	-0.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-0.10	-.09	-.09	-.09	-0.09	-.10	-0.09	-.10	-.09	-.09	-0.09	-.09	-0.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-0.08	-.08	-.08	-.08	-0.08	-.10	-0.08	-.10	-.08	-.08	-0.08	-.08	-0.08	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-0.107	-.102	-.101	-.103	-0.088	-.101	-0.089	-.108	-.090	-.101	-0.105	-.100	-0.105	-.103

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note															
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	9/17/18		9/18/18		9-19-18		9-20-18		9/21/18		9/22/18		9/23/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	JSL	[illegible]	JSL	[illegible]	[illegible]	BC	[illegible]	BC	[illegible]	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	9/17/18		9/18/18		9-19-18		9-20-18		9/21/18		9/22/18		9/23/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	[illegible]	[illegible]	[illegible]	[illegible]	JSL	[illegible]	JSL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0751	1930	0715	1930	0729 [illegible]	1925	0719	1925	0730	1924	0755	1917	0725	1930
					[illegible]	[illegible]	DAD	[illegible]	DAD	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]			

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [illegible] Date: 9/23/18 Time: 1930 Reviewed by: [illegible] On-duty Supervisor Date: 9/24/18 Time: 1100

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	9-17-18	9-18-18	9-19-18	9-20-18	9/21/18	9-22-18	9-23-18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	PT	PT	PT	M	M	PT	PT
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0825	0731	0913	0920	0754	0754	0737

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	9-17-18	9-18-18	9-19-18	9-20-18	9/21/18	9-22-18	9-23-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	[illegible]	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.05	.06	.06	.05	.06	.06	.06
		PDI-894-2	≤2.0 & > 0[1] in. wc	.44	.44	.44	.45	.45	.44	.45
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc	.14	.14	.14	.14	.14	.14	.14
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	.70	.70	.70	.70	.70	.70
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-81 9-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-81 9-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.23	.23	.23	.24	.24	.23	.23
		PDI-818-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
		PDI-818-4	≤2.0 & > 0[1] in. wc	.29	.29	.29	.29	.29	.29	.30
		PDI-818-5	≤2.0 & > 0[1] in. wc	.29	.29	.29	.30	.29	.29	.29
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.40	.40	.40	.41	.41	.41	.41
		PDI-821-3	≤2.0 & > 0[1] in. wc	.45	.47	.46	.45	.45	.45	.47
		PDI-821-4	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	9-17-18	9-18-18	9-19-18	9-20-18	9/21/18	9-22-18	9-23-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	AS	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-823-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.58	.58	.58	.58
		PDI-823-4	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
		PDI-823—5	≤2.0 & > 0[1] in. wc	.51	.51	.51	.52	.51	.51	.51
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.25	.23	.24	.26	.31	.28	.26
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	.12	.11	.10	.14	.13	.12
		PDI-830-3	≤2.0 & > 0[1] in. wc	.11	.10	.10	.09	.06	.11	.11
4.1.1.7[1]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.07	.07
		PDI-836-2	≤2.0 & > 0[1] in. wc	.64	.64	.64	.62	.65	.64	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc	.62	.61	.62	.62	.63	.62	.63
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.48	.48	.48	.45	.48	.48	.48

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	9-17-18	9-18-18	9-19-18	9-20-18	9/21/18	9-22-18	9-23-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	AS	Ah	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.58	.58	.58	.58	.58	.58	.58
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.44	.44	.44	.43	.44	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.58	.58	.59	.59
		PDI-839-3	≤2.0 & > 0[1] in. wc	.58	.58	.58	.58	.57	.58	.58
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-810-2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-810-3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.10	.11	.11	.11	.11	.11	.11
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.50	.51	.51	.50	.51	.51	.51
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.50	.50	.51	.50	.51	.51	.51
			Completion Time	0907	0800	0838	0946	0814	0736	0729
OC Operator Review and Page Count Complete (initials)										

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Paul Trujillo Date 9-23-18 Time 0729 Reviewed by: _____ Date: 9-24-18 Time: 1100
On-duty Supervisor

Comments SR 4.4.1.1 Flammable Gas Cabinet ODS. Needs to be calibrated.

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	9-17-18	9-18-18	9-19-18	9-20-18	9/21/18	9-22-18	9-23-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	[illegible]	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.17	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.59	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	STBY	STBY	STBY	STBY	STBY	STBY
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	.47	.47	.47	.47	.47	.47
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	.58	.58	.58	.58	.58	.58
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	.51	.51	.51	.51	.51	.51
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.34	.34	.34	.34	.34	.34	.34
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	.42	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45	.46	.46
		PDI-832-2	≤2.0 & > 0[1] in. wc	.69	.69	.69	.69	.68	.69	.69
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	.13	.13	.13	.13	.13	.13
		PDI-807-2	≤2.0 & > 0[1] in. wc	.52	.59	.59	.59	.59	.59	.59
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	.52	.52	.52	.53	.52	.52
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	9-17-18	9-18-18	9-19-18	9-20-18	9/21/18	9-22-18	9-23-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	[illegible]	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.30	.28	.27	.27	.28	.28	.29
		PDI-829-2	≤2.0 & > 0[1] in. wc	.49	.48	.42	.45	.46	.46	.48
		PDI-829-3	≤2.0 & > 0[1] in. wc	.39	.39	.38	.38	.39	.39	.39
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.08	.08	.08	.08	.08	.08	.08
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	.52	.52	.52	.53	.53	.53
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.25	.25	.26	.26	.26	.26	.26
		PDI-815-2	≤2.0 & > 0[1] in. wc	.53	.53	.53	.53	.53	.54	.54
		PDI-815-4	≤2.0 & > 0[1] in. wc	.49	.49	.49	.50	.50	.49	.49
		PDI-815-5	≤2.0 & > 0[1] in. wc	.49	.49	.49	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	9-17-18	9-18-18	9-19-18	9-20-18	9/21/18	9-22-18	9-23-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	AS	Th	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.16	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc	.32	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc	.32	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc	.31	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc	.39	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	.10	.10	.10	.10	.10	.10
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	.30	.30	.30	.29	.30	.30
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	.22	.22	.22	.22	.22	.22
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	.31	.31	.32	.33	.31	.31
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	.40	.40	.40	.40	.40	.40
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.32	.32	.32	.32	.32	.32	.32
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.06	.06	.05	.05	.05	.05	.05
		PDI-863-2	≤2.0 & >0[1] in. wc	.29	.29	.29	.29	.28	.28	.28

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	9-17-18	9-18-18	9-19-18	9-20-18	9/21/18	9-22-18	9-23-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	AS	Th	PT	PT
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS**						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.14	.13	.13	.16	.16	.15	.16
		PDI-857-2	≤2.0 & > 0[1] in. wc	.44	.43	.43	.43	.44	.43	.43
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.11	.11	.11	.11	.11	.12	.13
		PDI-856-2	≤2.0 & > 0[1] in. wc	.58	.61	.61	.61	.60	.60	.60
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	9-17-18	9-18-18	9-19-18	9-20-18	9/21/18	9-22-18	9-23-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	AS	AL	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft^2 combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft^2 combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	1011	0927	0916	1010	0846	0757	0757
			OC Operator Review and Page Count Complete (initials)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Paul Trujillo Date 9.23.18 Time 0757 Reviewed by: [signature] On-duty Supervisor Date: 9/24/18 Time: 1132

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	640375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	9/17/18	9/18/18	9/19/18	9/20/18	9/21/18	9/22/18	9/23/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	SO	[illegible]	SO	[illegible]	SO	[illegible]	[illegible]
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	67.6	67.9	68.5	68.2	67.6	67.1	66.9
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	69.7	70.0	70.3	69.5	69.2	68.9	68.7
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	72.6	74.6	74.8	70.8	68.7	67.6	68.8
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	73.8	73.5	75.0	71.8	69.2	67.9	68.8
		Completion Time:	0921	0837	0907	0822	0846	0906	0845
OC Operator Review and Page Count Complete (initials)			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: C. Cochran Date 9/23/18 Time 0845

Reviewed by: [signature] Date: 9/24/18 Time: 1132

On-duty Supervisor

Comments:

ATTACHMENT D: Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 1 of 2)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials
*Note	Confinement DR-344	Southeast	Verify that the Astragals and Jamb-Seal features are in-place and cover the gaps present 1. Between the door leaves and 2. Between the frame and the door edge when the doors are in the closed position	Sat / Unsat.	0930	9/20/18	RH
4.1.3.2[1]	Confinement Door DR-344	Southeast	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat. / Unsat.	0935	9/20/18	RH
4.1.3.2[1]	Confinement Door DR-149	Northeast	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat. / Unsat.	0915	9/20/18	RH
*Note	Confinement DR-102	Northwest	Verify that the Astragals and Jamb-Seal features are in-place and cover the gaps present 1. Between the door leaves and 2. Between the frame and the door edge when the doors are in the closed position	Sat / Unsat.	1010	9/20/18	RH
4.1.3.2[1]	Confinement Door DR-102	Northwest	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat. / Unsat.	1015	9/20/18	RH
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) go to the fully closed position via the automatic door closure is ≤ 30 seconds. 4.25 Seconds	Sat / Unsat.	1015	9/20/18	RH

*** Note:** Monthly Inspection of DR-344 and DR-102 in accordance with compensatory measure(s) from: *Request for Permanent Equivalency to OE Order 420.1B Chapter II, NFPA 80, NFPA 101 and IBC Requirements for LANL Building TA55-4 (PF-4); Installation of New Confinement Doors DR-102, DR-302, and DR-344 LANL-DOE-ORDER-420.1B-EQ-2013-001*

ATTACHMENT D: Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 2 of 2)

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials
4.1.3.2[1]	Confinement Door DR-302	Southwest	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat./ Unsat.	1000	9/20/18	RH
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) go to the fully closed position via the automatic door closure is ≤ 30 seconds. 6.1 Seconds	Sat./ Unsat.	950	9/20/18	RH
4.1.3.2[1]	Confinement Door DR-4	N. Basement Personnel door DR-4	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure.	Sat./ Unsat.	1030	9/20/18	RH
4.1.3.2[1]	Confinement Door DR-90	South Basement Door (Tunnel)	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door).	Sat./ Unsat.	1048	9/20/18	RH
						OC Operator Review and Page Count Complete	MH

[1] SR 4.1.3.2 applies during both Mode 1 and Mode 2.

Completed by: R Holmes Date: 9/20/18 Time: 1107 Reviewed by: M. Washburn Date: 9/20/18 Time: 1134

On-duty Supervisor Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
		Date:	9/24/18		9-25-18		9/26/18		9/27/18		9/28/18		9-29-18		9/30/18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	[illegible]	ARJ	JSL	ARJ	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ARJ	JSL	ARJ	[illegible]	ARJ
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.01	-2.00	-2.00	-2.01	-2.00	-2.00	-2.01	-1.99	-2.00	-2.00	-2.00	-2.00	-1.99	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.93	-1.94	-1.94	-1.94	-1.95	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.98	-1.97	-1.94	-1.98	-1.97	-1.97	-1.97	-1.97	-1.98	-1.96	-1.98	-1.97	-1.97	-1.98
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-1.98	-2.03	-2.03	-2.03	-2.03	-2.03	-2.03	-2.03	-2.01	-2.02	-2.03	-2.02	-2.03	-2.02
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.19	-.19	-0.18	-.18	-.19	-.19	-0.20	-.18	-.19	-.18	-0.18	-.18	-.19	-.19
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.23	-.23	-0.22	-.20	-.23	-.23	-0.24	-.23	-.22	-.23	-0.23	-.22	-.23	-.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.20	-.20	-0.20	-.20	-.21	-.21	-0.21	-.20	-.20	-.20	-0.20	-.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.19	-.20	-0.20	-.19	-.20	-.20	-0.20	-.19	-.20	-.19	-0.20	-.19	-.20	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-.15	-0.17	-.15	-.15	-.15	-0.15	-.16	-.16	-.15	-0.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-.10	-.09	-0.09	-.09	-.09	-.09	-0.09	-.09	-.09	-.09	-0.09	-.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.10	-.08	-0.08	-.08	-.08	-.08	-0.08	-.08	-.09	-.08	-0.08	-.08	-.08	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.092	-.105	-0.091	-.102	-.101	-.100	-0.087	-.090	-.100	-.088	-0.092	-.101	-.104	-.103

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	9/24/18		9-25-18		9/26/18		9/27/18		9/28/18		9-29-18		9/30/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	ARS	JSC	ARS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ARS	JSC	ARS	[illegible]	ARS
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	9/24/18		9-25-18		9/26/18		9/27/18		9/28/18		9-29-18		9/30/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	n	APJ	JSL	AM	[illegible]	al	[illegible]	[illegible]	u	AM	JSL	APJ	u	AM
SRs	Description	Area	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS Sat / Unsat (circle one)													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0731	1923	0725	1928	0727	1934	0750	1925	0733	1925	0731	1920	0720	1925

[1] Mode 2 acceptance criteria is < 0.00 in. wc.
[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [signature] Date 9/30/18 Time 1925 Reviewed by: [signature] Date: 10-3-18 Time: 0725
On-duty Supervisor

Comments: ______________________________

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	9-24-18	9/25/18	9-26-18	9-27-18	9-28-18	9/29/18	9/30/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	PT	AS	PT	DH	DH
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0809	0810	0915	0818	0730	0740	0730

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	9-24-18	9/25/18	9-26-18	9-27-18	9-28-18	9/29/18	9/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	PT	KS	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.06	.07	.06	.06	.05	.06	.06
		PDI-894-2	≤2.0 & > 0[1] in. wc	.45	.45	.43	.45	.45	.44	.44
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.13	.15	.14	.14	.14	.13	.14
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	.70	.69	.70	.69	.69	.69
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.24	.25	.25	.24	.24	.25	.24
		PDI-818-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
		PDI-818-4	≤2.0 & > 0[1] in. wc	.29	.29	.29	.30	.30	.29	.29
		PDI-818-5	≤2.0 & > 0[1] in. wc	.30	~~.30~~ 9/25/18 .30	.30	.30	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.40	.40	.40	.41	.41	.41	.41
		PDI-821-3	≤2.0 & > 0[1] in. wc	.45	.46	.46	.45	.45	.45	.45
		PDI-821-4	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	9-24-18	9/25/18	9-26-18	9-27-18	9-28-18	9/29/18	9/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DS	[illegible]	PT	AS	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.06	.06	.05	.06	.06	.06	.06
		PDI-823-2	≤2.0 & > 0[1] in. wc	.59	.53	.57	.58	.58	.58	.58
		PDI-823-4	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
		PDI-823—5	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.22	.21	.24	.24	.26	.26	.28
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	.11	.12	.12	.12	.12	.12
		PDI-830-3	≤2.0 & > 0[1] in. wc	.09	.09	.11	.11	.11	.11	.11
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.07	.08	.07	.07	.07	.07	.07
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65 ~~.55~~ 9-24-18	.65	.65	.65	.65	.65	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc	.65	.64	.63	.64	.62	.62	.62
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49 ~~.25~~ 9-24-18	.49	.49	.50	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	.47	.48	.46	.48	.47	.46

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	9-24-18	9/25/18	9-26-18	9-27-18	9-28-18	9/29/18	9/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	Th	PT	AS	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.56	.57	.58	.59	.59	.59	.59
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.43	.44	.43	.43	.43	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc	.56	.57	.58	.58	.58	.58	.58
		PDI-839-3	≤2.0 & > 0[1] in. wc	.55	.56	.56	.58	.58	.58	.58
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	off	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-810-2	≤2.0 & > 0[1] in. wc	off	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-810-3	≤2.0 & > 0[1] in. wc	off	OFF	OFF	OFF	OFF	OFF	OFF
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.12	.11	.11	.12	.11	.11	.11
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.52	.51	.51	.51	.51	.51	.51
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.50
			Completion Time	0905	0851	0915	0902	0800	0815	0820
OC Operator Review and Page Count Complete (initials)										

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [signature] Date 9/30/18 Time 0820 Reviewed by: [signature] On-duty Supervisor Date: 10-3-18 Time: 0726

Comments Step 4.4.1.1 Flammable gas Detector 305-3 out of service. needs repair. AS 9-24-18

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	9-24-18	~~9/24~~ 9/25/18	9-26-18	9-27-18	9-28-18	9/29/18	9/30/18
			Weekday:	Mon.	~~Tue.~~ m 9/25/18	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	th	PT	AS	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-2	≤2.0 & > 0 in[1] wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.47	.47	.47	.47	.47	.47	.47
		PDI-841-2	≤2.0 & > 0[1] in. wc	.57	.57	.58	.58	.58	.58	.58
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.52	.51	.51	.51
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.34	.34	.34	.34	.34	.34	.34
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc	.39	.39	.39	.40	.40	.39	.39
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	.69	.69	.68	.69	.69	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc	.62	.62	.61	.62	.62	.62	.62
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.13	.14	.13	.13	.13	.13	.13
		PDI-807-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
		PDI-807-3	≤2.0 & > 0[1] in. wc	.55	.55	.52	.52	.52	.54	.52
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	9-24-18	9/25/18	9-26-18	9-27-18	9-28-18	9/29/18	9/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	[illegible]	PT	AS	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.28	.29	.31	.31	.29	.29	.30
		PDI-829-2	≤2.0 & > 0[1] in. wc	.45	.46	.49	.50	.48	.48	.49
		PDI-829-3	≤2.0 & > 0[1] in. wc	.38	.39	.40	.41	.39	.39	.39
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.07	.08	.08	.08	.08	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	.53	.52	.55	.52	.52	.52
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.05	.05	.26	.26	.26	.26	.26
		PDI-815-2	≤2.0 & > 0[1] in. wc	.56	.55	.55	.58	.58	.58	.58
		PDI-815-4	≤2.0 & > 0[1] in. wc	.50	.49	.49	.50	.49	.49	.49
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	9-24-18	9/25/18	9-26-18	9-27-18	9-28-18	9/29/18	9/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AB	M	PT	AB	PT	AH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.10	.10	.10	.10	.10	.10	.10
		PDI-813-2	≤2.0 & > 0[1] in. wc	.29	.29	.30	.30	.29	.29	.29
		PDI-813-3	≤2.0 & > 0[1] in. wc	.25	.24	.22	.24	.22	.22	.22
		PDI-813-4	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.31	.31	.31
		PDI-813-5	≤2.0 & > 0[1] in. wc	.39	.40	.40	.40	.39	.40	.40
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.32	.32	.33	.32	.32	.32	.32
		PDI-865-3	≤2.0 & > 0[1] in. wc	.29	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-863-2	≤2.0 & >0[1] in. wc	.28	.28	.28	.28	.28	.28	.28

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	9-24-18	9/25/18	9-26-18	9-27-18	9-28-18	9/29/18	9/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	TM	PT	AS	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.18	.16	.15	.16	.17	.16	.16
		PDI-857-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.44	.43	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.13	.13	.13	.14	.14	.14	.14
		PDI-856-2	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61	.61	.61
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	Sat	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	9-24-18	9/25/18	9-26-18	9-27-18	9-28-18	9/29/18	9/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	[illegible]	PT	AS	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0840	0835	0932	0848	0855	0819	0759
			OC Operator Review and Page Count Complete (initials)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [signature] Date 9/30/18 Time 0759 Reviewed by: [signature] On-duty Supervisor Date: 10-5-18 Time: 0726

Comments:

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	9/24/18	9/25/18	9/26/18	9/27/18	9/28/18	9/29/18	9/30/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	[illegible]	BF	AS	[illegible]	[illegible]
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	66.7	66.7	66.1	64.6	65.1	65.0	65.2
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	68.7	68.5	68.0	64.9	66.9	66.8	67.5
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	69.7	70.4	65.6	65.2	69.5	67.2	70.7
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	69.9	70.2	~~68.~~ 66.4	67.3	69.6	67.8	~~70.7~~ 71.4
		Completion Time:	0847	0831	0959	0945	0759	0830	0940
OC Operator Review and Page Count Complete (initials)			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [signature] Date 9/30/18 Time 1005

Reviewed by: [signature] Date: 10-3-18 Time: 0727

On-duty Supervisor

Comments:

Attachment B, Surveillance Training Checklist

(Page 1 of 2)

Procedure title:	SURVEILLANCE ROUNDS
Procedure no.:	TA55-STP-004 R19.1
Date of issue:	10/1/18
Working copy issued to:	A JAURIGUE
Working copy issued by:	A JAURIGUE
	Certified Operations Center Operator (OCO)

Procedure is the current revision listed in Documentum: ☑ Yes ☐ Documentum Unavailable

Performance Type: ☑ Scheduled ☐ Partial ☐ Other *If partial or other list reason in Comments below*

Comments: *(Document TSR Status Board tracking date here if different from completion date.)*

Training Checklist:

Workers Performing Surveillance	Applicable Surveillance Training Current	
	OCO Initials	Date
B CHANCE	ARJ	10/1/18
C COCHRAN	ARJ	10/1/18
A JAURIGUE	ARJ	10/1/18
J LOVATO	ARJ	10/1/18
M MILLER	ARJ	10/1/18
R PRICE	ARJ	10/1/18
F SEYBERT	ARJ	10/1/18
A DUNSEITH.	ARJ	10/1/18
B FORDHAM	ARJ	10/1/18

OC Reviews Complete and TSR Status Board Updated

OCO Signature / 11/1/18 Date

Attachment B, Surveillance Training Checklist (continued)

(Page 2 of 2)

Training Checklist (continuation sheet)

Workers Performing Surveillance	Applicable Surveillance Training Current	
	Initials	Date
D HEINTSCHEL		
R HOHNER	ARJ	10/1/18
M IRISH	ARJ	10/1/18
T LANGWORTHY	ARJ	10/1/18
J MARTINEZ	ARJ	10/1/18
ANTHONY SANCHEZ	ARJ	10/1/18
P TRUJILLO	ARJ	10/1/18
D DUNLAVY	ARJ	10/1/18
M WASHBURN	ARJ	10/1/18
C VALDEZ	ARJ	10/1/18
ANGIE SANCHEZ	ARJ	10/1/18
K ASHLEY	ARJ	10/1/18
R MARTINEZ	ARJ	10/1/18
J SMELTZ	ARJ	10/1/18
J CEDILLO	ARJ	10/1/18
S ONIELL	ARJ	10/1/18

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
			Date:	10/1/18		10/2/18		10.03.18		10/4/18		10.05.18		10.06.18		10-07-18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	MW	[illegible]	MW	[illegible]	BL	AM	W	AM	BL	[illegible]	BL	[illegible]	BL	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**		**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]		-1.99	-2.01	-2.00	-2.00	-2.00	-2.01	-2.01	-2.01	-2.02	-2.00	-2.00	-1.99	-2.00	-1.99
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]		-1.93	-1.94	-1.94	-1.94	-1.94	-1.95	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.95	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]		-1.97	-1.97	-1.97	-1.98	-1.95	-1.95	-1.97	-1.98	-1.98	-1.97	-1.96	-1.98	-1.97	-1.99
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]		-2.01	-2.03	-2.03	-2.03	-2.02	-2.01	-2.01	-2.03	-2.02	-2.02	-2.02	-2.03	-2.03	-2.01
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]		-0.19	-0.20	-0.18	-0.18	-.19	-.16	-.19	-.18	-.18	-.18	-.18	-.19	-.18	-.19
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]		-0.24	-0.24	-0.23	-0.23	-.24	-.22	-.23	-.23	-.23	-.23	-.22	-.23	-.22	-.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]		-0.22	-0.20	-0.20	-0.20	-.21	-.21	-.21	-.20	-.20	-.20	-.20	-.21	-.20	-.21
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]		-0.21	-0.19	-0.19	-0.19	-.20	-.20	-.20	-.19	-.19	-.19	-.20	-.20	-.19	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc		-0.14	-0.16	-0.15	-0.15	-.15	-.15	-.16	-.15	-.15	-.15	-.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc		-0.09	-0.09	-0.09	-0.09	-.09	-.11	-.09	-.09	-.09	-.09	-.09	-.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc		-0.08	-0.08	-0.08	-0.08	-.08	-.11	-.09	-.08	-.08	-.08	-.08	-.08	-.08	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc		-0.102	-0.101	-0.095	-0.101	-.088	-.135	-.086	-.087	-.088	-.106	-.105	-.103	-.102	-.101

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note: Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.																	
			Date:	10/1/18		10/2/18		10.03.18		10/4/18		10.05.18		10.06.18		10.07.18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	MW	[illegible]	MW	[illegible]	BC	AM	[illegible]	AM	BC	[illegible]	BC	[illegible]	BC	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	10/1/18		10/2/18		10.03.18		10/4/18		10.05.18		10.06.18		10.07.18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	MJW	[illegible]	MJW	[illegible]	BL	ARS	[illegible]	ARS	BL	[illegible]	BL	[illegible]	BL	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS** Sat / Unsat (circle one)													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0702	1975	0705	1930	0725	1928	0726	1927	0720	1919	0722	1926	0722	1924
					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [illegible] Date 10/7/18 Time 1924 Reviewed by: [illegible] On-duty Supervisor Date: 10/15/18 Time: 1100

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	10/1/18	10-2-18	10-3-18	10-4-18	10-5-18	10/6/18	10/7/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	BF	PT	PT	PT	AS	[illegible]	[illegible]
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0815	0902	0859	0831	0829	0702	0710

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	10/1/18	10-2-18	10-3-18	10-4-18	10-5-18	10/6/18	10/7/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	RD	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-894-2	≤2.0 & > 0[1] in. wc	.45	.44	.45	.43	.41	.42	.42
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc	.14	.14	.14	.14	.14	.13	.13
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	.70	.70	.70	.70	.70	.69
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.25	.24	.24	.24	.24	.25	.25
		PDI-818-2	≤2.0 & > 0[1] in. wc	.32	.30	.30	.30	.30	.30	.30
		PDI-818-4	≤2.0 & > 0[1] in. wc	.40	.30	.29	.29	.30	.29	.29
		PDI-818-5	≤2.0 & > 0[1] in. wc	.29	.29	.29	.29	.31	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.42	.41	.41	.41	.41	.42	.41
		PDI-821-3	≤2.0 & > 0[1] in. wc	.42	.45	.45	.45	.48	.45	.46
		PDI-821-4	≤2.0 & > 0[1] in. wc	.27	.40	.40	.40	.41	.41	.41

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	10/1/18	10-2-18	10-3-18	10-4-18	10-5-18	10/6/18	10/7/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	AB	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-823-2	≤2.0 & > 0[1] in. wc	.57	.58	.58	.58	.58	.56	.56
		PDI-823-4	≤2.0 & > 0[1] in. wc	.53	.51	.51	.51	.51	.51	.51
		PDI-823—5	≤2.0 & > 0[1] in. wc	.52	.51	.51	.51	.51	.52	.52
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.30	.26	.20	.26	.20	.24	.19
		PDI-830-2	≤2.0 & > 0[1] in. wc	.15	.11	.11	.11	.10	.12	.11
		PDI-830-3	≤2.0 & > 0[1] in. wc	.12	.10	.10	.11	.10 AB ~~.19~~ 10/4/18	.09	.09
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.30	.30	.30	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	.65	.65	.65	.65	.66	.66
		PDI-836-3	≤2.0 & > 0[1] in. wc	.62	.62	.62	.62	.62	.63	.63
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.48	.48	.48	.48	.45	.47	.47

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	10/1/18	10-2-18	10-3-18	10-4-18	10-5-18	10/6/18	10/7/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	PT	PT	AB	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.56	.56	.55	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.57	.58	.58	.58	.59	.58	.58
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.44	.44	.44	.44	.43	.43	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc	.57	.58	.58	.58	.58	.58	.58
		PDI-839-3	≤2.0 & > 0[1] in. wc	.58	.58	.58	.58	.55	.57	.57
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	off	off
		PDI-810-2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	off	off
		PDI-810-3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	off	off
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.11	.11	.11	.12	.11	.11	.11
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.51	.51	.51	.52	.51	.51	.51
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.52	.51	.51	.51	.51	.51	.51
			Completion Time	0901	0830	0858	0829	0852	0740	0740
OC Operator Review and Page Count Complete (initials)				BC MSW	BC [illegible]	W BC	W [illegible]	BC [illegible]	[illegible] BC	BC [illegible]

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [illegible] Date 10/7/18 Time 0740 Reviewed by: [signature] Date: 10/15/18 Time: 1100
On-duty Supervisor

Comments SR 4.4.1.1 IS OUT OF SERVICE, FLAMMABLE GAS DETECTOR IS POWERED OFF, CWCiting REPAIRS

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	10-1-18	10-2-18	10-3-18	10-4-18	10/5/18	10/6/18	10/7/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DS	PT	PT	PT	BF	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-2	≤2.0 & > 0 in[1]. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.47	.47	.47	.47	.47	.47	.47
		PDI-841-2	≤2.0 & > 0[1] in. wc	.58	.58	.58	.58	.58	.57	.57
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.34	.34	.34	.34	.34	.34	.34
		PDI-831-2	≤2.0 & > 0[1] in. wc	.43	.42	.42	.42	.43	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc	.39	.40	.40	.40	.40	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.46	.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	.68	.68	.69	.69	.68	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc	.62	.62	.62	.62	.62	.62	.62
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.13	.13	.13	.13	.13	.13	.13
		PDI-807-2	≤2.0 & > 0[1] in. wc	.58	.58	.58	.59	.61	.59	.59
		PDI-807-3	≤2.0 & > 0[1] in. wc	.55	.54	.53	.53	.54	.53	.54
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	off	OFF	OFF	OFF	OFF	off	off
		PDI-809-2	≤2.0 & > 0[1] in. wc	off	OFF	OFF	OFF	OFF	off	off
		PDI-809-3	≤2.0 & > 0[1] in. wc	off	OFF	OFF	OFF	OFF	off	off

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	10-1-18	10-2-18	10-3-18	10-4-18	10/5/18	10/6/18	10/7/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DJ	PT	PT	PT	BF	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.28	.28	.28	.28	.30	.30	.30
		PDI-829-2	≤2.0 & > 0[1] in. wc	.45	.45	.45	.47	.49	.49	.49
		PDI-829-3	≤2.0 & > 0[1] in. wc	.37	.38	.38	.39	.40	.40	.40
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.07	.07	.07	.08	.08	.08	.08
		PDI-833-2	≤2.0 & > 0[1] in. wc	.55	.53	.53	.53	.54	.53	.53
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.49	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.25	.28	.28	.28	.28	.27	.27
		PDI-815-2	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.57	.56	.56
		PDI-815-4	≤2.0 & > 0[1] in. wc	.49	.49	.49	.50	.50	.50	.50
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	10-1-18	10-2-18	10-3-18	10-4-18	10/5/18	10/6/18	10/7/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DD	PT	PT	PT	BF	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.09	.09	.09	.10	.10	.10	.10
		PDI-813-2	≤2.0 & > 0[1] in. wc	.29	.29	.29	.29	.29	.29	.29
		PDI-813-3	≤2.0 & > 0[1] in. wc	.22	.22	.22	.22	.21	.21	.21
		PDI-813-4	≤2.0 & > 0[1] in. wc	.30	.30	.30	.31	.31	.31	.31
		PDI-813-5	≤2.0 & > 0[1] in. wc	.39	.39	.39	.39	.40	.40	.40
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.32	.32	.32	.32	.33	.33	.32
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.06	.06	.06	.06
		PDI-863-2	≤2.0 & >0[1] in. wc	.28	.28	.28	.28	.29	.28	.29

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	10-1-18	10-2-18	10-3-18	10-4-18	10/5/18	10/6/18	10/7/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AJ	PT	PT	PT	BF	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.16	.15	.15	.15	.15	.14	.14
		PDI-857-2	≤2.0 & > 0[1] in. wc	.45	.43	.43	.41	.42	.41	.41
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.17	.14	.14	.13	.13	.13	.13
		PDI-856-2	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61	.61	.61
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	Sat	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	SAT	SAT	Sat	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	10-1-18	10-2-18	10-3-18	10-4-18	10/5/18	10/6/18	10/7/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	PT	PT	PT	BF	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0905	0856	0951	0855	0925	0800	0730
			OC Operator Review and Page Count Complete (initials)	BC MW	BC AFD	W BC	W [illegible]	BC [illegible]	[illegible] BC	BC [illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Jeromy M. Date 10/7/18 Time 0730 Reviewed by: [signature] On-duty Supervisor Date: 10/5/18 Time: 1100

Comments:

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	10/1/18	10/2/18	10/3/18	10/4/18	10/5/18	10-06-18	10-07-18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	SO	[illegible]	SO	BC	BC
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	65.4	65.7	65.6	65.4	65.1	64.5	63.8
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	67.6	67.5	67.2	67.2	67.1	65.4	64.4
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	71.0	70.5	68.2	68.8	67.0	66.2	65.4
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	71.4	70.7	68.0	68.7	67.2	65.2	63.9
		Completion Time:	0910	0805	0909	0850	1018	0850	0912
OC Operator Review and Page Count Complete (initials)			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: Bryan Chance Date 10-07-18 Time 0912

Reviewed by: [illegible] On-duty Supervisor Date: 10/15/18 Time: 1100

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
			Date:	10/8/18		10-9-18		10 10.19		10 10.18		10/12/19		10-13-18		10/14/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**		**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]		-2.01	-2.00	-2.00	-2.01	-2.00	-2.00	-2.00	-2.00	-2.01	-2.00	-2.00	-2.00	-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]		-1.94	-1.94	-1.941	-1.95	-1.94	-1.94	-1.94	-1.95	-1.93	-1.94	-1.94	-1.94	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]		-1.97	-1.98	-1.97	-1.98	-1.97	-1.97	-1.99	-1.98	-1.99	-1.98	-1.98	-1.98	-1.98	-1.99
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]		-2.02	-2.02	-2.02	-2.03	-2.03 -2.02	-2.02	-2.03	-2.03	-2.03	-2.05	-2.03	-2.03	-1.99	-2.04
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]		-.18	-.19	-0.18	-0.13	-.18	-.18	-.18	-0.19	-.19	-.19	-0.19	-.19	-.19	-0.19
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]		-.23	-.23	-0.22	-0.15	-.23	-.23	-.23	-0.23	-.23	-.24	-0.24	-.24	-.24	-.24
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]		-.20	-.20	-0.20	-0.20	-.20	-.20	-.20	-0.20	-.21	-.20	-0.20	-.20	-.20	-.21
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]		-.20	-.19	-0.19	-0.19	-.20	-.19	-.20	-0.19	-.20	-.19	-0.19	-.19	-.19	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc		-.15	-.15	-0.15	-0.10	-.15	-.15	-.15	-0.15	-.15	-.15	-0.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc		-.09	-.09	-0.09	-0.10	-.10	-.09	-.09	-0.09	-.09	-.09	-0.09	-.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc		-.09	-.09	-0.08	-0.08	-.09	-.09	-.08	-0.08	-.08	-.08	-0.08	-.08	-.08	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc		-.15	-.104	-0.104	-0.094	-.107	-.088	-.106	-0.103	-.088	-.105	-0.091	-.093	-.108	-.100

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	10/08/18		10-9-18		10.10.18		10-11-18		10/12/18		10-13-18		10/14/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	[illegible]	JSL	[illegible]	BC	[illegible]	BC	[illegible]	AM	[illegible]	JSL	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	10/8/18		10-9-18		10-10-18		10-11-18		10/12/18		10-13-18		10/14/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0725	1925	0734	1932	0719	1923	0721	1919	0729	1930	0723	1935	0723	1927

[illegible]

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [signature] Date 10/14/18 Time 1927 Reviewed by: [signature] On-duty Supervisor Date: 10/15/18 Time: 0950

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	10-8-18	10-9-18	10-10-18	10-11-18	10-12-18	10-13-18	10-14-18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	PT	AS	AS	PT	PT	PT	PT
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0740	0759	0932	0907	0700	0734	0734

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	10-8-18	10-9-18	10-10-18	10-11-18	10-12-18	10-13-18	10-14-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.05	.06	.05	.05	.05	.05	.05
		PDI-894-2	≤2.0 & > 0[1] in. wc	PT .51 ~~.14~~ 10-8-18	.41	.43	.42	.42	.41	.41
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	PT .14 ~~.69~~ 10-8-18	.14	.14	.14	.15	.15	.15
		PDI-895-2	≤2.0 & > 0[1] in. wc	.69	.69	.69	.69	.69	.71	.71
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.27	.27
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.30	.30
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.31	.31
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.42	.42
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.42	.42
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.39	.39
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.24	.24	.24	.24	.24	STBY	STBY
		PDI-818-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	STBY	STBY
		PDI-818-4	≤2.0 & > 0[1] in. wc	.30	.29	.29	.30	.29	STBY	STBY
		PDI-818-5	≤2.0 & > 0[1] in. wc	.29	.29	.29	.30	.30	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.41	.41	.40	.40	.41	STBY	STBY
		PDI-821-3	≤2.0 & > 0[1] in. wc	.47	.45	.45	.45	.47	STBY	STBY
		PDI-821-4	≤2.0 & > 0[1] in. wc	.41	.41	.40	.41	.41	STBY	STBY

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	10-9-18	10-9-18	10-10-18	10-11-18	10-12-18	10-13-18	10-14-18
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	PT	AB	AS	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.12	.12
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.59	.59
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.42	.42
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.58	.58
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	STBY	STBY
		PDI-823-2	≤2.0 & > 0[1] in. wc	.59	.59	.58	.58	.58	STBY	STBY
		PDI-823-4	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	STBY	STBY
		PDI-823—5	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	STBY	STBY
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.20	.23	.30	.21	.25	.10	.11
		PDI-830-2	≤2.0 & > 0[1] in. wc	.11	.11	.13	.11	.12	.08	.08
		PDI-830-3	≤2.0 & > 0[1] in. wc	.10	.10	.11	.11	.11	.03	.03
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.64	.64	.65	.65	.65	.64	.63
		PDI-836-3	≤2.0 & > 0[1] in. wc	.62	.62	.64	.62	.62	.62	.62
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.49	.48	.48	.48	.48	.46	.45

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	10-9-18	10-9-18	10-10-18	10-11-18	10-12-18	10-13-18	10-14-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	DS	DS	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.54	.54	.54	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.58	.58	.58	.58	.58	.59	.59
		PDI-838-3	≤2.0 & > 0[1] in. wc	.57	.58	.58	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.43	.43	.43	.43	.42	.42
		PDI-839-2	≤2.0 & > 0[1] in. wc	.55	.58	.57	.59	.59	.53	.52
		PDI-839-3	≤2.0 & > 0[1] in. wc	.58	.58	.55	.58	.58	.52	.52
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	OFF	off	.16	.16	.16	.18	.18
		PDI-810-2	≤2.0 & > 0[1] in. wc	OFF	off	.55	.55	.54	.59	.59
		PDI-810-3	≤2.0 & > 0[1] in. wc	OFF	off	.51	.51	.51	.56	.57
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.11	.11	off	OFF	OFF	OFF	OFF
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.51	.51	off	OFF	OFF	OFF	OFF
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.51	.51	off	OFF	OFF	OFF	OFF
			Completion Time	0750	0950	1030	0902	0705	0733	0730
OC Operator Review and Page Count Complete (initials)										

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Paul Trujillo Date 10-14-18 Time 0730 Reviewed by: _____ Date: 10/15/18 Time: 0950
On-duty Supervisor

Comments 4.4.1.1 Flammable gas channel OOS.

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	10-8-18	10-9-18	10-10-18	10-11-18	10-12-18	10-13-18	10-14-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-2	≤2.0 & > 0 in[1] wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.51	.46	.47	.47	.47	.47	.47
		PDI-841-2	≤2.0 & > 0[1] in. wc	.58	.58	.58	.58	.58	.58	.58
		PDI-841-3	≤2.0 & > 0[1] in. wc	.46	.51	.51	.51	.51	.51	.51
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.34	.34	.33	.33	.33	.33	.34
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.39	.39	.39	.39	.39	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.69	.69	.68	.69	.68	.68	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc	.62	.62	.62	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.13	.13	.12	.12	.11	.12	.12
		PDI-807-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.52	.52	.53	.54
		PDI-807-3	≤2.0 & > 0[1] in. wc	.57	.55	.51	.51	.51	.51	.51
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	10-8-18	10-9-18	10-10-18	10-11-18	10-12-18	10-13-18	10-14-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	AS	AS	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.32	.32	.34	.34	.31	.32	.30
		PDI-829-2	≤2.0 & > 0[1] in. wc	.50	.50	.51	.51	.50	.50	.49
		PDI-829-3	≤2.0 & > 0[1] in. wc	.50	.40	.42	.41	.40	.41	.40
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.07	.07	.07	.07	.07	.08	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.53	.53	.53	.53	.53	.52	.52
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.50	.50	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.28	.28	.28	.28	STBY	.28	.28
		PDI-815-2	≤2.0 & > 0[1] in. wc	.54	.54	.54	.54	STBY	.54	.54
		PDI-815-4	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	STBY	.49	.49
		PDI-815-5	≤2.0 & > 0[1] in. wc	.49	.50	.50	.50	STBY	.51	.51
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.45	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.58	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.51	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.52	STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	10-8-18	10-9-18	10-10-18	10-11-18	10-12-18	10-13-18	10-14-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	DS	DS	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.16	.15
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.33	.32
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.32	.32
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.31	.31
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.39	.39
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.10	.10	.10	.10	.10	STBY	STBY
		PDI-813-2	≤2.0 & > 0[1] in. wc	.19	.29	.29	.30	.30	STBY	STBY
		PDI-813-3	≤2.0 & > 0[1] in. wc	.22	.22	.22	.22	.22	STBY	STBY
		PDI-813-4	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.31	STBY	STBY
		PDI-813-5	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.32	.32	.33	.33	.33	.33	.32
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.30	.31	.31	.31	.31	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-863-2	≤2.0 & >0[1] in. wc	.29	.29	.29	.29	.29	.29	.29

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	10-8-18	10-9-18	10-10-18	10-11-18	10-12-18	10-13-18	10-14-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	DS	DS	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.13	.13	.15	.15	.15	.15	.15
		PDI-857-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.13	.13	.13	.13	.13	.12	.12
		PDI-856-2	≤2.0 & > 0[1] in. wc	.61	.60	.55	.53	.53	.53	.53
[1]NA	Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C		0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)	SAT	Sat	Sat	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3 5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	Sat	Sat	SAT	SAT	SAT	10-14-18 SAT ~~Sat~~ PT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3 5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	Sat	Sat	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	10-8-18	10-9-18	10-10-18	10-11-18	10-12-18	10-13-18	10-14-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	AS	AS	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	Sat	Sat	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	Sat	Sat	SAT	SAT	SAT	SAT
			Completion time	0800	1020	1011	0950	0710	0744	0758
			OC Operator Review and Page Count Complete (initials)	[illegible]	[illegible] ADJ	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] ARC

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Paul Trujillo Date 10-14-18 Time 0758 Reviewed by: [signature] On-duty Supervisor Date: 10/15/18 Time: 0950

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103781
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	04037
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	10/8/18	10/9/18	10/10/18	10/11/18	10/12/18	10/13/18	10/14/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	SO	[illegible]	SO	[illegible]	ARS
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	62.6	61.2	59.4	58.6	58.0	57.7	58.949
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	63.7	62.3	60.5	60.0	59.3	59.1	59.4
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	60.7	61.2	57.9	59.7	59.6	60.5	60.4
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	66.8	66.9	63.3	63.5	66.3	62.5	62.3
		Completion Time:	0805	0817	0855	0905	0808	0810	0820
OC Operator Review and Page Count Complete (initials)			[illegible]	[illegible] ARS	[illegible]	[illegible]	[illegible] ARS	[illegible]	ARS [illegible]

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [signature] Date 10/14/18 Time 0830

Reviewed by: [signature] On-duty Supervisor Date: 10/15/18 Time: 0950

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.			Date:	10.15.18		10.16.18		10.17.18		10/18/18		10.19.18		10.20.18		10.21.18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	BC	[illegible]	BC	[illegible]	BC	[illegible]	AMS	[illegible]	BC	[illegible]	BC	[illegible]	BC	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**		**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2	≤-1.0 in. wc[1]	-2.01	-2.01	-2.00	-2.00	-2.00	-2.00	-1.99	-2.00	-2.01	-2.00	-2.01	-2.00	-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2	≤-1.0 in. wc[1]	-1.94	-1.95	-1.94	-1.95	-1.94	-1.93	-1.93	-1.93	-1.94	-1.94	-1.94	-1.95	-1.94	-1.93
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2	≤-1.0 in. wc[1]	-1.98	-1.98	-1.98	-1.97	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2	≤-1.0 in. wc[1]	-2.04	-2.03	-2.02	-2.03	-2.02	-2.03	-2.03	-2.02	-2.03	-2.03	-2.03	-2.02	-2.03	-2.02
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2	≤-0.05 in. wc[1]	-.19	-.19	-.19	-0.19	-.20	-0.19	-.19	-.19	-.19	-.19	-.19	-.19	-.19	-.19
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2	≤-0.05 in. wc[1]	-.24	-.24	-.24	-0.24	-.24	-0.24	-.24	-.24	-.23	-.23	-.24	-.23	-.23	-.24
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2	≤-0.05 in. wc[1]	-.20	-.20	-.20	-0.20	-.20	-0.20	-.20	-.20	-.21	-.20	-.20	-.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2	≤-0.05 in. wc[1]	-.19	-.19	-.20	-0.20	-.19	-0.19	-.19	-.19	-.20	-.19	-.19	-.20	-.19	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5	≤-0.05 in. wc	-.15	-.15	-.15	-0.16	-.15	-0.15	-.15	-.15	-.15	-.16	-.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2	< 0.00 in. wc	-.09	-.09 ~~-.01~~ -1.114	-.09	-0.10	-.09	-0.09	-.09	-.09	-.09	-.01	-.09	-.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2	< 0.00 in. wc	-.08	-.08	-.08	-0.08	-.08	-0.09	-.08	-.08	-.08	-.08	-.08	-.08	-.08	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901	< 0.00 in. wc	-.094	-.091	-.103	-0.099	-.097	-0.098	-.102	-.089	-.089	-.011	-.104	-.093	-.076	-.103

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note			Date:	10-15-18		10-16-18		10-17-18		10/18/18		10-19-18		10-20-18		10-21-18	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	BC	[illegible]	BC	[illegible]	BC	[illegible]	ARJ	[illegible]	BC	[illegible]	BC	[illegible]	BC	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

					Date:	10-15-18		10-16-18		10-17-18		10/18/18		10-19-18		10-20-18		10-21-18	
					Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
					Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
					Initials:	BC	[illegible]	BC	[illegible]	BC	[illegible]	AM	MM	BC	[illegible]	BC	[illegible]	BC	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**														
4.1.1.4	**Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400**	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0730	1931	0724	1924	0730	1937	0734	1935	0724	1923	0722	1931	0721	1922	
					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	MW		[illegible]		[illegible]				

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [illegible] Date 10/21/18 Time 1922 Reviewed by: [signature] Date: 10/22/18 Time: 0756
On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	10/15/18	10/16/18	10/17/18	10-18-18	10/19/18	10/20/18	10/21/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	BF	PT	[illegible]	DH	DH
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0820	0840	1000	0848	0800	0720	0715

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	10/15/18	10/16/18	10/17/18	10-18-18	10/19/18	10/20/18	10/21/18
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	[illegible]	BF	PT	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & >0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-894-2	≤2.0 & >0[1] in. wc	.42	.43	.43	.43	.43	.43	.42
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & >0[1] in. wc	.14	.14	.14	.15	.15	.15	.15
		PDI-895-2	≤2.0 & >0[1] in. wc	.70	.71	.71	.71	.71	.71	.70
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & >0[1] in. wc	.27	.27	.28	.26	.27	.27	.26
		PDI-817-2	≤2.0 & >0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
		PDI-817-4	≤2.0 & >0[1] in. wc	.31	.31	.32	.31	.31	.31	.31
		PDI-817-5	≤2.0 & >0[1] in. wc	.30	.30	.31	.30	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & >0[1] in. wc	.42	.42	.41	.42	.42	.42	.42
		PDI-819-3	≤2.0 & >0[1] in. wc	.44	.44	.44	.42	.44	.44	.44
		PDI-819-4	≤2.0 & >0[1] in. wc	.39	.39	.39	.39	.39	.38	.38
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-2	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-4	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-5	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-821-3	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-821-4	≤2.0 & >0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	10/15/18	10/16/18	10/17/18	10-18-18	10/19/18	10/20/18	10/21/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	BF	PT	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.12	.12	.12	.12	.12	.12	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	.42	.42	.41	.41	.41	.42	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	.58	.58	.57	.56	.56	.58	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	.05
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	.52
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	.50
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	.50
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.24	.23	.27	.23	.26	.30	.36
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	.12	.12	.12	.12	.12	.20
		PDI-830-3	≤2.0 & > 0[1] in. wc	.10	.09	.10	.10	.09	.11	.16
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.64	.64	.65	.65	.65	.65	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc	.62	.63	.63	.62	.62	.62	.64
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.48	.48	.48	.49	.49	.49	.48
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	.45	.47	.47	.47	.45	.45

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	10/15/18	10/16/18	10/17/18	10-18-18	10/19/18	10/20/18	10/21/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	BF	PT	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.54	.54	.56	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	.59	.58	.60	.60	.60	.60
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.60	.60	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.41	.42	.42	.42	.42	.42	.42
		PDI-839-2	≤2.0 & > 0[1] in. wc	.53	.54	.53	.53	.54	.53	.53
		PDI-839-3	≤2.0 & > 0[1] in. wc	.51	.52	.53	.53	.53	.53	.53
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.16	.17	.17	.17	.17	.15	.15
		PDI-810-2	≤2.0 & > 0[1] in. wc	.52	.52	.52	.54	.54	.52	.51
		PDI-810-3	≤2.0 & > 0[1] in. wc	.51	.52	.52	.51	.52	.51	.50
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	off	off	OFF	OFF	off	OFF	OFF
		PDI -811 -2	≤2.0 & > 0[1] in. wc	off	off	OFF	OFF	off	OFF	OFF
		PDI -811 -3	≤2.0 & > 0[1] in. wc	off	off	OFF	OFF	off	OFF	OFF
			Completion Time	0820	0830	1030	0920	0810	0825	0815
OC Operator Review and Page Count Complete (initials)				BC [illegible]	BC [illegible]	ARJ BC	ARJ [illegible]	BC ARJ	BC [illegible]	BC [illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [illegible] Date 10/21/18 Time 0815 Reviewed by: [illegible] On-duty Supervisor Date: 10/22/18 Time: 0757

Comments

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	10/15/18	10/16/18	10/17/18	10-18-18	10/19/18	10/20/18	10/21/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	JM	JM	JSL BF	PT	JM	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	STBY	BF 10/17/18 ~~STBY~~ .17	.17	.17	.17	.17
		PDI-840-2	≤2.0 & > 0 in[1]. wc	STBY	STBY	.54	.58	.58	.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	STBY	.51	.51	.51	.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.47	.47	STBY	STBY	STBY	STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc	.57	.57	STBY	STBY	STBY	STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	.51	STBY	STBY	STBY	STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.33	.33	.34	.34	.33	.33	.33
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42	.41	.41
		PDI-831-3	≤2.0 & > 0[1] in. wc	.39	.39	.38	.39	.39	.39	.39
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	.68	.68	.68	.68	.68	.67
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	.12	.12	.12	.12	.11	.12
		PDI-807-2	≤2.0 & > 0[1] in. wc	.55	.55	.55	.53	.54	.53	.52
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.50
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	10/15/18	10/16/18	10/17/18	10-18-18	10/19/18	10/20/18	10/21/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	BF	PT	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.31	.31	.32	.36	.31	.30	.31
		PDI-829-2	≤2.0 & > 0[1] in. wc	.50	.50	.51	.52	.50	.49	.50
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	.41	.45	.44	.40	.40	.40
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.07	.07	.07	.07	.07	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.51	.52	.52	.52	.51	.52	.52
		PDI-833-3	≤2.0 & > 0[1] in. wc	.50	.50	.51	.51	.50	.50	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.39	.39	.50	.50	.49	.49	.49
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.23	.24	STBY	STBY	STBY	STBY	STBY
		PDI-815-2	≤2.0 & > 0[1] in. wc	.56	.57	STBY	STBY	STBY	STBY	STBY
		PDI-815-4	≤2.0 & > 0[1] in. wc	.49	.49	STBY	STBY	STBY	STBY	STBY
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	.50	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.39	.34	.38	.45	.45
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	STBY	.48	.48	.53	.56	.56
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	STBY	.41	.41	.51	.51	.51
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	STBY	.49	.43	.55	.54	.52

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	10/15/18	10/16/18	10/17/18	10-18-18	10/19/18	10/20/18	10/21/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible] BF	PT	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.15	.15	STBY	STBY	STBY	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc	.33	.33	STBY	STBY	STBY	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc	.33	.33	STBY	STBY	STBY	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc	.31	.31	STBY	STBY	STBY	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc	.39	.39	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.10	.10	.10	.10	.10
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	STBY	.29	.29	.29	.29	.29
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	STBY	.22	.22	.22	.22	.22
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	STBY	.32	.31	.31	.31	.31
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	STBY	.39	.39	.39	.39	.39
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.35	.35	.33	.33	.33	.33	.33
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.30	.31	.31	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.05	.06	.06	.05	.05	.06
		PDI-863-2	≤2.0 & >0[1] in. wc	.28	.28	.29	.29	.29	.29	.29

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	10/15/18	10/16/18	10/17/18	10-18-18	10/19/18	10/20/18	10/21/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	BF	PT	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.13	.14	.14	.15	.14	.15	.15
		PDI-857-2	≤2.0 & > 0[1] in. wc	.43	.44	.45	.45	.44	.45	.44
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.11	.11	.12	.12	.12	.12	.12
		PDI-856-2	≤2.0 & > 0[1] in. wc	.55	.56	.56	.56	.56	.56	.56
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	10/15/18	10/16/18	10/17/18	10-18-18	10/19/18	10/20/18	10/21/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	BF	PT	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0935	0940	1000	1024	0830	0808	0744
			OC Operator Review and Page Count Complete (initials)	BC [illegible]	[illegible]	ARJ [illegible]	ARJ [illegible]	BC ARJ	BC [illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [illegible] Date 10/21/18 Time 0744 Reviewed by: [illegible] On-duty Supervisor Date: 10/22/18 Time: 0800

Comments: LIGHTS BURNT OUT FF-820A 1ST STAGE AND 820B 1ST STAGE, HVP 803 TWO STEP VADDERS AND CAN NEED REMOVAL

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6-15-19	Calibration Expiration Date:	7-23-19	Calibration Expiration Date:	7-23-19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6-15-19	Calibration Expiration Date:	8-17-19	Calibration Expiration Date:	8-7-19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	10-15-18	10/16/18	10/17/18	10/18/18	10/19/18	10-20-18	10-21-18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	PT	SO	[illegible]	[illegible]	SO	BC	BC
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	55.2	56.1	54.4	54.5	51.9	54.6	54.8
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	56.1	54.5	53.9	52.9	54.6	52.3	52.4
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	56.4	54.1	[illegible] ~~54.4~~ 57.7	57.3	60.1	58.2	58.4
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	56.1	68.0	59.9	[illegible] ~~56.7~~ 54.9	57.2	59.8	59.3
		Completion Time:	0910	0858	0900	0905	0906	0859	0941
OC Operator Review and Page Count Complete (initials)			BC	BC	BC AR	AR	BC AR	[illegible] BC	[illegible] BC

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [signature] Date 10-21-18 Time 0941

Reviewed by: [signature] On-duty Supervisor Date: 10/22/18 Time: 0802

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.			Date:	10-22-18		10/23/18		10-24-18		10-25-18		10/26/18		10/27/18		10/28/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	BC	W	ARJ	W	BC	[illegible]	BC	[illegible]	ARJ	[illegible]	JSC	[illegible]	JSC	AO
SRs	**Description**	**Gauge Acceptance Criteria**		**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]		-2.01	-2.00	-2.01	-2.01	-2.01	-1.99	-2.01	-1.99	-1.99	-2.01	-2.00	-1.99	-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]		-1.95	-1.95	-1.95	-1.93	-1.94	-1.95	-1.95	-1.95	-1.94	-1.95	-1.95	-1.93	-1.93	-1.95
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]		-1.98	-1.98	-1.99	-1.98	-1.98	-1.98	-1.98	-1.98	-1.99	-1.98	-1.99	-1.98	-1.99	-1.99
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]		-2.02	-2.04	-2.03	-2.03	-2.03	-2.05	-2.02	-2.04	-2.03	-2.03	-2.01	-2.07	-2.02	-2.05
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]		-.19	-.27	-.19	-.18	-.17	-0.18	-.18	-0.18	-.18	-0.18	-0.19	-0.18	-0.18	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]		-.24	-.31	-.23	-.23	-.21	-0.23	-.23	-0.22	-.23	-0.22	-0.23	-0.23	-0.23	-.22
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]		-.20	-.28	-.19	-.20	-.20	-0.20	-.20	-0.20	-.20	-0.20	-0.20	-0.20	-0.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]		-.20	-.26	-.19	-.20	-.20	-0.20	-.17	-0.19	-.20	-0.19	-0.19	-0.19	-0.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc		-.15	-.15	-.15	-.15	-.15	-0.15	-.15	-0.15	-.15	-0.15	-0.15	-0.15	-0.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc		-.09	-.23	-.09	-.09	-.09	-0.09	-.09	-0.09	-.09	-0.09	-0.09	-0.09	-0.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc		-.08	-.23	-.08	-.09	-.08	-0.08	-.08	-0.08	-.08	-0.08	-0.08	-0.08	-0.08	-.07
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc		-.104	-.227	-.103	-.099	-.104	-0.102	-.093	-0.106	-.102	-0.101	-0.099	-0.105	-0.104	-.103

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note			Date:	10-22-18		10/23/18		10-24-18		10-25-18		10/26/18		10/27/18		10/28/18	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	BC	[illegible]	AD	[illegible]	BC	[illegible]	BC	[illegible]	ARJ	[illegible]	JM	[illegible]	JSC	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	10-22-18		10/23/18		10-24-18		10-25-18		10/26/18		10/27/18		10/28/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	BC	[illegible]	ARD	[illegible]	BC	[illegible]	BC	[illegible]	ARD	[illegible]	JSL	[illegible]	JSL	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS** Sat / Unsat (circle one)													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0719	[illegible] 10/28/18	0735	1930	0732	1919	0733	1915	0730	1924	0725	1927	0731	1929

[1] Mode 2 acceptance criteria is < 0.00 in. wc.
[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [signature] Date 10/28/18 Time 1929 Reviewed by: [signature] On-duty Supervisor Date: 10/29/18 Time: 0732

Comments: 300/400 LAB RECIRCS UNSAT DUE TO HARDWIRE SHUTDOWN

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	10-22-18	10/23/18	10/24/18	10/25/18	10-26-18	10/27/18	10/28/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	AJ	YL.	AS	JM	PT	JM	JM
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0745	0750	0824	0900	0723	0710	0710

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	10-22-18	10/23/18	10/24/18	10/25/18	10-26-18	10/27/18	10/28/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	TL	AB	[illegible]	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.07	.04	.03	.03	.03	.03	.03
		PDI-894-2	≤2.0 & > 0[1] in. wc	.41	.42	.42	.41	.42	.42	.42
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.15	.10	.04	.04	.04	.04	.04
		PDI-895-2	≤2.0 & > 0[1] in. wc	.69	.70	.70	.70	.70	.70	.70
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.27	.28	.27	.27	.28	.27	.27
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
		PDI-817-4	≤2.0 & > 0[1] in. wc	.33	.32	.31	.31	.31	.31	.30
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.42	.42	.42	.43	.42	.43	.43
		PDI-819-3	≤2.0 & > 0[1] in. wc	.42	.43	.42	.45	.45	.45	.45
		PDI-819-4	≤2.0 & > 0[1] in. wc	.39	.39	.39	.40	.39	.39	.39
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	10-22-18	10/23/18	10/24/18	10/25/18	10-26-18	10/27/18	10/28/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	[illegible]	AS	[illegible]	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.12	.12	.11	.11	.12	.12	.12
		PDI-822-2	≤2.0 & > 0[1] in. wc	.58	.58	.59	.58	.58	.58	.58
		PDI-822-4	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42	.42	.42
		PDI-822-5	≤2.0 & > 0[1] in. wc	.59	.58	.58	.58	.59	.59	.59
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.28	.29	.31	.31	.29	.31	.31
		PDI-830-2	≤2.0 & > 0[1] in. wc	.18	.18	.14	.15	.15	.15	.15
		PDI-830-3	≤2.0 & > 0[1] in. wc	.12	.13	.11	.12	.12	.12	.12
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.07	.07	.06	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	.65	.64	.65	.65	.65	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc	.65	.65	.64	.66	.63	.64	.63
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.48	.48	.48	.48	.48	.48	.48
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	.45	.44	.44	.45	.45	.45

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	10-22-18	10/23/18	10/24/18	10/25/18	10-26-18	10/27/18	10/28/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AJ	Th	AB	[illegible]	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.42	.43	.43	.43	.43	.43	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc	.53	.54	.55	.55	.55	.55	.55
		PDI-839-3	≤2.0 & > 0[1] in. wc	.53	.54	.55	.55	.55	.55	.55
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.15	.15	.16	.16	.16	.16	.16
		PDI-810-2	≤2.0 & > 0[1] in. wc	.51	.51	.54	.54	.54	.54	.54
		PDI-810-3	≤2.0 & > 0[1] in. wc	.50	.50	.51	.51	.51	.51	.50
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	off	off	OFF	off	OFF	off	off
		PDI -811 -2	≤2.0 & > 0[1] in. wc	off	off	OFF	off	OFF	off	off
		PDI -811 -3	≤2.0 & > 0[1] in. wc	off	off	OFF	off	OFF	off	off
			Completion Time	0807	0805	0921	0830	0730	0753	0748
OC Operator Review and Page Count Complete (initials)				APJ	APJ	[illegible]	MJW	APJ	APJ	APJ

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [illegible] Date 10/28/18 Time 0748 Reviewed by: [illegible] On-duty Supervisor Date: 10/29/18 Time: 0732

Comments Step SR 4.4.1.1 Flammable gas out of service

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	10/22/18	10/23/18	10/24/18	10/25/18	10-26-18	10/27/18	10/28/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	Th	AB	[illegible]	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.17	.17	.17	.17	.17	.17	.17
		PDI-840-2	≤2.0 & > 0 in[1] wc	.57	.56	.58	.57	.58	.57	.57
		PDI-840-3	≤2.0 & > 0[1] in. wc	.62	.51	.51	.51	.51	.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.34	.34	.33	.33	.34	.33	.33
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42	.41	.42	.42	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc	.39	.39	.39	.39	.40	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.44	.45	.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	.67	.66	.66	.68	.67	.67
		PDI-832-3	≤2.0 & > 0[1] in. wc	.62	.61	.61	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	.12	.11	off	OFF	off	off
		PDI-807-2	≤2.0 & > 0[1] in. wc	.53	.53	.51	off	OFF	off	off
		PDI-807-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	off	OFF	off	off
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	Off	OFF	.10	.09	.09	.09
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	Off	OFF	.51	.52	.55	.55
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	Off	OFF	.52	.52	.51	.51

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	10/22/18	10/23/18	~~10/24/18~~ 10/24/18	10/25/18	10/26/18	10/27/18	10/28/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	[illegible]	AS	[illegible]	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤ 0 & > 0[1] in. wc	.30	.30	.31	.27	.29	.27	.27
		PDI-829-2	≤ 0 & > 0[1] in. wc	.48	.49	.49	.46	.49	.48	.46
		PDI-829-3	≤ 0 & > 0[1] in. wc	.40	.39	.40	.38	.39	.38	.38
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤ 0 & > 0[1] in. wc	.08	.08	.08	.08	.08	.08	.08
		PDI-833-2	≤ 0 & > 0[1] in. wc	.52	.52	.52	.52	.52	.52	.52
		PDI-833-3	≤ 0 & > 0[1] in. wc	.51	.50	.50	.50	.50	.50	.50
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤ 0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤ 0 & > 0[1] in. wc	.50	.50	.50	.49	.49	.49	.49
		PDI-835-3	≤ 0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤ 0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-815-2	≤ 0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-815-4	≤ 0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-815-5	≤ 0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤ 0 & > 0[1] in. wc	.46	.47	.48	.48	.45	.48	.48
		PDI-816-2	≤ 0 & > 0[1] in. wc	.55	.56	.56	.55	.55	.55	.55
		PDI-816-4	≤ 0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
		PDI-816-5	≤ 0 & > 0[1] in. wc	.52	.53	.52	.53	.52	.53	.53

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	10/22/18	10/23/18	10/24/18	10/25/18	10-26-18	10/27/18	10/28/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	TL	AB	[illegible]	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.10	.10	.10	.10	.10	.10	.10
		PDI-813-2	≤2.0 & > 0[1] in. wc	.29	.29	.29	.29	.29	.29	.29
		PDI-813-3	≤2.0 & > 0[1] in. wc	.22	.22	.22	.22	.22	.22	.22
		PDI-813-4	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.31	.31	.31
		PDI-813-5	≤2.0 & > 0[1] in. wc	.40	.40	.39	.40	.40	.40	.40
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.03	.03	.01	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.35	.34	.33	.32	.32	.32	.32
		PDI-865-3	≤2.0 & > 0[1] in. wc	.31	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.06	.06	.05	.05	.06	.06	.06
		PDI-863-2	≤2.0 & >0[1] in. wc	.29	.29	.28	.28	.29	.28	.28

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	10/22/18	10/23/18	10/24/18	10/25/18	10-26-18	10/27/18	10/28/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	[illegible]	AB	[illegible]	PT	[illegible]	[illegible]
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS**						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.15	.12	.10	.12	.10	.12	.12
		PDI-857-2	≤2.0 & > 0[1] in. wc	.43	.45	.45	.43	.43	.44	.44
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.12	.30	.05	.05	.04	.04	.04
		PDI-856-2	≤2.0 & > 0[1] in. wc	.54	.57	.56	.61	.61	.61	.61
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	10/22/18	10/23/18	10/24/18	10/25/18	10-26-18	10/27/18	10/28/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	[illegible]	AB	[illegible]	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0820	0830	0909	0920	0824	0800	0803
			OC Operator Review and Page Count Complete (initials)	BC AB	[illegible] AB	BC [illegible]	BC [illegible]	[illegible] AB	[illegible] AB	[illegible] AB

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [signature] Date 10/28/18 Time 0803 Reviewed by: [signature] On-duty Supervisor Date: 10/29/18 Time: 0733

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	~~8/22/18~~ 10/22/18	10/23/18	10/24/18	10/25/18	10/26/18	10/27/18	10/28/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	SO	SO	[illegible]	[illegible]	AM	[illegible]
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	54.8	54.8	55.2	56.2	57.8	59.4	61.1
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	52.6	52.8	54.5	56.7	60.0	63.8	67.4
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	60.2	59.5	65.9	66.0	67.1	68.4	68.4
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	63.6	62.5	73.4	70.9	61.4	61.9	63.6
		Completion Time:	0820	0842	0848	0827	0750	0845	0925
OC Operator Review and Page Count Complete (initials)			BC ARJ	[illegible] ARJ	[illegible] DAO	[illegible] MJW	[illegible] ARJ	ARJ [illegible]	[illegible] ARJ

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [signature] Date 10/28/18 Time 0930

Reviewed by: [signature] Date: 10/29/18 Time: 0735

On-duty Supervisor

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
			Date:	10/29/18		10/30/18		10/31/18								
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	ARD	[illegible]							
SRs	**Description**	**Gauge Acceptance Criteria**		**SURVEILLANCE RESULTS (in. wc)**												
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2	≤-1.0 in. wc[1]	-2.00	-2.00	-1.99	-2.00	-2.00	-1.99							
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2	≤-1.0 in. wc[1]	-1.95	-1.94	-1.99 ~~-1.99~~ [illegible]	-1.94	-1.95	-1.94							
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2	≤-1.0 in. wc[1]	-1.98	-1.98	-1.98	-1.97	-1.97	-1.97							
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2	≤-1.0 in. wc[1]	-2.04	-2.03	-2.01	-2.03	-2.03	-2.03							
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2	≤-0.05 in. wc[1]	-.18	-.18	-.18	-.19	-.18	-.18							
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2	≤-0.05 in. wc[1]	-.22	-.23	-.23	-.24	-.23	-.23							
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2	≤-0.05 in. wc[1]	-.19	-.20	-.20	-.21	-.20	-.20							
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2	≤-0.05 in. wc[1]	-.19	-.20	-.19	-.21	-.19	-.19							
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5	≤-0.05 in. wc	-.16	-.15	-.15	-.15	-.15	-.15							
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2	< 0.00 in. wc	-.09	-.09	-.09	-.10	-.09	-.09							
	South basement ΔP	PDI-854-1 or PDI-854-2	< 0.00 in. wc	-.08	-.08	-.08	-.08	-.08	-.08							
	IRT Tunnel ΔP	PDT-901 or PDI-901	< 0.00 in. wc	-.090	-.097	-.110	-.104	-.101	-.111							

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	10/29/18		10/30/18		10/31/18								
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	ARJ	[illegible]							
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**												
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

					Date:	10/29/18		10/30/18		10/31/18									
					Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
					Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
					Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]								
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**														
4.1.1.4	**Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400**	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0711	1830	0711	1915	0729	1926									

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [illegible] Date 10/31/18 Time 1926 Reviewed by: [illegible] Date: 11-1-18 Time: 0641
On-duty Supervisor

Comments:

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	10-29-18	10/30/18	10/31/18				
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	PT	[illegible]	[illegible]				
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005				
	CP-305-H (LED Reading)		005	005	005				
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005				
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat
		Completion Time:	0904	0800	0830				

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	10-29-18	10/30/18	10/31/18				
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	PT	GM	GM				
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.03	.03	.03				
		PDI-894-2	≤2.0 & > 0[1] in. wc	.44	.45	.45				
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.04	.05	.05				
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	.70	.70				
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.28	.28	.28				
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	.30	.30				
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	.32	.31				
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	.30	.30				
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.42	.44	.44				
		PDI-819-3	≤2.0 & > 0[1] in. wc	.42	.45	.42				
		PDI-819-4	≤2.0 & > 0[1] in. wc	.39	.39	.39				
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	10-29-18	10/30/18	10/31/18				
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	PT	[illegible]	[illegible]				
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.13	.12	.12				
		PDI-822-2	≤2.0 & > 0[1] in. wc	.59	.57	.59				
		PDI-822-4	≤2.0 & > 0[1] in. wc	.42	.43	.43				
		PDI-822-5	≤2.0 & > 0[1] in. wc	.58	.58	.59				
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.31	.30	.30				
		PDI-830-2	≤2.0 & > 0[1] in. wc	.16	.15	.14				
		PDI-830-3	≤2.0 & > 0[1] in. wc	.12	.13	.12				
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.07	.06	.06				
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	.65	.65				
		PDI-836-3	≤2.0 & > 0[1] in. wc	.63	.63	.65				
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04				
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.48	.48				
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	.45	.45				

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	10-29-18	10/30/18	10/31/18				
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]				
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.55	.55				
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	.59	.59				
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59				
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.43	.43				
		PDI-839-2	≤2.0 & > 0[1] in. wc	.55	.55	.55				
		PDI-839-3	≤2.0 & > 0[1] in. wc	.55	.55	.55				
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.16	.16	.16				
		PDI-810-2	≤2.0 & > 0[1] in. wc	.55	.55	.55				
		PDI-810-3	≤2.0 & > 0[1] in. wc	.51	.51	.52				
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	off	off				
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	off	off				
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	off	off				
			Completion Time	0900	0953	0912				
OC Operator Review and Page Count Complete (initials)				[illegible]	[illegible]	AR [illegible]				

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [illegible] SR 4.4.1.1 Date 10/31/18 Time 0912 Reviewed by: [illegible] On-duty Supervisor Date: 11/26/18 Time: 1100

Comments Flammable Gas Channel OOS.

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	10-29-18	10/30/18	10/31/18				
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	PT	[illegible]	[illegible]				
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.17	.17	.17				
		PDI-840-2	≤2.0 & > 0 in[1] wc	.58	.56	.56				
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	.51	.50				
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.34	.34	.34				
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42	.42				
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.40	.40				
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.45				
		PDI-832-2	≤2.0 & > 0[1] in. wc	.69	.67	.68				
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61				
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF	off	off				
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF	off	off				
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF	off	off				
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.09	.09	.09				
		PDI-809-2	≤2.0 & > 0[1] in. wc	.52	.55	.55				
		PDI-809-3	≤2.0 & > 0[1] in. wc	.52	.54	.54				

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	10-29-18	10/30/18	10/31/18				
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]				
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.28	.39	.30				
		PDI-829-2	≤2.0 & > 0[1] in. wc	.43	.57	.49				
		PDI-829-3	≤2.0 & > 0[1] in. wc	.38	.48	.39				
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.08	.07	.07				
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	.52	.52				
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.50	.51				
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05 ~~.07~~ 10/31				
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50				
		PDI-835-3	≤2.0 & > 0[1] in. wc	.51	.51	.51				
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.45	.45	.45				
		PDI-816-2	≤2.0 & > 0[1] in. wc	.58	.56	.55				
		PDI-816-4	≤2.0 & > 0[1] in. wc	.51	.51	.51				
		PDI-816-5	≤2.0 & > 0[1] in. wc	.52	.53	.53				

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	10-29-18	10/30/18	10/31/18				
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]				
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY				
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.10	.16	.10				
		PDI-813-2	≤2.0 & > 0[1] in. wc	.29	.30	.29				
		PDI-813-3	≤2.0 & > 0[1] in. wc	.22	.22	.22				
		PDI-813-4	≤2.0 & > 0[1] in. wc	.31	.31	.31				
		PDI-813-5	≤2.0 & > 0[1] in. wc	.40	.40	.39				
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02				
		PDI-865-2	≤2.0 & > 0[1] in. wc	.32	.34	.35				
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.29	.29				
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.06	.07	.07				
		PDI-863-2	≤2.0 & >0[1] in. wc	.29	.29	.29				

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	10-29-18	10/30/18	10/31/18				
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]				
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS**						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.11	.11	.10				
		PDI-857-2	≤2.0 & > 0[1] in. wc	.45	.45	.45				
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.04	.05	.04				
		PDI-856-2	≤2.0 & > 0[1] in. wc	.61	.62	.61				
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT				
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT				
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT				

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	10-29-18	10/30/18	10/31/18				
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	PT	RH					
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3 5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT				
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3 5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT				
			Completion time	0943	1020	1002				
			OC Operator Review and Page Count Complete (initials)			ARD				

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Serrano M. Date 10/31/18 Time 1002 Reviewed by: _____ Date: 11/26/18 Time: 1100
On-duty Supervisor

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	10/24/18	10/30/18	10-31-18				
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	Tho	AD	PT				
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	62.3	63.6	62.9				
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	69.6	72.0	71.9				
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	68.0	69.62	67.3				
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	64.5	65.4	63.3				
		Completion Time:	0835	0850	0921				
OC Operator Review and Page Count Complete (initials)									

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: Paul Trujillo Date 10-31-18 Time 0921

Reviewed by: _____ Date: 11/26/18 Time: 100
On-duty Supervisor

Comments:

ATTACHMENT D: Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 1 of 2)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials
*Note	Confinement DR-344	Southeast	Verify that the Astragals and Jamb-Seal features are in-place and cover the gaps present 1. Between the door leaves and 2. Between the frame and the door edge when the doors are in the closed position	Sat / Unsat.	1420	10/18/18	[illegible]
4.1.3.2[1]	Confinement Door DR-344	Southeast	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door)	Sat / Unsat.	1425	10/18/18	[illegible]
4.1.3.2[1]	Confinement Door DR-149	Northeast	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door)	Sat / Unsat.	1323	10/18/18	[illegible]
*Note	Confinement DR-102	Northwest	Verify that the Astragals and Jamb-Seal features are in-place and cover the gaps present 1. Between the door leaves and 2. Between the frame and the door edge when the doors are in the closed position	Sat / Unsat.	1330	10/18/18	[illegible]
4.1.3.2[1]	Confinement Door DR-102	Northwest	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door)	Sat / Unsat.	1330	10/18/18	[illegible]
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) go to the fully closed position via the automatic door closure is ≤ 30 seconds. 4.5 Seconds	Sat / Unsat	1340	10/18/18	[illegible]

*** Note:** Monthly Inspection of DR-344 and DR-102 in accordance with compensatory measure(s) from: *Request for Permanent Equivalency to OE Order 420.1B Chapter II, NFPA 80, NFPA 101 and IBC Requirements for LANL Building TA55-4 (PF-4); Installation of New Confinement Doors DR-102, DR-302, and DR-344 LANL-DOE-ORDER-420.1B-EQ-2013-001*

ATTACHMENT D: Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 2 of 2)

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials
4.1.3.2[1]	Confinement Door DR-302	Southwest	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door)	Sat / Unsat.	1355	10/18/18	RH
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) go to the fully closed position via the automatic door closure is ≤ 30 seconds. 6.7 Seconds	Sat / Unsat.	1350	10/18/18	RH
4.1.3.2[1]	Confinement Door DR-4	N. Basement Personnel door DR-4	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure.	Sat / Unsat.	1412	10/18/18	RH
4.1.3.2[1]	Confinement Door DR-90	South Basement Door (Tunnel)	Exercise fully open and Verify that the door goes to the fully closed position via the automatic door closure. For each confinement door, VERIFY that one leaf of the door(s) is secured shut (NW, NE, SW, SE, south basement door)	Sat / Unsat.	1403	10/18/18	RH
						OC Operator Review and Page Count Complete	

[1] SR 4.1.3.2 applies during both Mode 1 and Mode 2.

Completed by [signature] Date 10/18/18 Time 1432 Reviewed by [signature] Date 10/18/18 Time 1501

On-duty Supervisor Comments:

Lights in tunnel need replacing in front of DR-90

10/18/18 - FSR # 196799 submitted to repair light / Jo 220981

Attachment B, Surveillance Training Checklist

(Page 1 of 2)

Procedure title:	SURVEILLANCE [illegible]
Procedure no.:	TA55-STP-004 R 17.1
Date of issue:	11/1/18
Working copy issued to:	C. COCHRAN
Working copy issued by:	C. COCHRAN
	Certified Operations Center Operator (OCO)

Procedure is the current revision listed in Documentum: ☑ Yes ☐ Documentum Unavailable

Performance Type: ☑ Scheduled ☐ Partial ☐ Other *If partial or other list reason in Comments below*

Comments: *(Document TSR Status Board tracking date here if different from completion date.)*

Training Checklist:

Workers Performing Surveillance	Applicable Surveillance Training Current	
	OCO Initials	Date
B. CHANCE	C	11/1/18
A. JAURIGUE	C	11/1/18
J. LOVATO	C	11/1/18
M. ALLEN	C	11/1/18
R. PRICE	C	11/1/18
F. SETBERT	C	11/1/18
C. COCHRAN	C	11/1/18
J. LEDELLO	C	11/1/18
M. BAILEY	C	11/1/18

OC Reviews Complete and TSR Status Board Updated

OCO Signature 11/30/18 Date

Attachment B, Surveillance Training Checklist (continued)
(Page 2 of 2)

Training Checklist (continuation sheet)

Workers Performing Surveillance	Applicable Surveillance Training Current	
	Initials	Date
B. FORDHAM	[illegible]	11/1/18
D. HEINTSCHEL	[illegible]	11/1/18
R. HOHNER	[illegible]	11/1/18
M. IRISH	[illegible]	11/1/18
T. LANGWORTHY	[illegible]	11/1/18
J. MARTINEZ	[illegible]	11/1/18
ANTHONY SANCHEZ	[illegible]	11/1/18
ANDRE SANCHEZ	[illegible]	11/1/18
P. TRUJILLO	[illegible]	11/1/18
R. MARTINEZ	[illegible]	11/1/18
M. WASHBURN	[illegible]	11/1/18
H. ASHLEY	[illegible]	11/1/18
J. SNELLEZ	[illegible]	11/1/18
D. DUNLAVY	[illegible]	11/1/18
A. DUNSEITH	[illegible]	11/1/18
J. O'NEILL	[illegible]	11/1/18

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		Date:							11/1/18		11/2/18		11/3/18		11/4/18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:							[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]							-2.01	-2.00	-2.00	-2.01	-2.00	-2.00	-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]							-1.92	-1.94	-1.94	-1.95	-1.95	-1.94	-1.95	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]							-1.98	-1.98	-1.98	-1.98	-1.97	-1.98	-1.98	-1.98
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]							-2.02	-2.04	-2.02	-2.03	-2.01	-2.03	-2.01	-2.03
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]							-0.17	-.18	-0.18	-.18	-.19	-.19	-.18	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]							-0.22	-.23	-0.23	-.23	-.21	-.23	-.22	-.20
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]							-0.19	-.20	-0.20	-.20	-.22	-.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]							-0.19	-.19	-0.19	-.20	-.21	-.20	-.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc							-0.15	-.15	-0.15	-.15	-.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc							-0.10	-.09	-0.09	-.09	-.08	-.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc							-0.08	-.09	-0.08	-.08	-.07	-.08	-.08	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc							-0.10	-.111	-0.102	-.105	-.116	-.092	-.104	-.102

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:							11/1/18		11/2/18		11/3/18		11/4/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:							ASL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:							11/1/18		11/2/18		11/3/18		11/4/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:							JSL	AG	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	**Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400**	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time									0732	1419	0735	1926	0720	1925	0721	1924
											MJW	[illegible]	[illegible]		[illegible]			

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [illegible] Date 11/4/18 Time 1924 Reviewed by: [illegible] On-duty Supervisor Date: 11/5/18 Time: 0711

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746 ~~039745~~	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19 ~~6/15/19~~	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature										
Daily (September through April only)		Date:				11/1/18	11/2/18	11/3/18	11/4/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:				SO	[illegible]	[illegible]	[illegible]
SR	**Description**	**Acceptance Criteria**							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F				60.9	59.4	58.2	56.9
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F				69.2	66.7	65.0	63.0
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F				64.6	65.2	65.6	64.6
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F				59.7	61.2	61.7	60.1
		Completion Time:				0945	0753	0927	0845
OC Operator Review and Page Count Complete (initials)						[illegible] ARJ MJW	[illegible]	[illegible]	[illegible]

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [signature] Date 11/4/18 Time 0845

Reviewed by: [signature] On-duty Supervisor Date: 11/5/18 Time: 0712

Comments:

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:				11/1/18	11/2/18	11-3-18	11-4-18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:				[illegible]	[illegible]	PT	PT
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA			~~007~~ 11/1/18	005	005	005	005
	CP-305-H (LED Reading)					005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value				005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:				08:14	08:26	0840	0835

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:				11/1/18	11/2/18	11-3-18	11-4-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:				[illegible]	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc				.03	.03	.03	.03
		PDI-894-2	≤2.0 & > 0[1] in. wc				.41	.41	.41	.41
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc				.04	.04	.04	.04
		PDI-895-2	≤2.0 & > 0[1] in. wc				.71	.71	.71	.71
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc				.28	.27	.28	.28
		PDI-817-2	≤2.0 & > 0[1] in. wc				.31	.30	.30	.30
		PDI-817-4	≤2.0 & > 0[1] in. wc				.31	.31	.31	.31
		PDI-817-5	≤2.0 & > 0[1] in. wc				.30	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-81 9-1	≤2.0 & > 0[1] in. wc				.25	.43	.43	.43
		PDI-81 9-3	≤2.0 & > 0[1] in. wc				.25	.44	.44	.44
		PDI-819-4	≤2.0 & > 0[1] in. wc				.39	.39	.39	.39
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-818-2	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-818-4	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-818-5	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-821-3	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-821-4	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:				11/1/18	11/2/18	11-3-18	11-4-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:				[illegible]	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc				.12	.12	.12	.13
		PDI-822-2	≤2.0 & > 0[1] in. wc				.59	.59	.59	.59
		PDI-822-4	≤2.0 & > 0[1] in. wc				.43	.43	.42	.42
		PDI-822-5	≤2.0 & > 0[1] in. wc				.58	.61	.59	.59
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-823-2	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-823-4	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-823—5	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc				.27	.27	.34	.29
		PDI-830-2	≤2.0 & > 0[1] in. wc				.15	.15	.15	.14
		PDI-830-3	≤2.0 & > 0[1] in. wc				.12	.12	.12	.12
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc				.07	.07	.07	.07
		PDI-836-2	≤2.0 & > 0[1] in. wc				.66	.65	.65	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc				.63	.63	.63	.63
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc				.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc				.48	.48	.48	.48
		PDI-837-3	≤2.0 & > 0[1] in. wc				.47	.45	.45	.45

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:				11/1/18	11/2/18	11-3-18	11-4-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:				[illegible]	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc				.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc				.59	.59	.59	.59
		PDI-838-3	≤2.0 & > 0[1] in. wc				.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc				.43	.43	.43	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc				.55	.55	.55	.55
		PDI-839-3	≤2.0 & > 0[1] in. wc				.55	.55	.55	.55
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc				.17	.16	.16	.16
		PDI-810-2	≤2.0 & > 0[1] in. wc				.55	.53	.55	.55
		PDI-810-3	≤2.0 & > 0[1] in. wc				.51	.51	.51	.51
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc				OFF	OFF	OFF	OFF
		PDI -811 -2	≤2.0 & > 0[1] in. wc				OFF	OFF	OFF	OFF
		PDI -811 -3	≤2.0 & > 0[1] in. wc				OFF	OFF	OFF	OFF
			Completion Time				09:14	09:04	0738	0738
OC Operator Review and Page Count Complete (initials)							[illegible]	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Paul Trujillo Date 11-4-18 Time 0738 Reviewed by: [illegible] Date: 11/5/18 Time: 0713
On-duty Supervisor

Comments _____

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:				11/1/18	11/2/18	11-3-18	11-4-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:				[illegible]	[illegible]	PT	PT
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc				.17	.17	.17	.17
		PDI-840-2	≤2.0 & > 0 in[1]. wc				.57	.56	.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc				.51	.51	.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc				.33	.39	.34	.34
		PDI-831-2	≤2.0 & > 0[1] in. wc				.42	.43	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc				.40	.39	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc				.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc				.67	.67	.68	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc				.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc				OFF	OFF	OFF	OFF
		PDI-807-2	≤2.0 & > 0[1] in. wc				OFF	OFF	OFF	OFF
		PDI-807-3	≤2.0 & > 0[1] in. wc				OFF	OFF	OFF	OFF
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc				.09	.08	.08	.08
		PDI-809-2	≤2.0 & > 0[1] in. wc				.56	.55	.55	.55
		PDI-809-3	≤2.0 & > 0[1] in. wc				.55	.51	.52	.52

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:				11/1/18	11/2/18	11-3-18	11-4-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:				[illegible]	[illegible]	PT	PT
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc				.29	.30	.31	.31
		PDI-829-2	≤2.0 & > 0[1] in. wc				.48	.49	.49	.49
		PDI-829-3	≤2.0 & > 0[1] in. wc				.39	.40	.40	.40
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc				.07	.07	.07	.08
		PDI-833-2	≤2.0 & > 0[1] in. wc				.52	.51	.52	.52
		PDI-833-3	≤2.0 & > 0[1] in. wc				.51	.50	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc				.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc				.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc				.51	.51	.51	.51
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-815-2	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-815-4	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-815-5	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc				.48	.45	.45	.45
		PDI-816-2	≤2.0 & > 0[1] in. wc				.56	.57	.57	.57
		PDI-816-4	≤2.0 & > 0[1] in. wc				.51	.51	.51	.51
		PDI-816-5	≤2.0 & > 0[1] in. wc				.54	.54	.52	.52

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:				11/1/18	11/2/18	11-3-18	11-4-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:				[illegible]	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc				STBY	STBY	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc				.10	.10	.10	.10
		PDI-813-2	≤2.0 & > 0[1] in. wc				.29	.29	.29	.29
		PDI-813-3	≤2.0 & > 0[1] in. wc				.21	.21	.22	.22
		PDI-813-4	≤2.0 & > 0[1] in. wc				.31	.30	.31	.31
		PDI-813-5	≤2.0 & > 0[1] in. wc				.40	.39	.40	.39
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc				.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc				.35	.34	.34	.34
		PDI-865-3	≤2.0 & > 0[1] in. wc				.31	.29	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc				.05	.05	.05	.05
		PDI-863-2	≤2.0 & >0[1] in. wc				.29	.28	.29	.29

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:				11/1/18	11/2/18	11-3-18	11-4-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:				[illegible]	BF [illegible]	PT	PT
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS**						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc				.12	.11	.11	.11
		PDI-857-2	≤2.0 & > 0[1] in. wc				.45	.44	.44	.44
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc				.04	.04	.04	.04
		PDI-856-2	≤2.0 & > 0[1] in. wc				.61	.61	.61	.61
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**				SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less				SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less				SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:				11/1/18	11/2/18	11-3-18	11-4-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:				[illegible]	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less				SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less				SAT	SAT	SAT	SAT
			Completion time				08:40	08:30	0806	0803
			OC Operator Review and Page Count Complete (initials)				APJ MJW	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Paul Trujillo Date 11-4-18 Time 0803 Reviewed by: [illegible] On-duty Supervisor Date: 11/5/18 Time: 0715

Comments: _____

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
		Date:	11/5/18		11/6/18		11/7/18		11/8/18		11/9/18		11/10/18		11/10/18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	[illegible]	ARD	[illegible]	ARD	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ARD	[illegible]	ARD	[illegible]	ARD
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.00	-2.00	-2.00	-2.00	-2.01	-1.99	-2.00	-2.00	-1.99	-2.00	-1.99	-1.98	-2.00	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.96	-1.94	-1.95	-1.96	-1.94	-1.94	-1.94	-1.95	-1.95	-1.94	-1.94	-1.94	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.99	-1.99	-1.98	-1.98	-1.98	-1.99	-1.98
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.02	-2.03	-2.02	-2.03	-2.03	-2.03	-2.01	-2.01	-2.01	-2.01	-2.01	-2.02	-2.02	-2.02
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-0.17	-.18	-0.19	-.18	-.18	-.18	-0.19	-.18	-.19	-.19	-.19	-.19	-.19	-.19
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-0.22	-.23	-0.21	-.22	-.22	-.22	-0.23	-.20	-.24	-.24	-.23	-.24	-.24	-.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-0.20	-.20	-0.20	-.19	-.20	-.20	-0.21	-.20	-.20	-.19	-.20	-.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-0.21	-.20	-0.19	-.19	-.19	-.19	-0.20	-.19	-.20	-.20	-.19	-.20	-.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-0.14	-.15	-0.15	-.15	-.15	-.15	-0.15	-.09	-.16	-.15	-.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-0.08	-.09	-0.09	-.10	-.01	-.09	-0.09	-.09	-.10	-.09	-.10	-.09	-.09	-.10 ~~-.103~~ 11/14
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-0.07	-.08	-0.08	-.10	-.01	-.09	-0.08	-.10	-.10	-.08	-.10	-.08	-.09	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-0.103	-.106	-0.105	-.099	~~-.101~~ -.09	-.101	-0.097	-.110	-.086	-.088	-.103	-.091	-.101	-.103

11/9/18

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	11/5/18		11/6/18		11/7/18		11/8/18		11/9/18		11/10/18		11/11/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	APJ	JSC	APJ	[illegible]	BC	[illegible]	BC	K	APJ	K	APJ	K	APJ
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note																		
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.				Date:	11/5/18		11/6/18		11/7/18		11/8/18		11/9/18		11/10/18		11/11/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	[illegible]	APJ	JSC	AM	[illegible]	BL	[illegible]	BC	K	AM	K	AEJ	K	AEJ
SRs	Description	Area	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS Sat / Unsat (circle one)													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat	(Sat) Unsat
		Completion Time			0725	1926	0722	1927	0717	1922	0720	1924	0720	1933	0723	1922	0731	1922
					[initials]	[initials]	[initials]	[initials]	[initials]	[initials]	[initials]	[initials]	[initials]	[initials]	[initials]	[initials]	[initials]	[initials]

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [signature] Date 11/11/18 Time 1922 Reviewed by: [signature] ASHLEY Date: 11/15/18 Time: 2234

On-duty Supervisor

Comments: ______________________________

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	11-5-18	11/6/18	11-7-18	11/8/18	11-9-18	11/10/18	11/11/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	PT	[illegible]	PT	[illegible]	PT	11/10/18 ~~DH~~ DH	DH
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	~~Sat / Unsat~~ 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	~~005~~	0850	0840	0830	0843	0720	0722

PT 0850
11-5-18

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	11-5-18	11/6/18	11-7-18	11/8/18	11-9-18	11/10/18	11/11/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	PT	[illegible]	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.03	.03	.03	.02	.03	.02	.02
		PDI-894-2	≤2.0 & > 0[1] in. wc	.41	.42	.42	.41	.42	.42	.41
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc	.05	.04	.04	.04	.04	.04	.04
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	.71	.71	.71	.72	.62	.62
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.28	.28	.28	.28	STBY	STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	.30	.31	.30	STBY	STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	.32	.32	.32	STBY	STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.43	.43	.43	.43	STBY	STBY	STBY
		PDI-819-3	≤2.0 & > 0[1] in. wc	.43	.45	.43	.45	STBY	STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	STBY	STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.24	.24	.24
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.30	.30	.30
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.30	.29	.29
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.41	.41	.41
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.48	.46	.46
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.41	.40	.40

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	11-5-18	11/6/18	11-7-18	11/8/18	11-9-18	11/10/18	11/11/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	PT	[illegible]	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.12	.12	.12	.12	STBY	STBY	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	STBY	STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	STBY	STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	STBY	STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.06	.06	.06
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.59	.58	.58
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.51	.51	.51
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.51	.51	.51
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.36	.26	.39	.34	.29	.26	.31
		PDI-830-2	≤2.0 & > 0[1] in. wc	.15	.12	.19	.19	.15	.13	.15
		PDI-830-3	≤2.0 & > 0[1] in. wc	.11	.10	.14	.15	.12	.11	.12
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.07	.06	.06	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	.65	.65	.65	.66	.65	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc	.62	.63	.62	.63	.62	.62	.62
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.48	.49	.48	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.47	.47	.47	.47	.48	.48	.47

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	11-5-18	11/6/18	11-7-18	11/8/18	11-9-18	11/10/18	11/11/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	JM	PT	JM	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.54	.54	.55	.54	.55	.54	.54
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.58
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.43	.43	.43	.43	.43	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.58	.58	.58
		PDI-839-3	≤2.0 & > 0[1] in. wc	.57	.56	.56	.56	.57	.58	.58
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.17	.17	.16	.16	OFF	OFF	OFF
		PDI-810-2	≤2.0 & > 0[1] in. wc	.58	.52	.55	.54	OFF	OFF	OFF
		PDI-810-3	≤2.0 & > 0[1] in. wc	.52	.51	.51	.51	OFF	OFF	OFF
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	off	OFF	off	.11	.11	.11
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	off	OFF	off	.50	.50	.50
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	off	OFF	off	.50	.50	.50
			Completion Time	0935	0931	0830	0850	0737	0740	0809
OC Operator Review and Page Count Complete (initials)										

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [signature] Date 11/11/18 Time 0800 Reviewed by: [signature] ASH LCO Date: 11/15/18 Time: 2235

On-duty Supervisor

Comments _____

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	11-5-18	11/6/18	11-7-18 ~~11-7-18~~ 11-7-18 PT	11/8/18	11-9-18	11/10/18	11/11/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	PT	[illegible]	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.17	.17	STBY	STBY	.17	.17	.17
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.58	.57	STBY	STBY	.58	.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	.51	STBY	STBY	.51	.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.46	.46	STBY	STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	STBY	.58	.58	STBY	STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	STBY	.51	.51	STBY	STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.34	.33	.34	.33	.33	.33	.33
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	.42	.42	.42	.43	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	.68	.68	PT 11/8/18 ~~.68~~ .68	.68	.68	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF	off	OFF	off	.11	.11	.11
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF	off	OFF	off	.51	.51	.51
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF	off	OFF	off	.50	.50	.50
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.08	.08	.09	.08	OFF	OFF	OFF
		PDI-809-2	≤2.0 & > 0[1] in. wc	.55	.55	.55	.53	OFF	OFF	OFF
		PDI-809-3	≤2.0 & > 0[1] in. wc	.52	.52	.52	.51	OFF	OFF	OFF

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	11-5-18	11/6/18	11-7 18	11/8/18	11-9-18	11/10/18	11/11/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	PT	[illegible]	PT	DM	DM
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.31	.31	.25	.24	.30	.30	.30
		PDI-829-2	≤2.0 & > 0[1] in. wc	.49	.49	.41	.40	.49	.49	.49
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	.40	.42	.31	.40	.40	.39
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.08	.08	.07	.07	.07	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	.52	.52	.52	.55	.55	.54
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.49	.50	.50	.50	.49	.49
		PDI-835-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.25	.22	.22
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.53	.54	.55
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.49	.49	.49
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.49	.49	.49
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.45	.47	.45	.47	STBY	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	.58	.58	.58	.58	STBY	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	STBY	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	.52	.54	.52	.54	STBY	STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	11-5-18	11/6/18	11-7-18	11/8/18	11-9-18	11/10/18	11/11/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	PT	[illegible]	PT	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.15	.15	.15
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.32	.32	.32
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.32	.32	.32
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.31	.31	.31
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.39	.39	.39
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.10	.10	.10	.10	STBY	STBY	STBY
		PDI-813-2	≤2.0 & > 0[1] in. wc	.30	.29	.29	.29	STBY	STBY	STBY
		PDI-813-3	≤2.0 & > 0[1] in. wc	.22	.22	.22	.22	STBY	STBY	STBY
		PDI-813-4	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	STBY	STBY	STBY
		PDI-813-5	≤2.0 & > 0[1] in. wc	.39	.39	.39	.40	STBY	STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.33	.32	.34	.34	.33	.34	.33
		PDI-865-3	≤2.0 & > 0[1] in. wc	.30	.29	.30	.30	.31	.30	.30
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.04	.04	.04	.04
		PDI-863-2	≤2.0 & >0[1] in. wc	.29	.28	.28	.29	.28	.28	.28

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	11-5-18	11/6/18	11-7-18	11/8/18	11-9-18	11/10/18	11/11/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	PT	[illegible]	PT	DM	DM
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS**						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.10	.12	.11	.11	.10	.10	.10
		PDI-857-2	≤2.0 & > 0[1] in. wc	.44	.45	.45	.43	.42	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-856-2	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.62	.52	.52
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	11-5-18	11/6/18	11-7-18	11/8/18	11-9-18	11/10/18	11/11/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	PT	[illegible]	PT	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0933	0920	0904	1030	0835	0750	0803
			OC Operator Review and Page Count Complete (initials)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [illegible] Date 11/11/18 Time 0803 Reviewed by: [illegible] ASH OC Date: 11/15/18 Time: 2236

On-duty Supervisor

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6-15-19	Calibration Expiration Date:	7-23-19	Calibration Expiration Date:	7-23-19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6-15-19	Calibration Expiration Date:	8-7-19	Calibration Expiration Date:	8-7-19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature										
Daily (September through April only)		Date:	11-5-18	11/6/18	11/7/18	11-8-18	11/9/18	11/10/18	11/11/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	AJ	[illegible]	[illegible]	PT	[illegible]	[illegible]	[illegible]
SR	**Description**	**Acceptance Criteria**							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1'	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	55.9	54.9	54.5	54.5	53.7	53.8	53.9
4.3.1.1'	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	61.5	60.2	59.3	58.2	56.0	54.7	53.5
4.3.1.3'	RECORD PF-10 room temperature	≥ 50.1 F	66.4	65.0	64.5	64.7	62.4	63.2	63.8
4.3.1.3'	RECORD PF-11 room temperature	≥ 50.1 F	58.7	59.7	59.9	58.9	56.9	65.7	71.6
		Completion Time:	1012	0842	0850	0927	0802	0805	1030
OC Operator Review and Page Count Complete (initials)			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

' Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [signature] Date 11/11/18 Time 1030

Reviewed by: [signature] ASHLEY Date: 11/15/18 Time: 2240
On-duty Supervisor

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
		Date:	11/12/18		11/13/18		11/14/18		11/15/18		11/16/18		11/17/18		11/18/18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	[illegible]	BC	[illegible]	[illegible]	[illegible]	ABJ	[illegible]	ABJ	[illegible]	BC	[illegible]	BC	[illegible]	BC
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.00	-2.00	-1.99	-2.00	-1.99	-2.01	-2.01	-2.00	-2.02	-2.01	-1.99	-2.00	-1.99	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.95	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.93	-1.95	-1.94	-1.95	-1.95	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.98	-1.98	-2.00	-1.99	-2.01	-2.00	-2.00	-1.98	-1.98	-1.98	-1.97	-1.97	-1.98	-1.98
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.01	-2.03	-2.02	-2.03	-2.03	-2.03	-2.01	-2.02	-2.03	-2.03	-2.02	-2.03	-2.03	-2.03
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.18	-.18	-0.19	-.19	-.19	-.18	-.20	-.19	-0.18	-.18	-0.18	-.18	-0.19	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.23	-.23	-0.23	-.24	-.21	-.22	-.20	-.23	-0.23	-.23	-0.22	-.23	-0.23	-.22
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.20	-.20	-0.20	-.20	-.20	-.20	-.18	-.20	-0.20	-.20	-0.20	-.20	-0.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.19	-.19	-0.21	-.19	-.20	-.101	-.19	-.20	-0.20	-.20	-0.19	-.19	-0.20	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-.15	-0.15	-.15	-.15	-.15	-.15	-.15	-0.15	-.15	-0.15	-.15	-0.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-.09	-.09	-0.09	-.09	-.10	-.09	-.09	-.09	-0.09	-.09	-0.09	-.09	-0.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.08	-.08	-0.08	-.08	-.10	-.09	-.09	-.10	-0.08	-.08	-0.08	-.08	-0.08	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.0[illegible]2	-.104	-0.101	-.102	-.091	-.084	-.091	-.116	-0.086	-.010	-0.086	-.101	-0.086	-.101

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note: Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.																
			Date:	11/12/18		11/13/18		~~10~~ 11/14/18		11/15/18		11/16/18		11/17/18		11/18/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	BC	[illegible]	BC	[illegible]	ARJ	[illegible]	ARJ	[illegible]	BC	[illegible]	BC	[illegible]	BC
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	11/12/18		11/13/18		11/14/18		11/15/18		11/16/18		11/17/18		11/18/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	[illegible]	BL	[illegible]	BL	[illegible]	ABJ	[illegible]	ABJ	[illegible]	BL	[illegible]	BL	[illegible]	BL
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	**Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400**	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0720	1929	0718	1927	0730	1935	0728	1925	0718	1922	0722	1929	0717	1934
					MJW	[illegible]	MJW	[illegible]	MJW	[illegible]	MJW							

[1] Mode 2 acceptance criteria is < 0.00 in. wc.
[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2

Completed by: [illegible] Date 11.13.18 Time 1934 Reviewed by: [signature] On-duty Supervisor Date: 11/14/18 Time: 0648

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	11/12/18	11/13/18	11/14/18	11/15/18	11/16/18	11/17/18	11/18/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0709	0800	0851	0800	0930	0705	0745

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	11/12/18	11/13/18	11/14/18	11/15/18	11/16/18	11/17/18	11/18/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ZH	ZH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.04	.03	.03	.03	.03	.03	.03
		PDI-894-2	≤2.0 & > 0[1] in. wc	.42	.42	.45	.42	.42	.41	.41
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc	.04	.04	.04	.04	.05	.05	.05
		PDI-895-2	≤2.0 & > 0[1] in. wc	.73	.62	.64	.63	.68	.70	.70
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.28	.28	.28
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.30	.30	.30
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.44	.31	.31
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.31	.31	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	[illegible] 11/14/18 ~~.44~~ .30	.44	.45
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.45	.45	.44
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.40	.40	.40
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.24	.24	.24	.24	STBY	STBY	STBY
		PDI-818-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	STBY	STBY	STBY
		PDI-818-4	≤2.0 & > 0[1] in. wc	.29	.29	.29	.29	STBY	STBY	STBY
		PDI-818-5	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	STBY	STBY	STBY
		PDI-821-3	≤2.0 & > 0[1] in. wc	.45	.46	.45	.46	STBY	STBY	STBY
		PDI-821-4	≤2.0 & > 0[1] in. wc	.41	.40	.41	.41	STBY	STBY	STBY

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	11/12/18	11/13/18	11/14/18	11/15/18	11/16/18	11/17/18	11/18/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ZH	ZH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.11	.11	.12
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.59	.59	.59
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.42	.42	.42
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.58	.59	.59
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.07	.06	.06	.06	STBY	STBY	STBY
		PDI-823-2	≤2.0 & > 0[1] in. wc	.56	.56	.58	.57	STBY	STBY	STBY
		PDI-823-4	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	STBY	STBY	STBY
		PDI-823—5	≤2.0 & > 0[1] in. wc	.51	.51	.52	.52	STBY	STBY	STBY
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.27	.34	.29	.27	.34	.36	.36
		PDI-830-2	≤2.0 & > 0[1] in. wc	.16	.17	.14	.17	.19	.19	.19
		PDI-830-3	≤2.0 & > 0[1] in. wc	.12	.13	.12	.12	.16	.17	.17
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.07	.07	.06	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.66	.65	.65	.65	.65	.65	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc	.63	.63	.65	.63	.63	.67	.68
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.48	.48	.48	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.47	.48	.45	.47	.47	.46	.45

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	11/12/18	11/13/18	11/14/18	11/15/18	11/16/18	11/17/18	11/18/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AL	AL	AL	AL	AL	RH	RH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.55	.54	.54
		PDI-838-2	≤2.0 & > 0[1] in. wc	.58	.58	.56	.58	.58	.60	.60
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.60	.60
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	.42	.43	.42	.42	.43	.43
		PDI-839-2	≤2.0 & > 0[1] in. wc	.58	.57	.55	.57	.57	.54	.54
		PDI-839-3	≤2.0 & > 0[1] in. wc	.57	.57	.55	.57	.57	.55	.54
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	off	off	OFF	off	.15	.14	.14
		PDI-810-2	≤2.0 & > 0[1] in. wc	off	off	OFF	off	.51	.52	.54
		PDI-810-3	≤2.0 & > 0[1] in. wc	off	off	OFF	off	.50	.50	.51
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.11	.11	.11	.11	off	OFF	OFF
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.51	.51	.50	.51	off	OFF	OFF
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	off	OFF	OFF
			Completion Time	0750	0905	0932	0820	0840	0819	0820
OC Operator Review and Page Count Complete (initials)				[illegible]	[illegible] MSW	[illegible] MSW	[illegible] MSW	[illegible] MSW	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: RHamner Date 11/18/18 Time 0823 Reviewed by: [signature] On-duty Supervisor Date: 11/18/18 Time: 0648

Comments 11/12/18 44.1.1 out of service.

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	11/12/18	11/13/18	11/14/18	11/15/18	11/16/18	11/17/18	11/18/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.16	.17	.17	.17	STBY	STBY	STBY
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.57	.57	.56	.57	STBY	STBY	STBY
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	STBY	STBY	STBY
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.46	.46	.46
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.57	.57	.57
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.51	.51	.51
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	[illegible] 11/14/18 [illegible] .33	.33	.33	.33	.33	.33	.33
		PDI-831-2	≤2.0 & > 0[1] in. wc	.43	.42	.44	.42	.43	.43	.43
		PDI-831-3	≤2.0 & > 0[1] in. wc	[illegible] 11/14/18 ~~.33~~ .41	.40	.40	.40	.40	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.43	.45	.45	.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	.65	.67	.67	.67	.67	.67
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.11	.11	.11	.11	off	off	off
		PDI-807-2	≤2.0 & > 0[1] in. wc	.51	.51	.53	.51	off	off	off
		PDI-807-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	off	off	off
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	off	off	OFF	off	.08	.07	.07
		PDI-809-2	≤2.0 & > 0[1] in. wc	off	off	OFF	off	.51	.51	.51
		PDI-809-3	≤2.0 & > 0[1] in. wc	off	off	OFF	off	.51	.51	.51

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	11/12/18	11/13/18	~~11/13/18~~ 11/14/18	11/15/18	11/16/18	11/17/18	11/18/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.31	.31	.31	.29	.37	.24	.25
		PDI-829-2	≤2.0 & > 0[1] in. wc	.49	.49	.50	.48	.56	.39	.41
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	.40	.40	.39	.48	.30	.35
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.07	.07	.07	.07	.07	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.56	.56	.55	.55	.55	.55	.55
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.49	.49	.49
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.25	.22	.24	.23	STBY	STBY	STBY
		PDI-815-2	≤2.0 & > 0[1] in. wc	.54	.54	.54	.54	STBY	STBY	STBY
		PDI-815-4	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	STBY	STBY	STBY
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	STBY	STBY	STBY
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.48	.48	.48
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.57	.57	.57
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.51	.51	.51
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.55	.55	.55

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	11/12/18	11/13/18	11/14/18	11/15/18	11/16/18	11/17/18	11/18/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.14	.14	.16	.15	STBY	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc	.33	.33	.34	.33	STBY	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc	.33	.33	.32	.33	STBY	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc	.31	.31	.32	.32	STBY	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc	.39	.38	.39	.39	STBY	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.10	.10	.10
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.30	.29	.29
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.22	.21	.22
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.31	.31	.31
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.40	.40	.40
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.35	.36	.35	.34	.35	.34	.34
		PDI-865-3	≤2.0 & > 0[1] in. wc	.31	.31	.30	.31	.31	.31	.31
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.04	.04	.04	.04	.04	.04
		PDI-863-2	≤2.0 & >0[1] in. wc	.27	.27	.27	.27	.27	.27	.27

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	11/12/18	11/13/18	11/14/18	11/15/18	11/16/18	11/17/18	11/18/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.12	.11	.11	.11	.11	.11	.11
		PDI-857-2	≤2.0 & > 0[1] in. wc	.43	.43	.42	.43	.42	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-856-2	≤2.0 & > 0[1] in. wc	.55	.54	.55	.53	.60	.59	.59
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	11/12/18	11/13/18	11/14/18	11/15/18	11/16/18	11/17/18	11/18/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]/RH	[illegible]/RH	[illegible]	[illegible]
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS**						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0805	0930	0958	0955	0958	0950	0815
			OC Operator Review and Page Count Complete (initials)	[illegible]	[illegible] MJW	[illegible] MJW	[illegible] MJW	[illegible] MJW	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Jerome M. Date 11/18/18 Time 0815 Reviewed by: [illegible] Date: 11/16/18 Time: 0648

On-duty Supervisor

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	~~103764~~ TM 11/13/18 103765	V-701 Thermistor File No.:	~~103765~~ 103761 TM 11/13/18
	Calibration Expiration Date:	06/15/19	Calibration Expiration Date:	07/23/19	Calibration Expiration Date:	07/25/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	06/15/19	Calibration Expiration Date:	08/07/19	Calibration Expiration Date:	08/07/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	11/12/18	11/13/18	11-14-18	11/15/18	11/16/18	11/17/18	11/18/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	TM	PT	TM	TM	[illegible]	[illegible]
SR	**Description**	**Acceptance Criteria**							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	53.1	52.8	53.7	53.8	54.1	54.4	54.1
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	51.1	50.2	51.7	52.9	54.5	54.2	53.3
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	62.2	61.3	63.1	63.4	64.0	64.7	63.2
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	70.2	64.6	68.2	69.6	68.3	65.8	65.8
		Completion Time:	0954	0911	1007	0832	0826	0835	0925
OC Operator Review and Page Count Complete (initials)			[illegible]	[illegible] MJW	[illegible] MJW	[illegible] MJW	[illegible] MJW	[illegible]	[illegible]

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: C. COCHRAN Date 11/18/18 Time 0925

Reviewed by: A. [illegible] [signature] Date: 12-1-18 Time: 1220
On-duty Supervisor

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		Date:	11/19/18		11/20/18		11/21/18		11/22/18		11/23/18		11/24/18		11/25/18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.00	-2.02	-2.00	-2.00	-2.00	-2.00	-2.02	-2.01	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.93	-1.95	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.95	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.98	-1.97	-1.97	-1.99	-2.00	-1.99	-1.99	-1.99	-2.00	-2.00	-1.99	-2.00	-1.99	-1.99
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.03	-2.02	-2.03	-2.02	-2.03	-2.02	-2.02	-2.02	-2.02	-2.00	-2.03	-2.05	-2.02	-2.02
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.19	-.11	-.18	-0.19	-0.19	-.19	-.19	-.18	-.19	-0.19	-.19	-.20	-.19	-.19
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.23	-0.12	-.23	-0.24	-0.24	-.24	-.24	-.24	-.24	-0.24	-.24	-.25	-.23	-.24
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.21	-0.20	-.20	-0.20	-0.20	-.20	-.20	-.19	-.20	-0.20	-.20	-.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.20	-0.20	-.17	0.20	-0.19	-.19	-.19	-.19	-.19	-0.19	-.20	-.18	-.19	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-.07	~~-.09~~ -.15 11/19/18	-0.15	-0.15	-.14	-.15	-.15	-.15	-0.15	-.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-.10	-.08	-.10	-.09	-0.09	-.09	-.09	-.09	-.09	-0.09	-.09	-.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.10	-.08	-.10	-.08	-0.09	-.09	-.08	-.09	-.08	-0.08	-.08	-.08	-.08	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.086	-.089	-.103	-.090	-0.089	-.103	-.103	-.101	-.108	-.106	-.106	-.102	-.105	-.091

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	11/19/18		11/20/18		11/21/18		11/22/18		11/23/18		11/24/18		11/25/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	11/19/18		11/20/18		11/21/18		11/22/18		11/23/18		11/24/18		11/25/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	[illegible]	[illegible]	[illegible]	[illegible]	JSL	[illegible]	[illegible]	[illegible]	APD	[illegible]	APD	[illegible]	APD	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	**Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400**	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0730	1935	0733	1934	0734	1925	0710	1920	0732	1952	0730	1953	0728	1940

[illegible] [illegible] [illegible] [illegible] [illegible]

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [illegible] Date 11/25/18 Time 1940 Reviewed by: [illegible] Date: 11/26/2018 Time: 0800
On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	11-19-18	11-20-18	11-21-18	11-22-18	11-23-18	11-24-18	11-25-18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	PT	PT	PT	PT	PT	PT	PT
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0941	0920	0729	0735	0724	0715	0720

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	11-19-18	11-20-18	11-21-18	11-22-18	11-23-18	11-24-18	11-25-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.04	.03	.03	.03	.03	.03	.03
		PDI-894-2	≤2.0 & > 0[1] in. wc	.41	.41	.42	.42	.42	.42	.42
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc	.05	.05	.05	.04	.04	.04	.04
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	.69	.63	.62	.63	.63	.65
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.28	.28	STBY	STBY	STBY	STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	.30	STBY	STBY	STBY	STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	.31	STBY	STBY	STBY	STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	.30	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.42	.42	STBY	STBY	STBY	STBY	STBY
		PDI-819-3	≤2.0 & > 0[1] in. wc	.43	.43	STBY	STBY	STBY	STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc	.39	.39	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.24	.25	.25	.24	.24
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	STBY	.30	.30	.30	.30	.30
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	STBY	.30	.30	.30	.30	.30
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	STBY	.30	.30	.30	.30	PT .30 11-25-18
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.41	.41	.41	.41	.41
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	STBY	.48	.48	.48	.48	.48
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	STBY	.41	.41	.41	.41	.41

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	11-19-18	11-20-18	11-21-18	11-22-18	11-23-18	11-24-18	11-25-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.12	.12	STBY	STBY	STBY	STBY	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	.59	.59	STBY	STBY	STBY	STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	.42	.42	STBY	STBY	STBY	STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	.59	.59	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.06	.06	.06	.06	.06
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	STBY	.59	.59	.59	.59	.59
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	STBY	.51	.51	.51	.51	.51
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	STBY	.51	.51	.51	.51	.51
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.36	.12	.25	.28	.26	.24	.26
		PDI-830-2	≤2.0 & > 0[1] in. wc	.19	.09	.12	.13	.12	.12	.12
		PDI-830-3	≤2.0 & > 0[1] in. wc	.16	.06	.11	.11	.11	.11	.11
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06	.07	.06	.06	.06	.06	.07
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	.65	.65	.65	.65	.65	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	.62	.62	.62	.62	.62	.62
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.43	.45	.48	.48	.48	.48	.48

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	11-19-18	11-20-18	11-21-18	11-22-18	11-23-18	11-24-18	11-25-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.55	.54	.54
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.58	.58	.58	.58
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.40	.40	.39	.39	.39	.39	.39
		PDI-839-2	≤2.0 & > 0[1] in. wc	.55	.52	.53	.55	.53	.52	.53
		PDI-839-3	≤2.0 & > 0[1] in. wc	.54	.52	.52	.53	.53	.53	.53
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.17	.16	OFF	OFF	OFF	OFF	OFF
		PDI-810-2	≤2.0 & > 0[1] in. wc	.58	.52	OFF	OFF	OFF	OFF	OFF
		PDI-810-3	≤2.0 & > 0[1] in. wc	.53	.51	OFF	OFF	OFF	OFF	OFF
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	OFF	.11	.11	.11	.11	.11
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	OFF	.51	.50	.50	.50	.50
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	OFF	.50	.50	.51	.50	.50
			Completion Time	1015	0940	0725	0731	0719	0713	0715
OC Operator Review and Page Count Complete (initials)				K ARS MJW	W ARS	JSL ARS	JSL	ARS	ARS K	W ARS MJW

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Paul Trujillo Date 11-25-18 Time 0715 Reviewed by: [signature] Date: 11/26/2018 Time: 0800

On-duty Supervisor

Comments Flammable gas channel 005

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	11-19-18	11-20-18	11-21-18	11-22-18	11-23-18	11-24-18	11-25-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.16	.17	.16	.16	.17
		PDI-840-2	≤2.0 & > 0 in[1]. wc	STBY	STBY	.58	.58	.58	.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	STBY	.51	.51	.51	.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.46	.46	STBY	STBY	STBY	STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc	.57	.58	STBY	STBY	STBY	STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	.51	STBY	STBY	STBY	STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.33	.33	.33	.33	.33	.33	.33
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	.68	.68	.66	.66	.66	.66
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF	OFF	.11	.11	.12	.11	.11
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF	OFF	.51	.51	.52	.52	.52
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF	OFF	.50	.50	.50	.50	.50
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.08	.08	OFF	OFF	OFF	OFF	OFF
		PDI-809-2	≤2.0 & > 0[1] in. wc	.51	.51	OFF	OFF	OFF	OFF	OFF
		PDI-809-3	≤2.0 & > 0[1] in. wc	.51	.51	OFF	OFF	OFF	OFF	OFF

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	11-19-18	11-20-18	11-21-18	11-22-18	11-23-18	11-24-18	11-25-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.25	.38	.32	.30	.31	.31	.33
		PDI-829-2	≤2.0 & > 0[1] in. wc	.41	.58	.50	.49	.49	.49	.50
		PDI-829-3	≤2.0 & > 0[1] in. wc	.32	.49	.40	.39	.40	.40	.41
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.08	.08	.07	.07	.07	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.58	.52	.52	.52	.52	.52	.52
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	STBY	.25	.25	.26	.27	.25
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	STBY	.54	.54	.54	.54	.54
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	STBY	.49	.49	.49	.49	.49
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	STBY	.49	.49	.49	.49	.49
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.48	.48	STBY	STBY	STBY	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	.59	.59	STBY	STBY	STBY	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	.51	.51	STBY	STBY	STBY	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	.53	.53	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	11-19-18	11-20-18	11-21-18	11-22-18	11-23-18	11-24-18	11-25-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & >0[1] in. wc	STBY	STBY	.15	.15	.15	.15	.15
		PDI-812-2	≤2.0 & >0[1] in. wc	STBY	STBY	.32	.32	.32	.32	.32
		PDI-812-3	≤2.0 & >0[1] in. wc	STBY	STBY	.32	.32	.32	.32	.32
		PDI-812-4	≤2.0 & >0[1] in. wc	STBY	STBY	.31	.31	.31	.31	.31
		PDI-812-5	≤2.0 & >0[1] in. wc	STBY	STBY	.39	.39	.39	.38	.38
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & >0[1] in. wc	.10	.10	STBY	STBY	STBY	STBY	STBY
		PDI-813-2	≤2.0 & >0[1] in. wc	.29	.29	STBY	STBY	STBY	STBY	STBY
		PDI-813-3	≤2.0 & >0[1] in. wc	.22	.22	STBY	STBY	STBY	STBY	STBY
		PDI-813-4	≤2.0 & >0[1] in. wc	.31	.31	STBY	STBY	STBY	STBY	STBY
		PDI-813-5	≤2.0 & >0[1] in. wc	.40	.39	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & >0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & >0[1] in. wc	.34	.33	.33	.33	.35	.34	.36
		PDI-865-3	≤2.0 & >0[1] in. wc	.30	.30	.30	.30	.31	.31	.31
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & >0[1] in. wc	.05	.04	.04	.04	.04	.04	.05
		PDI-863-2	≤2.0 & >0[1] in. wc	.28	.28	.28	.28	.28	.28	.28

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	11-19-18	11-20-18	11-21-18	11-22-18	11-23-18	11-24-18	11-25-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.10	.10	.10	.10	.10	.10	.10
		PDI-857-2	≤2.0 & > 0[1] in. wc	.49	.41	.41	.41	.42	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-856-2	≤2.0 & > 0[1] in. wc	.60	.60	.55	.54	.54	.53	.53
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

PT (Page 5 of 5)

			Date:	11-19-18 ~~11-18~~	11-20-18	11-21-18	11-22-18	11-23-18	11-24-18	11-25-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	PT	PT	PT	PT	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0940	0830	0803	0857	0733	0734	0730
			OC Operator Review and Page Count Complete (initials)	APJ MJW	APJ	JSC APJ	JSC	APJ		APJ MJW

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Paul Trujillo Date 11-25-18 Time 0730 Reviewed by: _____ Date: 11/26/2018 Time: 0300

On-duty Supervisor

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	11/19/18	11/20/18	11-21-18	11/22/18	11/23/18	11/24/18	11/25/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	PT	[illegible]	ARJ	[illegible]	ARJ
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	53.8	53.5	54.1	54.1	53.8	53.8	53.61
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	52.2	51.3	50.9	50.5	51.69	53.0	53.8
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	63.5	62.8	65.0	64.7	63.0	64.5	64.1
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	69.1	67.7	64.7	67.7	72.3	67.0	67.4
		Completion Time:	0915	0850	1027	0720	0848	0800	0820
OC Operator Review and Page Count Complete (initials)			[illegible] ARJ NJW	[illegible] ARJ	ARJ JSC	[illegible]	ARJ	[illegible] ARJ	ARJ [illegible] MJW

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [signature] Date 11/25/18 Time 0820

Reviewed by: [signature] Date: 11/26/2018 Time: 0800

On-duty Supervisor

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
			Date:	11-26-18		11-27-18		11/28/18		11/29/18		11/30/18				
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	BC	[illegible]	BC	[illegible]	[illegible]	C	[illegible]	[illegible]	[illegible]	[illegible]				
SRs	**Description**	**Gauge Acceptance Criteria**		**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2	≤-1.0 in. wc[1]	-2.01	-2.00	-2.00	-1.98	-2.00	-2.01	-2.00	-2.01	-2.00	-2.01				
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2	≤-1.0 in. wc[1]	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94				
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2	≤-1.0 in. wc[1]	-2.00	-1.99	-2.00	-1.99	-2.00	-2.00	-2.00	-1.98	-2.00	-1.99				
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2	≤-1.0 in. wc[1]	-2.02	-2.02	-2.03	-2.01	-2.03	-2.02	-2.04	-2.02	-2.04	-2.02				
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2	≤-0.05 in. wc[1]	-.19	-0.19	-.19	-0.20	-.19	-.20	-.20	-0.20	-.20	-0.19				
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2	≤-0.05 in. wc[1]	-.24	-0.22	-.24	-0.25	-.24	-.24	-.24	-0.24	-.24	-0.24				
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2	≤-0.05 in. wc[1]	-.20	-0.10	-.20	-0.21	-.18	-.20	-.20	-0.21	-.20	-0.20				
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2	≤-0.05 in. wc[1]	-.20	-0.09	-.20	-0.21	-.19	-.20	-.19	-0.20	-.20	-0.19				
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5	≤-0.05 in. wc	-.14	-0.15	-.15	-0.15	-.15	-.15	-.15	-0.15	-.15	-0.15				
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2	< 0.00 in. wc	-.10	-0.09	-.09	-0.09	-.09	-.09	-.09	-0.09	-.09	-0.09				
	South basement ΔP	PDI-854-1 or PDI-854-2	< 0.00 in. wc	-.08	-0.09	-.10	-0.09	-.08	-.08	-.08	-0.09	-.07	-0.08				
	IRT Tunnel ΔP	PDT-901 or PDI-901	< 0.00 in. wc	-.094	-0.090	-.114	-0.116	-.104	-.102	-.102	-0.100	-.101	-0.106				

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			**Date:**	11-26-18		11-27-18		11/28/18		11/29/18		11/30/18				
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	BC	[illegible]	BC	[illegible]	[illegible]	[illegible]	ABS	[illegible]	[illegible]	[illegible]				
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	11-26-18		11-27-18		11/28/18		11/29/18		11/30/18			
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	BC	[illegible]	BO	[illegible]	[illegible]	[illegible]	ARJ	[illegible]	[illegible]	[illegible]				
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	**Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400**	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0732	1925	0728	1922	0722	1919	1921	1925	0717	1918				
					MJW	[illegible]	[illegible]	[illegible]	MJW	[illegible]	[illegible]	[illegible]	DMO	[illegible]				

[1] Mode 2 acceptance criteria is ≤ 0.00 in. wc.
[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [illegible] Date 11/30/18 Time 1910 Reviewed by [illegible] Date: 12-1-18 Time: 1722
On-duty Supervisor

Comments:

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	11/26/18	11/27/18	11/28/18	11-29-18	11/30/18		
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	[illegible]	PT	[illegible]		
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	Flammable Gas Channel Check DET-305-3 (LCD Reading)	NA	005	005	005	005	005		
	CP-305-H (LED Reading)		005	005	005	005	005		
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005		
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat	Sat / Unsat
		Completion Time:	0851	0806	0757	0847	0750		

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	11/26/18	11/27/18	11/28/18	11-29-18	11/30/18		
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	PT	[illegible]		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02		
		PDI-894-2	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	.41		
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04		
		PDI-895-2	≤2.0 & > 0[1] in. wc	.65	.43	.64	.64	.64		
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-81 9-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-81 9-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.24	.23	.24	.24	.24		
		PDI-818-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30		
		PDI-818-4	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.29		
		PDI-818-5	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30		
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.42	.41	.41	.41	.41		
		PDI-821-3	≤2.0 & > 0[1] in. wc	.45	.46	.45	.45	.45		
		PDI-821-4	≤2.0 & > 0[1] in. wc	.41	.40	.40	.40	.40		

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	11/26/18	11/27/18	11/28/18	11-29-18	11/30/18		
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	PT	[illegible]		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.06	.04	.06	.06	.06		
		PDI-823-2	≤2.0 & > 0[1] in. wc	.57	.60	.55	.58	.59		
		PDI-823-4	≤2.0 & > 0[1] in. wc	.51	.52	.52	.51	.52		
		PDI-823—5	≤2.0 & > 0[1] in. wc	.52	.52	.53	.52	.53		
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.25	.07	.21	.21	.25		
		PDI-830-2	≤2.0 & > 0[1] in. wc	.15	.03	.11	.11	.12		
		PDI-830-3	≤2.0 & > 0[1] in. wc	.12	.02	.09	.10	.11		
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.07	.06	.06	.06	.06		
		PDI-836-2	≤2.0 & > 0[1] in. wc	.66	.65	.65	.65	.64		
		PDI-836-3	≤2.0 & > 0[1] in. wc	.64	.65	.65	.62	.62		
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04		
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.49		
		PDI-837-3	≤2.0 & > 0[1] in. wc	.48	.46	.48	.48	.47		

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	11/26/18	11/27/18	11/28/18	11-29-18	11/30/18		
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	PT	[illegible]		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.54	.54	.54	.54	.53		
		PDI-838-2	≤2.0 & > 0[1] in. wc	.58	.58	.58	.58	.58		
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59		
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.39		
		PDI-839-2	≤2.0 & > 0[1] in. wc	.54	.55	.55	.54	.54		
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	.52	.53	.53	.53		
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	off	off	OFF	OFF	OFF		
		PDI-810-2	≤2.0 & > 0[1] in. wc	off	off	OFF	OFF	OFF		
		PDI-810-3	≤2.0 & > 0[1] in. wc	off	off	OFF	OFF	OFF		
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.12	.14	.10	.11	.11		
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.51	.61	.49	.51	.50		
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.51	.60	.48	.50	.50		
			Completion Time	0830	1130	0848	0842	0850		
OC Operator Review and Page Count Complete (initials)				[illegible] MJW	[illegible] MJW	[illegible] MJW	[illegible]	[illegible] BAD		

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [illegible] Date 11/30/18 Time 0930 Reviewed by: [illegible] Date: 11/30/18 Time: 1130

On-duty Supervisor

Comments 11/26/18 4.4.1.1 out of service, Needs Calibration

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	11/26/18	11/27/18	11/28/18	11-29-18	11/30/18		
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	PT	[illegible]		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.17	.18	.17	.17	.17		
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.57	.58	.57	.58	.58		
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51		
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.33	.33	.33	.33	.33		
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42		
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.40	.39	.40	.40		
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45		
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	.67	.67	.67	.66		
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.60	.61	.61	.61		
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.11	.11	.11	.11	.11		
		PDI-807-2	≤2.0 & > 0[1] in. wc	.51	.51	.52	.52	.52		
		PDI-807-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50		
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	off	off	OFF	OFF	OFF		
		PDI-809-2	≤2.0 & > 0[1] in. wc	off	off	OFF	OFF	OFF		
		PDI-809-3	≤2.0 & > 0[1] in. wc	off	off	OFF	OFF	OFF		

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	11/26/18	11/27/18	11/28/18	11-29-18	11/30/18		
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	PT	[illegible]		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.32	.21	.30	.30	.30		
		PDI-829-2	≤2.0 & > 0[1] in. wc	.50	.35	.49	.49	.49		
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	.30	.39	.39	.39		
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.17	.07	.07	.07	.07		
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	.52	.51	.52	.53		
		PDI-833-3	≤2.0 & > 0[1] in. wc	.50	.51	.50	.51	.51		
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05		
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.49	.49	.50		
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50		
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.24	.22	.24	.25	.25		
		PDI-815-2	≤2.0 & > 0[1] in. wc	.58	.57	.58	.58	.58		
		PDI-815-4	≤2.0 & > 0[1] in. wc	.50	.49	.50	.50	.50		
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50		
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	11/26/18	11/27/18	11/28/18	11-29-18	11/30/18		
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	JM	TM	JM	PT	TM		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.14	.15	.14	.15	.15		
		PDI-812-2	≤2.0 & > 0[1] in. wc	.33	.35	.32	.32	.32		
		PDI-812-3	≤2.0 & > 0[1] in. wc	.33	.35	.32	.32	.32		
		PDI-812-4	≤2.0 & > 0[1] in. wc	.31	.32	.30	.31	.32		
		PDI-812-5	≤2.0 & > 0[1] in. wc	.39	.40	.36	.39	.39		
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY		
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02		
		PDI-865-2	≤2.0 & > 0[1] in. wc	.35	.34	.35	.35	.38		
		PDI-865-3	≤2.0 & > 0[1] in. wc	.31	.30	.30	.30	.32		
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.05	.05		
		PDI-863-2	≤2.0 & >0[1] in. wc	.27	.28	.29	.29	.31		

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	11/26/18	11/27/18	11/28/18	11-29-18	11/30/18		
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	PT	[illegible]		
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS**						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.10	.10	.10	.10	.10		
		PDI-857-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42		
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04		
		PDI-856-2	≤2.0 & > 0[1] in. wc	.54	.55	.55	.55	.55		
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT		
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT		
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT		

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	11/26/18	11/27/18	11/28/18	11-29-18	11/30/18		
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	PT	[illegible]		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT		
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT		
			Completion time	0940	1038	0850	0935	0835		
			OC Operator Review and Page Count Complete (initials)	BC [illegible] MJW	BC [illegible] MJW	ARJ [illegible] MJW	BC ARJ	BC [illegible] DDO		

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [illegible] Date 11/30/18 Time 0930 Reviewed by: [illegible] On-duty Supervisor Date: 11/30/18 Time: 1100

Comments: 11/29/2018 1339 Re-performed step 4.3.2.2 Room 201 due to combustible being identified in the area. Room 201 is SAT. MWashburn [illegible]

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/18	Calibration Expiration Date:	8/7/18

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	11/26/18	11/27/18	11/28/18	11/29/18	11/30/18		
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	[illegible]	[illegible]	80		
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	53.7	53.9	54.1	54.2	54.3		
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	54.4	53.8	53.2	52.5	51.5		
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	63.4	63.8	64.6	64.5	50 11/30/18 ~~51.6~~ 65.2		
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	70.4	66.6	66.7	65.2	69.2		
		Completion Time:	0847	0835	0850	0855	50 11/30/18 ~~69.2~~ 0825		
OC Operator Review and Page Count Complete (initials)			BC MJW	BC MJW	APO MJW	BC AM	BC DAO		

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [signature] Date 11/30/18 Time 0800

Reviewed by: [signature] Date: 12-1-18 Time: 1723

On-duty Supervisor

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		Date:											12/1/18		12/2/18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:											[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]											-2.01	-2.01	-2.00	-1.99
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]											-1.95	-1.94	-1.94	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]											-2.00	-1.99	-2.00	~~-0.20~~ -2.00
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]											-2.03	-2.02	-2.03	-2.03
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]											-.20	-0.19	-.19	-0.19
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]											-.24	-0.20	-.24	-0.25
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]											-.20	-0.21	-.20	-0.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]											-.21	-0.20	-.19	-0.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc											-.15	-0.15	-.15	-0.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc											-.09	-0.09	-.09	-0.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc											-.08	-0.08	-.08	-0.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc											-.096	-0.102	-.105	-0.073

E 12/2/18

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:											12/1/18		12/2/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:											[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:											12/1/18		12/2/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:											[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time													0727	1915	0720	1937

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [signature] Date 12/2/18 Time 1937 Reviewed by: [signature] Date: 12/3/2018 Time: 0650
On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:						12/1/18	12/2/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:						DH	DH
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA						005	005
	CP-305-H (LED Reading)							005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value						005	005
		≥ -0.1; ≤+0.1	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	~~Sat / Unsat~~ 005	~~Sat / Unsat~~ 005
		Completion Time:						0730	0720

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:						12/1/18	12/2/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc						.02	.02
		PDI-894-2	≤2.0 & > 0[1] in. wc						.42	.42
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc						.05	.04
		PDI-895-2	≤2.0 & > 0[1] in. wc						.64	.64
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc						STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-819-3	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc						STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc						.24	.24
		PDI-818-2	≤2.0 & > 0[1] in. wc						.30	.30
		PDI-818-4	≤2.0 & > 0[1] in. wc						.29	.29
		PDI-818-5	≤2.0 & > 0[1] in. wc						.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc						.41	.41
		PDI-821-3	≤2.0 & > 0[1] in. wc						.46	.46
		PDI-821-4	≤2.0 & > 0[1] in. wc						.40	.40

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:						12/1/18	12/2/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						AH	AH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc						STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc						.06	.06
		PDI-823-2	≤2.0 & > 0[1] in. wc						.59	.59
		PDI-823-4	≤2.0 & > 0[1] in. wc						.51	.51
		PDI-823—5	≤2.0 & > 0[1] in. wc						.52	.52
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc						.26	.25
		PDI-830-2	≤2.0 & > 0[1] in. wc						.12	.11
		PDI-830-3	≤2.0 & > 0[1] in. wc						.10	.10
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc						.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc						.65	.64
		PDI-836-3	≤2.0 & > 0[1] in. wc						.62	.62
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc						.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc						.48	.48
		PDI-837-3	≤2.0 & > 0[1] in. wc						.46	.45

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:						12/1/18	12/2/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc						.54	.54
		PDI-838-2	≤2.0 & > 0[1] in. wc						.58	.58
		PDI-838-3	≤2.0 & > 0[1] in. wc						.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc						.39	.39
		PDI-839-2	≤2.0 & > 0[1] in. wc						.54	.54
		PDI-839-3	≤2.0 & > 0[1] in. wc						.52	.52
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc						OFF	OFF
		PDI-810-2	≤2.0 & > 0[1] in. wc						OFF	OFF
		PDI-810-3	≤2.0 & > 0[1] in. wc						OFF	OFF
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc						.11	.11
		PDI -811 -2	≤2.0 & > 0[1] in. wc						.51	.51
		PDI -811 -3	≤2.0 & > 0[1] in. wc						.50	.50
			Completion Time						0804	0757
OC Operator Review and Page Count Complete (initials)									PK	PK

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [signature] Date 12/2/18 Time 0757 Reviewed by: [signature] Date: 12/3/2018 Time: 0650
On-duty Supervisor

Comments

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:						12/1/18	12/2/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc						.17	.17
		PDI-840-2	≤2.0 & > 0 in[1]. wc						.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc						.51	.50
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc						STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc						.33	.33
		PDI-831-2	≤2.0 & > 0[1] in. wc						.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc						.39	.39
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc						.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc						.65	.65
		PDI-832-3	≤2.0 & > 0[1] in. wc						.60	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc						.11	.11
		PDI-807-2	≤2.0 & > 0[1] in. wc						.52	.51
		PDI-807-3	≤2.0 & > 0[1] in. wc						.50	.50
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc						OFF	OFF
		PDI-809-2	≤2.0 & > 0[1] in. wc						OFF	OFF
		PDI-809-3	≤2.0 & > 0[1] in. wc						OFF	OFF

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:						12/1/18	12/2/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc						.31	.31
		PDI-829-2	≤2.0 & > 0[1] in. wc						.50	.50
		PDI-829-3	≤2.0 & > 0[1] in. wc						.40	.40
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc						.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc						.51	.51
		PDI-833-3	≤2.0 & > 0[1] in. wc						.50	.50
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc						.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc						.49	.49
		PDI-835-3	≤2.0 & > 0[1] in. wc						.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc						.25	.25
		PDI-815-2	≤2.0 & > 0[1] in. wc						.56	.56
		PDI-815-4	≤2.0 & > 0[1] in. wc						.50	.50
		PDI-815-5	≤2.0 & > 0[1] in. wc						.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc						STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:						12/1/18	12/2/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc						.15	.15
		PDI-812-2	≤2.0 & > 0[1] in. wc						.32	.32
		PDI-812-3	≤2.0 & > 0[1] in. wc						.32	.32
		PDI-812-4	≤2.0 & > 0[1] in. wc						.31	.31
		PDI-812-5	≤2.0 & > 0[1] in. wc						.40	.39
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-813-2	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-813-3	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-813-4	≤2.0 & > 0[1] in. wc						STBY	STBY
		PDI-813-5	≤2.0 & > 0[1] in. wc						STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc						.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc						.39	.39
		PDI-865-3	≤2.0 & > 0[1] in. wc						.32	.32
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc						.05	.05
		PDI-863-2	≤2.0 & >0[1] in. wc						.31	.31

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:						12/1/18	12/2/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:						DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc						.11	.11
		PDI-857-2	≤2.0 & > 0[1] in. wc						.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc						.04	.04
		PDI-856-2	≤2.0 & > 0[1] in. wc						.55	.55
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**						SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less						SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less						SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:						12/1/18	12/2/18
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:						DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less						SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less						SAT	SAT
Completion time									0921	0821
OC Operator Review and Page Count Complete (initials)									BW	BW

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [signature] Date 12/2/18 Time 0821 Reviewed by: [signature] On-duty Supervisor Date: 12/3/2018 Time: 0650

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	101765	PF-10 Thermistor File No.:	101765	V-701 Thermistor File No.:	101761
	Calibration Expiration Date:	6/5/19	Calibration Expiration Date:	6/5/19	Calibration Expiration Date:	7/27/19
	PF-11 Thermometer File No.:	037745	PF-11 Thermistor File No.:	105371	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/13/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature										
Daily (September through April only)		Date:							12/1/18	12-02-18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.		Sat.	Sun.
		Initials:								
SR	Description	Acceptance Criteria								
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT		SAT /UNSAT	SAT /UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F							54.0	53.7
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F							51.1	50.3
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F							63.3	63.3
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F							67.9	68.9
		Completion Time:							0952	0911
OC Operator Review and Page Count Complete (initials)										

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: _____ Date 12-02-18 Time 0911

Reviewed by: _____ Date: 12/3/2018 Time: 0651

On-duty Supervisor

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																
			Date:	12/3/18		12/4/18		12/5/18		12/6/18		12/7/18		12/8/18		12/9/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**		**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2	≤-1.0 in. wc[1]	-2.00	-2.01	-2.01	-2.00	-1.99	-1.99	-2.00	-2.00	-1.99	-2.00	-2.01	-1.99	-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2	≤-1.0 in. wc[1]	-1.95	-1.94	-1.95	-1.94	-1.94	-1.95	-1.99	-1.99	-1.94	-1.94	-1.94	-1.96	-1.95	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2	≤-1.0 in. wc[1]	-2.00	-2.00	-2.00	-2.00	-2.00	-1.99	-1.99	-2.00	-1.99	-2.00	-2.00	-2.00	-1.99	-2.01
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2	≤-1.0 in. wc[1]	-2.02	-2.03	-2.03	-2.03	-2.02	-2.03	-2.02	-2.02	-2.03	-2.03	-2.03	-2.00	-2.00	-2.03
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2	≤-0.05 in. wc[1]	-.18	-.19	-.19	-.19	-.19	-0.19	-.19	-0.19	-0.19	-.18	-0.19	-.19	-.19	-.19
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2	≤-0.05 in. wc[1]	-.24	-.24	-.24	-.24	-.24	-0.24	-.24	-0.20	-0.24	-.24	-0.24	-.25	-.24	-.24
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2	≤-0.05 in. wc[1]	-.19	-.20	-.20	-.20	-.20	-0.20	-.20	-0.19	-0.19	-.19	-0.20	-.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2	≤-0.05 in. wc[1]	-.19	-.19	-.19	-.19	-.19	-0.20	-.20	-0.19	-0.19	-.20	-0.19	-.20	-.19	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5	≤-0.05 in. wc	-.15	-.15	-.15	-.15	-.14	-0.15	-.15	-0.15	-0.15	-.15	-0.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2	< 0.00 in. wc	-.09	-.09	-.09	-.09	-.09	-0.09	-.09	-0.09	-0.09	-.09	-0.09	-.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2	< 0.00 in. wc	-.08	-.09	-.08	-.08	-.08	-0.08	-.08	-0.08	-0.09	-.09	-0.08	-.09	-.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901	< 0.00 in. wc	-.104	-.086	-.104	-.105	-.105	-0.101	-.103	-0.102	-.101	-.101	-.095	-.101	-.104	-.090

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	12/3/18		12/4/18		12/5/18		12/6/18		12/7/18		12/8/18		12/9/18
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	AM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	12/3/18		12/4/18		12/5/18		12/6/18		12/7/18		12/8/18		12/9/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	AB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0739	1935	0740	1927	0725	1925	0721	1924	0731	1925	0736	1941	0738	1927
					[illegible]	[illegible]	MJW	[illegible]	[illegible]	[illegible]	MJW	[illegible]	[illegible]		[illegible]			MJW

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [illegible] Date 12/09/18 Time 1927 Reviewed by: [signature] On-duty Supervisor Date: 12/10/2018 Time: 0730

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	12-3-18	12-4-18	12-5-18	12/6/18	12/7/18	12/8/18	12/9/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	PT	RH	[illegible]	[illegible]	RH	[illegible]	[illegible]
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0848	1025	0817	0847	0943	0702	0700

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	12-3-18	12-4-18	12-5-18	12/6/18	12/7/18	12/8/18	12/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	RH	DS	[illegible]	RH	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.04	.02	.04	.03	.02	.02	.02
		PDI-894-2	≤2.0 & > 0[1] in. wc	.41	.40	.40	.41	.40	.40	.40
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	.70	.70	.70	.70	.70	.70
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.21	.24	.24	.24	.24	.24	.24
		PDI-818-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	.30	.30
		PDI-818-4	≤2.0 & > 0[1] in. wc	.29	.30	.29	.29	.30	.29	.29
		PDI-818-5	≤2.0 & > 0[1] in. wc	.29	.30	.30	.30	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	.41	.41	.41
		PDI-821-3	≤2.0 & > 0[1] in. wc	.48	.47	.47	.46	.47	.46	.46
		PDI-821-4	≤2.0 & > 0[1] in. wc	.40	.40	.41	.41	.40	.40	.40

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	12-3-18	12-4-18	12-5-18	12/6/18	12/7/18	12/8/18	12/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	RH	AS	[illegible]	RAJ	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-823-2	≤2.0 & > 0[1] in. wc	.58	.58	.58	.58	.59	.58	.59
		PDI-823-4	≤2.0 & > 0[1] in. wc	.51	.52	.52	.51	.50	.51	.51
		PDI-823—5	≤2.0 & > 0[1] in. wc	.51	.52	.52	.52	.51	.52	.52
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.24	.25	.20	.20	.23	.23	.24
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	.12	.12	.12	.11	.12	.12
		PDI-830-3	≤2.0 & > 0[1] in. wc	.11	.10	.10	.10	.10	.10	.10
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	.66	.65	.65	.65	.66	.66
		PDI-836-3	≤2.0 & > 0[1] in. wc	.62	.63	.62	.63	.62	.63	.63
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.48	.49	.48	.48	.49	.48	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	.46	.45	.45	.45	.45	.45

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	12-3-18	12-4-18	12-5-18	12/6/18	12/7/18	12/8/18	12/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	BH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.54	.54	.55	.55	.54	.54	.54
		PDI-838-2	≤2.0 & > 0[1] in. wc	.58	.59	.58	.57	.58	.58	.58
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.40	.39	.39	.38	.39	.38	.38
		PDI-839-2	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	.51	.51	.52	.51	.51	.51
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.16	.16	.17	.18	.16	.16	.16
		PDI-810-2	≤2.0 & > 0[1] in. wc	.59	.56	.56	.55	.54	.52	.52
		PDI-810-3	≤2.0 & > 0[1] in. wc	.52	.51	.51	.51	.51	.51	.51
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	off	off
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	off	OFF
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	off	OFF
			Completion Time	0848	1026	0905	0840	0944	0730	0740
OC Operator Review and Page Count Complete (initials)				[illegible]	[illegible] JSC	[illegible]	[illegible]	ARS [illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [illegible] Date 12/8/18 Time 0740 Reviewed by: [illegible] Date: 12/10/2018 Time: 0730

On-duty Supervisor

Comments Flammable gas channel OOS.

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	12-3-18	12-4-18	12/5/18	12/6/18	12/7/18	12/8/18	12/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	RH	DF	TL	RH	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.17	.16	.17	.17	.16	.16	.16
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.58	.59	.59	.58	.59	.58	.58
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.50	.51	.51
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.33	.33	.33	.33	.33	.33	.33
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	.41	.42	.43	.41	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.46	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.65	.66	.67	.68	.64	.66	.66
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.60	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	.12	.12	.12	.12	.12	.12
		PDI-807-2	≤2.0 & > 0[1] in. wc	.52	.51	.52	.52	.52	.52	.52
		PDI-807-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	off	off
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	off	off
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	off	off

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	12-3-18	12-4-18	12/5/18	12/6/18	12/7/18	12/8/18	12/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	BF	[illegible]	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.34	.34	.34	.33	.33	.32	.33
		PDI-829-2	≤2.0 & > 0[1] in. wc	.51	.50	.51	.50	.50	.50	.50
		PDI-829-3	≤2.0 & > 0[1] in. wc	.41	.40	.41	.42	.40	.40	.40
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.07	.07	.07	.08	.08	.08	.08
		PDI-833-2	≤2.0 & > 0[1] in. wc	.53	.51	.52	.53	.55	.56	.56
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.50	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.49	.49
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.28	.25	.25	.24	.25	.25	.25
		PDI-815-2	≤2.0 & > 0[1] in. wc	.58	.58	.58	.57	.57	.57	.57
		PDI-815-4	≤2.0 & > 0[1] in. wc	.49	.50	.50	.49	.50	.50	.50
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	12-3-18	12-4-18	12/5/18	12/6/18	12/7/18	12/8/18	12/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	RH	BF	[illegible]	RH	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.15	.15	.15	.15	.15	.15	.15
		PDI-812-2	≤2.0 & > 0[1] in. wc	.32	.32	.33	.32	.32	.33	.32
		PDI-812-3	≤2.0 & > 0[1] in. wc	.32	.32	.33	.34	.33	.33	.33
		PDI-812-4	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.31	.31	.31
		PDI-812-5	≤2.0 & > 0[1] in. wc	.39	.40	.40	.39	.40	.39	.39
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.39	.40	.40	.40	.39	.39	.39
		PDI-865-3	≤2.0 & > 0[1] in. wc	.32	.31	.32	.32	.31	.32	.32
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-863-2	≤2.0 & >0[1] in. wc	.30	.30	.30	.30	.30	.30	.30

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	12-3-18	12-4-18	12/5/18	12/6/18	12/7/18	12/8/18	12/9/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	ZH	BF	AL	RH	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.10	.10	.10	.10	.10	.10	.10
		PDI-857-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.41	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.03	.04	.03	.03
		PDI-856-2	≤2.0 & > 0[1] in. wc	.55	.57	.53	.54	.55	.55	.55
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	12-3-18	12-4-18	12/5/18	12/6/18	12/7/18	12/8/18	12/9/18
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	PT	RH	BF	RH	RH		
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0958	1023	1020	1030	0931	0810	0807
			OC Operator Review and Page Count Complete (initials)	APJ	JSL			APJ		

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: _____ Date 12/9/18 Time 0807 Reviewed by: _____ Date: 12/10/2018 Time: 0735

On-duty Supervisor

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	640375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature										
Daily (September through April only)		Date:	12/3/19	12/4/18	12/5/18	12/6/18	12/7/18	12/8/18	12/9/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	SO	[illegible]	BF	BF	[illegible]	[illegible]
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	53.1	53.3	53.7	54.1	53.8	53.8	53.9
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	50.6	50.9	52.1	53.1	53.8	53.6	57.7
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	62.9	61.6	62.5	63.9	64.3	64.4	63.7
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	66.0	66.2	61.4	64.5	62.4	64.6	64.7
		Completion Time:	0920	0902	0935	0942	0855	0944	1000
OC Operator Review and Page Count Complete (initials)			[illegible] AFS	AFS [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [signature] Date 12/9/18 Time 1000

~~Reviewed by:~~ [signature] Date: 12/10/2018 Time: 0730

On-duty Supervisor

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		Date:	12-10-18		12/11/18		12/12/18		12/13/18		12-14-18		12-15-18		12-16-18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	BC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	BC	[illegible]	BC	[illegible]	BC	[illegible]
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.01	-2.01	-2.01	-2.01	-2.00	-2.00	-1.99	-1.99	-2.00	-1.99	-2.01	-2.01	-1.99	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.94	-1.94	-1.94	-1.93	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.95	-1.94	-1.95	-1.94
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-2.00	-2.00	-2.00	-1.99	-2.00	-2.01	-2.00	-1.99	-1.99	-1.99	-1.99	-1.99	-1.99	-1.99
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.03	-2.02	-2.02	-2.03	-2.02	-2.03	-2.02	-2.03	-2.03	-2.03	-2.02	-2.03	-2.03	-2.02
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.19	-.19	-0.19	-.19	-.20	-.20	-.19	-.18	-.18	-.18	-.18	-.18	-.18	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.24	-.24	-0.24	-.24	-.25	-.25	-.25	-.25	-.23	-.22	-.23	-.23	-.23	-.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.21	-.20	-0.20	-.20	-.21	-.21	-.21	-.21	-.20	-.20	-.20	-.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.20	-.19	-0.20	-.19	-.21	-.21	-.20	-.20	-.20	-.19	-.20	-.20	-.20	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-.15	-0.15	-.15	-.15	-.15	-.15	-.15	-.15	-.15	-.15	-.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-.09	-.09	-0.09	-.09	-.09	-.10	-.09	-.10	-.09	-.09	-.09	-.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.08	-.08	-0.08	-.08	-.09	-.10	-.08	-.10	-.08	-.08	-.08	-.08	-.08	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.099	-.101	-0.100	-.102	-.098	-.097	-.103	-.100	-.091	-.099	-.101	-.100	-.093	-.098

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note: Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	12-10-18		12/11/18		12/12/18		12/13/18		12-14-18		12-15-18		12-16-18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	BC	C	[illegible]	C	[illegible]	[illegible]	ARJ	[illegible]	BC	[illegible]	BC	[illegible]	BC	ARJ
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	12-10-18		12/11/18		12/12/18		12/13/18		12.14.18		12.15.18		12.16.18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	BC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ABD	[illegible]	BC	[illegible]	BC	[illegible]	BC	ABD
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0727	1920	0725	1924	0751	1929	0730	1932	0734	1928	0740	1934	0720	2030 ~~0830~~ ~~1946~~
					MJW	[illegible]	MJW	[illegible]	MJW	[illegible]	MJW	[illegible]	MJW		[illegible]			MJW

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [illegible] Date 12/16/18 Time 2030 Reviewed by: [illegible] Date: 12/17/2018 Time: 0637
On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	12-10-18	12/11/18	12/12/18	12-13-18	12/14/18	12/15/18	12-16-18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	PT	[illegible]	[illegible]	PT	[illegible]	PT	PT
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0900 ~~952 00~~ PT 12-10-18	0830	0810	0845	0815	0745	0808

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	12-10-18	12/11/18	12/12/18	12-13-18	12/14/18	12-15-18	12-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]	PT	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.03	.02	.02	.02	.02	.02	.02
		PDI-894-2	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	.42	.42	.42
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc	.05	.04	.04	.05	.04	.04	.04
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	.70	.70	.70	.63	.63	.63
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.27	.27	.27
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.30	.30	.30
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.32	.31	.31
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.44	.44	.44
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.45	.43	.43
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.39	.39	.39
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.24	.24	.24	.24	STBY	STBY	STBY
		PDI-818-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	STBY	STBY	STBY
		PDI-818-4	≤2.0 & > 0[1] in. wc	.29	.29	.29	.29	STBY	STBY	STBY
		PDI-818-5	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	STBY	STBY	STBY
		PDI-821-3	≤2.0 & > 0[1] in. wc	.48	.47	.46	.48	STBY	STBY	STBY
		PDI-821-4	≤2.0 & > 0[1] in. wc	.40	.41	.41	.41	STBY	STBY	STBY

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	12-10-18	12/11/18	12/12/18	12-13-18	12/14/18	12-15-18	12-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]	PT	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.12	.12	.12
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.58	.59	.59
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.43	.42	.42
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	TM 12/14/18 ~~.49~~ .59	.59	.59
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	STBY	STBY	STBY
		PDI-823-2	≤2.0 & > 0[1] in. wc	.59	.58	.58	.59	STBY	STBY	STBY
		PDI-823-4	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	STBY	STBY	STBY
		PDI-823—5	≤2.0 & > 0[1] in. wc	.51	.52	.52	.51	STBY	STBY	STBY
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.23	.24	.24	.16	.25	.27	.26
		PDI-830-2	≤2.0 & > 0[1] in. wc	.11	.12	.12	.11	.12	.12	.12
		PDI-830-3	≤2.0 & > 0[1] in. wc	.10	.10	.10	.10	.11	.11	.11
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	.66	.66	.65	.65	.65	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc	.62	.63	.63	.63	.66	.66	.66
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.49	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45	.45	.45

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	12-10-18	12/11/18	12/12/18	12-13-18	12/14/18	12-15-18	12-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]	PT	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.56	.56	.55	.55	.55	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59	.58	.58	.59	.60	.60	.60
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.58	.58	.59	.59	.60	.60
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40
		PDI-839-2	≤2.0 & > 0[1] in. wc	.51	.51	.51	.52	.52	.52	.52
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	.52	.52	.52	.52	.52	.52
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.16	.18	.17	.16	OFF	OFF	OFF
		PDI-810-2	≤2.0 & > 0[1] in. wc	.55	.57	.56	.53	OFF	OFF	OFF
		PDI-810-3	≤2.0 & > 0[1] in. wc	.51	.52	.52	.51	OFF	OFF	OFF
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	.11	.11	.11
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	.51	.51	.51
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	.50	.51	.51
			Completion Time	0835	0850	0845	0900	0852	0806	0803
OC Operator Review and Page Count Complete (initials)				[illegible] MJW	[illegible] MJW	[illegible] ARS MJW	ARS [illegible] MJW	[illegible] MJW	ARS [illegible]	[illegible] MJW

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Paul Trujillo Date 12-16-18 Time 0803 Reviewed by: [signature] On-duty Supervisor Date: 12/17/2018 Time: 0630

Comments Flammable gas channel is OOS.

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	12-10-18	12/11/18	12/12/18	12-13-18	12/14/18	12-15-18	12-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]	PT	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.17	.17	.17	.17	STBY	STBY	STBY
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.58	.58	.58	.58	STBY	STBY	STBY
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	STBY	STBY	STBY
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.46	.46	.47
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.58	.58	.58
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.51	.51	.51
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.33	.33	.33	.33	.33	.33	.33
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.45	.43	.43
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.41	.41	.40	.41	.40	.41
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.46	.45	.45	.45	.46	.46	.46
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	.65	.65	.66	.67	.68	.68
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	.11	.11	.12	OFF	OFF	OFF
		PDI-807-2	≤2.0 & > 0[1] in. wc	.53	.52	.52	.52	OFF	OFF	OFF
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	OFF	OFF	OFF
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	off	off	OFF	.08	.08	.08
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	off	off	OFF	.54	.52	.52
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	off	off	OFF	.54	.51	.52

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	12-10-18	12/11/18	12/12/18	12-13-18	12/14/18	12-15-18	12-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]	PT	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.27	.29	.29
		PDI-829-2	≤2.0 & > 0[1] in. wc	.50	.49	.49	.50	.46	.48	.48
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	.40	.40	.41	.36	.39	.39
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.08	.07	.07	.07	.07	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.58	.56	.56	.56	.58	.58	.58
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.52	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	.49	.49	.49	.49	.49	.49
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.51	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.27	.27	.27	.28	STBY	STBY	STBY
		PDI-815-2	≤2.0 & > 0[1] in. wc	.58	.59	.59	.58	STBY	STBY	STBY
		PDI-815-4	≤2.0 & > 0[1] in. wc	.49	.49	.49	.50	STBY	STBY	STBY
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	STBY	STBY	STBY
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.48	.47	.48
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.58	.58	.58
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.52	.51	.51
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.55	.53	.53

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	12-10-18	12/11/18	12/12/18	12-13-18	12/14/18	12-15-18	12-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]	PT	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.15	.15	.15	.15	STBY	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc	.31	.33	.33	.33	STBY	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc	.32	.33	.33	.33	STBY	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc	.31	.32	.31	.31	STBY	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc	.39	.39	.39	.39	STBY	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.10	.10	.10
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.29	.30	.30
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.22	.22	.22
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.31	.31	.31
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	.40	.40	.40
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.39	.38	.38	.39	.39	.38	.39
		PDI-865-3	≤2.0 & > 0[1] in. wc	.32	.32	.32	.32	.32	.32	.32
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-863-2	≤2.0 & >0[1] in. wc	.30	.30	.30	.30	.30	.30	.30

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	12-10-18	12/11/18	12/12/18	12-13-18	12/14/18	12-15-18	12-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]	PT	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.10	.10	.10	.10	.10	.10	.10
		PDI-857-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.42	.42	.42	.42
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-856-2	≤2.0 & > 0[1] in. wc	.55	.54	.54	.55	.60	.60	.60
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	12-10-18	12/11/18	12/12/18	12-13-18	12/14/18	12-15-18	12-16-18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT	[illegible]	[illegible]	PT	[illegible]	PT	PT
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT RH	SAT	SAT
			Completion time	0927	1125	1005	0959	0933	0910	0920
			OC Operator Review and Page Count Complete (initials)	BC MJW	BC MJW	ARS MJW	ARS MJW	BC MJW	ARS BC a	BC MJW

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Paul Trujillo Date 12-16-18 Time 0920 Reviewed by: _____ On-duty Supervisor Date: 12/17/2018 Time: 0640

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature										
Daily (September through April only)		Date:	12/10/18	12/11/18	12/12/18	12/13/18	12/14/18	12/15/18	12/16/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	ABB	[illegible]	BF	[illegible]	BC	BC
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	53.6	54.1	53.9	53.6	53.4	53.8	53.9
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	50.9	51.1	52.4	53.0	53.5	BC 12-15-18 ~~64.3~~ 53.7	53.7
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	63.3	64.7	64.2	63.2	62.9	64.3	64.4
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	64.9	64.4	63.5	70.0	69.5	67.2	68.6
		Completion Time:	0831	1035	0842	0945	0900	0844	0845
OC Operator Review and Page Count Complete (initials)			MJW	BC MJW	AM MJW	ABB MJW	BC MJW	AM BC	BC MJW

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [signature] Date 12/6/18 Time 0845

Reviewed by: [signature] Date: 12/17/2018 Time: 0641
On-duty Supervisor

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		Date:	12/17/18		12/18/18		12/19/18		12.20.18		12/21/18		12/22/18		12/23/18	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	[illegible]	ABD	[illegible]	ABD	[illegible]	[illegible]	BC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	BC
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.00	-2.00	-2.02	-1.99	-2.01	-2.00	-2.00	-2.00	-2.00	-1.99	-2.00	-1.99	-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.94	-1.94	-1.95	-1.94	-1.93	-1.94	-1.93	-1.95	-1.95	-1.95	-1.94	-1.94	-1.94	-1.95
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-1.99	-1.99	-1.99	-1.99	-1.99	-1.99	-1.99	-2.00	-1.99	-2.00	-1.99	-2.00	-1.99	-2.00
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.03	-2.02	-2.03	-2.02	-2.03	-2.03	-2.03	-2.03	-2.00	-2.02	-2.03	-2.03	-2.03	-2.03
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.18	-.18	-.19	-.19	-0.18	-.19	-.18	-.19	-.18	-0.19	-.18	-0.18	-.18	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.23	-.22	-.23	-.23	-0.21	-.23	-.23	-.23	-.23	-0.23	-.23	-0.23	-.23	-.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.20	-.20	-.20	-.20	-0.21	-.20	-.20	-.20	-.20	-0.20	-.20	-0.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.20	-.20	-.19	-.19	-0.21	-.20	-.20	-.20	-.20	-0.19	-.20	-0.19	-.20	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-.15	-.15	-.15	-0.15	-.15	-.15	-.15	-.15	-0.15	-.15	-0.15	-.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-.09	-.09	-.09	-.09	-0.09	-.09	-.09	-.09	-.09	-0.09	-.09	-0.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.09	-.08	-.09	-.08	-0.08	-.09	-.09	-.09	-.09	-0.08	-.09	-0.08	-.09	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.099	-.101	-.099	-.098	-0.100	-.104	-.086	-.099	-.098	-0.094	-.100	-0.099	-.100	-.088

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note: Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	12/17/18		12/18/18		12/19/18		12-20-18		12/21/18		12/22/18		12/23/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	K	APJ	K	APJ	[illegible]	C	BC	C	K	[illegible]	K	[illegible]	K	BC
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	12/17/18		12/18/18		12/19/18		12-20-18		12/21/18		12/22/18		12/23/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	[illegible]	ARD	[illegible]	ARD	[illegible]	[illegible]	BC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	BC
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0721	1926 ~~07~~ AM 12/17/18	0740	1929	0733	1921	0728	1921	0727	1938	0720	1921	0727	1925
					MJW	[illegible]	MJW	[illegible]	MJW	[illegible]	MJW		[illegible]					

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [illegible] Date 12-23-18 Time 1925 Reviewed by: [illegible] Date: 12/26/18 Time: 0940
On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	12-17-18	12-18-18	12/19/18	12/20/18	12/21/18	12/22/18	12/23/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	BF ~~0730~~ 12/17/18 BF	PT 12-18-18 ~~0830~~	BF ~~1050~~ 12/19/18 BF	12/20/18 ~~0810~~		DH	DH
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0741 MJW	0840	1059	0810 MJW	0710	0719	0720

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	12/17/18	12-18-18	12/19/18	12/20/18	12-21-18	12/22/18	12/23/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF/	PT	BF			DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.03	.03	.03	.03	.03	.03	.03
		PDI-894-2	≤2.0 & > 0[1] in. wc	.42	.43	.41	.42	.42	.42	.42
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-895-2	≤2.0 & > 0[1] in. wc	.63	.63	.63	.63	.63	.64	.64
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.27	.27	.28	.27	.27	.28	.27
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	.30	.29	.30	.30	.30	.30
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	.31	.32	.31	.31	.31	.31
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	.30	.31	.30	.30	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-81 9-1	≤2.0 & > 0[1] in. wc	.43	.43	.42	.43	.43	.44	.44
		PDI-81 9-3	≤2.0 & > 0[1] in. wc	.45	.45	.44	.45	.45	.45	.45
		PDI-819-4	≤2.0 & > 0[1] in. wc	.39	.39	.40	.39	.39	.39	.39
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	12/17/18	12-18-18	12/19/18	12/20/18	12-21-18	12/22/18	12/23/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	PT	BF				
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.13	.13	.12	.12	.12	.12	.12
		PDI-822-2	≤2.0 & > 0[1] in. wc	.59	.59	.62	.59	.59	.59	.59
		PDI-822-4	≤2.0 & > 0[1] in. wc	.42	.43	.43	.43	.43	.43	.43
		PDI-822-5	≤2.0 & > 0[1] in. wc	.59	.59	.58	.58	.58	.59	.59
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.24	.24	.25	.23	.23	.25	.25
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	.12	.12	.12	.12	.12	.12
		PDI-830-3	≤2.0 & > 0[1] in. wc	.10	.11	.11	.09	.10	.11	.11
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	.65	.65	.65	.65	.65	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	.68	.65	.67	.67	.66	.66
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.48	.48	.48	.48	.48	.48	.48
		PDI-837-3	≤2.0 & > 0[1] in. wc	.47	.47	.48	.47	.47	.45	.45

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	12/17/18	12-18-18	12/19/18	12/20/18	12/21/18	12/22/18	12/23/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BF	JT	BF			DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.55	.54	.55
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	.60	.59	.59	.59	.59	.60
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	.59	.59
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40
		PDI-839-2	≤2.0 & > 0[1] in. wc	.52	.52	.52	.52	.52	.51	.51
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	.52	.52	.52	.52	.51	.51
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-810-2	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
		PDI-810-3	≤2.0 & > 0[1] in. wc	OFF	OFF	OFF	OFF	OFF	OFF	OFF
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.11	.11	.12	.12	.11	.11	.11
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
			Completion Time	1115	1048	1135	1045	0800	0757	0811
OC Operator Review and Page Count Complete (initials)				MJW	JSL MJW	JSL MJW	MJW			

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [signature] Date 12/23/18 Time 0811 Reviewed by: [signature] Date: 12/26/18 Time: 0949

On-duty Supervisor

Comments 12/17/18 No Reading Taken. Entire south side of the basement is Red lit due to a Con Alarm.
12/20/18 4.1.3.4 and 4.1.1.7 complete. Focal RCT support to enter south BSAA.
12-17-18 4.4.1.1 – flammable gas channel Detector is DOS. AS

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	12-17-18	12-18-18	12-19-18	12/20/18	12/21/18	12/22/18	12/23/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	PT	[illegible]	[illegible]	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-2	≤2.0 & > 0 in[1]. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.47	.47	~~.58~~ .47	.47	.46	.46	.46
		PDI-841-2	≤2.0 & > 0[1] in. wc	.55	.58	.58	.58	.58	.58	.58
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.33	.33	.33	.33	.33	.33	.33
		PDI-831-2	≤2.0 & > 0[1] in. wc	.43	.42	.42	.43	.43	.42	.42
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.40	.40	.41	.41	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.46	.46	.46	.46	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.65	.68	.65	.65	.65	.66	.65
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.61	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	off	OFF	off	off	off	OFF	OFF
		PDI-807-2	≤2.0 & > 0[1] in. wc	off	OFF	off	off	off	OFF	OFF
		PDI-807-3	≤2.0 & > 0[1] in. wc	off	OFF	off	off	off	OFF	OFF
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.08	.08	.08	.08	.08	.08	.08
		PDI-809-2	≤2.0 & > 0[1] in. wc	.52	.52	.52	.53	.52	.52	.52
		PDI-809-3	≤2.0 & > 0[1] in. wc	.52	.52	.52	.54	.52	.51	.51

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	12-17-18	12-18-18	12-19-18	12/20/18	12/21/18	12/22/18	12/23/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	PT	AS	[illegible]	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.30	.30	.30	.27	.29	.29	.29
		PDI-829-2	≤2.0 & > 0[1] in. wc	.48	.48	.48	.46	.49	.46	.48
		PDI-829-3	≤2.0 & > 0[1] in. wc	.39	.39	.39	.38	.39	.38	.39
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.08	.08	.07	.07	.07	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.55	.55	.55	.56	.56	.55	.55
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.53	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.49	.49	.49	.49	.49	.49	.49
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.52	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.49	.45	.45	.48	.48	.48	.48
		PDI-816-2	≤2.0 & > 0[1] in. wc	.59	.58	.58	.57	.57	.58	.58
		PDI-816-4	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
		PDI-816-5	≤2.0 & > 0[1] in. wc	.55	.55	.55	.55	.55	.55	.55

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	12-17-18	12-18-18	12-19-18	12/20/18	12/21/18	12/22/18	12/23/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	DS	PT	DS	[illegible]	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.10	.10	.10	.09	.09	.09	.09
		PDI-813-2	≤2.0 & > 0[1] in. wc	.30	.30	.29	.28	.28	.28	.28
		PDI-813-3	≤2.0 & > 0[1] in. wc	.23	.23	.23	.23	.23	.23	.23
		PDI-813-4	≤2.0 & > 0[1] in. wc	.31	.31	.31	.30	.31	.31	.31
		PDI-813-5	≤2.0 & > 0[1] in. wc	.40	.40	.40	.39	.39	.39	.39
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.38	.38	.38	.38	.38	.38	.38
		PDI-865-3	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.31	.31	.31
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-863-2	≤2.0 & >0[1] in. wc	.30	.30	.30	.30	.30	.30	.30

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	12-17-18	12-18-18	12-19-18	12/20/18	12/21/18	12/22/18	12/23/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	PT	AS	[illegible]	[illegible]	OH	OH
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS**						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.11	.10	.10	.10	.10	.10	.10
		PDI-857-2	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	.41	.41	.41
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-856-2	≤2.0 & > 0[1] in. wc	.60	.60	.60	.59	.59	.60	.60
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	Sat	SAT	Sat	Sat	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	AS SAT	SAT	Sat	Sat	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	Sat	Sat	Sat	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	12-17-18	12-18-18	12-19-18	12/20/18	12/21/18	12/22/18	12/23/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AS	PT	AS	[illegible]	[illegible]	DH	DH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	Sat	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	Sat	SAT	Sat	SAT	SAT	SAT	SAT
			Completion time	0858	1048	0745	1050	0810	0819	0822
			OC Operator Review and Page Count Complete (initials)	[illegible] MJW	[illegible] MJW	[illegible] MJW	[illegible] MJW	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: [signature] Date 12/23/18 Time 0822 Reviewed by: [signature] On-duty Supervisor Date: 12/26/18 Time: 0950

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	12/17/18	12/18/18	12/19/18	12/20/18	12/21/18	12/22/18	12/23/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SR	**Description**	**Acceptance Criteria**							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	54.2	54.1	54.1	53.7	53.8	54.0	53.8
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	52.8	51.8	51.2	50.4	51.5	53.3	54.1
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	65.1	64.8	63.4	63.2	63.5	65.1	63.2
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	67.1	69.0	63.4	61.7	59.6	64.3	61.3
		Completion Time:	0858	0830	0903	0900	0754	0825	0840
	OC Operator Review and Page Count Complete (initials)		[illegible] MJW	[illegible] MJW	[illegible] MJW	[illegible] MJW	[illegible]	[illegible]	[illegible]

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [illegible] Date 12/23/18 Time 0840

Reviewed by: [illegible] Date: 12/26/18 Time: 0950

On-duty Supervisor

Comments:

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note: Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.																	
			Date:	12/24/18		12/25/18		12/26/18		12/27/18		12/28/18		12/29/18		12/30/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	BC	[illegible]	BC	MDW	[illegible]	[illegible]	[illegible]	[illegible]	BC	[illegible]	BC	[illegible]	BC
SRs	**Description**	**Gauge Acceptance Criteria**		**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]		-2.01	-2.00	-2.01	-2.01	-2.01	-2.01	-2.00	-2.00	-2.01	-2.01	-2.01	-2.00	-2.01	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]		-1.94	-1.95	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.94	-1.95	-1.94	-1.94	-1.94	-1.95
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]		-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.01	-2.00	-2.01	-2.02
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]		-2.03	-2.03	-2.03	-2.02	-2.03	-2.00	-2.02	-2.03	-2.03 ~~-2.00~~ ~~-1.94~~	-2.03	-2.03	-2.03	-2.03	-2.03 ~~-2.03~~
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]		-.19	-.18	-.18	-.18	-0.18	-.18	-.18	-.18	-.18	-.18	-0.18	-.18	-0.18	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]		-.21	-.23	-.23	-.23	-0.23	-.23	-.23	-.23	-.23	-.23	-0.22	-.22	-0.22	-.22
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]		-.21	-.20	-.20	-.20	-0.20	-.20	-.19	-.20	-.19	-.20	-0.20	-.20	-0.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]		-.21	-.20	-.20	-.20	-0.19	-.19	-.19	-.20	-.19	-.20	-0.20	-.20	-0.20	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc		-.15	-.15	-.15	-.15	-0.15	-.15	-.15	-.15	-.14	-.15	-0.15	-.15	-0.15	-.15
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc		-.09	-.09	-.09	-.09	-0.09	-.10	-.09	-.10	-.09	-.09	-0.09	-.09	-0.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc		-.08	-.08	-.09	-.08	-0.08	-.10	-.09	-.10	-.08	-.08	-0.08	-.08	-0.08	-.08
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc		-.094	-.092	-.100	-.100	-0.100	-.098	-.102	-.099	-.102	-.097	-0.098	-.100	-0.091	-.098

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	12/24/18		12/25/18		12/26/18		12/27/18		12/28/18		12/29/18		12/30/18	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	[illegible]	BC	[illegible]	BC	MSW	[illegible]	[illegible]	[illegible]	[illegible]	BC	[illegible]	BC	[illegible]	BC
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	12/24/18		12/25/18		12/26/18		12/27/18		12/28/18		12/29/18		12/30/18	
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	[illegible]	BC	[illegible]	BC	MJW	[illegible]	[illegible]	[illegible]	[illegible]	BC	[illegible]	BC	[illegible]	BC
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS** Sat / Unsat (circle one)													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0719	1924	0714	1918	0725	1925	0740	1925	0718	1926	0727	0725	0716	1926
									DAD		[illegible]		[illegible]				[illegible]	

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: BC Date 12.30.18 Time 1925 Reviewed by: _____ Date: _____ Time: _____
On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	12/24/18	12/25/18	12/26/18	12/27/18	12/28/18	12/29/18	12/30/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	RH	[illegible]
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA	005	005	005	005	005	005	005
	CP-305-H (LED Reading)		005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	005
		≥ -0.1; ≤+0.1	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005
		Completion Time:	0710	0750	0710	0800	0705	0805	0715

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	12/24/18	12/25/18	12/26/18	12/27/18	12/28/18	12/29/18	12/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-894-2	≤2.0 & > 0[1] in. wc	.42	.42	.42	.41	.41	.41	.41
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.04	.05	.04	.04	.04	.05	.04
		PDI-895-2	≤2.0 & > 0[1] in. wc	.64	.63	.64	.63	.63	.62	.63
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.28	.28	.28	.27	.27	STBY	STBY
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	STBY	STBY
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.31	STBY	STBY
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	.30	.30	.30	.30	STBY	STBY
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.42	.43	.43	.42	.42	STBY	STBY
		PDI-819-3	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45	STBY	STBY
		PDI-819-4	≤2.0 & > 0[1] in. wc	.39	.39	.39	[illegible] 12/20/18 ~~.39~~	.39	STBY	STBY
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.24	.24
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.30	.30
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.30	.29
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.30	.30
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.41	.41
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.47	.45
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.40	.40

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	12/24/18	12/25/18	12/26/18	12/27/18	12/28/18	12/29/18	12/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	RH	[illegible]	[illegible]	[illegible]	RH	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	.13	.12	.12	.12	.12	STBY	STBY
		PDI-822-2	≤2.0 & > 0[1] in. wc	.59	.59	.59	.59	.59	STBY	STBY
		PDI-822-4	≤2.0 & > 0[1] in. wc	.44	.43	.44	.43	.43	STBY	STBY
		PDI-822-5	≤2.0 & > 0[1] in. wc	.59	.60	.59	.59	.59	STBY	STBY
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.06	.07
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.60	.59
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.51	.51
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.52	.52
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.25	.21	.23	.23	.23	.24	.27
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	.11	.12	.12	.12	.11	.13
		PDI-830-3	≤2.0 & > 0[1] in. wc	.10	.10	.09	.10	.09	.10	.10
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06	.06	.06	.06	.06	.06	.06
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	.65	.65	.65	.65	.65	.65
		PDI-836-3	≤2.0 & > 0[1] in. wc	.66	.66	.66	.66	.66	.65	.66
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	.04	.04	.04	.04	.04	.04
		PDI-837-2	≤2.0 & > 0[1] in. wc	.48	.49	.48	.48	.48	.49	.49
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45	.46	.46

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	12/24/18	12/25/18	12/26/18	12/27/18	12/28/18	12/29/18	12/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	RDI	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.55	.54	.55	.55	.53	.54	.54
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59	.60	.59	.59	.59	.60	.60
		PDI-838-3	≤2.0 & > 0[1] in. wc	.60	.60	.60	.60	.60	.60	.60
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.39	.39	.39	.39	.39	.39	.39
		PDI-839-2	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
		PDI-839-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.52	.52
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	off	OFF	off	off	off	OFF	off
		PDI-810-2	≤2.0 & > 0[1] in. wc	off	OFF	off	off	off	OFF	off
		PDI-810-3	≤2.0 & > 0[1] in. wc	off	OFF	off	off	off	OFF	off
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.11	.11	.11	.11	.11	.11	.11
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.51	.50	.51	.51	.51	.51	.51
			Completion Time	0755	0750	0740	0800	0840	0845	~~0850~~ 0750
OC Operator Review and Page Count Complete (initials)				[illegible]	[illegible]	[illegible] MJW	[illegible]	[illegible]	[illegible]	[illegible]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [illegible] Date 12/30/18 Time 0750 Reviewed by: _____ _____ Date: _____ Time: _____
On-duty Supervisor

Comments 12/24/18 4.1.1 out of service. Anemity calibration

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	12/24/18	12/25/18	12/26/18	12/27/18	12/28/18	12/29/18	12/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-2	≤2.0 & > 0 in[1] wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	STBY	STBY
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.47	.46	.46	.46	.46	.46	.46
		PDI-841-2	≤2.0 & > 0[1] in. wc	.57	.57	.58	.57	.57	.57	.58
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	.51	.50	.51	.51	.51	.51
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.33	.33	.33	.33	.33	.33	.33
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	.42	.41	.42	.42	.42	.41
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	.40	.40	.40	.40	.40	.40
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.45	.45	.45	.45	.45	.45	.45
		PDI-832-2	≤2.0 & > 0[1] in. wc	.65	.65	.64	.65	.65	.65	.64
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	.61	.60	.61	.61	.61	.61
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	off	off	OFF	off	off	off	OFF
		PDI-807-2	≤2.0 & > 0[1] in. wc	off	off	OFF	off	off	off	OFF
		PDI-807-3	≤2.0 & > 0[1] in. wc	off	off	OFF	off	off	off	OFF
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.07	.07	.08	.07	.07	.08	.08
		PDI-809-2	≤2.0 & > 0[1] in. wc	.51	.52	.52	.52	.52	.55	.55
		PDI-809-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	12/24/18	12/25/18	12/26/18	12/27/18	12/28/18	12/29/18	12/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.28	.30	.30	.29	.30	.31	.30
		PDI-829-2	≤2.0 & > 0[1] in. wc	.46	.48	.48	.48	.48	.49	.50
		PDI-829-3	≤2.0 & > 0[1] in. wc	.38	.39	.39	.39	.39	.40	.40
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.07	.07	.07	.07	.07	.07	.07
		PDI-833-2	≤2.0 & > 0[1] in. wc	.56	.56	.55	.55	.55	.55	.53
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	.51	.51
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-835-2	≤2.0 & > 0[1] in. wc	.49	.49	.50	.49	.49	.49	.50
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	.50	.50	.50	.50	.50	.50
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.23	.23
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.52	.52
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.48	.49
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.49	.49
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.47	.47	.48	.47	.47	STBY	STBY
		PDI-816-2	≤2.0 & > 0[1] in. wc	.57	.57	.59	.57	.57	STBY	STBY
		PDI-816-4	≤2.0 & > 0[1] in. wc	.51	.51	.51	.51	.51	STBY	STBY
		PDI-816-5	≤2.0 & > 0[1] in. wc	.55	.55	.53	.55	.55	STBY	STBY

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	12/24/18	12/25/18	12/26/18	12/27/18	12/28/18	12/29/18	12/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	RJL	[illegible]	[illegible]	[illegible]	RJL
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.14	.15
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.32	.32
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.32	.32
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.31	.31
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	STBY	STBY	STBY	STBY	.36	.38
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.09	.09	.09	.09	.09	STBY	STBY
		PDI-813-2	≤2.0 & > 0[1] in. wc	.27	.27	.29	.28	.28	STBY	STBY
		PDI-813-3	≤2.0 & > 0[1] in. wc	.21	.21	.21	.21	.21	STBY	STBY
		PDI-813-4	≤2.0 & > 0[1] in. wc	.31	.31	.31	.31	.31	STBY	STBY
		PDI-813-5	≤2.0 & > 0[1] in. wc	.40	.40	.40	.39	.39	STBY	STBY
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	.02	.02	.02	.02	.02	.02
		PDI-865-2	≤2.0 & > 0[1] in. wc	.38	.38	.38	.38	.38	.37	.39
		PDI-865-3	≤2.0 & > 0[1] in. wc	.32	.31	.30	.31	.31	.31	.31
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	.05	.05	.05	.05	.05	.05
		PDI-863-2	≤2.0 & >0[1] in. wc	.30	.30	.30	.30	.30	.29	.30

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	12/24/18	12/25/18	12/26/18	12/27/18	12/28/18	12/29/18	12/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.11	.10	.10	.11	.11	.11	.10
		PDI-857-2	≤2.0 & > 0[1] in. wc	.41	.41	.41	.41	.41	.41	.41
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.05	.04	.05	.04	.04	.04	.05
		PDI-856-2	≤2.0 & > 0[1] in. wc	.60	.60	.60	.60	.60	.60	.60
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	12/29/18	12/25/18	12/26/18	12/27/18	12/28/18	12/29/18	12/30/18
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[signature]	[signature]	RH	[signature]	[signature]	[signature]	RH
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT	SAT	SAT	SAT	SAT	SAT	SAT
			Completion time	0740	0730	0800	0730	0730	0830	0813
			OC Operator Review and Page Count Complete (initials)	[signature]	[signature]	~~RH~~ [signature] 12/26/18	[signature]	[signature]	[signature]	[signature]

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: RHohner Date 12/30/18 Time 0830 Reviewed by: _____ Date: _____ Time: _____

On-duty Supervisor

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	703761
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	7/23/19	Calibration Expiration Date:	7/23/19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	~~040375~~ 103323 RH 12/24/18	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6/15/19	Calibration Expiration Date:	8/7/19	Calibration Expiration Date:	8/7/19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	12/24/18	12/25/18	12/26/18	12/27/18	12/28/18	12/29/18	12/30/18
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	RH	[illegible]	AAS	RH	[illegible]	[illegible]	[illegible]
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT	SAT/UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	53.8	54.0	53.8	53.8	53.1	52.2	51.7
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	53.5	52.7	50.9	50.3	50.4	50.5	52.3
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	65.5	64.7	63.9	62.8	60.8	62.1	60.0
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	65.2	61.8	RH 12/28/18 ~~50.65~~ 64.7	71.9	72.2	68.2	68.9
		Completion Time:	0909	0940	0915	0844	0845	~~0920~~ 1020	0946
OC Operator Review and Page Count Complete (initials)			[illegible]	[illegible]	[illegible] AAS	[illegible]	[illegible]	[illegible]	[illegible]

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: [signature] Date 12/30/18 Time 0946

Reviewed by: _____ Date: _____ Time: _____

On-duty Supervisor

Comments: _____

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 1 of 3)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

Note Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		**Date:**	12/31/18													
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	AM	MM												
SRs	**Description**	**Gauge Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**													
4.1.1.1 4.1.2.1[2]	200 area glovebox exhaust header ΔP	PDI-814-1 or PDI-814-2 ≤-1.0 in. wc[1]	-2.01	-2.00												
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.0 in. wc[1]	-1.95	-1.94												
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.0 in. wc[1]	-2.01	-2.01												
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.0 in. wc[1]	-2.04	-2.04												
4.1.1.2 4.1.1.5 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.19	-.19												
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.23	-.22												
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.20	-.20												
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.19	-.20												
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-.15												
4.1.1.3 4.1.2.3[2]	North basement ΔP	PDI-804-1 or PDI-804-2 < 0.00 in. wc	-.09	-.10												
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.08	-.08												
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.104	-.097												

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note																	
Readings should be taken using FCS screens FMT#151,152,201LD and 202LD. Field verification and local plenum PDI's may be used if FCS is unavailable.			Date:	12/31/18													
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	AM	M												
SRs	**Description**	**Readings**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.6	**200 area re-circulation fan/ plenum**	FR-801 Icon red and PDT-831 ΔP >.050 or FR-802 Icon red and PDT-832 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	100 area re-circulation fan/ plenum	FR-803 Icon red and PDT-833 ΔP >.050 or FR-804 Icon red and PDT-835 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	300 area re-circulation fan/ plenum	FR-805 Icon red and PDT-836 ΔP >.050 or FR-806 Icon red and PDT-837 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	400 area re-circulation fan/ plenum	FR-807 Icon red and PDT-838 ΔP >.050 or FR-808 Icon red and PDT-839 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
	Vault re-circulation fan/ plenum	FR-811 Icon red and PDT-840 ΔP >.050 or FR-812 Icon red and PDT-841 ΔP >.050	At least one fan/plenum is in service	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat

ATTACHMENT A: Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note
Gauge readings should be taken on rack #4 in the OC when possible, local PDI equivalents may be used if necessary. Document any alternate PDIs used.

				Date:	12/31/18													
				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	[illegible]	[illegible]												
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	Glovebox exhaust header ΔPs < laboratory ΔPs < basement ΔPs for areas 100, 200, 300 and 400	200 Area	PDI-814-2 PDI-803-2 PDI-804-2	PDI-814-2 < PDI-803-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		100 Area	PDI-820-2 PDI-802-2 PDI-804-2	PDI-820-2 < PDI-802-2 < PDI-804-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		300 Area	PDI-870-2 PDI-853-2 PDI-854-2	PDI-870-2 < PDI-853-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		400 Area	PDI-864-2 PDI-852-2 PDI-854-2	PDI-864-2 < PDI-852-2 < PDI-854-2	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat	Sat Unsat
		Completion Time			0734	1932												

[1] Mode 2 acceptance criteria is < 0.00 in. wc.

[2] SRs 4.1.2.x only apply during Mode 2 in accordance with LCO 3.1.2.

Completed by: [signature] Date 12/31/18 Time 1932 Reviewed by: _____ Date: _____ Time: _____
On-duty Supervisor

Comments: _____

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 1 of 4)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

SR 4.4.1.1, The OPERABILITY acceptance criterion for this surveillance is:
The FLAMMABLE GAS detector in the FSTF FLAMMABLE GAS SOURCE storage cabinet is exposed to the ambient atmosphere in the storage cabinet. The gas concentration readout directly on the detector in the storage cabinet is compared with the gas concentration readout on the system control and alarm panel. The difference between the two readings is checked to VERIFY it is in the range of (≥-0.1; ≤0.1).

		Date:	12-31-19						
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	PT						
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR 4.4.1.1	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA	005						
	CP-305-H (LED Reading)		005						
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005						
		≥ -0.1; ≤+0.1	Sat / ~~Unsat~~ 005	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat
		Completion Time:	0840						

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side)[UET]

(Page 2 of 4)

			Date:	12-31-18						
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT						
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	South basement supply filter plenum (HVP-841) ΔP	[1]PDI-894-1	≤2.0 & > 0[1] in. wc	.03						
		PDI-894-2	≤2.0 & > 0[1] in. wc	.42						
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.05						
		PDI-895-2	≤2.0 & > 0[1] in. wc	.62						
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY						
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY						
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY						
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY						
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	STBY						
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY						
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY						
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.24						
		PDI-818-2	≤2.0 & > 0[1] in. wc	.30						
		PDI-818-4	≤2.0 & > 0[1] in. wc	.30						
		PDI-818-5	≤2.0 & > 0[1] in. wc	.30						
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.41						
		PDI-821-3	≤2.0 & > 0[1] in. wc	.46						
		PDI-821-4	≤2.0 & > 0[1] in. wc	.41						

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	12-31-18						
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT						
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	[1]PDI-822-1	≤2.0 & > 0[1] in. wc	STBY						
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY						
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY						
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.06						
		PDI-823-2	≤2.0 & > 0[1] in. wc	.59						
		PDI-823-4	≤2.0 & > 0[1] in. wc	.51						
		PDI-823—5	≤2.0 & > 0[1] in. wc	.52						
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.29						
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12						
		PDI-830-3	≤2.0 & > 0[1] in. wc	.12						
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.06						
		PDI-836-2	≤2.0 & > 0[1] in. wc	.64						
		PDI-836-3	≤2.0 & > 0[1] in. wc	.63						
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04						
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49						
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45						

ATTACHMENT B-1: Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	12 31 18						
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT						
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.1.7[2]	400 area re-circulation filter plenum (HVP-807) ΔP	[1]PDI-838-1	≤2.0 & > 0[1] in. wc	.54						
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59						
		PDI-838-3	≤2.0 & > 0[1] in. wc	.60						
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.39						
		PDI-839-2	≤2.0 & > 0[1] in. wc	.51						
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52						
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	OFF						
		PDI-810-2	≤2.0 & > 0[1] in. wc	OFF						
		PDI-810-3	≤2.0 & > 0[1] in. wc	OFF						
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.11						
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.51						
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.51						
			Completion Time	0738						
OC Operator Review and Page Count Complete (initials)				AMW						

[1] Non TSR requirement
[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: Paul Trujillo Date 12-31-18 Time 0738 Reviewed by: _____ _____ Date: _____ Time: _____
On-duty Supervisor

Comments _____

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 1 of 5)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	12/31/18						
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT						
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**						
4.1.1.7[2]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY						
		PDI-840-2	≤2.0 & > 0 in[1] wc	STBY						
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY						
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.46						
		PDI-841-2	≤2.0 & > 0[1] in. wc	.58						
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51						
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.33						
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42						
		PDI-831-3	≤2.0 & > 0[1] in. wc	.41						
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.46						
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68						
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61						
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF						
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF						
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF						
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.08						
		PDI-809-2	≤2.0 & > 0[1] in. wc	PT .53 ~~.53~~						
		PDI-809-3	≤2.0 & > 0[1] in. wc	.52						

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	12/31/18						
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT						
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	North Basement exhaust filter plenum (FF-828) ΔP	[1]PDI-829-1	≤2.0 & > 0[1] in. wc	.30						
		PDI-829-2	≤2.0 & > 0[1] in. wc	.49						
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40						
4.1.1.7[2]	100 area re-circulation filter plenum (HVP-803) ΔP	[1]PDI-833-1	≤2.0 & > 0[1] in. wc	.07						
		PDI-833-2	≤2.0 & > 0[1] in. wc	.55						
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51						
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.05						
		PDI-835-2	≤2.0 & > 0[1] in. wc	.49						
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50						
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.28						
		PDI-815-2	≤2.0 & > 0[1] in. wc	.54						
		PDI-815-4	≤2.0 & > 0[1] in. wc	.48						
		PDI-815-5	≤2.0 & > 0[1] in. wc	.49						
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY						
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY						
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY						
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY						

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	12/31/18						
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT						
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS (in. wc)						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF850) ΔP	[1]PDI-812-1	≤2.0 & > 0[1] in. wc	.14						
		PDI-812-2	≤2.0 & > 0[1] in. wc	.32						
		PDI-812-3	≤2.0 & > 0[1] in. wc	.32						
		PDI-812-4	≤2.0 & > 0[1] in. wc	.31						
		PDI-812-5	≤2.0 & > 0[1] in. wc	.38						
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY						
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY						
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY						
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY						
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY						
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02						
		PDI-865-2	≤2.0 & > 0[1] in. wc	.38						
		PDI-865-3	≤2.0 & > 0[1] in. wc	.31						
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05						
		PDI-863-2	≤2.0 & >0[1] in. wc	.29						

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	12/31/19						
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT						
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS**						
4.1.3.4[2]	North Basement supply filter plenum (HVP-840) ΔP	[1]PDI-857-1	≤ 2.0 & > 0[1] in. wc	.10						
		PDI-857-2	≤ 2.0 & > 0[1] in. wc	.41						
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤ 2.0 & > 0[1] in. wc	.05						
		PDI-856-2	≤ 2.0 & > 0[1] in. wc	.60						
[1]NA	**Combustible exclusion area around basement exhaust fans FE828, FE829 and bleed-off fans FE820A, FE820B, FE820C, FE822A, FE822B, FE822C**		**0 lb/ft² combustibles in designated exclusion area (within 15 feet of fans)**	SAT						
4.3.2.2[2]	Room 201		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT						
4.3.2.2[2]	Room 204		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT						

ATTACHMENT B-2: Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	12-31-18						
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	PT						
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT						
4.3.2.2[2]	Room 207		0 lb/ft² combustibles within 3.5 feet perpendicular from the face of the PMMA, the width of the aisles between gloveboxes, or up to the walls of the rooms, whichever is less	SAT						
			Completion time	0750						
			OC Operator Review and Page Count Complete (initials)	✓ ARJ						

[1] Non TSR requirement

[2] SR 4.1.1.7 applies during Mode 1 as stated in LCO 3.1.1. SR's 4.1.3.4 and 4.3.2.2 apply during both Mode 1 and Mode 2.

Note: Rooms 201, 206 & 207 **must be** entered for surveillance even if they are red lit, room 204 can be viewed through the window. Notify the Operations Center of any rooms that are unable to be entered for the performance of rounds, Operations Center will make a logbook entry recording the room(s) and reason(s) for non-entry. Document in the comments section any room(s) and reason(s) they were unable to be entered for rounds.

Completed by: Paul Trujillo Date 12-31-18 Time 0750 Reviewed by: _____ Date: _____ Time: _____

On-duty Supervisor

Comments: _____

ATTACHMENT C: Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

NOTE: This entire Attachment is to be treated as Surveillance Requirement implementing actions.

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	039746	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103761
	Calibration Expiration Date:	6-15-19	Calibration Expiration Date:	7-23-19	Calibration Expiration Date:	7-23-19
	PF-11 Thermometer File No.:	039745	PF-11 Thermistor File No.:	105353	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	6-15-19	Calibration Expiration Date:	8-7-19	Calibration Expiration Date:	8-7-19

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature										
Daily (September through April only)		Date:	12-31-18							
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	PT						
SR	Description	Acceptance Criteria							
NA	ENSURE *M&TE Calibration Data* above is recorded and calibration dates have not elapsed.	Calibration dates have not elapsed.	SAT/UNSAT	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT	SAT /UNSAT
4.3.1.1[1]	RECORD fire water storage tank V-701 temperature	≥ 42.1 F	51.6						
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	53.8						
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	PT 60.8 ~~51.6~~						
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	12-31-18 70.6						
		Completion Time:	0845						
		OC Operator Review and Page Count Complete (initials)	AB						

[1] Temperatures should be recorded using Reference Thermometer FLUKE Model 1524 connected to Thermistor Probe Fluke Model 5610-9 (or approved engineered equivalent).

Completed by: Paul Trujillo Date 12-31-18 Time 0845

Reviewed by: _____ Date: _____ Time: _____
On-duty Supervisor

Comments: _____

Attachment A, Surveillance Due Date Change Request

(Page 1 of 1)

SI/STP/ISI #	Scheduled Due Date	Proposed Due Date	Maximum Allowable Extension of Due Date
STP-004BV	12/19/18	12/19/18	12/19/18

Justification:

Daily rounds not able to be completed due to red lit south basement. Extended rounds 6 hours to allow completion with RCT support.

Prepared by: [signature] 12/19/18
Preparer/System Engineer Date

Reviewed by: [signature] 12/19/2018
Operations Center On-Duty Supervisor Date

Approved by: [signature] 12/19/18
Operations Manager Date

Attachment A, Surveillance Due Date Change Request

(Page 1 of 1)

SI/STP/ISI #	Scheduled Due Date	Proposed Due Date	Maximum Allowable Extension of Due Date
STP-004 BV ADONO 12/11/18	11 Dec 2018	11 Dec 2018	6 hrs

Justification:

Unable to enter Rm 207 due to decontamination efforts

Prepared by: [signature] 12/11/2018
Preparer/System Engineer — Date

Reviewed by: [signature] 12/11/2018
Operations Center On-Duty Supervisor — Date

Approved by: [signature] 12/11/18
Operations Manager — Date

Los Alamos National Laboratory

AI 856 | Operating Permit P100-R2M2 & P100-R2M3

Monitoring Period July 1 – December 31, 2018

Attachment A806.A. – External Combustion

20.2.61 NMAC Opacity

Use of pipeline quality natural gas at LANL meets the requirement at Condition A805.A and constitutes compliance with 20.2.61 NMAC. Opacity did not exceed 20% over a 10-minute period and no visible emissions occurred during steady state operation.

Los Alamos National Laboratory

AI 856 | Operating Permit P100-R2M2 & P100-R2M3

Monitoring Period July 1 – December 31, 2018

Attachment A806.C. – External Combustion

20.2.61 NMAC Opacity – Units RLUOB-BHWs Fuel Oil-Fired

No fuel oil was used in the RLUOB Boilers during this certification period and no opacity measurements were required.

ATTACHMENT A807.A.

External Combustion

Natural Gas Usage and Rolling 12-Month Total

2018 Small Boilers Data Entry / Gas Use

	Month	Metered Boilers: TA-55 Boiler Gas Use (Mscf)[b] BHW-1B (B-602) ID (B-0016)	Metered Boilers: TA-55 Boiler Gas Use (Mscf)[b] BHW-2B (B-603) ID (B-0017)	Metered Boilers: CMRR-RLUOB Gas Use (Mscf) All 3 Boilers NMED IDs 90, 104, and 105	Total Gas Use for all Small Boilers[a] (Mscf)	Total Gas Use for all Small Boilers[a] (MMscf)	Non-Metered Gas Use (MMscf)	12-Month Rolling Total for all Small Boilers (MMscf)[c]
Data Entry	January	526	1715	329	61,770	61.77	59.20	381.08
	February	5	2115	228	51,901	51.90	49.55	384.44
	March	2	2048	253	49,678	49.68	47.38	392.64
	April	581	1094	186	30,449	30.45	28.59	387.25
	May	183	1039	75	22,507	22.51	21.21	387.36
	June	1	1048	57	6,301	6.30	5.20	385.38
	July	30	1064	61	5,933	5.93	4.78	383.97
	August	199	1036	69	8,553	8.55	7.25	382.54
	September	1	968	45	11,236	11.24	10.22	381.52
	October	67	1856	150	36,389	36.39	34.32	386.80
	November	1	2394	242	58,972	58.97	56.34	401.18
	December	2	2674	423	67,342	67.34	64.24	411.03
	TOTAL	1598	19051	2118	411,031	411.03	388.26	
							12 Month Limit (MMscf) =	**870**

Reviewed by: Ashley Bruggeman 1/08/2019

ATTACHMENT A807.B.

External Combustion

RLUOB Boilers Natural Gas and Fuel Oil Usage

Boilers at the RLUOB did not use fuel oil during this certification period.

Please see Attachment A807.A. for natural gas use by the RLUOB boilers

AI 856 | Los Alamos National Laboratory

Operating Permit P100-R2M2 & P100-R2M3

Monitoring Period July 1 – December 31, 2018

Attachment A807.C. & D. – External Combustion

Fuel Oil Sulfur Content

LANL purchases only fuel oil with ultra-low sulfur content; fuel oil was not used in the TA-55-6 Boilers or RLUOB Boilers during this reporting period

Attachment A807.E. – External Combustion Initial Compliance Testing (unit RLUOB-BHW-4)

Unit RLUOB-BHW-4 has not been installed.

ATTACHMENT A807.F.

External Combustion

Operational Inspection for Sources listed in Table 800.A.

Facility : F08 **Unit :** **Proj :**
Task Title : ST 1Y TA16 STEAM PLANT WATERSIDE/ FIRESIDE PM
W/O Type : PM **W/O Group :** UTIL **Task Priority :** 4
Planner : 189099 LOPEZ THERESA M
W/O Title : ST 1Y TA16-1484 STEAM PLANT WATERSIDE/ FIRESIDE PM
Written To : TA16-1484 STEAM PLANT BOILERS
Task Dspln : FTTR **Due Date :** 10/31/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** TASK SPECIFC

Work Order Task

00605943 01

MASTER

Date: 02/15/2018

Work Order Task Written To

Facility : F08 **Unit :** **Op Sys :**
Room : **Area :** **Sys/Cls :**
Equipment : **Component :**
Location :
Job Type : PM
Tag 1 : **Tag 2 :**
Work Item : TA16-1484 STM BOILER **Ops Review Reqd :**

Authorization

Start Permission : Glenn martinez **Start Date :** 3-24-18

Complete Notice : Glenn Martinez **Complete Date :** 10-11-18

Work Order Task Instructions

PERFORM PM PER 76-28-010 WATERSIDE/ FIRESIDE CHECKLIST

ENGINEERING TO PROVIDE MAINTENANCE WITH SUPPORT, OVERSIGHT & TRAINING THROUGHOUT PM
.

QC Requirements / Comments

Facility : F08 **Unit :** **Proj :**
Task Title : ST 1Y TA16 STEAM PLANT WATERSIDE/ FIRESIDE PM
W/O Type : PM **W/O Group :** UTIL **Task Priority :** 4
Planner : 189099 LOPEZ THERESA M
W/O Title : ST 1Y TA16-1484 STEAM PLANT WATERSIDE/ FIRESIDE PM
Written To : TA16-1484 STEAM PLANT BOILERS
Task Dspln : FTTR **Due Date :** 10/31/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** TASK SPECIFC

Work Order Task

00605943 01

MASTER

Date: 02/15/2018

Work Completion Signatures

Name	Function/Dept.	Date
Jason Sparks 122088	fitter/log-cs	10-10-18

Comments

(rework?)

Cost Accounting

Cost Center : P2030A **Activity :** 640CL000

Percentage : 100 **Acct No :** XU5000 **Sub Acct :** 7E2P0016

Facility : F08 **Unit :** **Proj :**
Task Title : ST 1Y TA16 STEAM PLANT WATERSIDE/ FIRESIDE PM
W/O Type : PM **W/O Group :** UTIL **Task Priority :** 4
Planner : 189099 LOPEZ THERESA M
W/O Title : ST 1Y TA16-1484 STEAM PLANT WATERSIDE/ FIRESIDE PM
Written To : TA16-1484 STEAM PLANT BOILERS
Task Dspln : FTTR **Due Date :** 10/31/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** TASK SPECIFC

Work Order Task

00605943 01

MASTER

Date: 02/15/2018

TA 16 Bldg 1484 wo#

69A

TA 9&16 Boiler Limit and Control Checklist				
Steam Header Controls	**Set Point Check**		**Operational Check**	
Lead Operating Pressure Control (Range 80psig +/- 5)	68 / 79 psig		(Pass) (Fail)	
Lag Operating Pressure Control (Range 80psig +/- 5)	69 / 80 psig		(Pass) (Fail)	
Boiler Controls	**Set Point Check**		**Operational Check**	
	BSA	**BSB**	**BSA**	**BSB**
Operating Pressure Control (Range 85psig +/- 5)	86 psig	85 psig	(Pass) (Fail)	(Pass) (Fail)
High limit pressure cutoff (Range 95psig +/- 5)	91 psig	89 psig	(Pass) (Fail)	(Pass) (Fail)
High pressure Gas cut-off switch(range 15"-17" i/wc)	16 i/wc	17 i/wc	(Pass) (Fail)	(Pass) (Fail)
Low pressure Gas cut-off switch (range 3"-5" i/wc)	5 i/wc	5 i/wc	(Pass) (Fail)	(Pass) (Fail)
Air proving switch (range 3"-5" i/wc)	4 i/wc	5 i/wc	(Pass) (Fail)	(Pass) (Fail)
Lo-Nox Controler set below 68 psig	25 psi	25 psi	(ON) (OFF)	(ON) (OFF)
Boiler Controls	**Operational Checks Only**			
	BSA		**BSB**	
Primary Low water Cutoff	(Pass) (Fail)		(Pass) (Fail)	
Secondary Low Water Cut-off	(Pass) (Fail)		(Pass) (Fail)	
Pop Test Safety Relief Valve (provide date tested)	DATE: 9-24-18		DATE: 9-24-18	
Building Controls	**Operational Checks Only**			
Building Exhuast Fan	(Pass) (Fail)			
Emergency Shut down door switches	Door#1	(Pass) (Fail)	Door#2	(Pass) (Fail)

NOTE: TA16-1491 Boilers Lead and Lag operate at 40psig +-5. Boiler operator set above lead and Lag but below Highlimit. Hi Limit set at 45psig +- 3psig

Comments

TEST REPORT

LAM VALVES INC.

1502 Lombardy , ZIP 77023-4529
P.O. Box 230568, ZIP 77223-0568
Houston, Texas
713/923-7303 • FAX 713/923-9142

DATE 3/6/2018
CUSTOMER DAHL INC C/O HAJOCA
CUSTOMER PO# 193-P003331557
VALVE SIZE & TYPE 2" KUNKLE 6021HHT01-AM
SET PRESSURE 100 PSIG
MEDIUM & CODE

◯ AIR/GAS ◯ ASME UV.DIV.1
X STEAM X ASME V
◯ LIQUID ◯ NON-CODE

7-3-2018 TA 16-1484 Boiler A

QUALITY CHECK LIST

BEFORE SETTING

Spring #	X
Disc	X
Nozzle or Seat	X
Stem	X
Body	X
Lever & Pin	X
Adjusting Rings	X
Adjusting Ring Lock Pin	X
Compression Screw	X
HYD Stamped	X
Cap/Hood	X

AFTER SETTINGS

Base Tight	X
Adjusting Rings Set	X
Adjusting Rings Pin Set	X
Compr. Screw Locknut Tight	X
Seals Installed	X
Name Tag Stamped	X

SERIAL NO.	PREOPEN PRESSURE	ACTUAL SET PRESSURE	RESEAT PRESSURE
I-22727-A	N/A	102.2 PSI	96.4 PSI
I-22727-B	N/A	102.7 PSI	97.8 PSI

BACK PRESSURE TEST YES ◯ NO X

NOTE: 1) ALL TESTS INCLUDE SEAT TIGHTNESS TEST AT 90% SET PRESSURE, IN ACCORDANCE WITH FACTORY SPECIFICATIONS

2)WHEN APPLICABLE, CLOSED BONNET VALVES ARE TESTED AT 75 PSIG BACK PRESSURE

WE HEREBY CERTIFY THAT THE MATERIAL COVERED BY THE CERTIFICATE HAS BEEN TEDSTED IN ACCORDANCE WITH, AND HAS BEEN FOUND TO MEET THE APPLICABLE REQUIREMENTS FOR THE MATERIAL, INCLUDING AND SPECIFICATION FORMING A PART OF THE DESCRIPTION.

SIGNED:

TITLE: ◯ VALVE TECH ◯ JOEL RODRIGUEZ

The material listed on your Purchase Order 483712
Meets the conformance requirements of the information contained in this document.
Inspected by : Tom Brown
Dahl Plumbing of Santa Fe

ASME Assemblers Certificate of Conformance for Pressure Relief Valves
Form P-8 (Section 1)

1.) Manufactured (or assembled) by Lam Valves Inc. 1502 Lombardy St Houston, TX 77023

2.) Table of Code symbol stamped items: 7-3-2018 TA16-1484 Boiler A

ID (serial No.)	YEAR BUILT	NB	Cert#	QTY	TYPE	Size (NPS)	Set Pressure, psig (nameplate)	Capacity	Test Fluid	Date	CI NAME	CI Signature
I-22727	2018	LMV-A36324		2	6021HHT01	2"	100 PSI	4593 LB/HR	STEAM	3/6/2018	Luis Castillo	Luis Castillo
A B											Joel Rodriguez	Joel Rodriguez

3.) Remarks:

CERTIFICATE OF SHOP COMPLIANCE

By the signature of the Certified Individual (CI) noted above, we certify that the statements made in this report are correct and that all details for the design, material, construction, and workmanship of the pressure relief devices conform with the requirements of Section 1 of the ASME Boiler and Pressure Vessel Code.

V Certificate of Authorization No. 18513 Expires January 8, 2019

Date: 3/6/2018 Signed: LUIS CASTILLO (responaible representive) Name: Lam Valves Inc. (Assembler)

The material listed on your Purchase Order 483712
Meets the conformance requirements of the information contained in this document.
Inspected by : Tom Olson
Dahl Plumbing of Santa Fe

TEST REPORT

LAM VALVES INC.

1502 Lombardy , ZIP 77023-4529
P.O. Box 230568, ZIP 77223-0568
Houston, Texas
713/923-7303 • FAX 713/923-9142

DATE	3/1/2018
CUSTOMER	DAHL INC C/O HAJOCA
CUSTOMER PO#	193-P003330321
VALVE SIZE & TYPE	1 1/2" KUNKLE 6021GGT01-AM
SET PRESSURE	100 PSIG
MEDIUM & CODE	◯ AIR/GAS ◯ ASME UV.DIV.1
	X STEAM X ASME V
	◯ LIQUID ◯ NON-CODE

7-3-2018 TA16-1484 Boiler A

QUALITY CHECK LIST

BEFORE SETTING

Spring #	X
Disc	X
Nozzle or Seat	X
Stem	X
Body	X
Lever & Pin	X
Adjusting Rings	X
Adjusting Ring Lock Pin	X
Compression Screw	X
HYD Stamped	X
Cap/Hood	X

AFTER SETTINGS

Base Tight	X
Adjusting Rings Set	X
Adjusting Rings Pin Set	X
Compr. Screw Locknut Tight	X
Seals Installed	X
Name Tag Stamped	X

SERIAL NO.	PREOPEN PRESSURE	ACTUAL SET PRESSURE	RESEAT PRESSURE
I-22511-2A	N/A	101.5 PSIG	95.7 PSIG
I-22511-2B	N/A	101.1 PSIG	96.8 PSIG

BACK PRESSURE TEST YES ◯ NO X

NOTE: 1) ALL TESTS INCLUDE SEAT TIGHTNESS TEST AT 90% SET PRESSURE, IN ACCORDANCE WITH FACTORY SPECIFICATIONS

2)WHEN APPLICABLE, CLOSED BONNET VALVES ARE TESTED AT 75 PSIG BACK PRESSURE

WE HEREBY CERTIFY THAT THE MATERIAL COVERED BY THE CERTIFICATE HAS BEEN TEDSTED IN ACCORDANCE WITH, AND HAS BEEN FOUND TO MEET THE APPLICABLE REQUIREMENTS FOR THE MATERIAL, INCLUDING AND SPECIFICATION FORMING A PART OF THE DESCRIPTION.

SIGNED:

TITLE: ◯ VALVE TECH ◯ JOEL RODRIGUEZ

The material listed on your Purchase Order 483714
Meets the conformance requirements of the information contained in this document.
Inspected by :
Dahl Plumbing of Santa Fe

ASME Assemblers Certificate of Conformance for Pressure Relief Valves
Form P-8 (Section 1)

1.) Manufactured (or assembled) by Lam Valves Inc. 1502 Lombardy St Houston, TX 77023
2.) Table of Code symbol stamped items: 7-3-2018 - TA 16-1484 Boiler A

ID (serial No.)	YEAR BUILT	NB	Cert#	QTY	TYPE	Size (NPS)	Set Pressure, psig (nameplate)	Capacity	Test Fluid	Date	CI NAME	CI Signature
I-22511	2018	LMV-A36324		2	6021GGT01	1-1/2"	100 PSI	2948 LB/HR	STEAM	3/1/2018	Luis Castillo	Luis Castillo
2A 2B											Joel Rodriguez	Joel Rodriguez

3.) Remarks:

CERTIFICATE OF SHOP COMPLIANCE

By the signature of the Certified Individual (CI) noted above, we certify that the statements made in this report are correct and that all details for the design, material, construction, and workmanship of the pressure relief devices conform with the requirements of Section 1 of the ASME Boiler and Pressure Vessel Code.

V Certificate of Authorization No. 18513 Expires January 8, 2019

Date: 3/1/2018 Signed: LUIS CASTILLO (responaible representive) Name: Lam Valves Inc. (Assembler)

The material listed on your Purchase Order 483714
Meets the conformance requirements of the information contained in this document.
Inspected by : [signature]
Dahl Plumbing of Santa Fe

LANL TA-9/16 boiler Inspections:

Summer 2018:

Overall the boilers are in excellent condition. There is virtually no scale left on the boilers, so the heat transfer is outstanding. The exposed steel is in various conditions. Some look rusty while some are black and shiny. The goal is to get to black on all steel surfaces and that goal will be slowly achieved over the next few years. **MANY THANKS TO JASON AND HIS CREW FOR ALL OF THE HARD WORK!**

TA-9 Boilers A and B

Boiler A: The boiler looked almost identical to what was seen last year. Virtually no scale seen. The boilers are about 2/3 black steel and 1/3 red steel probably iron returning in the condensate. There are no heat transfer issues since the tubes are all clean. No safety issues

Boiler B: The tubes are all clean steel but now the good dark metal surfaces are predominant with smaller some red surfaces and some light areas. Overall, very good with no heat transfer issues and no safety concerns.

The make-up tank was reported to have been quite dirty with material coming back from the new condensate lines.

16-1490 Boilers A and B:

Boiler A: Almost perfect! There is more black on the tubes with less powder seen on the tubes. No scale seen just bare metal.

Boiler B: Perfect! Excellent black/red magnetite on all tubes that can be seen. No safety or heat transfer issues.

The make-up tank was reported to have been very clean.

16-1491 Boilers A and B:

Boiler A: Very clean. There is a good magnetite film from front to back with small spots of red and a few shiny areas. No safety or heat transfer concerns.

Boiler B: Again basically clean and similar Boiler A. There is a great magnetite layer at the front end of the tubes with areas to the back showing some dark red, maybe some flash rust taking place when the boiler was opened. Again, no heat transfer or safety issues.

The make-up tank was reported to have been clean.

16-1492 Boilers A and B:

Boiler A: Last year the boiler tubes were red from front to back. There obviously has been some iron returning with the condensate that is changing the tube colors. However, the tubes are all steel with no scale. No safety or efficiency issues just some iron returning in the condensate.

Boiler B: Bottoms of the tubes are very clean with slight white discoloration, otherwise good color for steel. Tops of the tubes are shiny black to red color with nothing else present. There were no oxygen corrosion tubercles seen this year. The tubes are clean with no safety or operational issues seen.

16-1487 Boiler A and B:

Boiler A: The tops of the tubes are perfect. The bottoms of the tubes don't have any deposits and the white substance seen last year is completely gone. Basically, all the old scale is now gone. The tubes are all smooth. The white areas should be completely gone by next summer. No safety or efficiency concerns.

Boiler B: The tubes are almost perfect. The tubes have no scale on any surfaces. The steel looks to be brown instead of black but the change to magnetite will take some time. Very good heat transfer surfaces.

The make-up tank was reported to have been clean.

16-1480 Boilers A and B:

Boiler A: Still has good steel surfaces dark purple tops and lighter purple bottoms. Jason reported that there was a small amount of mud removed from the bottom after opening. There are no safety or efficiency concerns.

Boiler B: Same colors as seen in boiler A but the tubes are not as smooth. The rougher tubes are the same as last year but should get better over time but do not present any safety or efficiency concerns.

The make-up tank was reported to have been quote dirty with an appreciable amount of dirt/rust returning in the condensate.

16-1483 Boiler A:

The boiler looks the same as last year, really great. Mostly black magnetite with a bit of flash rust on the tops of the tubes. The bottoms of the tubes appear to be a little redder than the tops. There are no safety concerns or efficiency problems just a bit of iron returning in the condensate that is laying out on the tubes. The additional feed of amine would help to prevent the iron issues.

Jason reported that the make-up tank was pretty dirty with material returning in the condensate.

16-1484 Boiler A and B:

Boiler A: The steel tubes are exposed across all the boiler tubes. The scale is completely gone. The magnetite layer is forming across the tops of the tubes and the bottoms have a whiter look to them. Again, there are no safety or efficiency issues and the boiler will only get better over time.

Boiler B: Again, the tubes are entirely exposed steel with no scale. The tubes have the same white look as does boiler A except the tubes are darker black around the white areas. Safety and heat transfer efficiency is not in question. These boilers/tubes are taking a long time to descale compared to the other boilers, but they are still making good headway.

Jason reported that the make-up tank was clean.

TEST REPORT

LAM VALVES INC.

1502 Lombardy , ZIP 77023-4529
P.O. Box 230568, ZIP 77223-0568
Houston, Texas
713/923-7303 • FAX 713/923-9142

DATE 3/6/2018
CUSTOMER DAHL INC C/O HAJOCA
CUSTOMER PO# 193-P003331557
VALVE SIZE & TYPE 2" KUNKLE 6021HHT01-AM
SET PRESSURE 100 PSIG
MEDIUM & CODE ◯ AIR/GAS ◯ ASME UV.DIV.1
X STEAM X ASME V
◯ LIQUID ◯ NON-CODE

TA 16-1484 Boiler B

QUALITY CHECK LIST

BEFORE SETTING

Spring #	X
Disc	X
Nozzle or Seat	X
Stem	X
Body	X
Lever & Pin	X
Adjusting Rings	X
Adjusting Ring Lock Pin	X
Compression Screw	X
HYD Stamped	X
Cap/Hood	X

AFTER SETTINGS

Base Tight	X
Adjusting Rings Set	X
Adjusting Rings Pin Set	X
Compr. Screw Locknut Tight	X
Seals Installed	X
Name Tag Stamped	X

SERIAL NO.	PREOPEN PRESSURE	ACTUAL SET PRESSURE	RESEAT PRESSURE
I-22727-A	N/A	102.2 PSI	96.4 PSI
I-22727-B	N/A	102.7 PSI	97.8 PSI

BACK PRESSURE TEST YES ◯ NO X

7-3-2018

NOTE: 1) ALL TESTS INCLUDE SEAT TIGHTNESS TEST AT 90% SET PRESSURE, IN ACCORDANCE WITH FACTORY SPECIFICATIONS

2)WHEN APPLICABLE, CLOSED BONNET VALVES ARE TESTED AT 75 PSIG BACK PRESSURE

WE HEREBY CERTIFY THAT THE MATERIAL COVERED BY THE CERTIFICATE HAS BEEN TEDSTED IN ACCORDANCE WITH, AND HAS BEEN FOUND TO MEET THE APPLICABLE REQUIREMENTS FOR THE MATERIAL, INCLUDING AND SPECIFICATION FORMING A PART OF THE DESCRIPTION.

SIGNED:

TITLE: ◯ VALVE TECH ◯ JOEL RODRIGUEZ

The material listed on your Purchase Order 483712
Meets the conformance requirements of the information contained in this document.
Inspected by : Tom Blom
Dahl Plumbing of Santa Fe

ASME Assemblers Certificate of Conformance for Pressure Relief Valves
Form P-8 (Section 1)

1.) Manufactured (or assembled) by Lam Valves Inc. 1502 Lombardy St Houston, TX 77023

2.) Table of Code symbol stamped items: 7-3-2018 - TA 16 - 1484 Boiler B

ID (serial No.)	YEAR BUILT	NB	Cert#	QTY	TYPE	Size (NPS)	Set Pressure, psig (nameplate)	Capacity	Test Fluid	Date	CI NAME	CI Signature
I-22727	2018	LMV-A36324		2	6021HHT01	2"	100 PSI	4593 LB/HR	STEAM	3/6/2018	Luis Castillo	Luis Castillo
A B											Joel Rodriguez	Joel Rodriguez

3.) Remarks:

CERTIFICATE OF SHOP COMPLIANCE

By the signature of the Certified Individual (CI) noted above, we certify that the statements made in this report are correct and that all details for the design, material, construction, and workmanship of the pressure relief devices conform with the requirements of Section 1 of the ASME Boiler and Pressure Vessel Code.

V Certificate of Authorization No. 18513 Expires January 8, 2019

Date: 3/6/2018 Signed: LUIS CASTILLO (responaible representive) Name: Lam Valves Inc. (Assembler)

The material listed on your Purchase Order 483712
Meets the conformance requirements of the information contained in this document.
Inspected by : Tom Blow
Dahl Plumbing of Santa Fe

TEST REPORT

LAM VALVES INC.

1502 Lombardy , ZIP 77023-4529
P.O. Box 230568, ZIP 77223-0568
Houston, Texas
713/923-7303 • FAX 713/923-9142

DATE	3/1/2018
CUSTOMER	DAHL INC C/O HAJOCA
CUSTOMER PO#	193-P003330321
VALVE SIZE & TYPE	1 1/2" KUNKLE 6021GGT01-AM
SET PRESSURE	100 PSIG
MEDIUM & CODE	◯ AIR/GAS ◯ ASME UV.DIV.1
	X STEAM X ASME V
	◯ LIQUID ◯ NON-CODE

7-3-2018 TA 16-1484 Boiler B

QUALITY CHECK LIST

BEFORE SETTING

Spring #	X
Disc	X
Nozzle or Seat	X
Stem	X
Body	X
Lever & Pin	X
Adjusting Rings	X
Adjusting Ring Lock Pin	X
Compression Screw	X
HYD Stamped	X
Cap/Hood	X

AFTER SETTINGS

Base Tight	X
Adjusting Rings Set	X
Adjusting Rings Pin Set	X
Compr. Screw Locknut Tight	X
Seals Installed	X
Name Tag Stamped	X

SERIAL NO.	PREOPEN PRESSURE	ACTUAL SET PRESSURE	RESEAT PRESSURE
I-22511-2A	N/A	101.5 PSIG	95.7 PSIG
I-22511-2B	N/A	101.1 PSIG	96.8 PSIG

BACK PRESSURE TEST YES ◯ NO X

NOTE: 1) ALL TESTS INCLUDE SEAT TIGHTNESS TEST AT 90% SET PRESSURE, IN ACCORDANCE WITH FACTORY SPECIFICATIONS

2)WHEN APPLICABLE, CLOSED BONNET VALVES ARE TESTED AT 75 PSIG BACK PRESSURE

WE HEREBY CERTIFY THAT THE MATERIAL COVERED BY THE CERTIFICATE HAS BEEN TEDSTED IN ACCORDANCE WITH, AND HAS BEEN FOUND TO MEET THE APPLICABLE REQUIREMENTS FOR THE MATERIAL, INCLUDING AND SPECIFICATION FORMING A PART OF THE DESCRIPTION.

SIGNED:

TITLE: ◯ VALVE TECH ◯ JOEL RODRIGUEZ

The material listed on your Purchase Order 483714
Meets the conformance requirements of the information contained in this document.
Inspected by :
Dahl Plumbing of Santa Fe

ASME Assemblers Certificate of Conformance for Pressure Relief Valves
Form P-8 (Section 1)

1.) Manufactured (or assembled) by Lam Valves Inc. 1502 Lombardy St Houston, TX 77023

2.) Table of Code symbol stamped items: 7-3-2018 TA 16-1484 Boiler B

ID (serial No.)	YEAR BUILT	NB	Cert#	QTY	TYPE	Size (NPS)	Set Pressure, psig (nameplate)	Capacity	Test Fluid	Date	CI NAME	CI Signature
I-22511	2018	LMV-A36324		2	6021GGT01	1-1/2"	100 PSI	2948 LB/HR	STEAM	3/1/2018	Luis Castillo	Luis Castillo
2A 2B											Joel Rodriguez	Joel Rodriguez

3.) Remarks:

CERTIFICATE OF SHOP COMPLIANCE

By the signature of the Certified Individual (CI) noted above, we certify that the statements made in this report are correct and that all details for the design, material, construction, and workmanship of the pressure relief devices conform with the requirements of Section 1 of the ASME Boiler and Pressure Vessel Code.

V Certificate of Authorization No. 18513 Expires January 8, 2019

Date: 3/1/2018 Signed: LUIS CASTILLO (responaible representive) Name: Lam Valves Inc. (Assembler)

The material listed on your Purchase Order 483714
Meets the conformance requirements of the information contained in this document.
Inspected by : Tom Bill
Dahl Plumbing of Santa Fe

BOILER OPERATING PERMIT

PO Box 1663
Los Alamos, NM 87545

National Board Owner-User Certificate No. 127

Inspection Due Date:	**07/31/19**		
Boiler ID No.:	BS-B		
Boiler Type:	Fire Tube	Manufacturer:	Sellers
National Board No.:	8333	Serial No.:	10290
Boiler Location:	TA16-1484		
Max. Allowable Working Pressure (MAWP):	150	PSIG	

LANL COMMISSIONED INSPECTOR

Name & Z#:	Brad Van Cleave, 231786
Signature:	
Commission No.:	298

Issuing Organization:	MSS-MP
LANL Comm. Insp. Supervisor:	Ben Swartz 235211

TA 16 Bldg 1484 wo# 605 943-01

TA 9&16 Boiler Limit and Control Checklist				
Steam Header Controls	**Set Point Check**		**Operational Check**	
Lead Operating Pressure Control (Range 80psig +/- 5)	80 psig		(Pass) (Fail)	
Lag Operating Pressure Control (Range 80psig +/- 5)	81 psig		(Pass) (Fail)	
Boiler Controls	**Set Point Check**		**Operational Check**	
	BSA	**BSB**	**BSA**	**BSB**
Operating Pressure Control (Range 85psig +/- 5)	87 psig	86 psig	(Pass) (Fail)	(Pass) (Fail)
High limit pressure cutoff (Range 95psig +/- 5)	91 psig	89 psig	(Pass) (Fail)	(Pass) (Fail)
High pressure Gas cut-off switch(range 15"-17" i/wc)	16 "/wc	17 "/wc	(Pass) (Fail)	(Pass) (Fail)
Low pressure Gas cut-off switch (range 3"-5" i/wc)	5 "/wc	5 "/wc	(Pass) (Fail)	(Pass) (Fail)
Air proving switch (range 3"-5" i/wc)	5 "/wc	5 "/wc	(Pass) (Fail)	(Pass) (Fail)
Lo-Nox Controler set below 68 psig	25 psi	25 psi	(ON) (OFF)	(ON) (OFF)
Boiler Controls	**Operational Checks Only**			
	BSA		**BSB**	
Primary Low water Cutoff	(Pass) (Fail)		(Pass) (Fail)	
Secondary Low Water Cut-off	(Pass) (Fail)		(Pass) (Fail)	
Pop Test Safety Relief Valve (provide date tested)	DATE: 4-18-18		DATE: 4-18-18	
Building Controls	**Operational Checks Only**			
Building Exhuast Fan	(Pass)(Fail)			
Emergency Shut down door switches	Door#1	(Pass) (Fail)	Door#2	(Pass) (Fail)

NOTE: TA16-1491 Boilers Lead and Lag operate at 40psig +-5. Boiler operator set above lead and Lag but below Highlimit. Hi Limit set at 45psig +- 3psig

Comments

BOILER OPERATING PERMIT

PO Box 1663
Los Alamos, NM 87545

National Board Owner-User Certificate No. 127

Inspection Due Date:	**07/31/19**		
Boiler ID No.:	BS-A		
Boiler Type:	Fire Tube	Manufacturer:	Sellers
National Board No.:	8334	Serial No.:	10291
Boiler Location:	TA16-1484		
Max. Allowable Working Pressure (MAWP):	150	PSIG	

LANL COMMISSIONED INSPECTOR

Name & Z#:	Brad Van Cleave, 231786
Signature:	
Commission No.:	298
Issuing Organization:	MSS-MP
LANL Comm. Insp. Supervisor:	Ben Swartz 235211

TA16-1401

Light off / Main Flame

BACHARACH, INC.
PCA 3
SN: RW1002

Time: 05:30:27 PM
Date: 11/07/18

Fuel
NGAS

O_2	4.0 %
CO	23 ppm
Eff	83.5 %
CO_2	9.5 %
T-Stk	360 °F
T-Air	84.8 °F
EA	21.4 %
CO(0)	29 ppm
NO	52 ppm
NO_2	6 ppm
NOx	57 ppm
SO_2	*** ppm
NO(0)	64 ppm
NO_2(0)	7 ppm
NOx(0)	71 ppm
SO_2(0)	*** ppm

Comments:

BSB 1484

Light off

BACHARACH, INC.
PCA 3
SN: RW1002

Time: 05:55:17 PM
Date: 11/07/18

Fuel
NGAS

O_2	3.6 %
CO	18 ppm
Eff	83.5 %
CO_2	9.7 %
T-Stk	351 °F
T-Air	72.2 °F
EA	18.8 %
CO(0)	21 ppm
NO	54 ppm
NO_2	7 ppm
NOx	61 ppm
SO_2	*** ppm
NO(0)	66 ppm
NO_2(0)	8 ppm
NOx(0)	74 ppm
SO_2(0)	*** ppm

Comments:

BACHARACH, INC. LoNOx
PCA 3
SN: RW1002

Time: 05:49:18 PM
Date: 11/07/18

Fuel
NGAS

O_2	5.7 %
CO	21 ppm
Eff	83.1 %
CO_2	8.6 %
T-Stk	337 °F
T-Air	70.6 °F
EA	33.1 %
CO(0)	28 ppm
NO	47 ppm
NO_2	5 ppm
NOx	52 ppm
SO_2	*** ppm
NO(0)	64 ppm
NO_2(0)	7 ppm
NOx(0)	72 ppm
SO_2(0)	*** ppm

ments:

BACHARACH

BACHARACH, INC. LoNOx
PCA 3
SN: RW1002

Time: 06:05:29 PM
Date: 11/07/18

Fuel
NGAS

O_2	5.6 %
CO	12 ppm
Eff	83.0 %
CO_2	8.6 %
T-Stk	342 °F
T-Air	72.9 °F
EA	32.9 %
CO(0)	16 ppm
NO	25 ppm
NO_2	4 ppm
NOx	29 ppm
SO_2	*** ppm
NO(0)	34 ppm
NO_2(0)	6 ppm

BOILER	Location	Serial #	Boiler HP	Pilot Readings: High Pilot	Pilot Readings: Low Pilot	Lightoff Readings: Blower Pressure	Lightoff Readings: Manifold Pressure	Lightoff Readings: Combustion Chamber Pressure	Lightoff Readings: Main Gas Pressure	Lightoff Readings: O2 %	Lightoff Readings: CO ppm	Lightoff Readings: NOx ppm	Low NOx readings: Manifold Pressure	Low NOx readings: Combustion Chamber Pressure	Low NOx readings: Main Gas Pressure	Low NOx readings: O2 %	Low NOx readings: CO ppm	Low NOx readings: NOx ppm
BS-A	16-1480-A	100852-B	98	10	10	7.3	5.4	2.1	11.6	3.4	8	52	5.4	1.7	12.5	6.3	18	21
BS-B	16-1480-B	100852-A	98	10	6	7.3	5.3	2.3	9.7	4	29	50	5.3	2	10.5	6.3	6	27
BS-A	16-1483-A	100850-B	128	10	5	7.5	5.8	2.4	10.8	3.6	7	51	5.8	2.1	12.5	5.9	8	25
BS-B	16-1483-B	100850-A	128	11	5.5	7.5	5.6	2.3	13.5	3.4	6	51	5.6	2	15	6.5	18	22
BS-A	16-1484-A	100848-A	183	11	6.8	7.9	5.2	2.3	14	3.7	7	46	5.2	2	16	6	41	24
BS-B	16-1484-B	100848-B	183	12	7	8	5.5	2.3	15	3.4	11	53	5.5	2	16	6	10	21
BS-A	16-1487-A	100857-B	56	10	5	7.8	5.8	2.5	8.3	3.5	125	50	5.5	1.9	8.7	6.6	82	17
BS-B	16-1487-B	100857-A	56	11	5	7.8	5.6	2.7	7	3.6	18	47	5.6	2.3	7.3	6.3	26	21
BS-A	16-1490-A	100856-A	95	9.5	6.8	7.2	5	2.1	10.6	2.6	49	59	5	1.8	11.1	5.8	8	28
BS-B	16-1490-B	100856-B	95	9.4	6	7.1	4.9	2	8.6	3.4	9	59	4.9	1.8	9.3	5.7	6	28
BS-A	16-1491-A	100859-A	24	10	9	6.4	5.4	3	6.2	5.3	56	43	5.4	2.7	6.8	5.4	66	40
BS-B	16-1491-B	100859-B	24	10	9	7.8	5.6	3.5	8.2	5.3	95	39	5.6	2.7	8.5	7	22	29
BS-A	16-1492-A	100855-B	85	10	9	10	5.2	2.3	10	3	7	53	5.2	2	10.7	6.4	24	24
BS-B	16-1492-B	100860-A	70	10	8.5	8.3	5.3	2.5	8.5	3.1	46	51	5.3	2.1	9.2	5.6	28	26
BS-A	9-282-A	100849-A	153	11	10	8	5.1	2.2	13.6	3.7	11	57	5.1	1.9	15	6.4	6	27
BS-B	9-282-B	100849-B	153	11	6	8.4	5.6	2.4	11.3	3.8	12	52	5.6	2.1	12.5	5.9	8	26

BOILER	TA ___ BLD ___	Pilot Readings: High Pilot	Pilot Readings: Low Pilot	Lightoff Readings: Blower Pressure	Lightoff Readings: Main Gas Pressure at Low Gas Switch	Lightoff Readings: Main Gas Pressure at High Gas Switch	Lightoff Readings: O2 %	Lightoff Readings: CO ppm	Lightoff Readings: NOx ppm	Low NOx readings: Main Gas Pressure at Low Gas Switch	Low NOx readings: Main Gas Pressure at High Gas Switch	Low NOx readings: O2 %	Low NOx readings: CO ppm	Low NOx readings: NOx ppm
A	DATE: 11/7/18	11	6.6	6.6	13.5	10.3	4.0%	23	57	13.2	11.3	5.7	21	52
B	DATE: 11/7/18	11	6.8	7.5	14	110	3.7%	18	52	13.8	11.9	5.6	12	25
	DATE:								52					
	DATE:													
	DATE:													
	DATE:													
	DATE:													
	DATE:													

5.7

Facility : F04 **Unit :** **Proj :**
Task Title : 530365 ANNUAL BOILER MAINTENANCE
W/O Type : PM **W/O Group :** **Task Priority :** 04
Planner : 205296 SPARKS TERESA M
W/O Title : 530365 ANNUAL BOILER MAINTENANCE
Written To : 530365 BOILERS
Task Dspln : FTTR **Due Date :** 09/30/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** TASK SPECIFC

Work Order Task

00611861 01

MASTER

Date: 06/20/2018

Work Order Task Written To

Facility : F04 **Unit :** **Op Sys :** HW
Room : **Area :** **Sys/Cls :** R
Equipment : **Component :**
Location :
Job Type : PM
Tag 1 : **Tag 2 :**
Work Item : BLDG 365 BOILERS **Ops Review Reqd :**

Authorization

Start Permission : Kenny Madrid **Start Date :** 7/24/18

Complete Notice : Kenny Madrid 10/25/18 **Complete Date :**

Work Order Task Instructions

PERFORM and COMPLETE ATTACHED PMI

QC Requirements / Comments

Facility : F04 **Unit :** **Proj :**
Task Title : 530365 ANNUAL BOILER MAINTENANCE
W/O Type : PM **W/O Group :** **Task Priority :** 04
Planner : 205296 SPARKS TERESA M
W/O Title : 530365 ANNUAL BOILER MAINTENANCE
Written To : 530365 BOILERS
Task Dspln : FTTR **Due Date :** 09/30/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** TASK SPECIFC

Work Order Task

00611861 01

MASTER

Date: 06/20/2018

Work Completion Signatures

Name	Function/Dept.	Date
Ralph Padilla	boiler/log-cs	9/21/18
Lewis Mondragon	General Foreman	9/21/18

Comments

(rework?)

Cost Accounting

Cost Center : P2070A **Activity :** 640CL000

Percentage : 100 **Acct No :** XFM400 **Sub Acct :** 1G530365

Facility : F04 **Unit :** **Proj :**
Task Title : 530365 ANNUAL BOILER MAINTENANCE
W/O Type : PM **W/O Group :** **Task Priority :** 04
Planner : 205296 SPARKS TERESA M
W/O Title : 530365 ANNUAL BOILER MAINTENANCE
Written To : 530365 BOILERS
Task Dspln : FTTR **Due Date :** 09/30/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** TASK SPECIFC

Work Order Task

00611861 01

MASTER

Date: 06/20/2018

Worker engagement questions are intended to focus attention on the task and ensure uncertainties are addressed. Examples of worker engagement questions are provided below. Worker engagement questions should be tailored to the situation.

Each of the questions listed below will be discussed at each Pre-Job Brief with all affected personnel.

Topic	**Completed (X)**
What permits, permissions, or support are required to safely start this work?	X
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	X
What can cause us to go beyond the scope of the work?	X
What hazards in the work area may not have been considered during planning of this job	X

MARK RAMINEZ 9-20-18
234334

Form 2103

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD #_____ Revision #:_____ **Work Release**

By signing below, I verify this activity is compatible with current facility configuration and operating conditions.

FOD designated Operations Manager or other facility point-of-contact for work area

Signature/Z#/Date **(If required by FOD)**: _____

Note: For Standing IWD, release may be given concurrently with signatures on Part 2.

By signing below, I have verified the following:

- I have verified authorization by ensuring approval signatures of the RLM and FOD.
- I have jointly conducted a validation walkdown with workers to confirm the IWD can be performed as written, and that required initial conditions and other prerequisites are in place.
- The assigned workers are authorized and are competent to perform the work in a safe, secure, and environmentally responsible manner.
- I have conducted the pre-job briefing, and all workers (including support workers) have been briefed.
- I have ensured coordination with any required FOD work-area representatives (e.g., area work coordinators).

PIC (Signature/Z#/Date) **Required**: _____ 237334 9-20-18

Alternate PIC Signatures **acknowledges** PIC authority is assumed for the first time. *(Note: Alternate PICs are required to sign only once, but formal handoff includes conferring with previous PIC to obtain all required information associated with the handoff.)*

Alternate PIC (Signature/Z#/Date) **Required**: _____

Alternate PIC (Signature/Z#/Date) **Required**: _____

Pre-Job Brief Content

- What are the critical steps* or phases of this activity?
- How can we make a mistake at that point?
- What is the worst thing that can go wrong?
- What controls, preventive measures, and bounding conditions are needed?
- What work permits are required and how will we meet their requirements?
- What are the handoffs and coordination requirements among workers and multiple PICs?
- Are there hold-points including those that require sign-offs?
- What are the pause/stop work responsibilities and expectations (e.g., for unanticipated conditions or hazards)?
- How would we respond to alarms and emergencies?
- Are there lessons learned from previous similar work?
- Is other information needed to perform this activity in a safe, secure, and environmentally responsible manner?
- Does everyone agree to the work tasks/steps, hazards, and controls and commit to follow them?

* "Critical steps occur anytime human performance involves a substantial transfer of energy, or movement of solids, liquids, and gases, or the transmission of data and information that , if not performed under control, could cause serious harm to one or more important assets." (Performance Improvement, vol. 53, no. 9, October 2014)

Pre-Job Brief Attendance Roster

By signing below **as required**, I agree to the following:

- I agree to follow the work steps and implement the controls as written as applicable to my work assignments.
- I agree to pause/stop work when conditions or hazards change or when I encounter unexpected conditions during the execution of work, or when work cannot be performed as written, or instructions become unclear during execution.
- I confirm that I am authorized, qualified, and fit to perform the work.

Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)

Los Alamos NATIONAL LABORATORY EST. 1943	*Preventive Maintenance Instruction* Low- and High-Pressure Steam Boiler and Low-Temperature Water Heating Boiler Inspection, Testing, and Maintenance **403-A.006: Hot Water Boiler Yearly Fireside/Waterside Inspection and Maintenance**
Work Order No.: [illegible]	Equipment ID No.: [illegible]

Instructions: Enter the requested information. All items marked S or Y are satisfactory. Document all items marked U, N, or N/A in the Remarks section below, noting the step number and reason. Notify the foreman or supervisor of problems involving imminent danger.

TA: 53 Building: 160 Room: 403	
Date Inspected: 9 / 25 / 18	Inspectors: [illegible]

1.0 PRE-MAINTENANCE ACTIVITIES

NOTE Preoperational and pre-maintenance activities shall be conducted per the work order package, e.g., lockout/tagout, permits, special instructions, etc.

! WARNING If purging of gas lines will be required during this maintenance, ensure that the purging activity is addressed in the Integrated Work Document (IWD). The following must be addressed (see Master Specification 23 1123):

1. Purged fuel gases shall be directly vented to a safe location outdoors, away from personnel and ignition sources. This may be accomplished through permanent piping or temporary piping or hosing.
2. If it is not possible to vent purged gases outdoors, the following conditions must be met:
   a. Purging activity must be approved by the LANL Fire Marshal based on a documented justification detailing why outdoor venting is not possible and IWD.
   b. Gas concentration in the space to which the purge is vented shall be maintained at no more than 25% of the Lower Explosive Limit (LEL). For natural gas, the LEL is a concentration of 5% in air or 50,000 ppm. Therefore a maximum concentration of 12,500 ppm is allowed for natural gas. The concentration may be controlled by providing adequate ventilation or by limiting the amount of purge gas.
   c. Combustible gas detectors shall be used during the purging operation to monitor the gas concentration.
   d. Nonessential personnel shall be evacuated from the vicinity (including adjacent spaces) during the purging operation.
   e. Ignition sources in the purging space shall be controlled or eliminated.

NOTE All repair work, adjustments, or the replacement of parts shall be done in accordance with the manufacturer's procedures, specifications, recommendations, and instructions.

Remarks: _____

Work Order No.: 611861-01 Equipment ID No.: Boiler 142

1.1	Notify maintenance coordinator (MC) that work will be in progress on the boiler system.		Initials:

2.0 MAINTENANCE

NOTE These selected hot water boilers are mainly boilers with power burners that have refractory in front and rear flue doors or have heat extractors in the fire-tubes as are found in most one-pass boilers (Sellers). Hot water heating boilers with atmospheric burners generally require minimal fireside preventative maintenance. Contact the MSS-MP Boiler subject matter expert (SME) at 7-8550 with questions or concerns.

2.1	Lock and tag out electrical and all associated valves on boiler and shut off gas supply.		Initials:
2.2	Cool boiler, open air cock, and drain the boiler.		Initials:
2.3	Perform an internal and external inspection after thorough cleaning.	Circle one: S U N/A	Initials:
2.3.1	Check the fireside furnace and fire-tubes for any evidence of soot formation or corrosion.	Circle one: S U N/A	Initials:
2.3.2	Brush and vacuum furnace and fire-tubes if such conditions exist.		Initials:
2.3.3	Perform hydrostatic test based on the boiler's Maximum Allowable Working Pressure and/or facility potable water pressure as long as the potable water pressure is at least 30 psi over boiler operating pressure.	Circle one: S U N/A	Initials:
2.3.4	Note if any boiler tubes and/or fittings are leaking, and repair as required. For any major repairs (determined by the SME), request a work order for the repairs from the MC.		Initials:
2.3.5	On one-pass boilers (Sellers), check condition of all heat extractors.	Circle one: S U N/A	Initials:

Remarks: _____

Work Order No.: 61861 D1 Equipment ID No.: BAW 1K2

2.3.6	Check refractory materials.	Circle one: S U N/A	Initials:
2.3.7	Replace if needed.		Initials:
2.4	Perform maintenance on low-water cutoff float chamber and water feeder. Disassemble to ensure freedom from obstruction and proper functioning of the working parts.		Initials:
2.5	Perform routine burner maintenance.		Initials:
2.5.1	Observe temperature and operating pressure and general conditions.	Circle one: S U N/A	Initials:
2.5.2	Fire and cycle the burner.		Initials:
2.6	Perform routine maintenance of circulating pump and expansion pump equipment.		Initials:
2.6.1	Observe condition of expansion tank.	Circle one: S U N/A	Initials:
2.6.2	Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion.	Circle one: S U N/A	Initials:
2.6.3	Check the air pressure on the bladder-type expansion tanks.	Circle one: S U N/A	Initials:
2.6.4	Observe operation of circulating pumps.	Circle one: S U N/A	Initials:
2.6.5	Lubricate pump motors.		Initials:
2.7	Perform routine maintenance of entire combustion control equipment.		Initials:

Remarks:

Work Order No.: 6018861 01 Equipment ID No.: 3BW 162

2.7.1	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	Circle one: S U N/A	Initials:
2.7.2	Adjust air/fuel mixture as needed.		Initials:
2.7.3	Test flame detection devices on boilers with flame scanners.	Circle one: S U N/A	Initials:
2.7.4	Remove the flame scanner with the burner firing.		Initials:
NOTE	The burner should shut off as a flame failure condition.		
2.7.5	Clean the flame scanner, reinstall and test programmer.		Initials:
2.7.6	Check for proper operation as boiler goes through a firing cycle and light-off.	Circle one: S U N/A	Initials:
2.7.7	Check all electrical control and circuitry.	Circle one: S U N/A	Initials:
2.7.8	Inspect for cracked mercury tubes, separation of mercury, cracked insulators (probe type), jumper tube conditions, loose connections, poor or deteriorated wiring, improperly used bypass switches, cutoff switches wired in parallel, shut-offs installed at improper levels, wedges behind mercury tubes.	Circle one: S U N/A	Initials:
2.7.9	Observe operation of forced draft fan motors on boilers with power burners and induced draft fan motors on horizontal breeching where applicable.	Circle one: S U N/A	Initials:
2.7.10	Lubricate fan motors where necessary.		Initials:
2.8	Perform combustion and draft tests.		Initials:

Remarks: _____

Work Order No.: 6[illegible] Equipment ID No.: BAW 162

2.8.1 Visually inspect combustion.	Circle one: S U N/A	Initials:
NOTE Changes in flame shape, color, and sound are among early indicators of potential combustion-related problems. Changes may be due to changes in fuel pressure or gas/air linkage movement.		
2.9 Perform safety relief valve(s) pop test.	Circle one: S U N/A	Initials:
2.9.1 Check pressure-reducing valve.	Circle one: S U N/A	Initials:
2.9.2 Replace the strainer in the valve if needed.		Initials:
2.10 Perform slow drain test of low-water cutoff.	Circle one: S U N/A	Initials:
2.11 Inspect gas piping for proper support and tightness.	Circle one: S U N/A	Initials:
2.11.1 Inspect fuel supply system and gas controls.	Circle one: S U N/A	Initials:
2.11.2 Leak check gas controls and associated gas piping with a gas detector or soap suds.	Circle one: S U N/A	Initials:
2.12 Inspect boiler room ventilation louvers and intake.	Circle one: S U N/A	Initials:
2.12.1 Listen for any unusual noises or conditions and correct as necessary.	Circle one: S U N/A	Initials:
2.12.2 Report any needed corrections to the MC for corrective maintenance.		Initials:

Remarks: _____

Work Order No.: 611 661 01 Equipment ID No.: 3BW 102

2.12.3	Check combustion air supply openings to ensure that they are not closed or stopped up.	Circle one: S U N/A	Initials:
2.12.4	Inspect conditions of stacks and rain caps.	Circle one: S U N/A	Initials:
2.12.5	Inspect flue door gaskets to ensure they are in good condition, and properly secured.	Circle one: S U N/A	Initials:
2.12.6	Replace if necessary.		Initials:

3.0 POST-MAINTENANCE ACTIVITIES

NOTE Post-maintenance activities shall be conducted in accordance with the work order package instructions (e.g., lockout/tagout, special instructions, etc.).

3.1	Close and secure front and rear flue doors.		Initials:
3.2	Hook up all associated piping and refill boiler.		Initials:
3.3	Fire up boiler and check for air, gas, and water leaks.	Circle one: S U N/A	Initials:
3.4	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	Circle one: S U N/A	Initials:
3.5	Check pilot burners and ignition equipment for proper condition and adjustment.	Circle one: S U N/A	Initials:
3.6	Visually check burner for proper combustion.	Circle one: S U N/A	Initials:
3.7	Record all mechanical maintenance data, testing data, and other notable items.		Initials:

Remarks:

Work Order No.: 611861 01 Equipment ID No.: 340 168

NOTE	Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.		
3.8	Test water for proper chemical levels. Test and treat water as defined on Datasheet 403-A.002.	Circle one: S U N/A	Initials:
3.9	Record all mechanical maintenance data, testing data, and other notable items.		Initials:
3.10	Notify MC that work on the boiler system is complete.		Initials:

Name of Craft Worker: _____ Z Number: 301408

Signature: _____ Date: 9/24/18

Name of Craft Worker: _____ Z Number: _____

Signature: _____ Date: ___/___/___

Foreman Verification: Lewis Mondragon Z Number: 090036

Signature: Lewis Mondragon Date: 9/21/18

Remarks: _____

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision # -0-			**Activity/Task Title:** 53 0365 ANNUAL BOILER MAINTENANCE
Work Document #: (WO # / Task) 611861 -01			**Planner/Preparer (Name/Z#/Date)** Troy Calloway #186163 7/10/18
TA: 53	**Building:** 0365	**Room:**	**Additional Location Description:**

Activity Description/Overview:

PERFORM and COMPLETE ATTACHED PMI – 403-A.006

Power Source - For boilers:
CDD by MCC-B 53-752 3000 kva

MC: Kenny Madrid 4-8327

NOTE: Maintenance Coordinator requests notification of progress at the end of each day and on completion of the job.

List Names of Hazard Analysis (HA) Team: Troy Calloway, Lorenzo Martinez, Lewis Mondragon, Bob Brennecke

Date HA Performed: 6/25/18

PRECAUTIONS/LIMITATIONS/PREREQUISITES:

- If steps cannot be completed as described, or if unforeseen situations occur, **PAUSE WORK**, stabilize the situation, contact your supervisor, and await further instructions before proceeding.
  ASK YOURSELF –
  - ***WHAT NON-RELATED ACTIVITIES / HAZARDS / PERSONNEL ARE OCCURRING IN THE VICINITY OF MY REQUIRED WORK AREA?***

    HOW CAN THEY AFFECT ME AND MY WORK?
  - **AM I READY AND COMFORTABLE TO PERFORM THIS WORK?**
  - **WHERE IS THE NEAREST AED / PULL STATION / FIRE EXTINGUISHER LOCATED?**
  - **WHAT *CAN* GO WRONG? HOW CAN I PREVENT IT?**

- Craft will review all postings for entry, work and exit of area.
  Be aware of any alarms that may be in area and what the procedure is if alarm sounds.
  Locate and identify nearest fire extinguisher and emergency pull station, eyewash/shower station.
  Locate and identify nearest phone capabilities and contact numbers in case of emergency.

- If there are any concerns about exposure to toxic **chemicals** or **metals**, **noise**, **high heat**, **electrical or magnetic fields**, or **biological hazards**, contact LFO-IH for an assessment.
  - **Bob Brennecke at 665-9391 or 695-6231**.
  - **Daniel Evans at 667-8784 or 500-2158**

- Training for tasks - **Fitters**
  - Journeyman craftsman – Boiler Specifc
  - LOTO training – TP #127
  - Energized electrical training - #2908 (non-electricians)
  - HAZCOM - #25418
  - Pressure Safety Orientation - #769

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision # **-0-**			**Activity/Task Title:** **53 0365 ANNUAL BOILER MAINTENANCE**
Work Document #: (WO # / Task) **611861 -01**			**Planner/Preparer (Name/Z#/Date)** **Troy Calloway #186163 7/10/18**
TA: **53**	**Building:** **0365**	**Room:**	**Additional Location Description:**

Core Training (#10968) covers use of tools and general PPE.

The following PPE is required **at a minimum**; Task specific PPE listed within task:

- Safety Shoes
- Safety Glasses with Side shields
- Leather or Light Duty High Dexterity, Cut Resistant Gloves
- Reflective Vests:
  - ☐ All employees working on a construction or maintenance project outdoors are required to wear reflective vests **unless** working around rotating equipment, performing spark/flame producing operations, or are performing Mode 1 or 2 electrical work.
- Hard Hats:
  - ☐ PICs will consider adjusting when bump hats might be more suitable
  - ☐ Areas posted "Hard Hats Required."
  - ☐ Work areas where falling or flying objects, overhead structures, energized conductors, or where equipment or other materials create an overhead hazard.

HOLD POINT

☐ **Erect** and set in place barricades / demarcation at room entrances

- ☐ Signage shall be sufficiently legible and noticeable
- ☐ Set barricade at sufficient distance to allow safe working area
- ☐ NO non-essential personnel are to enter work area without authorization and proper PPE
- ☐ Ensure barricades are sufficiently secured to not fall over

☐ **Remove** barricades at end of project

☐ **REVIEW O&M** manual as necessary for specified steps

☐ **CYCLE** boiler and inspect operations

- Only qualified personnel to perform operation of boiler
- Coordinate efforts with facility coordinator

To be discussed during the pre-job brief:

If any previously unknown or potentially unknown electrical hazard is suspected, PAUSE work and bring in an SME (facility electrician or Electrical Safety Officer) to assess the potentially unknown electrical hazard. If necessary, modify the IWD to include the previously unanticipated electrical hazard.

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision # **-0-**			**Activity/Task Title:** **53 0365 ANNUAL BOILER MAINTENANCE**
Work Document #: (WO # / Task) **611861 -01**			**Planner/Preparer (Name/Z#/Date)** **Troy Calloway #186163 7/10/18**
TA: **53**	**Building:** **0365**	**Room:**	**Additional Location Description:**

- ☐ **Purge** system (if necessary) per Page 1 of **PMI**
  - NO spark or flame within area
  - HAZCOM training
  - Purge gas to outside – IF NOT possible, contact LANSCE IH for air quality monitoring and LANL Fire Marshall.
    - ☐ 670-1958

PAUSE POINT	**Craft shall check panel / CDD at LOTO point for arc flash calculations provided by engineering.** **Equipment labeling shall override requirements in this IWD for PPE.** **IF properly labeled, craft shall follow label requirements.** **IF NOT labeled, craft shall proceed with PPE and approach limits listed in this IWD.**
NOTE: ***All 3 boilers fed by same MCC***	**Designator: Maintenance Coordinator** **Power Source: MCC-B Voltage: 480v** **Transformer: 53-0752 3000 kva** **Incident energy @ 18" = 2.1 cal / sq cm** **Flash Protection Boundary = 25"** **Limited Approach = 42"** **Restricted Approach = 12"**

WARNING

FLASH HAZARD
EQUIPMENT OPERATION CLASS 1.3b

- ☐ **Contact** equipment owner for energy assessment of all energy sources
  - **Each energy source shall be identified, physically located and marked / labelled.**
  - **If source not labelled, Owner shall identify with plain manila tag with unique identifier.**
- ☐ **Verify** Disconnect / Breaker controls unit power
  - Ensure unit runs/starts
  - Don PPE
    Long sleeve AR shirt and AR pants (8 cal/sq cm arc rated) **OR** AR coveralls (8 cal/sq cm arc rated) over non-melting daily wear, short sleeve 100% cotton shirt, hardhat, safety glasses, hearing protection, AR face shield with AR balaclava (8 cal/sq cm) **OR** AR flash suit hood (**8** cal/sq cm arc rated). Heavy Leather work gloves.
  - Open Disconnect / Breaker and verify the unit stops or will not start

Repeat process:

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision # -0-			**Activity/Task Title:** 53 0365 ANNUAL BOILER MAINTENANCE
Work Document #: (WO # / Task) 611861 -01			**Planner/Preparer (Name/Z#/Date)** Troy Calloway #186163 7/10/18
TA: 53	**Building:** 0365	**Room:**	**Additional Location Description:**

- Close Disconnect / Breaker and ensure unit starts
- Open Disconnect / Breaker and verify the unit stops or will not start

CAUTION: If unit does not start AND stop by operation of breaker, PAUSE work and contact MC. LOTO point may be incorrect OR power may not be supplied to unit.

☐ **Turn** off and apply **LOTO**
- Obtain locks and tags from FOD Designated Lock Coordinator
- Make necessary notifications per appropriate procedure
- Determine all sources of power
- Check applicable drawings/diagrams/ID tags
- Turn off EQ
- Open disconnecting device(s)
- IF possible, visually verify devices are open/removed/disconnected
- LOTO devices/tags shall be applied in accordance with P101-3R8

IF Necessary:

☐ **Turn off** and apply LOTO to gas supply and at pilot valve(s)
- Obtain locks and tags from FOD
- Make necessary notifications per Attachment B LOTO orders
- Determine all sources of power
- Check applicable drawings/diagrams/ID tags
- Turn off EQ
- Close valves.
- LOTO devices/tags shall be applied in accordance with P101-3R8
- PPE and hand tool use per core training

DANGER

DO NOT stand in front of boiler doors or breeching when firing boiler.

☐ **Perform maintenance per PMI section 2**
☐ **Remove** and replace defective components per PMI
- Ensure all components are sufficiently cool before contact with skin
- PPE per core training

<u>Working with simple hand tools, Cuts and Abrasions:</u>
- Inspect all tools prior to use
- Wear leather gloves and safety glasses

<u>Working with battery powered/electrical tools:</u>
- GFCI protection for all cords and electric devices
- Inspect all cords, plugs and electric tools for damage – remove and tag if found defective
- Minimize exposure to noise. Wear hearing protection as applicable.

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision # **-0-**			**Activity/Task Title:** **53 0365 ANNUAL BOILER MAINTENANCE**
Work Document #: (WO # / Task) **611861 -01**			**Planner/Preparer (Name/Z#/Date)** **Troy Calloway #186163 7/10/18**
TA: **53**	**Building:** **0365**	**Room:**	**Additional Location Description:**

WARNING

<u>Soldering and Brazing Hazards:</u>
Fire Hazard
Inhalation Hazard
Eye and Dermal Burn Hazard

NOTE: Must have approved and signed spark and flame permit in package prior to working – see planner if necessary for permits.

☐ **Low temp soldering – IF necessary**
- Review current LANL fire danger rating, follow appropriate cautions
- Review spark and flame permit
- Provide fire watch if permit deems necessary
- Ensure adequate ventilation in work area
- Wear leather gloves, long sleeve shirt and tinted goggles
- Have a 5lb (minimum) ABC fire extinguisher present
- Scope area for possible flammable material within spark/flame range
- Verify NEAREST eyewash capabilities

WARNING

ELECTRIC ARC FLASH
BREAKER OPERATION CLASS 1.3b

☐ **Remove electrical** LOTO
- Check equipment and area
- Don PPE
  Long sleeve AR shirt and AR pants (8 cal/sq cm arc rated) **OR** AR coveralls (8 cal/sq cm arc rated) over non-melting daily wear, short sleeve 100% cotton shirt, hardhat, safety glasses, hearing protection, AR face shield with AR balaclava (8 cal/sq cm) **OR** AR flash suit hood (**8** cal/sq cm arc rated). Heavy Leather work gloves.
- Verify equipment controls are in OFF position
- Make necessary notifications
- LOTO devices/tags shall be removed in accordance with the requirements of P101-3R8
- Close disconnecting device(s)
- Re-energize system
- Notify MC and return locks

☐ **Remove** LOTO at gas
- Check equipment and area
- Verify valves are in correct position (should be OFF)
- Make necessary notifications
- LOTO devices/tags shall be removed in accordance with the requirements of P101-3, Chapter

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision # **-0-**			**Activity/Task Title:** **53 0365 ANNUAL BOILER MAINTENANCE**
Work Document #: (WO # / Task) **611861 -01**			**Planner/Preparer (Name/Z#/Date)** **Troy Calloway #186163 7/10/18**
TA: **53**	**Building:** **0365**	**Room:**	**Additional Location Description:**

1 – Lockout/Tagout for Safety.

- Open valve(s)
- Re-energize system
- Notify MC and return locks

☐ **Return** system to normal operation

☐ **PERFORM** combustion analyzer test (if required for testing or requested by MC)
☐ **PERFORM** post-maintenance activities per **PMI Section 3**
☐ **FIRE** unit and verify proper operation

- Qualified personnel to operate unit
- Verify proper operation of boiler
- Verify boiler starts and fires properly.
- Verify boiler stays operational for extended amount of time
- Verify proper operation of flame rod
- Verify no gas leakage
- Verify proper operation of gauges and valves
- Verify that the support or auxiliary systems related to the component are functioning properly.

NOTE:	**Only Certified Personnel to Operate Equipment**

☐ **Start** unit, observe and check for proper operation
☐ **Ensure** all panels, doors and/or guards are re-installed and secured.

- No additional controls

☐ **Clean** the work area and dispose of all work generated debris and remove any barricades.

- Dispose of debris in accordance with LANL waste generation
- Coordinate disposal of chemicals, oils and/or lubes with Area Waste Coordinator

☐ **CONTACT the MC and inform them the work is completed**.
☐ **Complete** all the required documentation and return the Master Work Package to the Area Work Control Office.

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision # **-0-**			**Activity/Task Title:** **53 0365 ANNUAL BOILER MAINTENANCE**
Work Document #: (WO # / Task) **611861 -01**			**Planner/Preparer (Name/Z#/Date)** **Troy Calloway #186163 7/10/18**
TA: **53**	**Building:** **0365**	**Room:**	**Additional Location Description:**

Insert Rows above *for additional Tasks/Steps or attach pages to clearly communicate ESH&Q/S&S hazards and associated controls.*	The RLM, and FOD or FOD Representative (if required or recommended by RLM, e.g. high hazard) approval indicates IWM has been applied appropriately, work is authorized, workers are qualified, work will be performed in accordance with ESH&Q/S&S requirements and the IWD, and facility safety basis, aggregate hazards, and collocated hazards were appropriately included in the hazard analysis and acknowledges completion of a peer review. .	**RLM** (Signature/Z#/Date) **Required** Ray Richey 233891 8/30/2018 **FOD or Representative** (Signature/Z#/Date) **If Required or Recommended by RLM** Anthony George 112877 7-17-2018 **Safety Review** (Signature/Z#/Date) **If Required** Robert A. Brennecke/300946/7-11-2018 **ESO Review** (Signature/Z#/Date) **If Required** Lorenzo D. Martinez/211131/7-10-18
IWD Type ☒ Moderate-Hazard ☐ High-Hazard/Complex ☐ Standing IWD	Date when RLM re-approval is required: 12/31/18 Other Conditions for Re- Approval: (Print) Name of Primary PIC: Name of Alternate PIC: Name of Alternate PIC:	Classification review completed, if required. N/A Reviewer Signature/Z#/Date

Los Alamos NATIONAL LABORATORY EST.1943

Integrated Work Document (IWD) Part 2, FOD Requirements and Approval for Entry and Area Hazards and Controls

Non-Tenant Activity Form

IWD No./Work Request No: __ Revision #: 0

Facility Operation Director (FOD) must determine the facility entry and coordination requirements and identify the Environment, Safety, Health (ESH)/Security and Safeguards (S&S) hazards and controls associated with the activity location.

FOD	TA	Bldg.	Room	Other Location
04	53	0365	All	Outside parking lot
FOD Designated Facility Point-of-Contact	Name Anthony George	Phone 667-0242	Pager 4-6007	Email ageorge@lanl.gov

Entry and Coordination Requirements (*Check one or more of the following*)

- ☐ No Entry/Coordination Requirements
- ☒ Plan of the Day/Plan of the Week (POTD/POTW)
- ☐ Security Clearance Requirements
- ☐ Co-located Hazards/Concerns
- ☒ Check out at End of Work
- ☐ Escort Required
- ☐ FOD-designated facility Point-of-Contact must sign IWD Part 3
- ☒ Check in at Start of Work
- ☒ Work-Area Training Required
- ☒ Work must be Scheduled
- ☒ Check in Daily
- ☐ Other Security Requirements (ex.: Cellphone, No Foreign Nationals, etc.)
- ☐ Quality Issues
- ☒ Check out Daily
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)
- ☒ Other Bounding Conditions: Experimental Area manager must be notified when work begans and ends on a daily basis.

Additional Comments (refer to Job Hazard Analysis [JHA] Tool Facility Notes)

All work must be approved by LANSCE FOD or designee and placed on the POD. Check LANL website for alerts and follow Fire requirments. Ensure the OMC and or the LANSCE area managers are aware of all work that is to take place in their assigned areas. TA53 SST course 57262, TA53 Bldg emergency plan Course 56903

Instructions: In the block below, identify work-area hazards that could potentially affect the worker(s) or others. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the site hazards as well as any special training required.

ESH/S&S WORK AREA HAZARDS & CONTROLS

Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
☐ **No Work Area Hazards**				
Ionizing Radiation Work in posted radiological areas, work with radioactive materials, or work on or near radiation producing devices. **Specify Hazard:** Working in posted areas	☒ Yes ☐ No	TLD in posted areas. All personell entering area must wear TLD,	Door Postings P121 Radiation protection	TA 53 SST Course 57626 RAD II TA53 Bldg emergency Plan Course 56903 unless escorted. RAD II

IWD No./Work Request No: _____ Revision #: 0

ESH/S&S WORK AREA HAZARDS & CONTROLS				
Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
Worker Exposure Working near non-ionizing radiation, beryllium, noise, chemicals, hazardous biological materials, lead, asbestos, temperature/humidity extremes, or high explosives. **Specify Hazards:** Noise	☒ Yes ☐ No	Observe area safety signage, Wear Hearing protection if noise exceeds 85dba	P101-31 hearing conservation P101-6 PPE	LANL hearing protection PPE
Energized and Operative Systems Working near energized electrical parts, pressure systems, steam lines; near unprotected belts, pulleys, chains or rotating equipment; fuel fired equipment other than vehicles; or spark or flame producing operations. **Specify Hazards:** Electrical, pressure	☒ Yes ☐ No	Follow LANS electrical/pressure safety and LOTO for hazardous energy control requirments if applicable to task	P101-3 LOTO P101-13 Electrcial safety	LOTO If task requires
Confined Spaces Entry into tanks, manholes, cooling towers, sumps, or any other area with potentially low oxygen concentration or other hazards such as toxic vapors or engulfment. **Specify Hazards:**	☐ Yes ☒ No			
Elevated Work Surface Elevated work when fall protection is not provided by conventional handrail systems or required per P101-20, *Fall Protection Program*	☒ Yes ☐ No	if task involves work above 4 feet follow LANL fall requirments	P101-20 Fall protection	LANL fall protection Ladder safety
Environmental Impact Activities conducted in areas containing potential release site, contaminated soil, sensitive species, watercourse wetlands, floodplain, historical/archeological sites, or other work area condition that can be impacted by or can impact the environment. **Specify Hazards:**	☐ Yes ☒ No			
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:** i	☐ Yes ☒ No			

I have verified that the hazards identified above adequately identify the area hazards and that the IWM process has been applied appropriately.

FOD or Representative (Signature/Z #/Date) **Approval Required** [signature] 112877 11/5/17

Date Approval Expires: 12-31-2018

Facility : F01 **Unit :** **Proj :**
Task Title : 550006 (A) HOT WATER BOILER FS/WS INSP/MAINT.
W/O Type : PM **W/O Group :** **Task Priority :** 4
Planner : 110968 MORRISON MICHELE
W/O Title : 550006 (A) HOT WATER BOILER FIRESIDE INSP/MAINT.
Written To : PF-6 HOT WATER BOILERS
Task Dspln : FTTR **Due Date :** 08/31/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** STANDING

Work Order Task

00607690 01

MASTER

Date: 07/10/2018

Work Order Task Written To

Facility : F01 **Unit :** **Op Sys :**
Room : **Area :** **Sys/Cls :**
Equipment : **Component :**
Location : PF-6 HOT WATER BOILERS IN ROOM 103
Job Type : PM
Tag 1 : **Tag 2 :**
Work Item : PF6-BHW **Ops Review Reqd :**

Authorization

Start Permission : Nick Sessum **Start Date :** 8.20.18

Complete Notice : **Complete Date :**

Work Order Task Instructions

Location: 550006 room 103

PM Task Title: 550006 (A) HOT WATER BOILER FS/WS INSP/MAINT

Craft: PIPEFITTER

Perform PM per: ATTACHED PMI 403-A.006

CAUTION - Proposed work could impact a facility Technical Safety Requirement (TSR), Limiting Condition of Operation (LCO) and/or Action Statement
Check-in at the Operation Center prior to performing work

Do not perform work beyond scope of work order

Facility : F01 **Unit :** **Proj :**
Task Title : 550006 (A) HOT WATER BOILER FS/WS INSP/MAINT.
W/O Type : PM **W/O Group :** **Task Priority :** 4
Planner : 110968 MORRISON MICHELE
W/O Title : 550006 (A) HOT WATER BOILER FIRESIDE INSP/MAINT.
Written To : PF-6 HOT WATER BOILERS
Task Dspln : FTTR **Due Date :** 08/31/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** STANDING

Work Order Task

00607690 01

MASTER

Date: 07/10/2018

NOTE: AS PER SE NO START-UP / LAY-UP IS REQUIRED
AS THESE BOILERS OPERATE YEAR ROUND

Caution: Proposed work could impact a facility technical safety requirement (TSR), limiting condition of operation (LCO) and /or action statement

QC Requirements / Comments

Work Completion Signatures

Name	Function/Dept.	Date
Timothy Fangio	LOG- CS	Insert Text Here

Comments NONE

(rework?)

Cost Accounting

Cost Center : P2050A **Activity :** 640CL000

Facility : F01 **Unit :** **Proj :**
Task Title : 550006 (A) HOT WATER BOILER FS/WS INSP/MAINT.
W/O Type : PM **W/O Group :** **Task Priority :** 4
Planner : 110968 MORRISON MICHELE
W/O Title : 550006 (A) HOT WATER BOILER FIRESIDE INSP/MAINT.
Written To : PF-6 HOT WATER BOILERS
Task Dspln : FTTR **Due Date :** 08/31/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** STANDING

Work Order Task

00607690 01

MASTER

Date: 07/10/2018

Percentage : 100 **Acct No :** KGNU00 **Sub Acct :** 1G550006

Facility : F01 **Unit :** **Proj :**
Task Title : 550006 (A) HOT WATER BOILER FS/WS INSP/MAINT.
W/O Type : PM **W/O Group :** **Task Priority :** 4
Planner : 110968 MORRISON MICHELE
W/O Title : 550006 (A) HOT WATER BOILER FIRESIDE INSP/MAINT.
Written To : PF-6 HOT WATER BOILERS
Task Dspln : FTTR **Due Date :** 08/31/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** STANDING

Work Order Task

00607690 01

MASTER

Date: 07/10/2018

Los Alamos NATIONAL LABORATORY			Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)
Revision #:			Activity/Task Title: **Hot Water Boilers Annual Fireside/Waterside Maint.**
Work Document #: (WO # / Task)			Planner/Preparer (Name/Z#/Date) Martin Nowakowski 194072 7/14/2017
TA: 55	Building: PF-6	Room:	Additional Location Description:

Activity Description/Overview:
Perform annual fireside/waterside maintenance on Hot Water Boilers as per 403-A.006

List Names of Hazard Analysis (HA) Team _____N/A_____ Date HA Performed _____N/A___

PRECAUTIONS/LIMITATIONS/PREREQUISITES:
(include training/authorizations, approved permits, and area postings)

1. If steps cannot be completed as described, or if unforeseen situations occur, **PAUSE WORK**, stabilize the situation, contact your supervisor, and await further instructions before proceeding.
2. Tasks may be performed in any logical order as necessary to coordinate work at the discretion of the PIC.
3. **The following training is required for the General Hazards**
   - CU-10968 WQ LOG Maintenance Worker
4. **The following training is required when working in posted "high noise" areas:**
   - CU- 2307 Hearing Conservation/ Noise
5. **The following training is required for WQ LOG Electrician-Maintenance**
   - CU-642 WQ LOG Electrician-Maintenance
6. **The following training is required for WQ LOG Pipefitter-Maintenance**
   - CU-647 WQ LOG Pipefitter-Maintenance
7. **The following training is required when working chemicals**
   - CU-4261 Chemical Workers Authorized (HAZCOM
8. **The following training is required while performing work on scaffolding:**
   - CU-9257 Fall Protection Training
   - CU-3949 Scaffold User

Los Alamos NATIONAL LABORATORY			Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)
Revision #:			Activity/Task Title: **Hot Water Boilers Annual Fireside/Waterside Maint.**
Work Document #: (WO # / Task)			Planner/Preparer (Name/Z#/Date) Martin Nowakowski 194072 7/14/2017
TA: 55	Building: PF-6	Room:	Additional Location Description:

GENERAL HAZARDS *(identify hazards and associated controls)*

General hazards and associated PPE is required:

- Safety Shoes
- Safety Glasses with side shields
- Hard Hat or Bump Cap
- Leather gloves

Noise:

- Wear proper hearing protection in areas posted

Fall from stepladders/ladders/scaffolding:

- Inspect the stepladder/ladders prior to use
- Maintain 3-points of contact when ascending and descending the stepladder/ladder
- Scaffolding to be inspected daily

1. Notify Operations Center prior to starting work. **LANL Boiler Inspector needs to be present for PM**

2. Perform pre-maintenance steps as per 403-A.006 section 1.0

   Barricade work area with barricades and signs.

   Place and remove scaffolding as needed per standing scaffold IWD.

NOTE: **LOTO devices shall be applied in accordance with requirements of P101-3, Lockout/Tagout for Hazardous Energy Control**

3. LOTO may be applied and removed LOTO as required to complete preventive maintenance and testing as per 403-A.006.

4. Pipefitter (request Operations Tech to align system)

   a.) Close gas valve, apply LO/TO and verify zero energy by ensuring gas is bleed-off at union and area is well ventilated.

   B602: NG-B602-V-1, NG-B602/B603-V-1
   B603: NG-B603-V-1, NG-B602/B603-V-1

   b.) Close associated water valves, apply LO/TO and verify zero energy by opening drain valve.

   B602: CCHW-B602-V1, CCHW-B602-V2
   B603: CCHW-B603-V1, CCHW-B603-V2

   c.) Place boiler circuit in the OFF position apply LOTO and verify zero energy by attempting to start boiler.

   B602: MCC-603D-B1L
   B603: MCC-603C-A2R

Non melting long sleeve shirt and pants, safety glasses with side shields, hearing protection and leather gloves. Step 2.1 as per 403-A.006 section 2.0

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			Activity/Task Title: **Hot Water Boilers Annual Fireside/Waterside Maint.**
Work Document #: (WO # / Task)			Planner/Preparer (Name/Z#/Date) Martin Nowakowski 194072 7/14/2017
TA: 55	Building: PF-6	Room:	Additional Location Description:

5. Pipefitters ensure boiler temperature is cool to the touch prior to working on boiler. (under ≤100° F) perform preventive maintenance steps 2.2 thru 2.7.6 as per 403-A.006 section 2.0

When performing step 2.2, all boiler water and solids **MUST** be contained and not go down drain.

MSDS for Chevron SRI Grease NLGI 2, Nalco TRAC-105, and Nalco 73310.

PPE: Wear safety glasses with side shields, Nitrile rubber gloves, and use in a well-ventilated area.

Recommend chemical goggles when draining boiler water to prevent water splashing into eyes.

6. Electrician verify circuit in the OFF position and apply LOTO.

B602: MCC-603D-B1L
B603: MCC-603C-A2R

Non melting long sleeve shirt and pants, safety glasses with side shields, hearing protection and leather gloves.

Step 2.1 as per 403-A.006 section 2.0

⚠WARNING

Electrical, contact with energized electrical system

Class 1.3b, mode 1
480v

PPE: v-rated gloves, leather gloves, non-conductive safety glasses, leather work footwear, hearing protection, FR long sleeve shirt ≥ 4 cal/cm² and FR long pants ≥ 4 cal/cm² or equivalent coveralls.
Reference Facility Electrical Hazard Analysis Record form 2193

Calibration Verification

Verify that the instrument to be used on this PM is within calibration:

Voltage meter: Manufacturer/ Model #. fluke 87

File #. 036768 Cal. Due Date: 3/12/19

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			Activity/Task Title: **Hot Water Boilers Annual Fireside/Waterside Maint.**
Work Document #: (WO # / Task)			Planner/Preparer (Name/Z#/Date) Martin Nowakowski 194072 7/14/2017
TA: 55	Building: PF-6	Room:	Additional Location Description:

7. Verify "0" Voltage at line side of disconnect

   B602: DISC-602-1

   B603: DISC-B-603-1

8. Electricians perform preventive maintenance steps 2.7.7 thru 2.7.8 as per 403-A.006 section 2.0

9. Pipefitters perform preventive maintenance steps 2.7.9 thru 2.7.10 as per 403-A.006 section 2.0

MSDS for Chevron SRI Grease NLGI 2

PERSONAL PROTECTIVE EQUIPMENT:
Wear safety glasses with side shields, Nitrile rubber gloves, and use in a well-ventilated area.

10. Pipefitters perform preventive maintenance steps 2.8 thru 2.12.6 as per 403-A.006 section 2.0

NOTE: When performing steps b. thru e. Boiler water and all solids MUST be contained and not go down the drain.
The following steps are needed to complete waterside maintenance.

a). Open flue door and inspect tube sheets for water leakage. It tube leakage is suspected call the system engineer for further evaluation. The narrow ligaments between tube holes are subject to tremendous stresses and should be watched for any sign of cracking mainly due to overheating.

b). Drain boiler and remove all hand hole and manhole covers, where applicable, to allow a visual check of all internal accessible areas. Example: shell, tubes and tube sheets.

c). Carefully examine waterside surfaces using a strong light and mirror where required. Look for evidence of scale, corrosion, blisters, or pitting, indicating adequacy of water treatment.

d). Use a high pressure hose to wash sediment out of the bottom and other internals of the boiler.

e). Remove both head covers from the bodies of the two float operated low water cut-offs (LWCs).

The float-assembly and mercury switches are located on these heads. Flush out both LWC bodies. Inspect floats and replace if necessary. Reinstall head covers. Remove caps from the inspection crosses associated with both LWCs and flush out piping connected to boiler. Reinstall caps.

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			Activity/Task Title: **Hot Water Boilers Annual Fireside/Waterside Maint.**
Work Document #: (WO # / Task)			Planner/Preparer (Name/Z#/Date) Martin Nowakowski 194072 7/14/2017
TA: 55	Building: PF-6	Room:	Additional Location Description:

11. Craft remove LOTO and place circuit in the **ON** position.

B602: MCC-603D-B1L
B603: MCC-603C-A2R

- Non melting long sleeve shirt and pants, safety glasses with side shields, hearing protection and leather gloves.

Craft remove LOTO and **OPEN** associated water valves.

B602: CCHW-B602-V1, CCHW-B602-V2
B603: CCHW-B603-V1, CCHW-B603-V2

Craft remove LOTO and **OPEN** gas valves. (Note: ensure the union used to verify zero energy is air tight.)

B602: NG-B602-V-1, NG-B602/B603-V-1
B603: NG-B603-V-1, NG-B602/B603-V-1

12. Pipefitters perform post-maintenance steps 3.1 thru 3.10 as per 403-A.006 section 3.0

13. Remove all barricades and signs.

NOTE:	**Omit step 3.8 of PMI 403-A.006 as per C.S.E.** Water Chemistry corrections are completed using the semi-annual water treatment PM.

14. Notify Operations Center work is complete, inform CSE of any deficiencies found.

Contact Egan McCormick @ 7-8158 or pager 4-6753 for guidance on waste disposal. If Egan isn't available, contact Waste Services Group number 7-2338

CONTACT the MC and inform them the work is completed. Complete all the required documentation and return the Master Work Package to the MC Office.

Los Alamos NATIONAL LABORATORY

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision #:			**Activity/Task Title:** Hot Water Boilers Annual Fireside/Waterside Maint.
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Martin Nowakowski 194072 7/14/2017
TA: 55	**Building:** PF-6	**Room:**	**Additional Location Description:**

***Insert Rows above** for additional Tasks/Steps or attach pages to clearly communicate ESH&Q/S&S hazards and associated controls.*	The RLM, and FOD or FOD Representative (if required or recommended by RLM, e.g. high hazard) approval indicates IWM has been applied appropriately, work is authorized, workers are qualified, work will be performed in accordance with ESH&Q/S&S requirements and the IWD, and facility safety basis, aggregate hazards, and collocated hazards were appropriately included in the hazard analysis and acknowledges completion of a peer review.	**RLM** (Signature/Z#/Date) **Required** 117737 8.10.17 **FOD or FOD Representative** (Signature/Z#/Date) **If Required or Recommended by RLM** **SME Review** (Signature/Z#/Date) **If Required** 181157 7/25/17 **ESO Review** (Signature/Z#/Date) **If Required** 190284 7/19/17

IWD Type ☒ Moderate-Hazard ☐ High-Hazard/Complex ☐ Standing IWD	Date RLM re-approval is required 8.9.19 Other Conditions for Re-Approval CHANGE OF SCOPE OR HAZARDS (Print) Name/Z# of Primary PIC JAMES GALLEGOS 182865 Name/Z# of Alternate PIC JESSE SANCHEZ 118246 Name/Z# of Alternate PIC ABRAHAM LUCERO 117122 MATT DUNLEAN 237644	Classification review completed, if required. Reviewer Signature/Z#/Date

Los Alamos NATIONAL LABORATORY EST. 1943	*Preventive Maintenance Instruction* Low- and High-Pressure Steam Boiler and Low-Temperature Water Heating Boiler Inspection, Testing, and Maintenance **403-A.006: Hot Water Boiler Yearly Fireside/Waterside Inspection and Maintenance**

Work Order No.: 607690-01 Equipment ID No.: B-603

Instructions: Enter the requested information. All items marked S or Y are satisfactory. Document all items marked U, N, or N/A in the Remarks section below, noting the step number and reason. Notify the foreman or supervisor of problems involving imminent danger.

TA: 55 Building: PF-6 Room: 103

Date Inspected: 08-20-18 Inspectors: TIMOTHY FANGIO

1.0 PRE-MAINTENANCE ACTIVITIES

NOTE Preoperational and pre-maintenance activities shall be conducted per the work order package, e.g., lockout/tagout, permits, special instructions, etc.

! WARNING If purging of gas lines will be required during this maintenance, ensure that the purging activity is addressed in the Integrated Work Document (IWD). The following must be addressed (see Master Specification 23 1123):

1. Purged fuel gases shall be directly vented to a safe location outdoors, away from personnel and ignition sources. This may be accomplished through permanent piping or temporary piping or hosing.
2. If it is not possible to vent purged gases outdoors, the following conditions must be met:
   a. Purging activity must be approved by the LANL Fire Marshal based on a documented justification detailing why outdoor venting is not possible and IWD.
   b. Gas concentration in the space to which the purge is vented shall be maintained at no more than 25% of the Lower Explosive Limit (LEL). For natural gas, the LEL is a concentration of 5% in air or 50,000 ppm. Therefore a maximum concentration of 12,500 ppm is allowed for natural gas. The concentration may be controlled by providing adequate ventilation or by limiting the amount of purge gas.
   c. Combustible gas detectors shall be used during the purging operation to monitor the gas concentration.
   d. Nonessential personnel shall be evacuated from the vicinity (including adjacent spaces) during the purging operation.
   e. Ignition sources in the purging space shall be controlled or eliminated.

NOTE All repair work, adjustments, or the replacement of parts shall be done in accordance with the manufacturer's procedures, specifications, recommendations, and instructions.

Remarks: NONE

Work Order No.: 607690-01 Equipment ID No.: B-603

1.1	Notify maintenance coordinator (MC) that work will be in progress on the boiler system.		Initials:
2.0	**MAINTENANCE**		
NOTE	These selected hot water boilers are mainly boilers with power burners that have refractory in front and rear flue doors or have heat extractors in the fire-tubes as are found in most one-pass boilers (Sellers). Hot water heating boilers with atmospheric burners generally require minimal fireside preventative maintenance. Contact the MSS-MP Boiler subject matter expert (SME) at 7-8550 with questions or concerns.		
2.1	Lock and tag out electrical and all associated valves on boiler and shut off gas supply.		Initials:
2.2	Cool boiler, open air cock, and drain the boiler.		Initials:
2.3	Perform an internal and external inspection after thorough cleaning.	Circle one: S U N/A	Initials:
2.3.1	Check the fireside furnace and fire-tubes for any evidence of soot formation or corrosion.	Circle one: S U N/A	Initials:
2.3.2	Brush and vacuum furnace and fire-tubes if such conditions exist.		Initials:
2.3.3	Perform hydrostatic test based on the boiler's Maximum Allowable Working Pressure and/or facility potable water pressure as long as the potable water pressure is at least 30 psi over boiler operating pressure.	Circle one: S U N/A	Initials:
2.3.4	Note if any boiler tubes and/or fittings are leaking, and repair as required. For any major repairs (determined by the SME), request a work order for the repairs from the MC.		Initials:
2.3.5	On one-pass boilers (Sellers), check condition of all heat extractors.	Circle one: S U N/A	Initials:

Remarks: do not dohydro test

Work Order No.: 607690-01 Equipment ID No.: B-603

2.3.6 Check refractory materials.	Circle one: S U N/A	Initials:
2.3.7 Replace if needed.		Initials:
2.4 Perform maintenance on low-water cutoff float chamber and water feeder. Disassemble to ensure freedom from obstruction and proper functioning of the working parts.		Initials:
2.5 Perform routine burner maintenance.		Initials:
2.5.1 Observe temperature and operating pressure and general conditions.	Circle one: S U N/A	Initials:
2.5.2 Fire and cycle the burner.		Initials:
2.6 Perform routine maintenance of circulating pump and expansion pump equipment.		Initials:
2.6.1 Observe condition of expansion tank.	Circle one: S U N/A	Initials:
2.6.2 Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion.	Circle one: S U N/A	Initials:
2.6.3 Check the air pressure on the bladder-type expansion tanks.	Circle one: S U N/A	Initials:
2.6.4 Observe operation of circulating pumps.	Circle one: S U N/A	Initials:
2.6.5 Lubricate pump motors.		Initials:
2.7 Perform routine maintenance of entire combustion control equipment.		Initials:

Remarks: do not drain expansion tank

Work Order No.: 607690-01 Equipment ID No.: B-603

2.7.1	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	Circle one: S U N/A	Initials:
2.7.2	Adjust air/fuel mixture as needed.		Initials:
2.7.3	Test flame detection devices on boilers with flame scanners.	Circle one: S U N/A	Initials:
2.7.4	Remove the flame scanner with the burner firing.		Initials:
NOTE	The burner should shut off as a flame failure condition.		
2.7.5	Clean the flame scanner, reinstall and test programmer.		Initials:
2.7.6	Check for proper operation as boiler goes through a firing cycle and light-off.	Circle one: S U N/A	Initials:
2.7.7	Check all electrical control and circuitry.	Circle one: S U N/A	Initials:
2.7.8	Inspect for cracked mercury tubes, separation of mercury, cracked insulators (probe type), jumper tube conditions, loose connections, poor or deteriorated wiring, improperly used bypass switches, cutoff switches wired in parallel, shut-offs installed at improper levels, wedges behind mercury tubes.	Circle one: S U N/A	Initials:
2.7.9	Observe operation of forced draft fan motors on boilers with power burners and induced draft fan motors on horizontal breeching where applicable.	Circle one: S U N/A	Initials:
2.7.10	Lubricate fan motors where necessary.		Initials:
2.8	Perform combustion and draft tests.		Initials:

Remarks: NONE

Work Order No.: 607690-01 Equipment ID No.: B-603

2.8.1 Visually inspect combustion.	Circle one: S U N/A	Initials:
NOTE Changes in flame shape, color, and sound are among early indicators of potential combustion-related problems. Changes may be due to changes in fuel pressure or gas/air linkage movement.		
2.9 Perform safety relief valve(s) pop test.	Circle one: S U N/A	Initials:
2.9.1 Check pressure-reducing valve.	Circle one: S U N/A	Initials:
2.9.2 Replace the strainer in the valve if needed.		Initials:
2.10 Perform slow drain test of low-water cutoff.	Circle one: S U N/A	Initials:
2.11 Inspect gas piping for proper support and tightness.	Circle one: S U N/A	Initials:
2.11.1 Inspect fuel supply system and gas controls.	Circle one: S U N/A	Initials:
2.11.2 Leak check gas controls and associated gas piping with a gas detector or soap suds.	Circle one: S U N/A	Initials:
2.12 Inspect boiler room ventilation louvers and intake.	Circle one: S U N/A	Initials:
2.12.1 Listen for any unusual noises or conditions and correct as necessary.	Circle one: S U N/A	Initials:
2.12.2 Report any needed corrections to the MC for corrective maintenance.		Initials:

Remarks: NONE

Work Order No.: 607690-01 Equipment ID No.: B-603

2.12.3 Check combustion air supply openings to ensure that they are not closed or stopped up.	Circle one: S U N/A	Initials:
2.12.4 Inspect conditions of stacks and rain caps.	Circle one: S U N/A	Initials:
2.12.5 Inspect flue door gaskets to ensure they are in good condition, and properly secured.	Circle one: S U N/A	Initials:
2.12.6 Replace if necessary.		Initials:

3.0 POST-MAINTENANCE ACTIVITIES

NOTE Post-maintenance activities shall be conducted in accordance with the work order package instructions (e.g., lockout/tagout, special instructions, etc.).

3.1 Close and secure front and rear flue doors.		Initials:
3.2 Hook up all associated piping and refill boiler.		Initials:
3.3 Fire up boiler and check for air, gas, and water leaks.	Circle one: S U N/A	Initials:
3.4 Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	Circle one: S U N/A	Initials:
3.5 Check pilot burners and ignition equipment for proper condition and adjustment.	Circle one: S U N/A	Initials:
3.6 Visually check burner for proper combustion.	Circle one: S U N/A	Initials:
3.7 Record all mechanical maintenance data, testing data, and other notable items.		Initials:

Remarks: NONE

Work Order No.: 607690-01 Equipment ID No.: B-603

NOTE	Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.		
3.8	Test water for proper chemical levels. Test and treat water as defined on Datasheet 403-A.002.	Circle one: S U N/A	Initials:
3.9	Record all mechanical maintenance data, testing data, and other notable items.		Initials:
3.10	Notify MC that work on the boiler system is complete.		Initials:

Name of Craft Worker: Timothy Fangio Z Number: 282917

Signature: Date: 8/19/18

Name of Craft Worker: Z Number:

Signature: Date: / /

Foreman Verification: Vianes Valdez Z Number: 235472

Signature: Vianes Valdez Date: 8-30-18

Remarks:

Los Alamos NATIONAL LABORATORY EST. 1943	*Preventive Maintenance Instruction* Low- and High-Pressure Steam Boiler and Low-Temperature Water Heating Boiler Inspection, Testing, and Maintenance **403-A.006: Hot Water Boiler Yearly Fireside/Waterside Inspection and Maintenance**

Work Order No.: 607690-01 Equipment ID No.: B-602

Instructions: Enter the requested information. All items marked S or Y are satisfactory. Document all items marked U, N, or N/A in the Remarks section below, noting the step number and reason. Notify the foreman or supervisor of problems involving imminent danger.

TA: 55	Building: PF-6	Room: 103
Date Inspected: 08-20-18	Inspectors: TIMOTHY FANGIO	

1.0 PRE-MAINTENANCE ACTIVITIES

NOTE Preoperational and pre-maintenance activities shall be conducted per the work order package, e.g., lockout/tagout, permits, special instructions, etc.

! WARNING If purging of gas lines will be required during this maintenance, ensure that the purging activity is addressed in the Integrated Work Document (IWD). The following must be addressed (see Master Specification 23 1123):

1. Purged fuel gases shall be directly vented to a safe location outdoors, away from personnel and ignition sources. This may be accomplished through permanent piping or temporary piping or hosing.
2. If it is not possible to vent purged gases outdoors, the following conditions must be met:
   a. Purging activity must be approved by the LANL Fire Marshal based on a documented justification detailing why outdoor venting is not possible and IWD.
   b. Gas concentration in the space to which the purge is vented shall be maintained at no more than 25% of the Lower Explosive Limit (LEL). For natural gas, the LEL is a concentration of 5% in air or 50,000 ppm. Therefore a maximum concentration of 12,500 ppm is allowed for natural gas. The concentration may be controlled by providing adequate ventilation or by limiting the amount of purge gas.
   c. Combustible gas detectors shall be used during the purging operation to monitor the gas concentration.
   d. Nonessential personnel shall be evacuated from the vicinity (including adjacent spaces) during the purging operation.
   e. Ignition sources in the purging space shall be controlled or eliminated.

NOTE All repair work, adjustments, or the replacement of parts shall be done in accordance with the manufacturer's procedures, specifications, recommendations, and instructions.

Remarks: NONE

Work Order No.: 607690-01 Equipment ID No.: B-602

1.1	Notify maintenance coordinator (MC) that work will be in progress on the boiler system.		Initials:
2.0	**MAINTENANCE**		
NOTE	These selected hot water boilers are mainly boilers with power burners that have refractory in front and rear flue doors or have heat extractors in the fire-tubes as are found in most one-pass boilers (Sellers). Hot water heating boilers with atmospheric burners generally require minimal fireside preventative maintenance. Contact the MSS-MP Boiler subject matter expert (SME) at 7-8550 with questions or concerns.		
2.1	Lock and tag out electrical and all associated valves on boiler and shut off gas supply.		Initials:
2.2	Cool boiler, open air cock, and drain the boiler.		Initials:
2.3	Perform an internal and external inspection after thorough cleaning.	Circle one: S U N/A	Initials:
2.3.1	Check the fireside furnace and fire-tubes for any evidence of soot formation or corrosion.	Circle one: S U N/A	Initials:
2.3.2	Brush and vacuum furnace and fire-tubes if such conditions exist.		Initials:
2.3.3	Perform hydrostatic test based on the boiler's Maximum Allowable Working Pressure and/or facility potable water pressure as long as the potable water pressure is at least 30 psi over boiler operating pressure.	Circle one: S U N/A	Initials:
2.3.4	Note if any boiler tubes and/or fittings are leaking, and repair as required. For any major repairs (determined by the SME), request a work order for the repairs from the MC.		Initials:
2.3.5	On one-pass boilers (Sellers), check condition of all heat extractors.	Circle one: S U N/A	Initials:

Remarks: DO NOT PERFORM HYDRO TEST

Work Order No.: 607690-01 Equipment ID No.: B-602

2.3.6 Check refractory materials.	Circle one: S U N/A	Initials:
2.3.7 Replace if needed.		Initials:
2.4 Perform maintenance on low-water cutoff float chamber and water feeder. Disassemble to ensure freedom from obstruction and proper functioning of the working parts.		Initials:
2.5 Perform routine burner maintenance.		Initials:
2.5.1 Observe temperature and operating pressure and general conditions.	Circle one: S U N/A	Initials:
2.5.2 Fire and cycle the burner.		Initials:
2.6 Perform routine maintenance of circulating pump and expansion pump equipment.		Initials:
2.6.1 Observe condition of expansion tank.	Circle one: S U N/A	Initials:
2.6.2 Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion.	Circle one: S U N/A	Initials:
2.6.3 Check the air pressure on the bladder-type expansion tanks.	Circle one: S U N/A	Initials:
2.6.4 Observe operation of circulating pumps.	Circle one: S U N/A	Initials:
2.6.5 Lubricate pump motors.		Initials:
2.7 Perform routine maintenance of entire combustion control equipment.		Initials:

Remarks: do not deain expansion tank

Work Order No.: 607690-01 Equipment ID No.: B-602

2.7.1	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	Circle one: S U N/A	Initials:
2.7.2	Adjust air/fuel mixture as needed.		Initials:
2.7.3	Test flame detection devices on boilers with flame scanners.	Circle one: S U N/A	Initials:
2.7.4	Remove the flame scanner with the burner firing.		Initials:
NOTE	The burner should shut off as a flame failure condition.		
2.7.5	Clean the flame scanner, reinstall and test programmer.		Initials:
2.7.6	Check for proper operation as boiler goes through a firing cycle and light-off.	Circle one: S U N/A	Initials:
2.7.7	Check all electrical control and circuitry.	Circle one: S U N/A	Initials: CS
2.7.8	Inspect for cracked mercury tubes, separation of mercury, cracked insulators (probe type), jumper tube conditions, loose connections, poor or deteriorated wiring, improperly used bypass switches, cutoff switches wired in parallel, shut-offs installed at improper levels, wedges behind mercury tubes.	Circle one: S U N/A	Initials: CS
2.7.9	Observe operation of forced draft fan motors on boilers with power burners and induced draft fan motors on horizontal breeching where applicable.	Circle one: S U N/A	Initials:
2.7.10	Lubricate fan motors where necessary.		Initials:
2.8	Perform combustion and draft tests.		Initials:

Remarks: NONE

Work Order No.: 607690-01 Equipment ID No.: B-602

2.8.1 Visually inspect combustion.	Circle one: S U N/A	Initials:
NOTE Changes in flame shape, color, and sound are among early indicators of potential combustion-related problems. Changes may be due to changes in fuel pressure or gas/air linkage movement.		
2.9 Perform safety relief valve(s) pop test.	Circle one: S U N/A	Initials:
2.9.1 Check pressure-reducing valve.	Circle one: S U N/A	Initials:
2.9.2 Replace the strainer in the valve if needed.		Initials:
2.10 Perform slow drain test of low-water cutoff.	Circle one: S U N/A	Initials:
2.11 Inspect gas piping for proper support and tightness.	Circle one: S U N/A	Initials:
2.11.1 Inspect fuel supply system and gas controls.	Circle one: S U N/A	Initials:
2.11.2 Leak check gas controls and associated gas piping with a gas detector or soap suds.	Circle one: S U N/A	Initials:
2.12 Inspect boiler room ventilation louvers and intake.	Circle one: S U N/A	Initials:
2.12.1 Listen for any unusual noises or conditions and correct as necessary.	Circle one: S U N/A	Initials:
2.12.2 Report any needed corrections to the MC for corrective maintenance.		Initials:

Remarks: NONE

Work Order No.: 607690-01 Equipment ID No.: B-602

2.12.3 Check combustion air supply openings to ensure that they are not closed or stopped up.	Circle one: S U N/A	Initials:
2.12.4 Inspect conditions of stacks and rain caps.	Circle one: S U N/A	Initials:
2.12.5 Inspect flue door gaskets to ensure they are in good condition, and properly secured.	Circle one: S U N/A	Initials:
2.12.6 Replace if necessary.		Initials:

3.0 POST-MAINTENANCE ACTIVITIES

NOTE Post-maintenance activities shall be conducted in accordance with the work order package instructions (e.g., lockout/tagout, special instructions, etc.).

3.1 Close and secure front and rear flue doors.		Initials:
3.2 Hook up all associated piping and refill boiler.		Initials:
3.3 Fire up boiler and check for air, gas, and water leaks.	Circle one: S U N/A	Initials:
3.4 Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	Circle one: S U N/A	Initials:
3.5 Check pilot burners and ignition equipment for proper condition and adjustment.	Circle one: S U N/A	Initials:
3.6 Visually check burner for proper combustion.	Circle one: S U N/A	Initials:
3.7 Record all mechanical maintenance data, testing data, and other notable items.		Initials:

Remarks: NONE

Work Order No.: 607690-01 Equipment ID No.: B-602

NOTE	Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.		
3.8	Test water for proper chemical levels. Test and treat water as defined on Datasheet 403-A.002.	Circle one: S U N/A	Initials:
3.9	Record all mechanical maintenance data, testing data, and other notable items.		Initials:
3.10	Notify MC that work on the boiler system is complete.		Initials:

Name of Craft Worker: Timothy Fangio Z Number: 282917

Signature: Date: 8/29/18

Name of Craft Worker: Z Number:

Signature: Date: / /

Foreman Verification: Vianes Valdez Z Number: 235472

Signature: Vianes Valdez Date: 8-30-18

Remarks:

Facility : F10 **Unit :** **Proj :**
Task Title : 550440: HW BOILER FS/WS (A) PM
W/O Type : PM **W/O Group :** RLUOB PM **Task Priority :** 4
Planner : 116672 MADRID WANDA J
W/O Title : 550440: HW BOILER (A) FS/WS PM
Written To : 550440 HOT WATER BOILERS
Task Dspln : FTTR **Due Date :** 09/30/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** STANDING

Work Order Task

00614942 01

MASTER

Date: 08/23/2018

Work Order Task Written To

Facility : F10 **Unit :** **Op Sys :** HW
Room : **Area :** **Sys/Cls :** HW
Equipment : **Component :**
Location :
Job Type : PM
Tag 1 : **Tag 2 :**
Work Item : CUB BOILERS **Ops Review Reqd :**

Authorization

Mike Dominguez per text

Start Permission : Michael Dominguez **Start Date :** 9/7/18

Complete Notice : **Complete Date :**

Work Order Task Instructions

PERFORM ANNUAL BOILER PM IN ACCORDANCE WITH O&M CRITERION 403
AND PMI 403-A, BOILER INSPECTION TESTING AND MAINTENANCE

COMPLETE APPLICABLE PORTIONS OF CHECKLISTS 403-A.006
AND 403-A.002 (WATER TREATMENT)

REFER TO IWD PART 2 FORM 2101 FOR ENTRY AND COORDINATION REQTS. AND FOR AREA
AND CO-LOCATED HAZARDS AND CONTROLS (SEE 2101 FOR POC AND MC's CONTACT INFO)

DOCUMENT WORK PERFORMED AND ANY / ALL OTHER OR ADDITIONAL ITEMS NEEDING
REPAIR OR REPLACEMENT ON THE ATTACHED WORK DOCUMENTAION FORM OR CHECKLIST.

Facility : F10 **Unit :** **Proj :**
Task Title : 550440: HW BOILER FS/WS (A) PM
W/O Type : PM **W/O Group :** RLUOB PM **Task Priority :** 4
Planner : 116672 MADRID WANDA J
W/O Title : 550440: HW BOILER (A) FS/WS PM
Written To : 550440 HOT WATER BOILERS
Task Dspln : FTTR **Due Date :** 09/30/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** STANDING

Work Order Task

00614942 01

MASTER

Date: 08/23/2018

QC Requirements / Comments

Work Completion Signatures

Name	Function/Dept.	Date
[illegible]	Boiler Crew/Log-cl	9-27-18
Lewis Mondragon	General Foreman	9/27/18

Comments

(rework?)

Cost Accounting

Cost Center : P2200A **Activity :** 640CL000

Percentage : 100 **Acct No :** KGRB00 **Sub Acct :** 1G550440

Facility : F10 **Unit :** **Proj :**
Task Title : 550440: HW BOILER FS/WS (A) PM
W/O Type : PM **W/O Group :** RLUOB PM **Task Priority :** 4
Planner : 116672 MADRID WANDA J
W/O Title : 550440: HW BOILER (A) FS/WS PM
Written To : 550440 HOT WATER BOILERS
Task Dspln : FTTR **Due Date :** 09/30/2018
Superintendant :
Hazard : MODERATE **IWD Reqmt :** STANDING

Work Order Task

00614942 01

MASTER

Date: 08/23/2018

LOS ALAMOS NATIONAL LABS
INTEGRATED WORK DOCUMENT (IWD) COVER SHEET

WORK ORDER NO: _____ REV: _____

TITLE: (A) 55-0440 Hot Water Boiler Fireside/Waterside

Planner: Wanda J. Madrid Z# 116672 / Wanda J Madrid / 8/25/16
Name / Signature / Date

Peer Review: Gregory Gachupin / Gregory Gachupin / 8-26-16
Name / Signature / Date

Based on a validation walk down this IWD and work package can be worked as written.

Superintendent: Chris Tolleson / Chris T / 8-25-16
Name / Signature / Date

Craft/Tech: _____ / _____ / _____
Name / Signature / Date

Craft/Tech: _____ / _____ / _____
Name / Signature / Date

Ops/SOM: _____ / _____ / _____
Name / Signature / Date

CONCURRENCE:

Based on my personal review, I agree that the work described in this package meets technical requirements under my cognizance, and contains the controls to perform the work safely.

RP-1: N/A / N/A / N/A
Name / Signature / Date

ESO: Edward S Henderson 109033 / [signature] / 30 Aug 16
Name / Signature / Date

IH&S Mark Mullis / [signature] / 8/24/2016
Name / Signature / Date

SE: Kris Gauss / [signature] / 8/29/16
Name / Signature / Date

Ops/SOM: Hauze / [signature] / 8.30.16
Name / Signature / Date

MC: [signature] / [signature] / 8/25/16
Name / Signature / Date

NOTE: Use these buttons to print or save the form. DO NOT use the browser tool bar. SAVE PRINT

Form 2103

Los Alamos NATIONAL LABORATORY EST. 1943

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD #_____ Revision #:_____ **Work Release**

By signing below, I verify this activity is compatible with current facility configuration and operating conditions.

FOD designated Ops Mgr or other facility point-of-contact for work area

Signature/Z#/Date **(If required by FOD)**: _____ 215253 9/25/18

Note: For Standing IWD, release may be given concurrently with signatures on Part 2.

By signing below, I have verified the following:

- I have verified authorization by ensuring approval signatures of the RLM and FOD.
- I have jointly conducted a validation walkdown with workers to confirm the IWD can be performed as written, required initial conditions and other prerequisites are in-place.
- The assigned workers are authorized and are qualified to perform the work in a safe, secure, and environmentally responsible manner.
- I have conducted the pre-job briefing, and all workers (including support workers) have been briefed.
- I have ensured coordination with any required FOD work-area representatives (*e.g., area work coordinators*).

Primary PIC (Signature/Z#/Date) **Required**: Cris Tom 177558 9-25-18

Alternate PIC Signatures **acknowledges** PIC authority is assumed for the first time *(Note: Alternate PICs are required to sign only once, but formal handoff includes conferring with previous PIC to obtain all required information associated with the handoff)*.

Alternate PIC (Signature/Z#/Date) **Required**: _____

Alternate PIC (Signature/Z#/Date) **Required**: _____

Pre-Job Brief Content

- What are the critical steps or phases of this activity?
- How can we make a mistake at that point?
- What is the worst thing that can go wrong?
- What controls, preventive measures, and bounding conditions are needed?
- What work permits are required and how will we meet their requirements?
- What are the handoffs and coordination requirements among workers and multiple PICs?
- Are there hold-points including those that require sign-offs?
- What are the pause/stop work responsibilities and expectations (e.g. for unanticipated conditions or hazards)?
- How would we respond to alarms and emergencies?
- Are there lessons learned from previous similar work?
- Is other information needed to perform this activity in a safe, secure, and environmentally responsible manner?
- Does everyone agree to the work tasks/steps, hazards, and controls and commit to follow them?

Pre-Job Brief Attendance Roster

By signing below **as required**, I agree to the following:

- I agree to follow the work steps and implement the controls as written as applicable to my work assignments.
- I agree to pause/stop work when conditions or hazards change or when I encounter unexpected conditions during the execution of work, or when work cannot be performed as written, or instructions become unclear during execution.
- I confirm that I am authorized, qualified, and fit to perform the work.

Worker (Signature/Z#/Date) Marlon Chenang 186733 9-25-18	**Worker** (Signature/Z#/Date) 197845
Worker (Signature/Z#/Date) 331497 9-25-18	**Worker** (Signature/Z#/Date) 254394 9/25/18
Worker (Signature/Z#/Date) 281353 9-25-18	**Worker** (Signature/Z#/Date) 311353 9-25-18
Worker (Signature/Z#/Date) 194914 9-25-18	**Worker** (Signature/Z#/Date) 318530 9-25-18

Ross Torres 304607 9-25-18

Attachment B, LO/TO Orders

Lock Coordinator Name	Z#:	Phone #:	Alternate Lock Coordinator Name	Z#:	Phone #:
Sam Lehoff	282267	7-2333			

Section 1: General Information

1. Work Document Number (i.e., Package/Procedure #): 614942.01
2. LO/TO (Parent) Record #:

Location of Equipment to be Isolated

3. TA:55	4. Bldg:0440	5. Rm: U209	6. Equipment Description (e.g. Machinery/Name/CMMS Number): BHW-01 and HW-P01

7. Name of Equipment Owner/Operator: Sam Lehoff
8. Reason for LO/TO: 55-0440 Hot Water Boiler Fireside/ Waterside PM
9. Energy Type to be Isolated (check all that apply):
☒ Electrical ☐ Mechanical ☐ Hydraulic ☐ Pneumatic ☐ Steam ☐ Capacitors ☐ Compressed Energy ☐ Gravity ☒ Other (specify):

10. Verification required for LO/TO:
☐ Installation ☐ Removal ☑ N/A (Verification Not Required)

11. Verification Type:
☐ Peer ☐ Independent ☑ N/A

12. Specific Sequencing of LO/TO devices required for:
☐ Installation ☐ Removal ☑ N/A (Sequencing Not Required)

13. LO/TO Orders Addendum with Operational Instructions/Procedures attached?
☐ Yes ☑ No

Equipment Owner/Operator Comments:

Section 2: LO/TO Installation & Removal Details

14. Group LO/TO? ☒ Yes ☐ No
Name of Lead Authorized Worker:

15. Group Lock Box used? ☒ Yes ☐ No
If yes, enter ID# of Lock Box: #5

LO/TO Installation

16. Approval to Install LO/TO
Signature: Z#: 282267
NOTE: Approver must ensure Affected Workers are notified prior to Authorized Workers performing LO/TO

LO/TO Removal / Return to Service

23. Approval to Remove LO/TO Call #: 7-7333
☐ N/A
Signature Z#: 282267
NOTE: Approver must ensure Affected Workers are notified of LO/TO Removal / Return to Service

17. Energy Isolation Device (use Specific ID)	18. Location of Energy Isolation Device	19. LO/TO Installation Sequence	20. Required LO/TO Position or Alignment	24. LO/TO Removal Sequence	25. Required Position/Alignment following Removal	26. As-Left Position
MCC-B Ckt 3B	U209		OPEN/OFF		CLOSED/ON	CLOSED/ON
MCC-B Ckt 2B	U209		OPEN/OFF		CLOSED/ON	CLOSED/ON
UPS Switch	U209		OPEN/OFF		CLOSED/ON	CLOSED/ON
NG-V-6000D	U209		CLOSED		OPEN	OPEN

☒ See continuation page for additional Energy Isolation Devices (continuation page must also be signed if applicable)

21. Energy Isolation Devices Positioned, Lock(s) and Tag(s) installed, and Zero Energy Checks Performed:
Signature: Z#: 197845 Date: 9.26.18

27. LO/TO has been Removed & Isolation Devices Positioned:
Signature: Z#: 197845 Date: 9.26.18

22. LO/TO verified by:
☑ N/A

28. Removal and Positioning verified by:
☑ NA

Attachment B, LO/TO Orders

Signature:	Z#:	Date:	Signature:	Z#:	Date:

Attachment B, LO/TO Orders

Attachment B, LO/TO Orders (Cont.)	
1. Work Document Number (i.e., Package/Procedure #):	2. LO/TO (Parent) Record #:

Section 3: All Authorized Workers (anyone applying a lock for this activity)

29. Authorized Workers Name(s)	Z#	30. Date worker's lock is hung	31. Date worker's lock is removed
1. Dennis Bernal	197845	9.25.18	
2. DAIE RSEANO	331419	9-25-18	
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

Section 4: Return of Lock(s)/Tag(s) and Locking Devices

All Lock(s)/Tag(s) and Locking Devices have been removed and returned to the Lock Coordinator.

32. Signature of Lock Coordinator: Z# 282267 Date: 9/25/18

*Instructions for completing this form (by numbered steps) appear on the last two pages of this document. Take the completed forms back to the Lock Coordinator for closeout.

Attachment B, LO/TO Orders

Continuation Page (print as needed)

Attachment B, LO/TO Orders (Cont.)						
1. Work Document Number (i.e., Package/Procedure #):				2. LO/TO (Parent) Record #:		
LO/TO Installation				**LO/TO Removal / Return to Service**		
17. Energy Isolation Device (Specific ID)	18. Location of Energy Isolation Device	19. LO/TO Installation Sequence	20. Required LO/TO Position or Alignment	24. LO/TO Removal Sequence	25. Required Position/Alignment following Removal	26. As-Left Position
NG-V-6004A	U209		CLOSED		OPEN	OPEN
HW-V-101A	U209		CLOSED		OPEN	OPEN
HW-V-101B	U209		CLOSED		OPEN	OPEN
21. Energy Isolation Devices Positioned, Lock(s) and Tag(s) installed, and Zero Energy Checks Performed: Signature: Z#: 197843 Date: 9·26·18				27. LO/TO has been Removed & Isolation Devices Positioned: Signature: Z#: 197843 Date: 9·26·18		
22. LO/TO verified by: ☐ N/A Signature: Z#: Date:				28. Removal and Positioning verified by: ☐ NA Signature: Z#: Date:		

Attachment B, LO/TO Orders

Instructions by Numbered Steps

Lock Coordinator (Header): Identify the individual who will issue Red Locks to persons performing LO/TO (individual[s] identified by the FOD).

1. Enter the Work Document Number. This will be the number from the IWD or the procedure number (i.e., TA88-DOP-0001).
2. Enter the LO/TO Parent Record number. This is obtained from the Lock Coordinator when the lock(s) are issued. The Remedy LO/TO database generates this number.
3. Enter the TA where the equipment is located.
4. Enter the Building number where the equipment is located.
5. Enter the Room number where the equipment is located.

   NOTE: Responses to steps 3 through 5 need to match information, identically, within both the LO/TO Orders and the tag (Attachment A).

6. Enter the Equipment/Machinery/Name/Number (example, HVA-001 [NOTE: LOG is to follow nomenclature contained within CMMS/MEL]).
7. Enter the Name of the Equipment Owner/Operator. The Equipment Owner/Operator is designated by the FOD. There may be both programmatic and facility Equipment Owner/Operators.
8. Write a brief description of the reason for LO/TO (example, removing and replacing exhaust fan belts).
9. Check the appropriate energy type to be isolated (check all that apply). Make sure you have considered all energy sources; if “Other” is checked, specify what “Other” is.
10. Is verification of the energy isolation configuration required for this LO/TO for installation and/or removal? Check the appropriate box(es). **NOTE:** Contact the FOD/Designee regarding verification requirements. Additionally, verification may be required by the Equipment Owner/Operator.
11. If verification is required, check the appropriate box (either “Peer” or “Independent”). If verification is NOT required, check the “N/A” box. **NOTE:** Independent verification may be required per ***P315*, *Conduct of Operations Manual***, as determined by the FOD/Designee.
12. When installing the lock(s)/tag(s), is there a specific sequence in which the isolation devices are to be positioned? If a specific sequence must be followed for Installation and/or Removal, check the appropriate box(es) and subsequently identify the sequence order in column numbers 19 and/or 24, accordingly. If there is not a specific sequence to follow, check the “N/A” box and place N/A in columns 19 and/or 24.
13. If an operating procedure/instruction/etc. is to be used in conjunction with the LO/TO Orders, check the “Yes” box and attach the pertinent document as an addendum. Additionally, a space is provided for Equipment Owner/Operator comments, if applicable.
14. Check either “Yes” or “No” to indicate if a Group LO/TO is applicable. A Group LO/TO is where two or more authorized workers, regardless of their occupation or craft, lock out and tag out the same equipment to perform servicing or maintenance. Enter the name of the Lead Authorized Worker.
15. Check either “Yes” or “No” to indicate if a Group Lock Box is to be used. If “Yes”, enter the lock box ID#. Each organization that issues locks will be required to uniquely number and track lock boxes in their possession.
16. The FOD-designated Equipment Owner/Operator signs and enters their Z#, authorizing the installation of the LO/TO. The Approver is responsible to notify all Affected Workers prior to the Authorized Workers performing LO/TO (“Affected Workers” are those who either may work with the equipment or are affected by LO/TO activities).
17. Enter the specific energy isolation device/ID (e.g., MCC-A, A4). The ID used in the LO/TO orders must match information used on tag (Attachment A).
18. Location of energy isolation device (TA, Bldg, Rm, etc.). The location used in the LO/TO orders must match information used on tag (Attachment A).

19. If the LO/TO needs to be installed in a particular order (refer to Step #12), number the sequence in which the locks need to be installed. If sequencing is not applicable, then place N/A in this column.
20. Required Position/Alignment for LO/TO (open, closed, connected, disconnected, on, off, etc.). Follow the nomenclature on the piece of equipment (e.g., if a service disconnect has “ON”/”OFF” posted, ensure the position/alignment entered on this form matches the piece of equipment [“ON” or “OFF”]).
21. The Lead Authorized Worker documents (signature) that the energy isolation devices have been positioned correctly, that locks and tags have been installed on those energy isolation devices and a Zero Energy Check has been performed.
    NOTE: The Lead Authorized Worker may also be designated as the Person-in-Charge (PIC).
22. Is verification required (see #10)? If verification is required, the person who performs the verification signs, and places their Z# and the date here. If verification is not required, check the “N/A” box.
23. Documentation of Approval to Remove LO/TO. Equipment Owner/Operator or FOD Designee signs and places his/her Z# in this box. Alternatively, authorization per telecommunication may be performed via a phone number identified for the Lead Authorized Worker to call the Equipment Owner/Operator or FOD Designee. Once verbal authorization is given, the Lead Authorized Worker documents the authorization as “per telecom” and enters his/her initials. Example: John Smith per telecom, JS. By checking the “N/A” box, a phone call is NOT REQUIRED by the Lead Authorized Worker to the Equipment Owner/Operator or FOD Designee.
    NOTE: The Equipment Owner/Operator or FOD Designee is responsible to notify all Affected Workers after the LO/TO removal and of the equipment/machine’s return to service.
24. If the LO/TO needs to be removed in a particular sequence (as per Step #12), number the sequence in which the locks need to be removed. If the “N/A” box is checked in #12, then place N/A in this column.
    NOTE: Often the sequence for removal is opposite the sequence for installation. For example, if the order specified for installation Column #19 is “1,2,3,4”, the order specified for removal in Column #24 could be “4,3,2,1”. The intention of the LO/TO Orders is to have the entries in Column #s 19 and 24 correspond with the energy isolation devices specified in Column #17.
25. Identify the required position/alignment in which the system/component is to be placed following the removal of the lock(s). Follow the nomenclature as listed on the piece of equipment (“On”, “Off”, etc.).
26. Enter the As-Left Position.
27. The Lead Authorized Worker documents (signature, Z# and date) that the locks and tags have been removed from the energy isolation devices and the energy isolation devices have been configured as per Equipment Owner/Operator specifications.
    NOTE: The Lead Authorized Worker may also be designated as the Person-in-Charge (PIC).
28. If verification is required for the positioning, the person who performs the verification signs here. Otherwise, check N/A.
29. All authorized workers applying a lock for this activity (names/Z#) must be documented. If more than 20 authorized workers are involved in a Group LO/TO, document the required information with an attached list.
30. Enter the date the authorized worker attaches his/her lock.
31. Enter the date the authorized worker removes his/her lock.
32. The Lock Coordinator or designee signs once locks, tags, and locking devices have been removed and returned. If a lock and/or tag are found to be contaminated, the lock and/or tag will be disposed of in accordance with local procedures and a verbal notification will be made to the Lock Coordinator to close out the record within Remedy.

Los Alamos NATIONAL LABORATORY EST. 1943	*Preventive Maintenance Instruction* Low- and High-Pressure Steam Boiler and Low-Temperature Water Heating Boiler Inspection, Testing, and Maintenance **403-A.006: Hot Water Boiler Yearly Fireside/Waterside Inspection and Maintenance**

Work Order No.: 61-1942-01 Equipment ID No.: B1+W-1

Instructions: Enter the requested information. All items marked **S** or **Y** are satisfactory. Document all items marked **U**, **N**, or **N/A** in the Remarks section below, noting the step number and reason. Notify the foreman or supervisor of problems involving imminent danger.

TA: 55 Building: 440 Room: AU209	
Date Inspected: 9/26/18 Inspectors:	

1.0 PRE-MAINTENANCE ACTIVITIES

NOTE Preoperational and pre-maintenance activities shall be conducted per the work order package, e.g., lockout/tagout, permits, special instructions, etc.

! WARNING If purging of gas lines will be required during this maintenance, ensure that the purging activity is addressed in the Integrated Work Document (IWD). The following must be addressed (see Master Specification 23 1123):

1. Purged fuel gases shall be directly vented to a safe location outdoors, away from personnel and ignition sources. This may be accomplished through permanent piping or temporary piping or hosing.
2. If it is not possible to vent purged gases outdoors, the following conditions must be met:
   a. Purging activity must be approved by the LANL Fire Marshal based on a documented justification detailing why outdoor venting is not possible and IWD.
   b. Gas concentration in the space to which the purge is vented shall be maintained at no more than 25% of the Lower Explosive Limit (LEL). For natural gas, the LEL is a concentration of 5% in air or 50,000 ppm. Therefore a maximum concentration of 12,500 ppm is allowed for natural gas. The concentration may be controlled by providing adequate ventilation or by limiting the amount of purge gas.
   c. Combustible gas detectors shall be used during the purging operation to monitor the gas concentration.
   d. Nonessential personnel shall be evacuated from the vicinity (including adjacent spaces) during the purging operation.
   e. Ignition sources in the purging space shall be controlled or eliminated.

NOTE All repair work, adjustments, or the replacement of parts shall be done in accordance with the manufacturer's procedures, specifications, recommendations, and instructions.

Remarks: _____

Work Order No.: 614942-01 Equipment ID No.: BHW-1

1.1	Notify maintenance coordinator (MC) that work will be in progress on the boiler system.	Initials: DB

2.0 MAINTENANCE

NOTE These selected hot water boilers are mainly boilers with power burners that have refractory in front and rear flue doors or have heat extractors in the fire-tubes as are found in most one-pass boilers (Sellers). Hot water heating boilers with atmospheric burners generally require minimal fireside preventative maintenance. Contact the MSS-MP Boiler subject matter expert (SME) at 7-8550 with questions or concerns.

2.1	Lock and tag out electrical and all associated valves on boiler and shut off gas supply.		Initials: DB
2.2	Cool boiler, open air cock, and drain the boiler.		Initials: DB
2.3	Perform an internal and external inspection after thorough cleaning.	Circle one: **S U N/A**	Initials: DB
2.3.1	Check the fireside furnace and fire-tubes for any evidence of soot formation or corrosion.	Circle one: **S U N/A**	Initials: DB
2.3.2	Brush and vacuum furnace and fire-tubes if such conditions exist.		Initials: DB
2.3.3	Perform hydrostatic test based on the boiler's Maximum Allowable Working Pressure and/or facility potable water pressure as long as the potable water pressure is at least 30 psi over boiler operating pressure.	Circle one: **S U N/A**	Initials: DB
2.3.4	Note if any boiler tubes and/or fittings are leaking, and repair as required. For any major repairs (determined by the SME), request a work order for the repairs from the MC.		Initials: DB
2.3.5	On one-pass boilers (Sellers), check condition of all heat extractors.	Circle one: **S U N/A**	Initials: DB

Remarks: _____

Work Order No.: 614942 · 01 Equipment ID No.: B1HW · 1

2.3.6 Check refractory materials.	Circle one: **S U N/A**	Initials: DB
2.3.7 Replace if needed.		Initials: DB
2.4 Perform routine burner maintenance.		Initials: DB
2.4.1 Observe temperature and operating pressure and general conditions.	Circle one: **S U N/A**	Initials: DB
2.4.2 Fire and cycle the burner.		Initials: DB
2.5 Perform routine maintenance of circulating pump and expansion pump equipment.		Initials: DB
2.5.1 Observe condition of expansion tank.	Circle one: **S U N/A**	Initials: DB
2.5.2 Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion.	Circle one: **S U N/A**	Initials: DB
2.5.3 Check the air pressure on the bladder-type expansion tanks.	Circle one: **S U N/A**	Initials: DB
2.5.4 Observe operation of circulating pumps.	Circle one: **S U N/A**	Initials: DB
2.5.5 Lubricate pump motors.		Initials: DB
2.6 Perform routine maintenance of entire combustion control equipment.		Initials: DB
2.6.1 Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	Circle one: **S U N/A**	Initials: DB

Remarks: _____

Work Order No.: 614942-01 Equipment ID No.: BHW-1

2.6.2	Adjust air/fuel mixture as needed.		Initials: DB
2.6.3	Test flame detection devices on boilers with flame scanners.	Circle one: **S U N/A**	Initials: DB
2.6.4	Remove the flame scanner with the burner firing.		Initials: DB
NOTE	The burner should shut off as a flame failure condition.		
2.6.5	Clean the flame scanner, reinstall and test programmer.		Initials: DB
2.6.6	Check for proper operation as boiler goes through a firing cycle and light-off.	Circle one: **S U N/A**	Initials: DB
2.6.7	Check all electrical control and circuitry.	Circle one: **S U N/A**	Initials: DB
2.6.8	Inspect for cracked mercury tubes, separation of mercury, cracked insulators (probe type), jumper tube conditions, loose connections, poor or deteriorated wiring, improperly used bypass switches, cutoff switches wired in parallel, shut-offs installed at improper levels, wedges behind mercury tubes.	Circle one: **S U N/A**	Initials: DB
2.6.9	Observe operation of forced draft fan motors on boilers with power burners and induced draft fan motors on horizontal breeching where applicable.	Circle one: **S U N/A**	Initials: DB
2.6.10	Lubricate fan motors where necessary.		Initials: DB
2.7	Perform combustion and draft tests.		Initials: DB
2.7.1	Visually inspect combustion.	Circle one: **S U N/A**	Initials: DB

Remarks: _____

Work Order No.: 614942.01 Equipment ID No.: BH01

NOTE Changes in flame shape, color, and sound are among early indicators of potential combustion-related problems. Changes may be due to changes in fuel pressure or gas/air linkage movement.

2.8 Perform safety relief valve(s) pop test.	Circle one: **S U N/A**	Initials: DB
2.8.1 Check pressure-reducing valve.	Circle one: **S U N/A**	Initials: DB
2.8.2 Replace the strainer in the valve if needed.		Initials: DB
2.9 Perform slow drain test of low-water cutoff.	Circle one: **S U N/A**	Initials: DB
2.10 Inspect gas piping for proper support and tightness.	Circle one: **S U N/A**	Initials: DB
2.10.1 Inspect fuel supply system and gas controls.	Circle one: **S U N/A**	Initials: DB
2.10.2 Leak check gas controls and associated gas piping with a gas detector or soap suds.	Circle one: **S U N/A**	Initials: DB
2.11 Inspect boiler room ventilation louvers and intake.	Circle one: **S U N/A**	Initials: DB
2.11.1 Listen for any unusual noises or conditions and correct as necessary.	Circle one: **S U N/A**	Initials: DB
2.11.2 Report any needed corrections to the MC for corrective maintenance.		Initials: DB
2.11.3 Check combustion air supply openings to ensure that they are not closed or stopped up.	Circle one: **S U N/A**	Initials: DB

Remarks: _____

2.11.4	Inspect conditions of stacks and rain caps.	Circle one: **S U N/A**	Initials: DB
2.11.5	Inspect flue door gaskets to ensure they are in good condition, and properly secured.	Circle one: **S U N/A**	Initials: DB
2.11.6	Replace if necessary.		Initials: DB

3.0 POST-MAINTENANCE ACTIVITIES

NOTE Post-maintenance activities shall be conducted in accordance with the work order package instructions (e.g., lockout/tagout, special instructions, etc.).

3.1	Close and secure front and rear flue doors.		Initials: DB
3.2	Hook up all associated piping and refill boiler.		Initials: DB
3.3	Fire up boiler and check for air, gas, and water leaks.	Circle one: **S U N/A**	Initials: DB
3.4	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	Circle one: **S U N/A**	Initials: DB
3.5	Check pilot burners and ignition equipment for proper condition and adjustment.	Circle one: **S U N/A**	Initials: DB
3.6	Visually check burner for proper combustion.	Circle one: **S U N/A**	Initials: DB
3.7	Record all mechanical maintenance data, testing data, and other notable items.		Initials: DB

NOTE Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.

Remarks: _____

Work Order No.: 614942-01 Equipment ID No.: BHW-1

3.8	Test water for proper chemical levels. Test and treat water as defined on Datasheet 403-A.002.	Circle one: S U N/A	Initials: DB
3.9	Record all mechanical maintenance data, testing data, and other notable items.		Initials: DB
3.10	Notify MC that work on the boiler system is complete.		Initials: DB

Name of Craft Worker: Dennis Bernal Z Number: 197845

Signature: [signature] Date: 9 / 26 / 18

Name of Craft Worker: DAVE SEAMAN Z Number: 331419

Signature: [signature] Date: 9 / 26 / 18

Foreman Verification: Lewis Mondragon Z Number: 090036

Signature: Lewis Mondragon Date: 9/27/18 /

Remarks:

Attachment B, LO/TO Orders

Lock Coordinator Name	Z#:	Phone #:	Alternate Lock Coordinator Name	Z#:	Phone #:
stephen mcneel	265531	7-7333			

Section 1: General Information

1. Work Document Number (i.e., Package/Procedure #): 614942-01
2. LO/TO (Parent) Record #:

Location of Equipment to be Isolated

3. TA:55	4. Bldg:0440	5. Rm: U209	6. Equipment Description (e.g. Machinery/Name/CMMS Number): BHW-02 and HW-P02

7. Name of Equipment Owner/Operator:

8. Reason for LO/TO: 55-0440 Hot Water Boiler Fireside/ Waterside PM

9. Energy Type to be Isolated (check all that apply):
☒ Electrical ☐ Mechanical ☐ Hydraulic ☐ Pneumatic ☐ Steam ☐ Capacitors ☐ Compressed Energy ☐ Gravity ☒ Other (specify):

10. Verification required for LO/TO:
☐ Installation ☐ Removal ☑ N/A (Verification Not Required)

11. Verification Type:
☐ Peer ☐ Independent ☑ N/A

12. Specific Sequencing of LO/TO devices required for:
☐ Installation ☐ Removal ☑ N/A (Sequencing Not Required)

13. LO/TO Orders Addendum with Operational Instructions/Procedures attached?
☐ Yes ☑ No

Equipment Owner/Operator Comments:

Section 2: LO/TO Installation & Removal Details

14. Group LO/TO? ☒ Yes ☐ No
Name of Lead Authorized Worker:

15. Group Lock Box used? ☒ Yes ☐ No
If yes, enter ID# of Lock Box:

LO/TO Installation

16. Approval to Install LO/TO
Signature: Z#: 265531
NOTE: Approver must ensure Affected Workers are notified prior to Authorized Workers performing LO/TO

LO/TO Removal / Return to Service

23. Approval to Remove LO/TO Call #: 7-7333
☑ N/A
Signature Z#: 265531
NOTE: Approver must ensure Affected Workers are notified of LO/TO Removal / Return to Service

17. Energy Isolation Device (use Specific ID)	18. Location of Energy Isolation Device	19. LO/TO Installation Sequence	20. Required LO/TO Position or Alignment	24. LO/TO Removal Sequence	25. Required Position/Alignment following Removal	26. As-Left Position
MCC-B Ckt 3D	U209		OPEN/OFF		CLOSED/ON	CLOSED/ON
MCC-B Ckt 2C	U209		OPEN/OFF		CLOSED/ON	CLOSED/ON
NG-V-6010D	U209		CLOSED		OPEN	OPEN
NG-V-6014A	U209		CLOSED		OPEN	OPEN

☒ See continuation page for additional Energy Isolation Devices (continuation page must also be signed if applicable)

21. Energy Isolation Devices Positioned, Lock(s) and Tag(s) installed, and Zero Energy Checks Performed:
Signature: Z#: 192845 Date: 7-26-18

27. LO/TO has been Removed & Isolation Devices Positioned:
Signature: Z#: 192845 Date: 9-26-18

22. LO/TO verified by:
☑ N/A

28. Removal and Positioning verified by:
☑ NA

Attachment B, LO/TO Orders

Signature:	Z#:	Date:	Signature:	Z#:	Date:

Attachment B, LO/TO Orders

Attachment B, LO/TO Orders (Cont.)	
1. Work Document Number (i.e., Package/Procedure #):	2. LO/TO (Parent) Record #:

Section 3: All Authorized Workers (anyone applying a lock for this activity)

29. Authorized Workers Name(s)	Z#	30. Date worker's lock is hung	31. Date worker's lock is removed
1. Dennis Bernal	172845	9-26-18	9-26-18
2. DAVID SEAMAN	301419	9-26-18	9-26-18
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

Section 4: Return of Lock(s)/Tag(s) and Locking Devices

All Lock(s)/Tag(s) and Locking Devices have been removed and returned to the Lock Coordinator:

32. Signature of Lock Coordinator: Z#: 265531 Date: 9/27/18

*Instructions for completing this form (by numbered steps) appear on the last two pages of this document. Take the completed forms back to the Lock Coordinator for closeout.

Attachment B, LO/TO Orders

Continuation Page (print as needed)

Attachment B, LO/TO Orders (Cont.)						
1. Work Document Number (i.e., Package/Procedure #):				2. LO/TO (Parent) Record #:		
LO/TO Installation				**LO/TO Removal / Return to Service**		
17. Energy Isolation Device (Specific ID)	18. Location of Energy Isolation Device	19. LO/TO Installation Sequence	20. Required LO/TO Position or Alignment	24. LO/TO Removal Sequence	25. Required Position/Alignment following Removal	26. As-Left Position
HW-V-201A	U209		CLOSED		OPEN	OPEN
HW-V-201B	U209		CLOSED		OPEN	OPEN
21. Energy Isolation Devices Positioned, Lock(s) and Tag(s) installed, and Zero Energy Checks Performed: Signature: Z#: 331419 Date: 7-26-18				27. LO/TO has been Removed & Isolation Devices Positioned: Signature: Z#: 331419 Date: 7-26-18		
22. LO/TO verified by: ☐ N/A Signature: Z#: Date:				28. Removal and Positioning verified by: ☐ NA Signature: Z#: Date:		

Attachment B, LO/TO Orders

Instructions by Numbered Steps

Lock Coordinator (Header): Identify the individual who will issue Red Locks to persons performing LO/TO (individual[s] identified by the FOD).

1. Enter the Work Document Number. This will be the number from the IWD or the procedure number (i.e., TA88-DOP-0001).
2. Enter the LO/TO Parent Record number. This is obtained from the Lock Coordinator when the lock(s) are issued. The Remedy LO/TO database generates this number.
3. Enter the TA where the equipment is located.
4. Enter the Building number where the equipment is located.
5. Enter the Room number where the equipment is located.

   NOTE: Responses to steps 3 through 5 need to match information, identically, within both the LO/TO Orders and the tag (Attachment A).

6. Enter the Equipment/Machinery/Name/Number (example, HVA-001 [NOTE: LOG is to follow nomenclature contained within CMMS/MEL]).
7. Enter the Name of the Equipment Owner/Operator. The Equipment Owner/Operator is designated by the FOD. There may be both programmatic and facility Equipment Owner/Operators.
8. Write a brief description of the reason for LO/TO (example, removing and replacing exhaust fan belts).
9. Check the appropriate energy type to be isolated (check all that apply). Make sure you have considered all energy sources; if “Other” is checked, specify what “Other” is.
10. Is verification of the energy isolation configuration required for this LO/TO for installation and/or removal? Check the appropriate box(es). **NOTE:** Contact the FOD/Designee regarding verification requirements. Additionally, verification may be required by the Equipment Owner/Operator.
11. If verification is required, check the appropriate box (either “Peer” or “Independent”). If verification is NOT required, check the “N/A” box. **NOTE:** Independent verification may be required per ***P315*, *Conduct of Operations Manual***, as determined by the FOD/Designee.
12. When installing the lock(s)/tag(s), is there a specific sequence in which the isolation devices are to be positioned? If a specific sequence must be followed for Installation and/or Removal, check the appropriate box(es) and subsequently identify the sequence order in column numbers 19 and/or 24, accordingly. If there is not a specific sequence to follow, check the “N/A” box and place N/A in columns 19 and/or 24.
13. If an operating procedure/instruction/etc. is to be used in conjunction with the LO/TO Orders, check the “Yes” box and attach the pertinent document as an addendum. Additionally, a space is provided for Equipment Owner/Operator comments, if applicable.
14. Check either “Yes” or “No” to indicate if a Group LO/TO is applicable. A Group LO/TO is where two or more authorized workers, regardless of their occupation or craft, lock out and tag out the same equipment to perform servicing or maintenance. Enter the name of the Lead Authorized Worker.
15. Check either “Yes” or “No” to indicate if a Group Lock Box is to be used. If “Yes”, enter the lock box ID#. Each organization that issues locks will be required to uniquely number and track lock boxes in their possession.
16. The FOD-designated Equipment Owner/Operator signs and enters their Z#, authorizing the installation of the LO/TO. The Approver is responsible to notify all Affected Workers prior to the Authorized Workers performing LO/TO (“Affected Workers” are those who either may work with the equipment or are affected by LO/TO activities).
17. Enter the specific energy isolation device/ID (e.g., MCC-A, A4). The ID used in the LO/TO orders must match information used on tag (Attachment A).
18. Location of energy isolation device (TA, Bldg, Rm, etc.). The location used in the LO/TO orders must match information used on tag (Attachment A).

19. If the LO/TO needs to be installed in a particular order (refer to Step #12), number the sequence in which the locks need to be installed. If sequencing is not applicable, then place N/A in this column.
20. Required Position/Alignment for LO/TO (open, closed, connected, disconnected, on, off, etc.). Follow the nomenclature on the piece of equipment (e.g., if a service disconnect has “ON”/”OFF” posted, ensure the position/alignment entered on this form matches the piece of equipment [“ON” or “OFF”]).
21. The Lead Authorized Worker documents (signature) that the energy isolation devices have been positioned correctly, that locks and tags have been installed on those energy isolation devices and a Zero Energy Check has been performed.
    NOTE: The Lead Authorized Worker may also be designated as the Person-in-Charge (PIC).
22. Is verification required (see #10)? If verification is required, the person who performs the verification signs, and places their Z# and the date here. If verification is not required, check the “N/A” box.
23. Documentation of Approval to Remove LO/TO. Equipment Owner/Operator or FOD Designee signs and places his/her Z# in this box. Alternatively, authorization per telecommunication may be performed via a phone number identified for the Lead Authorized Worker to call the Equipment Owner/Operator or FOD Designee. Once verbal authorization is given, the Lead Authorized Worker documents the authorization as “per telecom” and enters his/her initials. Example: John Smith per telecom, JS. By checking the “N/A” box, a phone call is NOT REQUIRED by the Lead Authorized Worker to the Equipment Owner/Operator or FOD Designee.
    NOTE: The Equipment Owner/Operator or FOD Designee is responsible to notify all Affected Workers after the LO/TO removal and of the equipment/machine’s return to service.
24. If the LO/TO needs to be removed in a particular sequence (as per Step #12), number the sequence in which the locks need to be removed. If the “N/A” box is checked in #12, then place N/A in this column.
    NOTE: Often the sequence for removal is opposite the sequence for installation. For example, if the order specified for installation Column #19 is “1,2,3,4”, the order specified for removal in Column #24 could be “4,3,2,1”. The intention of the LO/TO Orders is to have the entries in Column #s 19 and 24 correspond with the energy isolation devices specified in Column #17.
25. Identify the required position/alignment in which the system/component is to be placed following the removal of the lock(s). Follow the nomenclature as listed on the piece of equipment (“On”, “Off”, etc.).
26. Enter the As-Left Position.
27. The Lead Authorized Worker documents (signature, Z# and date) that the locks and tags have been removed from the energy isolation devices and the energy isolation devices have been configured as per Equipment Owner/Operator specifications.
    NOTE: The Lead Authorized Worker may also be designated as the Person-in-Charge (PIC).
28. If verification is required for the positioning, the person who performs the verification signs here. Otherwise, check N/A.
29. All authorized workers applying a lock for this activity (names/Z#) must be documented. If more than 20 authorized workers are involved in a Group LO/TO, document the required information with an attached list.
30. Enter the date the authorized worker attaches his/her lock.
31. Enter the date the authorized worker removes his/her lock.
32. The Lock Coordinator or designee signs once locks, tags, and locking devices have been removed and returned. If a lock and/or tag are found to be contaminated, the lock and/or tag will be disposed of in accordance with local procedures and a verbal notification will be made to the Lock Coordinator to close out the record within Remedy.

Los Alamos NATIONAL LABORATORY EST. 1943

Form 2101

Integrated Work Document (IWD) Part 2, FOD Requirements and Approval for Entry and Area Hazards and Controls

Non-Tenant Activity Form

IWD No./Work Request No: ____ Revision #: ____

Facility Operation Director (FOD) must determine the facility entry and coordination requirements and identify the Environment, Safety, Health (ESH)/Security and Safeguards (S&S) hazards and controls associated with the activity location.

FOD FOD 10	TA 55	Bldg. 0440	Room Various	Other Location Includes areas outside bldg. 400/440
FOD Designated Facility Point-of-Contact	Name Stacy Howze	Phone 665-2808	Pager 699-3019	Email howze@lanl.gov

Entry and Coordination Requirements (*Check one or more of the following*)

- ☐ No Entry/Coordination Requirements
- ☒ Plan of the Day/Plan of the Week (POTD/POTW)
- ☒ Security Clearance Requirements
- ☒ Co-located Hazards/Concerns
- ☒ Check out at End of Work
- ☐ Escort Required
- ☐ Other Bounding Conditions: ____
- ☒ FOD-designated facility Point-of-Contact must sign IWD Part 3
- ☒ Check in at Start of Work
- ☐ Work-Area Training Required
- ☒ Work must be Scheduled
- ☒ Check in Daily
- ☒ Other Security Requirements (ex.: Cellphone, No Foreign Nationals, etc.)
- ☐ Quality Issues
- ☒ Check out Daily
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)

Additional Comments (refer to Job Hazard Analysis [JHA] Tool Facility Notes)

NOTE: Maintenance Coordinator to coordinate all work with the Ops Center. Consult with MC and Ops Center for potential changing conditions.

1) All work in the overhead requires a through inspection for any electrical abnormalities including any exposed wiring or missing covers from junction boxes.
2) Facility specific PPE - Use of leather gloves is required for all work in the overhead. Hearing protection 1st and 2nd or as posted otherwise.
3) Outdoor Activities - Watch for potential or on-going construction activities, heavy equipment, trenching, overhead work, ect.. Follow all signs, postings and access restrictions.
4) For unescorted access to RLUOB complete: RLUOB Access Training (Curriculum #161). Escort is required is access and security plan training have not been completed.
5) Facility Operations: (a) Follow all signage, postings, and barricades or cordoned-off areas; (b) Follow announcements, alarms, alerts, and all directions from Facility Ops and/or a Site Safety Rep. due to changing conditions, outages, testing activities, evacuation orders, etc.; and (c) Do not enter worksites or areas unrelated to work activity unless authorized.

Instructions: In the block below, identify work-area hazards that could potentially affect the worker(s) or others. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the site hazards as well as any special training required.

ESH/S&S WORK AREA HAZARDS & CONTROLS				
Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
☐ **No Work Area Hazards**				

Ionizing Radiation Work in posted radiological areas, work with radioactive materials, or work on or near radiation producing devices. **Specify Hazard:**	☐ Yes ☒ No	Some areas on the 1st Floor, Basement, and Mezzenine areas are posted Radiological Control Areas. Follow signs and postings.	PA-RD-01006, Facility Radiation Protection Requirements (FRPR)	Radiological Worker II (Curricula #20301 or equivalent).

IWD No./Work Request No: _____ Revision #: _____

ESH/S&S WORK AREA HAZARDS & CONTROLS				
Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
Worker Exposure Working near non-ionizing radiation, beryllium, noise, chemicals, hazardous biological materials, lead, asbestos, temperature/humidity extremes, or high explosives. **Specify Hazards:**	☒ Yes ☐ No	High noise levels possible near operating equipment. Follow signs and postings.	P101-13: Hearing Conservation/Noise Program.	Hearing Conservation Self-Study (Curricula #12350 or equivalent).
Energized and Operative Systems Working near energized electrical parts, pressure systems, steam lines; near unprotected belts, pulleys, chains or rotating equipment; fuel fired equipment other than vehicles; or spark or flame producing operations. **Specify Hazards:**	☒ Yes ☐ No	Treat all electrical, pneumatic, hydraulic, mechanical, and piping systems as energized. Stay clear of energized work performed by others. All work in the overhead requires a through inspection for any electrical abnormalities including any exposed wiring or missing covers from junction boxes. Use of leather gloves is required for all work in the overhead. .		
Confined Spaces Entry into tanks, manholes, cooling towers, sumps, or any other area with potentially low oxygen concentration or other hazards such as toxic vapors or engulfment. **Specify Hazards:**	☐ Yes ☒ No	Do Not Enter Confined Spaces. Entry is by Permit only. Follow signage as posted.		

Elevated Work Surface Elevated work when fall protection is not provided by conventional handrail systems or required per P101-20, *Fall Protection Program*	☐ Yes ☒ No	Watch for overhead work by others.		
Environmental Impact Activities conducted in areas containing potential release site, contaminated soil, sensitive species, watercourse wetlands, floodplain, historical/archeological sites, or other work area condition that can be impacted by or can impact the environment. **Specify Hazards:**	☐ Yes ☒ No			
Security Requirements **Specify: LANL Badge Holder for facility access.**	☒ Yes ☐ No	LANL Badge Holder for facility access. L or Q clearance for unescorted access to Limited Areas. Only approved cell phones in bldg.		
Other Hazards **Specify:**	☐ Yes ☒ No			

I have verified that the hazards identified above adequately identify the area hazards and that the IWM process has been applied appropriately.

FOD or Representative (Signature/Z #/Date) **Approval Required** _____ 12610 6·9·18

Date Approval Expires: Expires June, 30, 2020

Los Alamos NATIONAL LABORATORY EST. 1943	*Preventive Maintenance Instruction* Low- and High-Pressure Steam Boiler and Low-Temperature Water Heating Boiler Inspection, Testing, and Maintenance **403-A.006: Hot Water Boiler Yearly Fireside/Waterside Inspection and Maintenance**
Work Order No.: 64742-01	Equipment ID No.: BHW-2

Instructions: Enter the requested information. All items marked **S** or **Y** are satisfactory. Document all items marked **U**, **N**, or **N/A** in the Remarks section below, noting the step number and reason. Notify the foreman or supervisor of problems involving imminent danger.

TA: 55 Building: 440 Room: U209	
Date Inspected: 9 / 26 / 18	Inspectors: [illegible]

1.0 PRE-MAINTENANCE ACTIVITIES

NOTE Preoperational and pre-maintenance activities shall be conducted per the work order package, e.g., lockout/tagout, permits, special instructions, etc.

! WARNING If purging of gas lines will be required during this maintenance, ensure that the purging activity is addressed in the Integrated Work Document (IWD). The following must be addressed (see Master Specification 23 1123):

1. Purged fuel gases shall be directly vented to a safe location outdoors, away from personnel and ignition sources. This may be accomplished through permanent piping or temporary piping or hosing.
2. If it is not possible to vent purged gases outdoors, the following conditions must be met:
   a. Purging activity must be approved by the LANL Fire Marshal based on a documented justification detailing why outdoor venting is not possible and IWD.
   b. Gas concentration in the space to which the purge is vented shall be maintained at no more than 25% of the Lower Explosive Limit (LEL). For natural gas, the LEL is a concentration of 5% in air or 50,000 ppm. Therefore a maximum concentration of 12,500 ppm is allowed for natural gas. The concentration may be controlled by providing adequate ventilation or by limiting the amount of purge gas.
   c. Combustible gas detectors shall be used during the purging operation to monitor the gas concentration.
   d. Nonessential personnel shall be evacuated from the vicinity (including adjacent spaces) during the purging operation.
   e. Ignition sources in the purging space shall be controlled or eliminated.

NOTE All repair work, adjustments, or the replacement of parts shall be done in accordance with the manufacturer's procedures, specifications, recommendations, and instructions.

Remarks: _____

Work Order No.: 614942.01 Equipment ID No.: BHW-2

1.1	Notify maintenance coordinator (MC) that work will be in progress on the boiler system.		Initials:

2.0 MAINTENANCE

NOTE These selected hot water boilers are mainly boilers with power burners that have refractory in front and rear flue doors or have heat extractors in the fire-tubes as are found in most one-pass boilers (Sellers). Hot water heating boilers with atmospheric burners generally require minimal fireside preventative maintenance. Contact the MSS-MP Boiler subject matter expert (SME) at 7-8550 with questions or concerns.

2.1	Lock and tag out electrical and all associated valves on boiler and shut off gas supply.		Initials:
2.2	Cool boiler, open air cock, and drain the boiler.		Initials:
2.3	Perform an internal and external inspection after thorough cleaning.	Circle one: **S U N/A**	Initials:
2.3.1	Check the fireside furnace and fire-tubes for any evidence of soot formation or corrosion.	Circle one: **S U N/A**	Initials:
2.3.2	Brush and vacuum furnace and fire-tubes if such conditions exist.		Initials:
2.3.3	Perform hydrostatic test based on the boiler's Maximum Allowable Working Pressure and/or facility potable water pressure as long as the potable water pressure is at least 30 psi over boiler operating pressure.	Circle one: **S U N/A**	Initials:
2.3.4	Note if any boiler tubes and/or fittings are leaking, and repair as required. For any major repairs (determined by the SME), request a work order for the repairs from the MC.		Initials:
2.3.5	On one-pass boilers (Sellers), check condition of all heat extractors.	Circle one: **S U N/A**	Initials:

Remarks: _____

Work Order No.: _____ Equipment ID No.: _____

2.3.6 Check refractory materials.	Circle one: S U N/A	Initials:
2.3.7 Replace if needed.		Initials:
2.4 Perform maintenance on low-water cutoff float chamber and water feeder. Disassemble to ensure freedom from obstruction and proper functioning of the working parts.		Initials:
2.5 Perform routine burner maintenance.		Initials:
2.5.1 Observe temperature and operating pressure and general conditions.	Circle one: S U N/A	Initials:
2.5.2 Fire and cycle the burner.		Initials:
2.6 Perform routine maintenance of circulating pump and expansion pump equipment.		Initials:
2.6.1 Observe condition of expansion tank.	Circle one: S U N/A	Initials:
2.6.2 Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion.	Circle one: S U N/A	Initials:
2.6.3 Check the air pressure on the bladder-type expansion tanks.	Circle one: S U N/A	Initials:
2.6.4 Observe operation of circulating pumps.	Circle one: S U N/A	Initials:
2.6.5 Lubricate pump motors.		Initials:
2.7 Perform routine maintenance of entire combustion control equipment.		Initials:

Remarks: _____

Work Order No.: 614942-01 Equipment ID No.: BHW-2

2.7.1	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	Circle one: S U N/A	Initials:
2.7.2	Adjust air/fuel mixture as needed.		Initials:
2.7.3	Test flame detection devices on boilers with flame scanners.	Circle one: S U N/A	Initials:
2.7.4	Remove the flame scanner with the burner firing.		Initials:
NOTE	The burner should shut off as a flame failure condition.		
2.7.5	Clean the flame scanner, reinstall and test programmer.		Initials:
2.7.6	Check for proper operation as boiler goes through a firing cycle and light-off.	Circle one: S U N/A	Initials:
2.7.7	Check all electrical control and circuitry.	Circle one: S U N/A	Initials:
2.7.8	Inspect for cracked ~~mercury~~ N/A tubes, separation of ~~mercury~~ N/A, cracked insulators (probe type), jumper tube conditions, loose connections, poor or deteriorated wiring, improperly used bypass switches, cutoff switches wired in parallel, shut-offs installed at improper levels, wedges behind ~~mercury~~ tubes. N/A	Circle one: S U N/A	Initials:
2.7.9	Observe operation of forced draft fan motors on boilers with power burners and induced draft fan motors on horizontal breeching where applicable.	Circle one: S U N/A	Initials:
2.7.10	Lubricate fan motors where necessary.		Initials:
2.8	Perform combustion and draft tests.		Initials:

Remarks:

Work Order No.: 614942-01 Equipment ID No.: BHW-2

2.8.1 Visually inspect combustion.	Circle one: S U N/A	Initials:
NOTE Changes in flame shape, color, and sound are among early indicators of potential combustion-related problems. Changes may be due to changes in fuel pressure or gas/air linkage movement.		
2.9 Perform safety relief valve(s) pop test.	Circle one: S U N/A	Initials:
2.9.1 Check pressure-reducing valve.	Circle one: S U N/A	Initials:
2.9.2 Replace the strainer in the valve if needed.		Initials:
2.10 Perform slow drain test of low-water cutoff.	Circle one: S U N/A	Initials:
2.11 Inspect gas piping for proper support and tightness.	Circle one: S U N/A	Initials:
2.11.1 Inspect fuel supply system and gas controls.	Circle one: S U N/A	Initials:
2.11.2 Leak check gas controls and associated gas piping with a gas detector or soap suds.	Circle one: S U N/A	Initials:
2.12 Inspect boiler room ventilation louvers and intake.	Circle one: S U N/A	Initials:
2.12.1 Listen for any unusual noises or conditions and correct as necessary.	Circle one: S U N/A	Initials:
2.12.2 Report any needed corrections to the MC for corrective maintenance.		Initials:

Remarks: _____

Work Order No.: 614942-01 Equipment ID No.: BHW-2

2.12.3	Check combustion air supply openings to ensure that they are not closed or stopped up.	Circle one: S U N/A	Initials:
2.12.4	Inspect conditions of stacks and rain caps.	Circle one: S U N/A	Initials:
2.12.5	Inspect flue door gaskets to ensure they are in good condition, and properly secured.	Circle one: S U N/A	Initials:
2.12.6	Replace if necessary.		Initials:

3.0 POST-MAINTENANCE ACTIVITIES

NOTE Post-maintenance activities shall be conducted in accordance with the work order package instructions (e.g., lockout/tagout, special instructions, etc.).

3.1	Close and secure front and rear flue doors.		Initials:
3.2	Hook up all associated piping and refill boiler.		Initials:
3.3	Fire up boiler and check for air, gas, and water leaks.	Circle one: S U N/A	Initials:
3.4	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	Circle one: S U N/A	Initials:
3.5	Check pilot burners and ignition equipment for proper condition and adjustment.	Circle one: S U N/A	Initials:
3.6	Visually check burner for proper combustion.	Circle one: S U N/A	Initials:
3.7	Record all mechanical maintenance data, testing data, and other notable items.		Initials:

Remarks:

Los Alamos NATIONAL LABORATORY EST. 1943	*Preventive Maintenance Instruction* Low- and High-Pressure Steam Boiler and Low-Temperature Water Heating Boiler Inspection, Testing, and Maintenance **403-A.006: Hot Water Boiler Yearly Fireside/Waterside Inspection and Maintenance**
Work Order No.: 614942-01	Equipment ID No.: BHW-2

NOTE	Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.		
3.8	Test water for proper chemical levels. Test and treat water as defined on Datasheet 403-A.002.	Circle one: S U N/A	Initials: DB
3.9	Record all mechanical maintenance data, testing data, and other notable items.		Initials: DB
3.10	Notify MC that work on the boiler system is complete.		Initials: DB

Name of Craft Worker: DAVE LUEAMAN Z Number: 331419

Signature: [signature] Date: 9/26/18

Name of Craft Worker: Dennis Bernal Z Number: L97845

Signature: [signature] Date: 9/26/18

Foreman Verification: Lewis Mondragon Z Number: 090036

Signature: Lewis Mondragon Date: 9/27/18

Remarks:

Attachment B, LO/TO Orders

Lock Coordinator Name	Z#:	Phone #:	Alternate Lock Coordinator Name	Z#:	Phone #:
stephen mcneel	265531				

Section 1: General Information

1. Work Document Number (i.e., Package/Procedure #): 6149420.01
2. LO/TO (Parent) Record #: 79272

Location of Equipment to be Isolated

3. TA:55	4. Bldg:0440	5. Rm: U209	6. Equipment Description (e.g. Machinery/Name/CMMS Number): BHW-03 and HW-P03

7. Name of Equipment Owner/Operator: steephen mcneel

8. Reason for LO/TO: 55-0440 Hot Water Boiler Fireside/ Waterside PM

9. Energy Type to be Isolated (check all that apply):
☒ Electrical ☐ Mechanical ☐ Hydraulic ☐ Pneumatic ☐ Steam ☐ Capacitors ☐ Compressed Energy ☐ Gravity ☒ Other (specify):

10. Verification required for LO/TO:
☐ Installation ☐ Removal ☑ N/A (Verification Not Required)

11. Verification Type:
☐ Peer ☐ Independent ☑ N/A

12. Specific Sequencing of LO/TO devices required for:
☐ Installation ☐ Removal ☑ N/A (Sequencing Not Required)

13. LO/TO Orders Addendum with Operational Instructions/Procedures attached?
☐ Yes ☑ No

Equipment Owner/Operator Comments:

Section 2: LO/TO Installation & Removal Details

14. Group LO/TO? ☒ Yes ☐ No
Name of Lead Authorized Worker:

15. Group Lock Box used? ☒ Yes ☐ No
If yes, enter ID# of Lock Box: 5

LO/TO Installation	LO/TO Removal / Return to Service
16. Approval to Install LO/TO Signature: Z#: 265531 **NOTE: Approver must ensure Affected Workers are notified prior to Authorized Workers performing LO/TO**	23. Approval to Remove LO/TO Call #: _____ ☐ N/A Signature: Z#: 265531 **NOTE: Approver must ensure Affected Workers are notified of LO/TO Removal / Return to Service**

17. Energy Isolation Device (use Specific ID)	18. Location of Energy Isolation Device	19. LO/TO Installation Sequence	20. Required LO/TO Position or Alignment	24. LO/TO Removal Sequence	25. Required Position/Alignment following Removal	26. As-Left Position
MCC-B Ckt 3F	U209		OPEN/OFF		CLOSED/ON	CLOSED/ON
MCC-B Ckt 2D	U209		OPEN/OFF		CLOSED/ON	CLOSED/ON
NG-V-6020D	U209		CLOSED		OPEN	OPEN
NG-V-6024A	U209		CLOSED		OPEN	OPEN

☒ See continuation page for additional Energy Isolation Devices (continuation page must also be signed if applicable)

21. Energy Isolation Devices Positioned, Lock(s) and Tag(s) installed, and Zero Energy Checks Performed:	27. LO/TO has been Removed & Isolation Devices Positioned:
Signature: Z#: 192845 Date: 7-27-16	Signature: Z#: 192845 Date: 7-27-16
22. LO/TO verified by: ☐ N/A	28. Removal and Positioning verified by: ☑ NA

Insert Text Here

Attachment B, LO/TO Orders

Signature:	Z#:	Date:	Signature:	Z#:	Date:

Attachment B, LO/TO Orders

Attachment B, LO/TO Orders (Cont.)	
1. Work Document Number (i.e., Package/Procedure #):	2. LO/TO (Parent) Record #:

Section 3: All Authorized Workers (anyone applying a lock for this activity)

29. Authorized Workers Name(s)	Z#	30. Date worker's lock is hung	31. Date worker's lock is removed
1. Dennis Bernal	192845	9-27-18	9-27-18
2. [illegible]	351914	9-22-18	9-27-18
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

Section 4: Return of Lock(s)/Tag(s) and Locking Devices

All Lock(s)/Tag(s) and Locking Devices have been removed and returned to the Lock Coordinator:

32. Signature of Lock Coordinator: [signature] Insert Text Here Z#: 265531 Date: 9/27/18

*Instructions for completing this form (by numbered steps) appear on the last two pages of this document. Take the completed forms back to the Lock Coordinator for closeout.

Attachment B, LO/TO Orders

Continuation Page (print as needed)

Attachment B, LO/TO Orders (Cont.)						
1. Work Document Number (i.e., Package/Procedure #):				2. LO/TO (Parent) Record #:		
LO/TO Installation				**LO/TO Removal / Return to Service**		
17. Energy Isolation Device (Specific ID)	18. Location of Energy Isolation Device	19. LO/TO Installation Sequence	20. Required LO/TO Position or Alignment	24. LO/TO Removal Sequence	25. Required Position/Alignment following Removal	26. As-Left Position
HW-V-301A	U209		CLOSED		OPEN	OPEN
HW-V-301B	U209		CLOSED		OPEN	OPEN
21. Energy Isolation Devices Positioned, Lock(s) and Tag(s) installed, and Zero Energy Checks Performed: Signature: Z#: Date: 7-22-18				27. LO/TO has been Removed & Isolation Devices Positioned: Signature: Z#: Date: 7-22-18		
22. LO/TO verified by: ☐ N/A Signature: Z#: Date:				28. Removal and Positioning verified by: ☐ NA Signature: Z#: Date:		

Attachment B, LO/TO Orders

Instructions by Numbered Steps

Lock Coordinator (Header): Identify the individual who will issue Red Locks to persons performing LO/TO (individual[s] identified by the FOD).

1. Enter the Work Document Number. This will be the number from the IWD or the procedure number (i.e., TA88-DOP-0001).
2. Enter the LO/TO Parent Record number. This is obtained from the Lock Coordinator when the lock(s) are issued. The Remedy LO/TO database generates this number.
3. Enter the TA where the equipment is located.
4. Enter the Building number where the equipment is located.
5. Enter the Room number where the equipment is located.

   NOTE: Responses to steps 3 through 5 need to match information, identically, within both the LO/TO Orders and the tag (Attachment A).

6. Enter the Equipment/Machinery/Name/Number (example, HVA-001 [NOTE: LOG is to follow nomenclature contained within CMMS/MEL]).
7. Enter the Name of the Equipment Owner/Operator. The Equipment Owner/Operator is designated by the FOD. There may be both programmatic and facility Equipment Owner/Operators.
8. Write a brief description of the reason for LO/TO (example, removing and replacing exhaust fan belts).
9. Check the appropriate energy type to be isolated (check all that apply). Make sure you have considered all energy sources; if “Other” is checked, specify what “Other” is.
10. Is verification of the energy isolation configuration required for this LO/TO for installation and/or removal? Check the appropriate box(es). **NOTE:** Contact the FOD/Designee regarding verification requirements. Additionally, verification may be required by the Equipment Owner/Operator.
11. If verification is required, check the appropriate box (either “Peer” or “Independent”). If verification is NOT required, check the “N/A” box. **NOTE:** Independent verification may be required per ***P315*, *Conduct of Operations Manual***, as determined by the FOD/Designee.
12. When installing the lock(s)/tag(s), is there a specific sequence in which the isolation devices are to be positioned? If a specific sequence must be followed for Installation and/or Removal, check the appropriate box(es) and subsequently identify the sequence order in column numbers 19 and/or 24, accordingly. If there is not a specific sequence to follow, check the “N/A” box and place N/A in columns 19 and/or 24.
13. If an operating procedure/instruction/etc. is to be used in conjunction with the LO/TO Orders, check the “Yes” box and attach the pertinent document as an addendum. Additionally, a space is provided for Equipment Owner/Operator comments, if applicable.
14. Check either “Yes” or “No” to indicate if a Group LO/TO is applicable. A Group LO/TO is where two or more authorized workers, regardless of their occupation or craft, lock out and tag out the same equipment to perform servicing or maintenance. Enter the name of the Lead Authorized Worker.
15. Check either “Yes” or “No” to indicate if a Group Lock Box is to be used. If “Yes”, enter the lock box ID#. Each organization that issues locks will be required to uniquely number and track lock boxes in their possession.
16. The FOD-designated Equipment Owner/Operator signs and enters their Z#, authorizing the installation of the LO/TO. The Approver is responsible to notify all Affected Workers prior to the Authorized Workers performing LO/TO (“Affected Workers” are those who either may work with the equipment or are affected by LO/TO activities).
17. Enter the specific energy isolation device/ID (e.g., MCC-A, A4). The ID used in the LO/TO orders must match information used on tag (Attachment A).
18. Location of energy isolation device (TA, Bldg, Rm, etc.). The location used in the LO/TO orders must match information used on tag (Attachment A).

19. If the LO/TO needs to be installed in a particular order (refer to Step #12), number the sequence in which the locks need to be installed. If sequencing is not applicable, then place N/A in this column.
20. Required Position/Alignment for LO/TO (open, closed, connected, disconnected, on, off, etc.). Follow the nomenclature on the piece of equipment (e.g., if a service disconnect has “ON”/”OFF” posted, ensure the position/alignment entered on this form matches the piece of equipment [“ON” or “OFF”]).
21. The Lead Authorized Worker documents (signature) that the energy isolation devices have been positioned correctly, that locks and tags have been installed on those energy isolation devices and a Zero Energy Check has been performed.
    NOTE: The Lead Authorized Worker may also be designated as the Person-in-Charge (PIC).
22. Is verification required (see #10)? If verification is required, the person who performs the verification signs, and places their Z# and the date here. If verification is not required, check the “N/A” box.
23. Documentation of Approval to Remove LO/TO. Equipment Owner/Operator or FOD Designee signs and places his/her Z# in this box. Alternatively, authorization per telecommunication may be performed via a phone number identified for the Lead Authorized Worker to call the Equipment Owner/Operator or FOD Designee. Once verbal authorization is given, the Lead Authorized Worker documents the authorization as “per telecom” and enters his/her initials. Example: John Smith per telecom, JS. By checking the “N/A” box, a phone call is NOT REQUIRED by the Lead Authorized Worker to the Equipment Owner/Operator or FOD Designee.
    NOTE: The Equipment Owner/Operator or FOD Designee is responsible to notify all Affected Workers after the LO/TO removal and of the equipment/machine’s return to service.
24. If the LO/TO needs to be removed in a particular sequence (as per Step #12), number the sequence in which the locks need to be removed. If the “N/A” box is checked in #12, then place N/A in this column.
    NOTE: Often the sequence for removal is opposite the sequence for installation. For example, if the order specified for installation Column #19 is “1,2,3,4”, the order specified for removal in Column #24 could be “4,3,2,1”. The intention of the LO/TO Orders is to have the entries in Column #s 19 and 24 correspond with the energy isolation devices specified in Column #17.
25. Identify the required position/alignment in which the system/component is to be placed following the removal of the lock(s). Follow the nomenclature as listed on the piece of equipment (“On”, “Off”, etc.).
26. Enter the As-Left Position.
27. The Lead Authorized Worker documents (signature, Z# and date) that the locks and tags have been removed from the energy isolation devices and the energy isolation devices have been configured as per Equipment Owner/Operator specifications.
    NOTE: The Lead Authorized Worker may also be designated as the Person-in-Charge (PIC).
28. If verification is required for the positioning, the person who performs the verification signs here. Otherwise, check N/A.
29. All authorized workers applying a lock for this activity (names/Z#) must be documented. If more than 20 authorized workers are involved in a Group LO/TO, document the required information with an attached list.
30. Enter the date the authorized worker attaches his/her lock.
31. Enter the date the authorized worker removes his/her lock.
32. The Lock Coordinator or designee signs once locks, tags, and locking devices have been removed and returned. If a lock and/or tag are found to be contaminated, the lock and/or tag will be disposed of in accordance with local procedures and a verbal notification will be made to the Lock Coordinator to close out the record within Remedy.

Los Alamos NATIONAL LABORATORY

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision #:			**Activity/Task Title:** 55-0440 HW Boiler FS/ WS
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description**

Activity Description/Overview:

Perform Annual HW Boiler FS/WS PM Inspection and Testing in accordance with PMI Procedure O&M Criterion 403 and PMI 403-A., checklists PMI 403-A.002 and PMI 403-A.006.

List Names of Hazard Analysis (HA) Team _____ **Date HA Performed** _____

PRECAUTIONS/LIMITATIONS/PREREQUISITES:
(include training/authorizations, approved permits, and area postings)

1. If steps cannot be completed as described, or if unforeseen situations occur, **PAUSE/STOP WORK**, stabilize the situation, contact your supervisor, and await further instructions before proceeding.
2. Review the Entry and Coordination Requirements and the site specific and/or Co-located Hazards identified on IWD Part 2, Form 2101. Consult with MC for potential changing conditions.
3. Work Package Tasks and Job Steps may be worked concurrently and/or Out-of-Sequence at the discretion of the Job Supervisor / Person In Charge (PIC).
4. Ensure all site access, training, and worker certifications are current for personnel performing work on this package. Ensure training is verified and current.
5. Ensure the activities are on the RLUOB Plan of the Day or have received late addition approval.
6. The following trainings are required for General Hazard:
   - MSS Maintenance Worker, Curriculum ID #10968
7. The following trainings are required for Pipefitter task specific sections:
   - WQ MSS Pipefitter Maintenance, Curriculum ID #647
   - Water Treatment Activity, Curriculum ID #2296.
8. The following trainings are required to perform electrical LOTO steps:
   - WQ LOG Electrician Maintenance, Curriculum ID #642
9. Permits and forms that are needed for this job are: Form 2003, Attachment B, Specific Written Energy Control Procedure of P 101-3, *Lockout/Tagout for Hazardous Energy Control.*

GENERAL HAZARDS ***(identify hazards and associated controls)***

General hazards and associated PPE is required:

- Safety Shoes for MSS craft
- Safety Glasses with side shields
- Leather or Tuff-Coat II gloves as necessary
- Hard Hats or Bump caps as applicable

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 55-0440 HW Boiler FS/ WS
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description**

PRE-JOB BRIEF AND JOB SET-UP

- Notify Maintenance Coordinator (MC) of work to be performed.
- Conduct a Pre-Job briefing and include the following discussion:

  Upon removal of the cover of enclosed electrical equipment workers assure that all recognizable electrical hazards have been identified in the IWD and have the correct controls in place. If any previously unknown, or potentially unknown electrical hazard is suspected, pause work and bring in an SME (facility electrician or Electrical Safety Officer) to assess the potentially unknown electrical hazard. If necessary, modify the IWD to include the previously unanticipated electrical hazard.
- Check in at the OPS Center for Work Release prior to commencing work.

TASK 1: Perform Hot Water Boilers Annual Fireside/Waterside Inspection and Maintenance.

1.1 Perform Pre- Inspection steps of PMI 403.A.006	**BHW-01** ☐ ✓ **BHW-02** ☑ ✓ **BHW-03** ☐ ✓

TASK 2: Perform Electrical LOTO of Boiler # 1 per Ops Sequence (As/When Needed)

NOTE:

- OP's to define the sequence of turning Boilers 1, 2, 3, OFF/ ON.
- BHW-01 has controller for all 3 Boilers. If BHW-01 is Locked out, then Boilers 2 or 3 have to be turned ON / OFF Manually.

⚠WARNING

Hazardous Energy – Electrical Shock / Arc Flash Hazard
Possible Contact w/ Energized System

2.1 PERFORM Electrical LOTO of Boiler-01 and the Heating Water circ. pump HW-P-01 electrical feed, in accordance with P101-3, as listed below.

For Electrical LOTO

- HAZARD/RISK category 0
- LOTO Att. B, Independent Verification required
- Establish Limited Approach Boundaries and Wear proper PPE, as defined below.

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision #:			**Activity/Task Title:** 55-0440 HW Boiler FS/ WS
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description**

NOTE:

BHW-01 fed from: MCC-B CKT # 3B, Room U209. (480v/3Ø) (Class 1.3b)

Incident Energy (cal/cm²)	**0.17**
Arc Flash Boundary (in)	**5**
Working Distance (in)	**18**
Limited Approach Boundary (in)	**42**

NOTE:

HW-P-01 fed from: MCC-B CKT # 2B (480/3Ø) (Class 1.3b)

Incident Energy (cal/cm²)	**0.14**
Arc Flash Boundary (in)	**5**
Working Distance (in)	**18**
Limited Approach Boundary (in)	**42**

2.2 PERFORM LOTO of Boiler BHW-01 at MCC-B CKT # 3B and **LOTO Pump HW Pump, HW-P-01** at MCC-B CKT # 2B

Breaker Manipulation PPE:

- Non Melting or Untreated Natural Fiber
- Shirt (long sleeve)
- Pants (long)
- Safety Glasses
- Hearing Protection (ear canal inserts)
- Leather gloves

2.3 Place switch inside UPS in the Open (OFF) position. UPS located beneath BHW-01 control Panel and apply LOTO.

- No specific PPE is required for the breaker manipulation

2.4 VERIFY Zero Voltage at BHW-01 Controller and at Pump local disconnect switch using NRTL volt meter

Checking Voltage – Mode 1 (IE 0.0-1.0 cal/cm²):

- Non Melting or Untreated Natural Fiber
- Shirt (long sleeve)
- Pants (long)
- Safety Glasses
- Hearing Protection (ear canal inserts)
- Class "0" Di-Electric gloves with Leather protectors.
- Two Man Rule (required for 1.3b)

Los Alamos NATIONAL LABORATORY

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision #:			**Activity/Task Title:** 55-0440 HW Boiler FS/ WS
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description**

HOLD POINT: Zero Voltage Verified (Mode 0 Established)

BHW-01 and HW-P-01

Verifier: Name Cristobal Tolbert Sig Z# 177554 Date 9-26-18

TASK 3: Perform Mechanical LOTO of Boiler # 1 Gas/Fuel Oil/Water Valves

3.1 CLOSE and **PERFORM** LOTO to the following valves:

a) Natural Gas Valves - NG-V-6000D and NG – V6004A

b) INLET Water Valve to BHW-01, HW-V101A

c) OUTLET Water Valve from BHW-01, HW-V-101B

If Required, Relieve boiler pressure by opening pressure relief valve and allow to drain.

- LOTO Att. B, Independent Verification required

HOLD POINT: Zero Energy Verified (Mode 0 Established)

Very zero energy on **BHW-01 Natural Gas Valves** by firing boiler until boiler flame fails, this will suck out all gas within the gas line. Verify "0" psig on gas line gauge.

Verifier: Name Dennis Bernal Sig Z# 197845 Date 9-26-18

HOLD POINT: Zero Energy Verified (Mode 0 Established)

BHW-01 Inlet / Outlet Valves

Verifier: Name Dennis Bernal Sig Z# 197845 Date 9-26-18

3.2 Proceed to perform TASK 8 in accordance with and as per PMI Checklist 403-A.002 and PMI Checklist 403-A.006

TASK 4: Perform Electrical LOTO of Boiler # 2 per Ops Sequence (As/When needed)

4.1 PERFORM Electrical LOTO of Boiler-02 and the Heating Water circ. pump HW-P-02 electrical feed, in accordance with P101-3, as listed below.

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 55-0440 HW Boiler FS/ WS
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description**

For Electrical LOTO

- HAZARD/RISK category 0
- LOTO Att. B, Independent Verification required
- Establish Limited Approach Boundaries and Wear proper PPE, as defined below.

NOTE:

BHW-02 fed from: MCC-B CKT # 3D, Room U209. (480v/3Ø) (Class 1.3b)

Incident Energy (cal/cm²)	**0.17**
Arc Flash Boundary (in)	**5**
Working Distance (in)	**18**
Limited Approach Boundary (in)	**42**

NOTE:

HW-P-02 fed from: MCC-B CKT # 2C (480/3Ø) (Class 1.3b)

Incident Energy (cal/cm²)	**0.14**
Arc Flash Boundary (in)	**5**
Working Distance (in)	**18**
Limited Approach Boundary (in)	**42**

4.2 PERFORM LOTO of Boiler BHW-02 at MCC-B CKT # 3D and **LOTO HW Pump, HW-P-02** at MCC-B CKT # 2C

Breaker Manipulation PPE:

- Non Melting or Untreated Natural Fiber
- Shirt (long sleeve)
- Pants (long)
- Safety Glasses
- Hearing Protection (ear canal inserts)
- Leather gloves

4.3 VERIFY Zero Voltage at BHW-02 Controller and at Pump local disconnect switch using NRTL volt meter

Checking Voltage – Mode 1 (IE 0.0-1.0 cal/cm²):

- Non Melting or Untreated Natural Fiber
- Shirt (long sleeve)
- Pants (long)
- Safety Glasses
- Hearing Protection (ear canal inserts)
- Leather gloves
- Di-Electric gloves
- Two Man Rule (required for 1.3b)

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 55-0440 HW Boiler FS/ WS
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description**

HOLD POINT: Zero Voltage Verified (Mode 0 Established)

BHW-02 and HW-P-02

Verifier:
Name [signature] Sig NICK HOBACK Z# 204892 Date 9-26-18

TASK 5: Perform Mechanical LOTO of Boiler # 2 Gas/Fuel Oil/Water Valves

5.1 CLOSE and **PERFORM** LOTO to the following valves:

a) Natural Gas Valves - NG-V-6010D and NG – V6014A

b) INLET Water Valve to BHW-02, HW-V201A

c) OUTLET Water Valve from BHW-02, HW-V-201B

If Required, Relieve boiler pressure by opening pressure relief valve and allow to drain.

- LOTO Att. B, Independent Verification required

HOLD POINT: Zero Energy Verified (Mode 0 Established)

Very zero energy on **BHW-02 Natural Gas** Valves by firing boiler until boiler flame fails, this will suck out all gas within the gas line. Verify "0" psig on gas line gauge.

Verifier:
Name [signature] Sig [signature] Z# 197845 Date 9-26-18

HOLD POINT: Zero Energy Verified (Mode 0 Established)

BHW-02 Inlet / Outlet Valves

Verifier:
Name Dennis Bernal Sig [signature] Z# 197845 Date 9-26-18

5.2 Proceed to perform TASK 8 in accordance with PMI and as per PMI Checklist 403-A.002 and PMI Checklist 403-A.006

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 55-0440 HW Boiler FS/ WS
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description**

TASK 6: Perform Electrical LOTO of Boiler # 3 per Ops Sequence (AS/WHEN NEEDED)

6.1 PERFORM Electrical LOTO of Boiler-03 and the Heating Water circ. pump HW-P-03 electrical feed, in accordance with P101-3, as listed below.

For Electrical LOTO

- HAZARD/RISK category 0
- LOTO Att. B, Independent Verification required
- Establish Limited Approach Boundaries and Wear proper PPE, as defined below.

NOTE:

BHW-03 fed from: MCC-B CKT # 3F, Room U209. (480v/3Ø) (Class 1.3b)

Incident Energy (cal/cm^2)	**0.17**
Arc Flash Boundary (in)	**5**
Working Distance (in)	**18**
Limited Approach Boundary (in)	**42**

NOTE:

HW-P-03fed from: MCC-B CKT # 2D (480/3Ø) (Class 1.3b)

Incident Energy (cal/cm^2)	**0.14**
Arc Flash Boundary (in)	**5**
Working Distance (in)	**18**
Limited Approach Boundary (in)	**42**

6.2 PERFORM LOTO of Boiler BHW-03 at MCC-B CKT # 3F and **LOTO HW Pump, HW-P-03** at MCC-B CKT # 2D

Breaker Manipulation PPE:

- Non Melting or Untreated Natural Fiber
- Shirt (long sleeve)
- Pants (long)
- Safety Glasses
- Hearing Protection (ear canal inserts)
- Leather gloves

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 55-0440 HW Boiler FS/ WS
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description**

6.3 VERIFY Zero Voltage at BHW-03 Controller and at Pump local disconnect switch using NRTL volt meter

Checking Voltage – Mode 1 (IE 0.0-1.0 cal/cm²):

- Non Melting or Untreated Natural Fiber
- Shirt (long sleeve)
- Pants (long)
- Safety Glasses
- Hearing Protection (ear canal inserts)
- Leather gloves
- Di-Electric gloves
- Two Man Rule (required for 1.3b)

HOLD POINT: Zero Voltage Verified (Mode 0 Established)

BHW-03 and HW-P-03 Zero energy (No Disconnect)

Verifier: Name [signature] Sig Nick [signature] Z# 2-486 Date 9-27-18

TASK 7: Perform Mechanical LOTO of Boiler # 3 Gas /Fuel Oil/Water Valves

7.1 CLOSE and **PERFORM** LOTO to the following valves:

a) Natural Gas Valves - NG-V-6020D and NG – V6024A

b) INLET Water Valve to BHW-03, HW-V301A

c) OUTLET Water Valve from BHW-03, HW-V-301B

If Required, Relieve boiler pressure by opening pressure relief valve and allow to drain.

- LOTO Att. B, Independent Verification required

HOLD POINT: Zero Energy Verified (Mode 0 Established)

Very zero energy on **BHW-03 Natural Gas** Valves by firing boiler until boiler flame fails, this will suck out all gas within the gas line. Verify "0" psig on gas line gauge.

Verifier: Name Dennis Bernal Sig [signature] Z# 197845 Date 9-27-18

HOLD POINT: Zero Energy Verified (Mode 0 Established)

BHW-03 Inlet / Outlet Valves

Verifier: Name [signature] Sig [signature] Z# 197845 Date 9-27-18

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 55-0440 HW Boiler FS/ WS
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description**

7.2 Proceed to perform TASK 8 in accordance with PMI and as per PMI Checklist 403-A.002 and PMI Checklist 403-A.006	
TASK 8: PERFORM PMI work steps	
8.1 PERFORM applicable steps of PMI procedure while unit is under LOTO and document results on attached checklists for each boiler	**BHW-01** ☑ **BHW-02** ☑ **BHW-03** ☑
8.2 REMOVE Electrical LOTO and Re-Energize Boilers **on BHW-01** as they are returned to service. (Refer to applicable LOTO steps for each Boiler)	**Ref Task 2.1 for BHW-01** ☑
8.3 REMOVE Electrical LOTO and Re-Energize Boilers **on BHW-02** as they are returned to service. (Refer to applicable LOTO steps for each Boiler)	**Ref Task 4.1 for BHW-02** ☑
8.4 REMOVE Electrical LOTO and Re-Energize Boilers **on BHW-03** as they are returned to service. (Refer to applicable LOTO steps for each Boiler)	**Ref Task 6.1 for BHW-03** ☑
8.5 REMOVE Mechanical LOTO and Open Valves to Boiler **BHW-01** as they are returned to service. (Refer to applicable LOTO steps for each Boiler)	**Ref Task 3.1 for BHW-01** ☑
8.6 REMOVE Mechanical LOTO and Open Valves to Boiler **BHW-02** as they are returned to service. (Refer to applicable LOTO steps for each Boiler)	**Ref Task 5.1 for BHW-02** ☑
8.7 REMOVE Mechanical LOTO and Open Valves to Boiler **BHW-03** as they are returned to service. (Refer to applicable LOTO steps for each Boiler)	**Ref Task 7.1 for BHW-03** ☑
8.8 PERFORM Post Maintenance Testing for all 3 boilers in accordance with PMI 403-A.006	**BHW-01** ☑ **BHW-02** ☑ **BHW-03** ☑

Los Alamos NATIONAL LABORATORY			Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)
Revision #:			**Activity/Task Title:** 55-0440 HW Boiler FS/ WS
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description**

TASK 9: PERFORM Hot Water Boiler Water Treatment

⚠ CAUTION

Water Pressure on system 45-50 PSI
Water Temperature 160°-170° F
Do not leave area with system open

9.1 PERFORM Hot Water Boiler water treatment in accordance with PMI 403-A.002 and record results

9.2 IF required, add Garrett-Callahan Formula 1015L or equivalent pot feeder (Rm U200), and follow work steps listed below:

9.2.1 Close Valve HW-V-01C
9.2.2 Close Valve HW-V-01D
9.2.3 Slowly open Pot Feeder Drain Valve HW-V01E and relieve pressure slowly
9.2.4 Slowly remove lid to pot feeder
9.2.5 Close Drain Valve HW-V01E prior to adding chemical
9.2.6 DON proper PPE needed to ADD chemical
- Face shield and Chemical Goggles for splash hazard
- Chemical resistant Apron
- Nitrile gloves
- Eyewash or Portable Eyewash available in immediate vicinity

9.2.7 Connect a hose to Tepid Water supply line hose bib adjacent to Potable Hot Water Tank for immediate use and contemporary rinse station.
9.2.8 Remove Pot Feeder lid and slowly add chemical (Clean up and Spills)
9.2.9 Inspect lid and seal, wipe threads, clean seal area
9.2.10 Close Pot Feeder lid to snug tight.
9.2.11 Slowly Open valve HW-V-01C
9.2.12 Slowly Open valve HW-V-01D
9.2.13 Ensure no leaks occur from Pot Feeder, Inlet/ Outlet valves, and piping

9.3 WAIT a minimum of 72 hours and RE-TEST Hot Water Boiler water treatment per PMI 403-A.002

9.4 Re-Perform steps as needed to obtain acceptable water treatment results.

9.5 Complete PMI 403-A

TASK 10: CLOSEOUT

10.1 Remove all equipment and materials and clean up area
10.2 Dispose of waste per direction of the Waste Management Coordinator or designee
10.3 Remove all barricades, cones and signs
10.4 Document work performed and any lessons learned on the Work Documentation Form.
10.5 Contact the MC and inform them the work is completed. Complete all the required documentation and return the Master Work Package to the WMC Office

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision #:			**Activity/Task Title:** 55-0440 HW Boiler FS/ WS
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description**

Insert Rows above for additional Tasks/Steps or attach pages to clearly communicate ESH&Q/S&S hazards and associated controls.	The RLM, and FOD or FOD Representative (if required or recommended by RLM, e.g. high hazard) approval indicates IWM has been applied appropriately, work is authorized, workers are qualified, work will be performed in accordance with ESH&Q/S&S requirements and the IWD, and facility safety basis, aggregate hazards, and collocated hazards were appropriately included in the hazard analysis and acknowledges completion of a peer review.	**RLM (Signature/Z#/Date) Required** 303631 / 8-22-2018 **FOD or FOD Representative** (Signature/Z#/Date) **If Required or Recommended by RLM** **SME Review** (Signature/Z#/Date) **If Required** **ESO Review** (Signature/Z#/Date) **If Required** 109035 21 Aug 18

IWD Type ☒ Moderate-Hazard ☐ High-Hazard/Complex ☐ Standing IWD	Date RLM re-approval is required 9/30/2019 Other Conditions for Re-Approval Change in scope hazards, or IWD (Print) Name/Z# of Primary PIC C. Tolleson / 177558 Name/Z# of Alternate PIC D. Valdez / 185042 Name/Z# of Alternate PIC	Classification review completed, if required. Reviewer Signature/Z#/Date

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD #_____ Revision #:_____ **Work Release**

By signing below, I verify this activity is compatible with current facility configuration and operating conditions.

FOD designated Operations Manager or other facility point-of-contact for work area

Signature/Z#/Date **(If required by FOD)**: ZJL53 9/26/18

Note: For Standing IWD, release may be given concurrently with signatures on Part 2.

By signing below, I have verified the following:

- I have verified authorization by ensuring approval signatures of the RLM and FOD.
- I have jointly conducted a validation walkdown with workers to confirm the IWD can be performed as written, and that required initial conditions and other prerequisites are in place.
- The assigned workers are authorized and are competent to perform the work in a safe, secure, and environmentally responsible manner.
- I have conducted the pre-job briefing, and all workers (including support workers) have been briefed.
- I have ensured coordination with any required FOD work-area representatives (e.g., area work coordinators).

PIC (Signature/Z#/Date) **Required**: 177558 9-26-18

Alternate PIC Signatures **acknowledges** PIC authority is assumed for the first time. *(Note: Alternate PICs are required to sign only once, but formal handoff includes conferring with previous PIC to obtain all required information associated with the handoff.)*

Alternate PIC (Signature/Z#/Date) **Required**: _____

Alternate PIC (Signature/Z#/Date) **Required**: _____

Pre-Job Brief Content

- What are the critical steps* or phases of this activity?
- How can we make a mistake at that point?
- What is the worst thing that can go wrong?
- What controls, preventive measures, and bounding conditions are needed?
- What work permits are required and how will we meet their requirements?
- What are the handoffs and coordination requirements among workers and multiple PICs?
- Are there hold-points including those that require sign-offs?
- What are the pause/stop work responsibilities and expectations (e.g., for unanticipated conditions or hazards)?
- How would we respond to alarms and emergencies?
- Are there lessons learned from previous similar work?
- Is other information needed to perform this activity in a safe, secure, and environmentally responsible manner?
- Does everyone agree to the work tasks/steps, hazards, and controls and commit to follow them?

* "Critical steps occur anytime human performance involves a substantial transfer of energy, or movement of solids, liquids, and gases, or the transmission of data and information that , if not performed under control, could cause serious harm to one or more important assets." (Performance Improvement, vol. 53, no. 9, October 2014)

Pre-Job Brief Attendance Roster

By signing below **as required**, I agree to the following:

- I agree to follow the work steps and implement the controls as written as applicable to my work assignments.
- I agree to pause/stop work when conditions or hazards change or when I encounter unexpected conditions during the execution of work, or when work cannot be performed as written, or instructions become unclear during execution.
- I confirm that I am authorized, qualified, and fit to perform the work.

Worker (Signature/Z#/Date) [illegible] 197845 9-26-18	**Worker** (Signature/Z#/Date) [illegible] 2-6158 9-26-18
Worker (Signature/Z#/Date) [illegible] 301415 9-26-18	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) [illegible] 68551 9-26-18	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) [illegible] 204825 9-26-18	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) [illegible] 68553 9-26-18	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) [illegible] 304607 9-26-18	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD #_____ Revision #:_____ **Work Release**

By signing below, I verify this activity is compatible with current facility configuration and operating conditions.

FOD designated Operations Manager or other facility point-of-contact for work area

Signature/Z#/Date **(If required by FOD)**: 265531 9/27/18

Note: For Standing IWD, release may be given concurrently with signatures on Part 2.

By signing below, I have verified the following:

- I have verified authorization by ensuring approval signatures of the RLM and FOD.
- I have jointly conducted a validation walkdown with workers to confirm the IWD can be performed as written, and that required initial conditions and other prerequisites are in place.
- The assigned workers are authorized and are competent to perform the work in a safe, secure, and environmentally responsible manner.
- I have conducted the pre-job briefing, and all workers (including support workers) have been briefed.
- I have ensured coordination with any required FOD work-area representatives (e.g., area work coordinators).

PIC (Signature/Z#/Date) **Required**: 177558 9-27-18

Alternate PIC Signatures **acknowledges** PIC authority is assumed for the first time. *(Note: Alternate PICs are required to sign only once, but formal handoff includes conferring with previous PIC to obtain all required information associated with the handoff.)*

Alternate PIC (Signature/Z#/Date) **Required**: _____

Alternate PIC (Signature/Z#/Date) **Required**: _____

Pre-Job Brief Content

- What are the critical steps* or phases of this activity?
- How can we make a mistake at that point?
- What is the worst thing that can go wrong?
- What controls, preventive measures, and bounding conditions are needed?
- What work permits are required and how will we meet their requirements?
- What are the handoffs and coordination requirements among workers and multiple PICs?
- Are there hold-points including those that require sign-offs?
- What are the pause/stop work responsibilities and expectations (e.g., for unanticipated conditions or hazards)?
- How would we respond to alarms and emergencies?
- Are there lessons learned from previous similar work?
- Is other information needed to perform this activity in a safe, secure, and environmentally responsible manner?
- Does everyone agree to the work tasks/steps, hazards, and controls and commit to follow them?

* "Critical steps occur anytime human performance involves a substantial transfer of energy, or movement of solids, liquids, and gases, or the transmission of data and information that , if not performed under control, could cause serious harm to one or more important assets." (Performance Improvement, vol. 53, no. 9, October 2014)

Pre-Job Brief Attendance Roster

By signing below **as required**, I agree to the following:

- I agree to follow the work steps and implement the controls as written as applicable to my work assignments.
- I agree to pause/stop work when conditions or hazards change or when I encounter unexpected conditions during the execution of work, or when work cannot be performed as written, or instructions become unclear during execution.
- I confirm that I am authorized, qualified, and fit to perform the work.

Worker (Signature/Z#/Date) 331411 9-27-18	**Worker** (Signature/Z#/Date) 137845 9-27-18
Worker (Signature/Z#/Date) Rodd Torres 304627 9-27-18	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) Mike Pinda 180353 9-27-18	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD #_____ Revision #:_____ **Work Release**

By signing below, I verify this activity is compatible with current facility configuration and operating conditions.

FOD designated Operations Manager or other facility point-of-contact for work area

Signature/Z#/Date **(If required by FOD)**: _____

Note: For Standing IWD, release may be given concurrently with signatures on Part 2.

By signing below, I have verified the following:

- I have verified authorization by ensuring approval signatures of the RLM and FOD.
- I have jointly conducted a validation walkdown with workers to confirm the IWD can be performed as written, and that required initial conditions and other prerequisites are in place.
- The assigned workers are authorized and are competent to perform the work in a safe, secure, and environmentally responsible manner.
- I have conducted the pre-job briefing, and all workers (including support workers) have been briefed.
- I have ensured coordination with any required FOD work-area representatives (e.g., area work coordinators).

PIC (Signature/Z#/Date) **Required**: _____

Alternate PIC Signatures **acknowledges** PIC authority is assumed for the first time. *(Note: Alternate PICs are required to sign only once, but formal handoff includes conferring with previous PIC to obtain all required information associated with the handoff.)*

Alternate PIC (Signature/Z#/Date) **Required**: _____

Alternate PIC (Signature/Z#/Date) **Required**: _____

Pre-Job Brief Content

- What are the critical steps* or phases of this activity?
- How can we make a mistake at that point?
- What is the worst thing that can go wrong?
- What controls, preventive measures, and bounding conditions are needed?
- What work permits are required and how will we meet their requirements?
- What are the handoffs and coordination requirements among workers and multiple PICs?
- Are there hold-points including those that require sign-offs?
- What are the pause/stop work responsibilities and expectations (e.g., for unanticipated conditions or hazards)?
- How would we respond to alarms and emergencies?
- Are there lessons learned from previous similar work?
- Is other information needed to perform this activity in a safe, secure, and environmentally responsible manner?
- Does everyone agree to the work tasks/steps, hazards, and controls and commit to follow them?

* "Critical steps occur anytime human performance involves a substantial transfer of energy, or movement of solids, liquids, and gases, or the transmission of data and information that , if not performed under control, could cause serious harm to one or more important assets." (Performance Improvement, vol. 53, no. 9, October 2014)

Pre-Job Brief Attendance Roster

By signing below **as required**, I agree to the following:

- I agree to follow the work steps and implement the controls as written as applicable to my work assignments.
- I agree to pause/stop work when conditions or hazards change or when I encounter unexpected conditions during the execution of work, or when work cannot be performed as written, or instructions become unclear during execution.
- I confirm that I am authorized, qualified, and fit to perform the work.

Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)

Los Alamos NATIONAL LABORATORY EST. 1943	*Preventive Maintenance Instruction* Low- and High-Pressure Steam Boiler and Low-Temperature Water Heating Boiler Inspection, Testing, and Maintenance **403-A.002: Hot Water Boiler Water Treatment**

Work Order No.: 614942-01 Equipment ID No.: BHW-1,2,3

Instructions: Enter the requested information. All items marked **S** or **Y** are satisfactory. Document all items marked **U**, **N**, or **N/A** in the Remarks section below, noting the step number and reason. Notify the foreman or supervisor of problems involving imminent danger.

TA: 55 Building: 440 Room: V207	
Date Inspected: 7 / 27 / 18 Inspectors: [illegible]	

1.0	**PRE-MAINTENANCE ACTIVITIES**		
NOTE	Preoperational and pre-maintenance activities shall be conducted per the work order package, e.g., lockout/tagout, permits, special instructions, etc.		
1.1	Notify maintenance coordinator (MC) that work will be in progress on the boiler system.		Initials: OB
2.0	**MAINTENANCE**		
2.1	Obtain a water sample from the boiler drain or an accessible point on the hot water loop system.		Initials: OB
2.2	Check sample water for boiler water treatment chemical concentration and pH. Use orthophosphate (O-PO_4) field test kit. Boiler water treatment chemical concentration should be 8 to 10 ppm. PO_4 10.0 pH 7.0 PO_4 _____ pH _____	Circle one: **S** **U** **N/A**	Initials: OB
2.3	If required, add Garrett-Callahan Formula 1015L or equivalent to the pot feeder.		Initials: N/A
NOTE	Not all boiler systems have pot feeders.		
2.4	If the boiler does not have a pot feeder, isolate and drain the boiler and add boiler water treatment chemical directly into the boiler using the vent or other accessible fitting.		Initials: N/A

Remarks: _____

Work Order No.: 614942-01 Equipment ID No. BHW-1,2,3

2.5 After addition of boiler water treatment chemical, circulate the system for a minimum of 72 hours. Boilers without pot feeders must be refilled before recirculation. Obtain a sample of the boiler water and use the orthophosphate (O PO_4) kit to test the sample for PO_4 and pH. Boiler water treatment chemical concentration should be 8 to 10 ppm. PO_4 _____ pH_____ PO_4 _____ pH_____	Circle one: S U N/A	Initials: DB

3.0 POST-MAINTENANCE ACTIVITIES

NOTE Post-maintenance activities shall be conducted in accordance with the work order package instructions (e.g., lockout/tagout, special instructions, etc.).

3.1 Notify MC that work on the boiler system is complete.	Initials: DB

Name of Craft Worker: Dennis Bernal Z Number: 197845

Signature: [signature] Date: 9/27/18

Name of Craft Worker: _____ Z Number: _____

Signature: _____ Date: ____/____/____

Foreman Verification: Lewis Mondragon Z Number: 090036

Signature: Lewis Mondragon Date: 9/27/18

Remarks: _____

Los Alamos NATIONAL LABORATORY EST. 1943	*Preventive Maintenance Instruction* Low- and High-Pressure Steam Boiler and Low-Temperature Water Heating Boiler Inspection, Testing, and Maintenance **403-A.006: Hot Water Boiler Yearly Fireside/Waterside Inspection and Maintenance**
Work Order No.: 64942-01	Equipment ID No.: BHW-3

Instructions: Enter the requested information. All items marked **S** or **Y** are satisfactory. Document all items marked **U**, **N**, or **N/A** in the Remarks section below, noting the step number and reason. Notify the foreman or supervisor of problems involving imminent danger.

TA: 55 Building: 440 Room: V209	
Date Inspected: 9 / 27 / 16	Inspectors: DAVE & SEAN

1.0 PRE-MAINTENANCE ACTIVITIES

NOTE Preoperational and pre-maintenance activities shall be conducted per the work order package, e.g., lockout/tagout, permits, special instructions, etc.

! WARNING If purging of gas lines will be required during this maintenance, ensure that the purging activity is addressed in the Integrated Work Document (IWD). The following must be addressed (see Master Specification 23 1123):

1. Purged fuel gases shall be directly vented to a safe location outdoors, away from personnel and ignition sources. This may be accomplished through permanent piping or temporary piping or hosing.
2. If it is not possible to vent purged gases outdoors, the following conditions must be met:
   a. Purging activity must be approved by the LANL Fire Marshal based on a documented justification detailing why outdoor venting is not possible and IWD.
   b. Gas concentration in the space to which the purge is vented shall be maintained at no more than 25% of the Lower Explosive Limit (LEL). For natural gas, the LEL is a concentration of 5% in air or 50,000 ppm. Therefore a maximum concentration of 12,500 ppm is allowed for natural gas. The concentration may be controlled by providing adequate ventilation or by limiting the amount of purge gas.
   c. Combustible gas detectors shall be used during the purging operation to monitor the gas concentration.
   d. Nonessential personnel shall be evacuated from the vicinity (including adjacent spaces) during the purging operation.
   e. Ignition sources in the purging space shall be controlled or eliminated.

NOTE All repair work, adjustments, or the replacement of parts shall be done in accordance with the manufacturer's procedures, specifications, recommendations, and instructions.

Remarks: _____

Work Order No.: 615942-01 Equipment ID No.: BHW-3

1.1	Notify maintenance coordinator (MC) that work will be in progress on the boiler system.		Initials: JDS

2.0 MAINTENANCE

NOTE These selected hot water boilers are mainly boilers with power burners that have refractory in front and rear flue doors or have heat extractors in the fire-tubes as are found in most one-pass boilers (Sellers). Hot water heating boilers with atmospheric burners generally require minimal fireside preventative maintenance. Contact the MSS-MP Boiler subject matter expert (SME) at 7-8550 with questions or concerns.

2.1	Lock and tag out electrical and all associated valves on boiler and shut off gas supply.		Initials: DJS
2.2	Cool boiler, open air cock, and drain the boiler.		Initials: DJS
2.3	Perform an internal and external inspection after thorough cleaning.	Circle one: S U N/A	Initials: DJS
2.3.1	Check the fireside furnace and fire-tubes for any evidence of soot formation or corrosion.	Circle one: S U N/A	Initials: DJS
2.3.2	Brush and vacuum furnace and fire-tubes if such conditions exist.		Initials: DJS
2.3.3	Perform hydrostatic test based on the boiler's Maximum Allowable Working Pressure and/or facility potable water pressure as long as the potable water pressure is at least 30 psi over boiler operating pressure.	Circle one: S U N/A	Initials: DJS
2.3.4	Note if any boiler tubes and/or fittings are leaking, and repair as required. For any major repairs (determined by the SME), request a work order for the repairs from the MC.		Initials: DJS
2.3.5	On one-pass boilers (Sellers), check condition of all heat extractors.	Circle one: S U N/A	Initials: DJS

Remarks: _____

Work Order No.: 644942-01 Equipment ID No.: BHW-3

2.3.6 Check refractory materials.	Circle one: (S) U N/A	Initials:
2.3.7 Replace if needed.		Initials:
2.4 Perform maintenance on low-water cutoff float chamber and water feeder. Disassemble to ensure freedom from obstruction and proper functioning of the working parts.		Initials:
2.5 Perform routine burner maintenance.		Initials:
2.5.1 Observe temperature and operating pressure and general conditions.	Circle one: (S) U N/A	Initials:
2.5.2 Fire and cycle the burner.		Initials:
2.6 Perform routine maintenance of circulating pump and expansion pump equipment.		Initials:
2.6.1 Observe condition of expansion tank.	Circle one: (S) U N/A	Initials:
2.6.2 Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion.	Circle one: S U (N/A)	Initials:
2.6.3 Check the air pressure on the bladder-type expansion tanks.	Circle one: (S) U N/A	Initials:
2.6.4 Observe operation of circulating pumps.	Circle one: (S) U N/A	Initials:
2.6.5 Lubricate pump motors.		Initials:
2.7 Perform routine maintenance of entire combustion control equipment.		Initials:

Remarks:

Work Order No.: 624942-01 Equipment ID No.: BHW-3

2.7.1	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	Circle one: **S** **U** **N/A**	Initials: DB
2.7.2	Adjust air/fuel mixture as needed.		Initials: DB
2.7.3	Test flame detection devices on boilers with flame scanners.	Circle one: **S** **U** **N/A**	Initials: DB
2.7.4	Remove the flame scanner with the burner firing.		Initials: DB
NOTE	The burner should shut off as a flame failure condition.		
2.7.5	Clean the flame scanner, reinstall and test programmer.		Initials: DB
2.7.6	Check for proper operation as boiler goes through a firing cycle and light-off.	Circle one: **S** **U** **N/A**	Initials: DB
2.7.7	Check all electrical control and circuitry.	Circle one: **S** **U** **N/A**	Initials: DB
2.7.8	Inspect for ~~cracked mercury tubes~~ N/A, separation of mercury, cracked insulators (probe type), jumper tube conditions, loose connections, poor or deteriorated wiring, improperly used bypass switches, cutoff switches wired in parallel, shut-offs installed at improper levels, wedges behind mercury tubes.	Circle one: **S** **U** **N/A**	Initials: DB
2.7.9	Observe operation of forced draft fan motors on boilers with power burners and induced draft fan motors on horizontal breeching where applicable.	Circle one: **S** **U** **N/A**	Initials: DB
2.7.10	Lubricate fan motors where necessary.		Initials: DB
2.8	Perform combustion and draft tests.		Initials: DB

Remarks: _____

Work Order No.: 614942 - 01 Equipment ID No.: BHW - 3

2.8.1 Visually inspect combustion.	Circle one: **S U N/A**	Initials: DB
NOTE Changes in flame shape, color, and sound are among early indicators of potential combustion-related problems. Changes may be due to changes in fuel pressure or gas/air linkage movement.		
2.9 Perform safety relief valve(s) pop test.	Circle one: **S U N/A**	Initials: DB
2.9.1 Check pressure-reducing valve.	Circle one: **S U N/A**	Initials: DB
2.9.2 Replace the strainer in the valve if needed.		Initials: DB
2.10 Perform slow drain test of low-water cutoff.	Circle one: **S U N/A**	Initials: DB
2.11 Inspect gas piping for proper support and tightness.	Circle one: **S U N/A**	Initials: DB
2.11.1 Inspect fuel supply system and gas controls.	Circle one: **S U N/A**	Initials: DB
2.11.2 Leak check gas controls and associated gas piping with a gas detector or soap suds.	Circle one: **S U N/A**	Initials: DB
2.12 Inspect boiler room ventilation louvers and intake.	Circle one: **S U N/A**	Initials: DB
2.12.1 Listen for any unusual noises or conditions and correct as necessary.	Circle one: **S U N/A**	Initials: DB
2.12.2 Report any needed corrections to the MC for corrective maintenance.		Initials: DB

Remarks: _____

Work Order No.: 614942-01 Equipment ID No.: BHW-3

2.12.3	Check combustion air supply openings to ensure that they are not closed or stopped up.	Circle one: **S U N/A**	Initials: DB
2.12.4	Inspect conditions of stacks and rain caps.	Circle one: **S U N/A**	Initials: DB
2.12.5	Inspect flue door gaskets to ensure they are in good condition, and properly secured.	Circle one: **S U N/A**	Initials: DB
2.12.6	Replace if necessary.		Initials: DB

3.0 POST-MAINTENANCE ACTIVITIES

NOTE Post-maintenance activities shall be conducted in accordance with the work order package instructions (e.g., lockout/tagout, special instructions, etc.).

3.1	Close and secure front and rear flue doors.		Initials: DB
3.2	Hook up all associated piping and refill boiler.		Initials: DB
3.3	Fire up boiler and check for air, gas, and water leaks.	Circle one: **S U N/A**	Initials: DB
3.4	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	Circle one: **S U N/A**	Initials: DB
3.5	Check pilot burners and ignition equipment for proper condition and adjustment.	Circle one: **S U N/A**	Initials: DB
3.6	Visually check burner for proper combustion.	Circle one: **S U N/A**	Initials: DB
3.7	Record all mechanical maintenance data, testing data, and other notable items.		Initials: DB

Remarks: _____

Los Alamos NATIONAL LABORATORY EST. 1943	*Preventive Maintenance Instruction* Low- and High-Pressure Steam Boiler and Low-Temperature Water Heating Boiler Inspection, Testing, and Maintenance **403-A.006: Hot Water Boiler Yearly Fireside/Waterside Inspection and Maintenance**

Work Order No.: 614942-01 Equipment ID No.: BHW-J

NOTE	Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.		
3.8	Test water for proper chemical levels. Test and treat water as defined on Datasheet 403-A.002.	Circle one: S U N/A	Initials: DB
3.9	Record all mechanical maintenance data, testing data, and other notable items.		Initials: DB
3.10	Notify MC that work on the boiler system is complete.		Initials: DB

Name of Craft Worker: Dennis Bernal Z Number: 177845

Signature: [signature] Date: 9 / 27 / 18

Name of Craft Worker: DAIR R SEAMAN Z Number: 351419

Signature: [signature] Date: 9 / 27 / 18

Foreman Verification: Lewis Mondragon Z Number: 090036

Signature: Lewis Mondragon Date: 9/27/18 /

Remarks:

Worker engagement questions are intended to focus attention on the task and ensure uncertainties are addressed. Examples of worker engagement questions are provided below. Worker engagement questions should be tailored to the situation.

Each of the questions listed below will be discussed at each Pre-Job Brief with all affected personnel.

Topic	**Completed (X)**
What permits, permissions, or support are required to safely start this work?	X
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	X
What can cause us to go beyond the scope of the work?	X
What hazards in the work area may not have been considered during planning of this job?	X

ATTACHMENT A907.A.

Chemical Usage

Chemical Purchases from ChemDB

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1519746	109-99-9	TETRAHYDROFURAN	1	Liters(L)	02-Jul-18
1519889	6131-99-3	Sodium cacodylate trihydrate	10	Gram(GM)	02-Jul-18
1519948	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519960	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519949	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519950	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519951	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519952	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519953	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519954	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519955	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519956	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519957	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519959	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519964	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519961	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519962	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519963	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519965	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519967	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519968	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519969	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519970	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519971	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519972	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519973	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519958	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1519966	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	02-Jul-18
1454321	-	Crawford's Vinyl Spackling Paste	56	Ounces(OZ)	02-Jul-18
1454322	-	Crawford's Vinyl Spackling Paste	56	Ounces(OZ)	02-Jul-18
1495500	-	Blaw-Kote	5	Gallon(GAL)	02-Jul-18
1495501	-	Blaw-Kote	5	Gallon(GAL)	02-Jul-18
1519981	75-09-2	DICHLOROMETHANE	1	Liters(L)	02-Jul-18
1519985	-	RARE EARTHS COMPLETE STAN	125	Milliliter(ML)	02-Jul-18
1519998	71-43-2	BENZENE	1	Liters(L)	02-Jul-18
1519999	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	02-Jul-18
1520000	109-99-9	TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	02-Jul-18
1520001	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	02-Jul-18
1520002	-	cOmplete Mini EDTA-free Protease Inhibitor	25	Milligram(MG)	02-Jul-18
1520056	557-34-6	ZINC ACETATE	100	Gram(GM)	02-Jul-18
1520057	5970-45-6	ZINC ACETATE DIHYDRATE	500	Gram(GM)	02-Jul-18
1520058	142-71-2	COPPER (II) ACETATE	5	Gram(GM)	02-Jul-18
1520059	66923-66-8	COPPER(II) ACETATE HYDRATE	100	Gram(GM)	02-Jul-18
1520061	7681-65-4	COPPER(I) IODIDE 99.999%	5	Gram(GM)	02-Jul-18
1520062	1321-74-0	DIVINYLBENZENE	250	Milliliter(ML)	02-Jul-18
1520063	25114-58-3	INDIUM (III) ACETATE	10	Gram(GM)	02-Jul-18
1520064	25114-58-3	INDIUM (III) ACETATE	10	Gram(GM)	02-Jul-18
1520065	100-10-7	4-(DIMETHYLAMINO)BENZALDEHYDE (EHRLICH'S	25	Gram(GM)	02-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520066	12027-06-4	AMMONIUM IODIDE	10	Gram(GM)	02-Jul-18
1520067	12125-02-9	AMMONIUM CHLORIDE	25	Gram(GM)	02-Jul-18
1520068	-	Calcium plasma standard solution Specpure	50	Milliliter(ML)	02-Jul-18
1520069	644-97-3	DICHLOROPHENYLPHOSPHINE	1000	Gram(GM)	02-Jul-18
1520070	1306-38-3	CERIUM(IV) OXIDE	500	Gram(GM)	02-Jul-18
1520194	-	NITRAVER-TEST-N-TUBE REAGENT HACH # 26053-	50	Milliliter(ML)	02-Jul-18
1520200	-	NITRAVER-TEST-N-TUBE REAGENT HACH # 26053-	50	Milliliter(ML)	02-Jul-18
1520199	-	NITRAVER-TEST-N-TUBE REAGENT HACH # 26053-	50	Milliliter(ML)	02-Jul-18
1520198	-	NITRAVER-TEST-N-TUBE REAGENT HACH # 26053-	50	Milliliter(ML)	02-Jul-18
1520197	-	NITRAVER-TEST-N-TUBE REAGENT HACH # 26053-	50	Milliliter(ML)	02-Jul-18
1520195	-	NITRAVER-TEST-N-TUBE REAGENT HACH # 26053-	50	Milliliter(ML)	02-Jul-18
1520202	-	NITRAVER-TEST-N-TUBE REAGENT HACH # 26053-	50	Milliliter(ML)	02-Jul-18
1520203	-	NITRAVER-TEST-N-TUBE REAGENT HACH # 26053-	50	Milliliter(ML)	02-Jul-18
1520201	-	NITRAVER-TEST-N-TUBE REAGENT HACH # 26053-	50	Milliliter(ML)	02-Jul-18
1520196	-	NITRAVER-TEST-N-TUBE REAGENT HACH # 26053-	50	Milliliter(ML)	02-Jul-18
1520204	64-19-7	ACETIC ACID GLACIAL	500	Milliliter(ML)	02-Jul-18
1520207	64-19-7	ACETIC ACID GLACIAL	500	Milliliter(ML)	02-Jul-18
1520205	64-19-7	ACETIC ACID GLACIAL	500	Milliliter(ML)	02-Jul-18
1520206	64-19-7	ACETIC ACID GLACIAL	500	Milliliter(ML)	02-Jul-18
1520208	7664-93-9	SULFURIC ACID	1	Liters(L)	02-Jul-18
1520210	7664-93-9	SULFURIC ACID	1	Liters(L)	02-Jul-18
1520211	7664-93-9	SULFURIC ACID	1	Liters(L)	02-Jul-18
1520213	7664-93-9	SULFURIC ACID	1	Liters(L)	02-Jul-18
1520212	7664-93-9	SULFURIC ACID	1	Liters(L)	02-Jul-18
1520209	7664-93-9	SULFURIC ACID	1	Liters(L)	02-Jul-18
1520214	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	02-Jul-18
1520219	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	02-Jul-18
1520215	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	02-Jul-18
1520216	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	02-Jul-18
1520217	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	02-Jul-18
1520218	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	02-Jul-18
1457988	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	02-Jul-18
1457992	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	02-Jul-18
1457991	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	02-Jul-18
1457989	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	02-Jul-18
1457993	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	02-Jul-18
1457990	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	02-Jul-18
1476787	-	Avalon Premium 100% Acrylic Interior Satin D/B	1	Gallon(GAL)	02-Jul-18
1476788	-	Avalon Premium 100% Acrylic Interior Satin D/B	1	Gallon(GAL)	02-Jul-18
1476791	-	Avalon Premium 100% Acrylic Interior Flat W/B	1	Gallon(GAL)	02-Jul-18
1476794	-	Avalon Premium 100% Acrylic Interior Flat W/B	1	Gallon(GAL)	02-Jul-18
1476793	-	Avalon Premium 100% Acrylic Interior Flat W/B	1	Gallon(GAL)	02-Jul-18
1476795	-	Avalon Premium 100% Acrylic Interior Flat W/B	1	Gallon(GAL)	02-Jul-18
1476796	-	Avalon Premium 100% Acrylic Interior Flat W/B	1	Gallon(GAL)	02-Jul-18
1476797	-	Avalon Premium 100% Acrylic Interior Flat W/B	1	Gallon(GAL)	02-Jul-18
1476798	-	Avalon Premium 100% Acrylic Interior Flat W/B	1	Gallon(GAL)	02-Jul-18
1476792	-	Avalon Premium 100% Acrylic Interior Flat W/B	1	Gallon(GAL)	02-Jul-18
1520003	10102-18-8	N-2 Supplement	5	Milliliter(ML)	02-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520004	1305-62-0	CALCIUM HYDROXIDE	25	Gram(GM)	02-Jul-18
1520005	77-09-8	PHENOLPHTHALEIN	500	Gram(GM)	02-Jul-18
1520006	25561-30-2	N O-BIS(TRIMETHYLSILYL)TRIFLUOROACETAMIDE	10	Milliliter(ML)	02-Jul-18
1520007	7705-08-0	IRON(III) CHLORIDE	1	Gram(GM)	02-Jul-18
1520008	-	SNOOP	1	Gallon(GAL)	02-Jul-18
1455575	-	TANGOBLACK PLUS FLX980	3.6	Kilograms(KG)	02-Jul-18
1455576	-	TANGOBLACK PLUS FLX980	3.6	Kilograms(KG)	02-Jul-18
1455569	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	02-Jul-18
1455574	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	02-Jul-18
1455573	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	02-Jul-18
1455572	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	02-Jul-18
1455571	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	02-Jul-18
1455570	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	02-Jul-18
1455567	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	02-Jul-18
1455568	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	02-Jul-18
1520071	-	GEOFIX	1300	Gram(GM)	02-Jul-18
1520072	48209-28-5	Copper(I) trifluoromethanesulfonate toluene	5	Gram(GM)	02-Jul-18
1520073	21651-19-4	TIN(II) OXIDE	500	Gram(GM)	02-Jul-18
1520226	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	02-Jul-18
1520234	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	02-Jul-18
1520227	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	02-Jul-18
1520235	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	02-Jul-18
1520233	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	02-Jul-18
1520232	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	02-Jul-18
1520231	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	02-Jul-18
1520230	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	02-Jul-18
1520229	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	02-Jul-18
1520228	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	02-Jul-18
1520254	-	FORMULA 2011	55	Gallon(GAL)	02-Jul-18
1520262	-	FORMULA 2011	55	Gallon(GAL)	02-Jul-18
1520256	-	FORMULA 2011	55	Gallon(GAL)	02-Jul-18
1520257	-	FORMULA 2011	55	Gallon(GAL)	02-Jul-18
1520258	-	FORMULA 2011	55	Gallon(GAL)	02-Jul-18
1520259	-	FORMULA 2011	55	Gallon(GAL)	02-Jul-18
1520260	-	FORMULA 2011	55	Gallon(GAL)	02-Jul-18
1520261	-	FORMULA 2011	55	Gallon(GAL)	02-Jul-18
1520255	-	FORMULA 2011	55	Gallon(GAL)	02-Jul-18
1457994	-	SODIUM BISULFITE SOLUTION	2464	Pounds(LB)	02-Jul-18
1457995	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	02-Jul-18
1457996	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	02-Jul-18
1457997	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	02-Jul-18
1486612	-	WHITE LITHIUM GREASE	10	Ounces(OZ)	02-Jul-18
1486607	-	BLASOCUT 2000	5	Gallon(GAL)	02-Jul-18
1486610	-	BLASOCUT 2000	5	Gallon(GAL)	02-Jul-18
1486608	-	BLASOCUT 2000	5	Gallon(GAL)	02-Jul-18
1486609	-	BLASOCUT 2000	5	Gallon(GAL)	02-Jul-18
1486611	-	BLASOCUT 2000	5	Gallon(GAL)	02-Jul-18
1486275	-	VACTRA 2 OIL	5	Gallon(GAL)	02-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1486276	-	VACTRA 2 OIL	5	Gallon(GAL)	02-Jul-18
1486639	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486677	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486702	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486696	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486698	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486700	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486701	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486673	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486674	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486685	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486695	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486694	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486693	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486692	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486691	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486690	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486689	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486688	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486675	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486686	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486676	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486684	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486683	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486682	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486681	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486680	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486679	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486678	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486699	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486687	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486662	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486703	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486652	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486697	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486654	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486655	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486656	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486657	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486658	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486659	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486650	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486661	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486651	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486663	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486664	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486665	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486666	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1486667	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486668	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486669	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486670	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486671	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486660	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486672	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486704	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486705	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486706	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486707	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486708	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486653	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486710	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486649	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486640	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486641	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486646	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486648	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486709	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486647	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486642	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486645	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486644	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486643	-	FS-One Max	10.01	Ounces(OZ)	02-Jul-18
1486271	-	LOCTITE 7649 PRIMER	4.5	Ounces(OZ)	02-Jul-18
1486269	-	LOCTITE 7471 PRIMER	4.5	Ounces(OZ)	02-Jul-18
1486270	-	LOCTITE 7471 PRIMER	4.5	Ounces(OZ)	02-Jul-18
1476819	-	Avalon Premium 100% Acrylic Interior Flat W/B	1	Gallon(GAL)	02-Jul-18
1476820	-	Avalon Premium 100% Acrylic Interior Flat W/B	1	Gallon(GAL)	02-Jul-18
1476821	-	Avalon Premium 100% Acrylic Interior Flat W/B	1	Gallon(GAL)	02-Jul-18
1476822	-	Avalon Premium 100% Acrylic Interior Flat W/B	1	Gallon(GAL)	02-Jul-18
1486272	-	SIGHT SAVERS ANTI-FOGGING NON-SILICONE	16	Ounces(OZ)	02-Jul-18
1486273	-	SIGHT SAVERS ANTI-FOGGING NON-SILICONE	16	Ounces(OZ)	02-Jul-18
1486274	-	SIGHT SAVERS ANTI-FOGGING NON-SILICONE	16	Ounces(OZ)	02-Jul-18
1486567	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486599	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486589	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486590	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486591	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486592	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486593	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486594	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486595	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486596	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486587	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486598	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486586	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1486600	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486601	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486602	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486603	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486604	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486605	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486606	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486568	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486597	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486576	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486569	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486570	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486571	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486572	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486573	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486588	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486575	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486585	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486577	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486578	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486579	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486580	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486581	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486582	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486583	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486584	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486574	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Jul-18
1486478	-	LOCTITE 567 THREAD SEALANT	1.69	Ounces(OZ)	02-Jul-18
1486477	-	STAY CLEAN PASTE SOLDERING FLUX	16	Ounces(OZ)	02-Jul-18
1486413	-	LOCTITE 569	50	Milliliter(ML)	02-Jul-18
1476936	-	PSX 700 SAFETY YELLOW 1979 RESIN	1	Gallon(GAL)	02-Jul-18
1476937	-	PSX 700 SAFETY YELLOW 1979 RESIN	1	Gallon(GAL)	02-Jul-18
1476939	-	PSX 700 SAFETY YELLOW 1979 RESIN	1	Gallon(GAL)	02-Jul-18
1476938	-	PSX 700 SAFETY YELLOW 1979 RESIN	1	Gallon(GAL)	02-Jul-18
1476952	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476960	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476959	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476958	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476957	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476956	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476955	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476954	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476961	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476953	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476962	-	Avalon Premium 100% Acrylic Interior Satin D/B	5	Gallon(GAL)	02-Jul-18
1476966	-	Avalon Premium 100% Acrylic Interior Satin D/B	5	Gallon(GAL)	02-Jul-18
1476963	-	Avalon Premium 100% Acrylic Interior Satin D/B	5	Gallon(GAL)	02-Jul-18
1476964	-	Avalon Premium 100% Acrylic Interior Satin D/B	5	Gallon(GAL)	02-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1476965	-	Avalon Premium 100% Acrylic Interior Satin D/B	5	Gallon(GAL)	02-Jul-18
1476967	-	Avalon Premium 100% Acrylic Interior Satin D/B	5	Gallon(GAL)	02-Jul-18
1476969	-	Avalon Premium 100% Acrylic Interior Satin D/B	5	Gallon(GAL)	02-Jul-18
1476970	-	Avalon Premium 100% Acrylic Interior Satin D/B	5	Gallon(GAL)	02-Jul-18
1476971	-	Avalon Premium 100% Acrylic Interior Satin D/B	5	Gallon(GAL)	02-Jul-18
1476968	-	Avalon Premium 100% Acrylic Interior Satin D/B	5	Gallon(GAL)	02-Jul-18
1476977	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	02-Jul-18
1476979	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	02-Jul-18
1476978	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	02-Jul-18
1476972	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	02-Jul-18
1476980	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	02-Jul-18
1476982	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	02-Jul-18
1476981	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	02-Jul-18
1476985	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476986	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476987	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476988	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1476932	-	PSX 700 HP YELLOW TINT RESIN	0.68	Gallon(GAL)	02-Jul-18
1476935	-	PSX 700 HP YELLOW TINT RESIN	0.68	Gallon(GAL)	02-Jul-18
1476933	-	PSX 700 HP YELLOW TINT RESIN	0.68	Gallon(GAL)	02-Jul-18
1476934	-	PSX 700 HP YELLOW TINT RESIN	0.68	Gallon(GAL)	02-Jul-18
1476949	-	PSX 700 HP YELLOW TINT RESIN	0.68	Gallon(GAL)	02-Jul-18
1476947	-	PSX 700 HP YELLOW TINT RESIN	0.68	Gallon(GAL)	02-Jul-18
1476948	-	PSX 700 HP YELLOW TINT RESIN	0.68	Gallon(GAL)	02-Jul-18
1476946	-	PSX 700 HP YELLOW TINT RESIN	0.68	Gallon(GAL)	02-Jul-18
1477520	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1477521	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1477522	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1477523	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	02-Jul-18
1478009	-	PAINT HARDENER	25	Pounds(LB)	02-Jul-18
1478010	-	PAINT HARDENER	25	Pounds(LB)	02-Jul-18
1478011	-	Sikalastic 745 AL Part B	0.4	Gram(GM)	02-Jul-18
1478013	-	Sikalastic 745 AL Part B	0.4	Gram(GM)	02-Jul-18
1478014	-	Sikalastic 745 AL Part B	0.4	Gram(GM)	02-Jul-18
1478012	-	Sikalastic 745 AL Part B	0.4	Gram(GM)	02-Jul-18
1478015	-	Sikalastic 720 Base Part B	1	Gallon(GAL)	02-Jul-18
1478017	-	Sikalastic 720 Base Part B	1	Gallon(GAL)	02-Jul-18
1478018	-	Sikalastic 720 Base Part B	1	Gallon(GAL)	02-Jul-18
1478016	-	Sikalastic 720 Base Part B	1	Gallon(GAL)	02-Jul-18
1478021	-	Sikalastic 745 AL Part A	4	Gallon(GAL)	02-Jul-18
1478024	-	Sikalastic 745 AL Part A	4	Gallon(GAL)	02-Jul-18
1478023	-	Sikalastic 745 AL Part A	4	Gallon(GAL)	02-Jul-18
1478022	-	Sikalastic 745 AL Part A	4	Gallon(GAL)	02-Jul-18
1495563	-	AW HYDRAULIC FLUID ISO 32	5	Gallon(GAL)	02-Jul-18
1495564	-	AW HYDRAULIC FLUID ISO 32	5	Gallon(GAL)	02-Jul-18
1495565	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	02-Jul-18
1495574	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	02-Jul-18
1495576	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	02-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1495569	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	02-Jul-18
1495566	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	02-Jul-18
1495575	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	02-Jul-18
1495568	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	02-Jul-18
1495570	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	02-Jul-18
1495573	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	02-Jul-18
1495567	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	02-Jul-18
1495571	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	02-Jul-18
1495572	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	02-Jul-18
1478025	-	Sikalastic 720 Base Part A	4	Gallon(GAL)	02-Jul-18
1432864	-	silvabrite 100	1	Pounds(LB)	03-Jul-18
1432865	-	silvabrite 100	1	Pounds(LB)	03-Jul-18
1432870	-	SUNISO 3GS REFRIG OIL	1	Gallon(GAL)	03-Jul-18
1432871	-	SUNISO 3GS REFRIG OIL	1	Gallon(GAL)	03-Jul-18
1432866	-	SUNISO 4GS REFRIG OIL	1	Gallon(GAL)	03-Jul-18
1432867	-	SUNISO 4GS REFRIG OIL	1	Gallon(GAL)	03-Jul-18
1478131	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478144	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478137	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478132	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478133	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478134	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478135	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478136	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478139	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478140	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478141	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478142	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478143	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478138	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478150	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478145	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478147	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478149	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478146	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478148	-	LAQUER THINNER	5	Gallon(GAL)	03-Jul-18
1478039	-	MARKING PAINT	17	Ounces(OZ)	03-Jul-18
1478041	-	MARKING PAINT	17	Ounces(OZ)	03-Jul-18
1478046	-	MARKING PAINT	17	Ounces(OZ)	03-Jul-18
1478040	-	MARKING PAINT	17	Ounces(OZ)	03-Jul-18
1478042	-	MARKING PAINT	17	Ounces(OZ)	03-Jul-18
1478043	-	MARKING PAINT	17	Ounces(OZ)	03-Jul-18
1478045	-	MARKING PAINT	17	Ounces(OZ)	03-Jul-18
1478047	-	MARKING PAINT	17	Ounces(OZ)	03-Jul-18
1478048	-	MARKING PAINT	17	Ounces(OZ)	03-Jul-18
1478049	-	MARKING PAINT	17	Ounces(OZ)	03-Jul-18
1478050	-	MARKING PAINT	17	Ounces(OZ)	03-Jul-18
1478044	-	MARKING PAINT	17	Ounces(OZ)	03-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1432868	-	ULTRA 32-3MAF	1	Gallon(GAL)	03-Jul-18
1432869	-	ULTRA 32-3MAF	1	Gallon(GAL)	03-Jul-18
1478161	-	FOAMING COIL CLEANER	18	Ounces(OZ)	03-Jul-18
1478169	-	FOAMING COIL CLEANER	18	Ounces(OZ)	03-Jul-18
1478170	-	FOAMING COIL CLEANER	18	Ounces(OZ)	03-Jul-18
1478171	-	FOAMING COIL CLEANER	18	Ounces(OZ)	03-Jul-18
1478168	-	FOAMING COIL CLEANER	18	Ounces(OZ)	03-Jul-18
1478167	-	FOAMING COIL CLEANER	18	Ounces(OZ)	03-Jul-18
1478172	-	FOAMING COIL CLEANER	18	Ounces(OZ)	03-Jul-18
1478165	-	FOAMING COIL CLEANER	18	Ounces(OZ)	03-Jul-18
1478164	-	FOAMING COIL CLEANER	18	Ounces(OZ)	03-Jul-18
1478163	-	FOAMING COIL CLEANER	18	Ounces(OZ)	03-Jul-18
1478166	-	FOAMING COIL CLEANER	18	Ounces(OZ)	03-Jul-18
1478162	-	FOAMING COIL CLEANER	18	Ounces(OZ)	03-Jul-18
1432875	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432894	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432888	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432889	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432890	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432891	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432893	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432887	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432881	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432892	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432886	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432885	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432884	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432882	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432880	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432879	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432878	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432877	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432876	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1432883	-	Super D Dry Powder Extinguisher	5	Gallon(GAL)	03-Jul-18
1519925	-	MicroC 2000	265	Gallon(GAL)	03-Jul-18
1519926	-	MicroC 2000	265	Gallon(GAL)	03-Jul-18
1520074	-	DPD COMPOUND FOR FREE AND TOTAL	25	Gram(GM)	03-Jul-18
1520076	-	DPD COMPOUND FOR FREE AND TOTAL	25	Gram(GM)	03-Jul-18
1520078	-	DPD COMPOUND FOR FREE AND TOTAL	25	Gram(GM)	03-Jul-18
1520077	-	DPD COMPOUND FOR FREE AND TOTAL	25	Gram(GM)	03-Jul-18
1520075	-	DPD COMPOUND FOR FREE AND TOTAL	25	Gram(GM)	03-Jul-18
1520079	67-63-0	ISOPROPYL ALCOHOL	1	Liters(L)	03-Jul-18
1495577	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	03-Jul-18
1520080	6381-92-6	ETHYLENEDIAMINETETRAACETIC ACID	500	Gram(GM)	03-Jul-18
1495578	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	03-Jul-18
1495579	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	03-Jul-18
1520081	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	500	Milliliter(ML)	03-Jul-18
1520082	69-65-8	MANNITOL	500	Gram(GM)	03-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1495580	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1520083	64-17-5	ETHANOL	500	Milliliter(ML)	03-Jul-18
1520252	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	03-Jul-18
1520253	7647-01-0	HYDROCHLORIC ACID TRACE METAL-35%	500	Milliliter(ML)	03-Jul-18
1520263	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520266	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520272	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520276	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520275	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520274	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520273	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520277	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520271	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520270	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520269	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520267	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520265	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520264	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520268	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	03-Jul-18
1520278	141-78-6	ETHYL ACETATE	4	Liters(L)	03-Jul-18
1520283	141-78-6	ETHYL ACETATE	4	Liters(L)	03-Jul-18
1520279	141-78-6	ETHYL ACETATE	4	Liters(L)	03-Jul-18
1520280	141-78-6	ETHYL ACETATE	4	Liters(L)	03-Jul-18
1520285	141-78-6	ETHYL ACETATE	4	Liters(L)	03-Jul-18
1520282	141-78-6	ETHYL ACETATE	4	Liters(L)	03-Jul-18
1520284	141-78-6	ETHYL ACETATE	4	Liters(L)	03-Jul-18
1520281	141-78-6	ETHYL ACETATE	4	Liters(L)	03-Jul-18
1559108	-	CARBON MONOXIDE IN NITROGEN	4	Liters(L)	03-Jul-18
1495589	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495581	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495594	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495593	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495592	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495585	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495590	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495595	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495588	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495587	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495586	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495582	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495583	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495584	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495591	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Jul-18
1495596	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	03-Jul-18
1495597	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	03-Jul-18
1495598	-	DIESEL FUEL SUPPLEMENT	32	Ounces(OZ)	03-Jul-18
1478179	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478199	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478200	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478201	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478202	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478203	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478204	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478205	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478206	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478207	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478208	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478209	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478210	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478211	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478212	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478198	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478214	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478190	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478213	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478185	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478184	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478183	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478182	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478192	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478180	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478197	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478186	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478187	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478196	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478189	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478181	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478191	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478193	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478194	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478195	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1478188	-	SILICONE PLUS	10.8	Ounces(OZ)	03-Jul-18
1495599	-	ANTI SEIZE LUBRICANT	16	Ounces(OZ)	03-Jul-18
1478215	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478224	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478218	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478217	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478219	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478220	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478221	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478222	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478223	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478229	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478225	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478241	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478226	-	CLOROX	1	Gallon(GAL)	03-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478227	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478240	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478239	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478238	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478228	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478230	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478231	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478244	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478233	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478234	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478216	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478235	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478237	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478236	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478242	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478243	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478232	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478245	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1495600	-	HI TEMPERATURE DISC BRAKE BEARING GREASE	14	Ounces(OZ)	03-Jul-18
1478253	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478246	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478247	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478248	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478250	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478252	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478262	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478251	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478259	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478263	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478254	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478268	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478249	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478264	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478260	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478258	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478257	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478267	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478256	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478266	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478265	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478255	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1478261	-	CLOROX	1	Gallon(GAL)	03-Jul-18
1495601	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	03-Jul-18
1495602	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	03-Jul-18
1495603	-	Yellow Super Trim Adhesive	19	Ounces(OZ)	03-Jul-18
1495604	7440-21-3	SILICON RTV SEALANT 732 MULTI PURPOSE	10.1	Ounces(OZ)	03-Jul-18
1495607	7440-21-3	SILICON RTV SEALANT 732 MULTI PURPOSE	10.1	Ounces(OZ)	03-Jul-18
1495605	7440-21-3	SILICON RTV SEALANT 732 MULTI PURPOSE	10.1	Ounces(OZ)	03-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1495606	7440-21-3	SILICON RTV SEALANT 732 MULTI PURPOSE	10.1	Ounces(OZ)	03-Jul-18
1495608	-	PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	03-Jul-18
1495609	-	Parts Plus Type F ATF	1	Quarts(QT)	03-Jul-18
1495610	-	POWER STEERING FLUID	1	Quarts(QT)	03-Jul-18
1520286	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520288	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520287	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520292	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520293	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520294	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520295	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520296	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520297	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520298	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520290	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520289	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520299	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1520291	64742-65-0	IVP 700	1	Gallon(GAL)	03-Jul-18
1530500	60-29-7	DIETHYL ETHER	1	Liters(L)	03-Jul-18
1530501	67-63-0	2-PROPANOL	4	Liters(L)	03-Jul-18
1478297	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478305	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478313	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478303	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478311	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478314	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478315	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478316	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478306	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478304	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478312	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478302	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478301	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478300	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478310	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478309	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478308	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478299	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478298	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1478307	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Jul-18
1530502	108-88-3	TOLUENE ANHYDROUS	100	Milliliter(ML)	03-Jul-18
1530503	108-88-3	TOLUENE ANHYDROUS	100	Milliliter(ML)	03-Jul-18
1530504	108-88-3	TOLUENE	2	Liters(L)	03-Jul-18
1530505	1336-21-6	AMMONIUM HYDROXIDE 28-30%	100	Milliliter(ML)	03-Jul-18
1478317	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	03-Jul-18
1478318	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	03-Jul-18
1478319	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	03-Jul-18
1478320	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	03-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478322	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	03-Jul-18
1478328	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	03-Jul-18
1478324	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	03-Jul-18
1478325	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	03-Jul-18
1478326	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	03-Jul-18
1478323	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	03-Jul-18
1478327	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	03-Jul-18
1478321	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	03-Jul-18
1495611	-	DUPLI-COLOR Acrylic Enamel Aerosol Paint Gloss	12	Ounces(OZ)	03-Jul-18
1495612	-	DUPLI-COLOR 2-in-1 Filler & Sandable Primer	12	Ounces(OZ)	03-Jul-18
1495613	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	03-Jul-18
1497329	-	Oatey Purple or Clear Primer	16	Ounces(OZ)	03-Jul-18
1495614	-	LUBRIPLATE CHAIN AND CABLE FLUID	12	Ounces(OZ)	03-Jul-18
1495616	-	LUBRIPLATE CHAIN AND CABLE FLUID	12	Ounces(OZ)	03-Jul-18
1495620	-	LUBRIPLATE CHAIN AND CABLE FLUID	12	Ounces(OZ)	03-Jul-18
1495621	-	LUBRIPLATE CHAIN AND CABLE FLUID	12	Ounces(OZ)	03-Jul-18
1495622	-	LUBRIPLATE CHAIN AND CABLE FLUID	12	Ounces(OZ)	03-Jul-18
1495619	-	LUBRIPLATE CHAIN AND CABLE FLUID	12	Ounces(OZ)	03-Jul-18
1495617	-	LUBRIPLATE CHAIN AND CABLE FLUID	12	Ounces(OZ)	03-Jul-18
1495615	-	LUBRIPLATE CHAIN AND CABLE FLUID	12	Ounces(OZ)	03-Jul-18
1495618	-	LUBRIPLATE CHAIN AND CABLE FLUID	12	Ounces(OZ)	03-Jul-18
1497330	-	Oatey All Purpose Cement	8	Ounces(OZ)	03-Jul-18
1497336	-	Oatey All Purpose Cement	8	Ounces(OZ)	03-Jul-18
1497335	-	Oatey All Purpose Cement	8	Ounces(OZ)	03-Jul-18
1497334	-	Oatey All Purpose Cement	8	Ounces(OZ)	03-Jul-18
1497333	-	Oatey All Purpose Cement	8	Ounces(OZ)	03-Jul-18
1497331	-	Oatey All Purpose Cement	8	Ounces(OZ)	03-Jul-18
1497337	-	Oatey All Purpose Cement	8	Ounces(OZ)	03-Jul-18
1497332	-	Oatey All Purpose Cement	8	Ounces(OZ)	03-Jul-18
1497338	-	Oatey PVC Primer Clear	8	Ounces(OZ)	03-Jul-18
1497339	-	Oatey PVC Primer Clear	8	Ounces(OZ)	03-Jul-18
1478289	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	03-Jul-18
1478296	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	03-Jul-18
1478295	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	03-Jul-18
1478294	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	03-Jul-18
1478293	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	03-Jul-18
1478292	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	03-Jul-18
1478291	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	03-Jul-18
1478290	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	03-Jul-18
1148590	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148591	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148598	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148597	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148596	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148595	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148594	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148599	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148592	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1148593	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148605	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148600	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148602	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148603	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148601	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1148604	7732-18-5	ULTRASONIC CLEANING SOLUTION	1	Gallon(GAL)	03-Jul-18
1421695	-	CITRUS BASE CLEANER	1	Gallon(GAL)	05-Jul-18
1421694	-	CITRUS BASE CLEANER	1	Gallon(GAL)	05-Jul-18
1421693	-	CITRUS BASE CLEANER	1	Gallon(GAL)	05-Jul-18
1421696	-	CITRUS BASE CLEANER	1	Gallon(GAL)	05-Jul-18
1432918	-	DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432923	-	DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432922	-	DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432921	-	DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432920	-	DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432919	-	DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432924	-	DPD TOTAL CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432926	-	DPD TOTAL CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432929	-	DPD TOTAL CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432927	-	DPD TOTAL CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432925	-	DPD TOTAL CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432928	-	DPD TOTAL CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432901	-	DPD TOTAL CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432906	-	DPD TOTAL CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432905	-	DPD TOTAL CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432904	-	DPD TOTAL CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432903	-	DPD TOTAL CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432902	-	DPD TOTAL CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432899	-	DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432898	-	DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432897	-	DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432896	-	DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432895	-	DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432900	-	DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	05-Jul-18
1432873	-	Bridgit Lead Free Solder	1	Pounds(LB)	05-Jul-18
1432874	-	Bridgit Lead Free Solder	1	Pounds(LB)	05-Jul-18
1432908	-	Bridgit Lead Free Solder	1	Pounds(LB)	05-Jul-18
1432916	-	Bridgit Lead Free Solder	1	Pounds(LB)	05-Jul-18
1432917	-	Bridgit Lead Free Solder	1	Pounds(LB)	05-Jul-18
1432959	-	Bridgit Lead Free Solder	1	Pounds(LB)	05-Jul-18
1432958	-	Bridgit Lead Free Solder	1	Pounds(LB)	05-Jul-18
1432957	-	Bridgit Lead Free Solder	1	Pounds(LB)	05-Jul-18
1432956	-	Bridgit Lead Free Solder	1	Pounds(LB)	05-Jul-18
1432952	-	silvabrite 100	1	Pounds(LB)	05-Jul-18
1432954	-	silvabrite 100	1	Pounds(LB)	05-Jul-18
1432955	-	silvabrite 100	1	Pounds(LB)	05-Jul-18
1432953	-	silvabrite 100	1	Pounds(LB)	05-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1432872	-	Megaloc	0.5	Pint(PT)	05-Jul-18
1432907	-	Megaloc	0.5	Pint(PT)	05-Jul-18
1432909	-	Spears LW-5 One-Step Low VOC Cement for	1	Quarts(QT)	05-Jul-18
1432912	-	Spears LW-5 One-Step Low VOC Cement for	1	Quarts(QT)	05-Jul-18
1432913	-	Spears LW-5 One-Step Low VOC Cement for	1	Quarts(QT)	05-Jul-18
1432914	-	Spears LW-5 One-Step Low VOC Cement for	1	Quarts(QT)	05-Jul-18
1432911	-	Spears LW-5 One-Step Low VOC Cement for	1	Quarts(QT)	05-Jul-18
1432910	-	Spears LW-5 One-Step Low VOC Cement for	1	Quarts(QT)	05-Jul-18
1432915	-	NOKORODE REGULAR PASTE FLUX	16	Ounces(OZ)	05-Jul-18
1432930	-	HERCULES PURPLE PVC PRIMER	1	Pint(PT)	05-Jul-18
1432931	-	Hercules PVC plastic pipe cement (clear med	1	Pint(PT)	05-Jul-18
1432932	-	HERCULES PURPLE PVC PRIMER	1	Quarts(QT)	05-Jul-18
1432933	-	HERCULES PURPLE PVC PRIMER	1	Quarts(QT)	05-Jul-18
1432934	-	HERCULES CLEAR PVC PIPE CEMENT	1	Quarts(QT)	05-Jul-18
1432935	-	HERCULES CLEAR PVC PIPE CEMENT	1	Quarts(QT)	05-Jul-18
1432936	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	05-Jul-18
1432941	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	05-Jul-18
1432940	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	05-Jul-18
1432939	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	05-Jul-18
1432938	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	05-Jul-18
1432937	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	05-Jul-18
1432944	-	NOKORODE AQUA FLUX	16	Ounces(OZ)	05-Jul-18
1432945	-	NOKORODE REGULAR PASTE FLUX	1	Pint(PT)	05-Jul-18
1432946	-	Tru-Blue Thread Sealant	0.25	Pint(PT)	05-Jul-18
1432947	-	Tru-Blue Thread Sealant	0.25	Pint(PT)	05-Jul-18
1432948	-	REAL TUFF THREAD SEALANT	0.5	Pint(PT)	05-Jul-18
1432949	-	REAL TUFF THREAD SEALANT	0.5	Pint(PT)	05-Jul-18
1432942	-	silvabrite 100	1	Pint(PT)	05-Jul-18
1432943	-	silvabrite 100	1	Pint(PT)	05-Jul-18
1432960	-	CITGO DUOprime Oil 90	1	Gallon(GAL)	05-Jul-18
1432962	-	CITGO DUOprime Oil 90	1	Gallon(GAL)	05-Jul-18
1432963	-	CITGO DUOprime Oil 90	1	Gallon(GAL)	05-Jul-18
1432961	-	CITGO DUOprime Oil 90	1	Gallon(GAL)	05-Jul-18
1432964	-	Transition Cement	1	Pint(PT)	05-Jul-18
1432950	-	RL 68H	1	Gallon(GAL)	05-Jul-18
1432951	-	RL 68H	1	Gallon(GAL)	05-Jul-18
1519927	67-56-1	METHANOL OPTIMA	4	Liters(L)	05-Jul-18
1519936	7722-84-1	SODIUM HYDROXIDE 30% SOLUTION	500	Milliliter(ML)	05-Jul-18
1519937	7722-84-1	SODIUM HYDROXIDE 30% SOLUTION	500	Milliliter(ML)	05-Jul-18
1519974	-	SYLGARD 186 SILICONE ELASTOMER CURING	19.9	Kilograms(KG)	05-Jul-18
1520009	60-29-7	DIETHYL ETHER	1	Liters(L)	05-Jul-18
1520010	1076-43-3	BENZENE-D6	50	Gram(GM)	05-Jul-18
1520011	4422-95-1	1 3 5-BENZENETRICARBONYL TRICHLORIDE	100	Gram(GM)	05-Jul-18
1520014	111-65-9	OCTANE (OCTANE ANHYDROUS)	1	Liters(L)	05-Jul-18
1520015	67-56-1	METHANOL ANHYDROUS	1	Liters(L)	05-Jul-18
1520016	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	05-Jul-18
1520017	71-36-3	1-BUTANOL	1	Liters(L)	05-Jul-18
1520018	75-05-8	ACETONITRILE ANHYDROUS	1	Liters(L)	05-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520019	872-50-4	1-METHYL-2-PYRROLIDINONE	1	Liters(L)	05-Jul-18
1520020	433-27-2	Trifluoroacetaldehyde ethyl hemiacetal	5	Gram(GM)	05-Jul-18
1520021	4045-44-7	1 2 3 4 5-PENTAMETHYLCYCLOPENTADIENE	25	Gram(GM)	05-Jul-18
1520022	4045-44-7	1 2 3 4 5-PENTAMETHYLCYCLOPENTADIENE	25	Gram(GM)	05-Jul-18
1520084	334-48-5	DECANOIC ACID (CAPRIC ACID)	100	Gram(GM)	05-Jul-18
1520085	7761-88-8	SILVER NITRATE	25	Gram(GM)	05-Jul-18
1520086	50586-59-9	Trimethylolpropane ethoxylate	250	Milliliter(ML)	05-Jul-18
1520087	-	Poly(ethylene oxide) 6-arm hydroxy terminated	250	Milligram(MG)	05-Jul-18
1520088	-	Poly(ethylene oxide) 6-arm hydroxy terminated	250	Milligram(MG)	05-Jul-18
1520089	26570-48-9	POLY(ETHYLENE GLYCOL)DIACRYLATE	500	Milliliter(ML)	05-Jul-18
1520090	102-71-6	TRIETHANOLAMINE	500	Milliliter(ML)	05-Jul-18
1520091	1643-20-5	N N-DIMETHYLDODECYLAMINE N-OXIDE	250	Milliliter(ML)	05-Jul-18
1520092	-	Meso-Erythritol 99%	100	Gram(GM)	05-Jul-18
1520093	7181-87-5	1 3-Dimethyl-1H-benzimidazolium iodide	250	Milligram(MG)	05-Jul-18
1520094	409-21-2	SILICON CARBIDE	1	Pounds(LB)	05-Jul-18
1520095	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	05-Jul-18
1520096	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520103	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520099	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520098	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520104	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520105	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520107	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520101	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520102	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520109	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520106	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520097	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520108	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520100	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520110	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520112	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520111	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	05-Jul-18
1520113	-	ARC-i-CON-16	1	Liters(L)	05-Jul-18
1520114	471-34-1	CALCIUM CARBONATE	100	Gram(GM)	05-Jul-18
1520115	115-40-2	BROMOCRESOL PURPLE	10	Gram(GM)	05-Jul-18
1520116	7718-98-1	VANADIUM(III) CHLORIDE	10	Gram(GM)	05-Jul-18
1520335	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	05-Jul-18
1520343	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	05-Jul-18
1520342	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	05-Jul-18
1520341	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	05-Jul-18
1520340	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	05-Jul-18
1520339	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	05-Jul-18
1520338	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	05-Jul-18
1520337	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	05-Jul-18
1520336	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	05-Jul-18
1520344	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	05-Jul-18
1530507	4074-88-8	DI(ETHYLENE GLYCOL) DIACRYLATE	5	Milliliter(ML)	05-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
806945	-	EPOXY PART B	1	Pint(PT)	05-Jul-18
1486628	-	LOCTITE Quickstix 248 THREADLOCKER MEDIUM	0.67	Ounces(OZ)	05-Jul-18
1420512	-	POTASSIUM HYDROXIDE	1	Liters(L)	06-Jul-18
1519928	-	MicroC 2000	5	Gallon(GAL)	06-Jul-18
1420521	1310-73-2	SODIUM HYDROXIDE 50% SOLUTION	1	Liters(L)	06-Jul-18
1519929	-	MicroC 2000	5	Gallon(GAL)	06-Jul-18
1520023	1310-73-2	SODIUM HYDROXIDE	1	Kilograms(KG)	06-Jul-18
1520028	1310-73-2	SODIUM HYDROXIDE	1	Kilograms(KG)	06-Jul-18
1520027	1310-73-2	SODIUM HYDROXIDE	1	Kilograms(KG)	06-Jul-18
1520026	1310-73-2	SODIUM HYDROXIDE	1	Kilograms(KG)	06-Jul-18
1520024	1310-73-2	SODIUM HYDROXIDE	1	Kilograms(KG)	06-Jul-18
1520025	1310-73-2	SODIUM HYDROXIDE	1	Kilograms(KG)	06-Jul-18
1520029	56553-60-7	Sodium Triacetoxyborohydride	100	Gram(GM)	06-Jul-18
1520030	7487-88-9	MAGNESIUM SULFATE ANHYDROUS	1	Kilograms(KG)	06-Jul-18
1520031	1070-89-9	SODIUM BIS(TRIMETHYLSILYL)AMIDE 1.0M	25	Gram(GM)	06-Jul-18
1520032	108321-42-2	GENETICIN (G-418 SULFATE)	10	Milliliter(ML)	06-Jul-18
1520033	114971-52-7	Benzyltrimethylammonium dichloroiodate	5	Gram(GM)	06-Jul-18
1520034	872-50-4	1-METHYL-2-PYRROLIDINONE	1	Liters(L)	06-Jul-18
1520035	-	REFERENCE MATERIAL	25	Gram(GM)	06-Jul-18
1520036	-	BASALT USGS BCR-1	50	Gram(GM)	06-Jul-18
1520037	-	ANALYZED GRANODIORITE GSP-1	50	Gram(GM)	06-Jul-18
1520038	-	SHALE USGS SGR-1	50	Gram(GM)	06-Jul-18
1520039	999-97-3	HEXAMETHYLDISILAZANE	100	Milliliter(ML)	06-Jul-18
1520117	2834-05-1	11-BROMOUNDECANOIC ACID	25	Gram(GM)	06-Jul-18
1520118	-	IRON STANDARD 1000 10 000 UG/ML	125	Milliliter(ML)	06-Jul-18
1520220	64-17-5	ALCOHOL REAGENT	1	Gallon(GAL)	06-Jul-18
1520221	64-17-5	ALCOHOL REAGENT	1	Gallon(GAL)	06-Jul-18
1520223	64-17-5	ALCOHOL REAGENT	1	Gallon(GAL)	06-Jul-18
1520222	64-17-5	ALCOHOL REAGENT	1	Gallon(GAL)	06-Jul-18
1520300	-	CAUSTIC SODA	55	Gallon(GAL)	06-Jul-18
1520303	-	CAUSTIC SODA	55	Gallon(GAL)	06-Jul-18
1520307	-	CAUSTIC SODA	55	Gallon(GAL)	06-Jul-18
1520306	-	CAUSTIC SODA	55	Gallon(GAL)	06-Jul-18
1520304	-	CAUSTIC SODA	55	Gallon(GAL)	06-Jul-18
1520302	-	CAUSTIC SODA	55	Gallon(GAL)	06-Jul-18
1520301	-	CAUSTIC SODA	55	Gallon(GAL)	06-Jul-18
1520305	-	CAUSTIC SODA	55	Gallon(GAL)	06-Jul-18
1520308	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520313	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520310	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520318	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520311	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520312	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520314	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520315	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520322	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520321	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520320	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520319	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520316	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520317	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520309	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	06-Jul-18
1520323	141-78-6	ETHYL ACETATE	4	Liters(L)	06-Jul-18
1520327	141-78-6	ETHYL ACETATE	4	Liters(L)	06-Jul-18
1520326	141-78-6	ETHYL ACETATE	4	Liters(L)	06-Jul-18
1520325	141-78-6	ETHYL ACETATE	4	Liters(L)	06-Jul-18
1520324	141-78-6	ETHYL ACETATE	4	Liters(L)	06-Jul-18
1520328	141-78-6	ETHYL ACETATE	4	Liters(L)	06-Jul-18
1520330	141-78-6	ETHYL ACETATE	4	Liters(L)	06-Jul-18
1520329	141-78-6	ETHYL ACETATE	4	Liters(L)	06-Jul-18
1520345	3779-27-9	2 2'-Bithiophene-5-carboxaldehyde	5	Gram(GM)	09-Jul-18
1520346	1196-69-6	5-Formylindole	5	Gram(GM)	09-Jul-18
1520347	197638-83-8	1-Boc-4-(4-formylphenyl)piperazine	10	Gram(GM)	09-Jul-18
1520348	872-85-5	4-PYRIDINECARBOXALDEHYDE	25	Gram(GM)	09-Jul-18
1520349	1074-88-0	7-Formylindole	5	Gram(GM)	09-Jul-18
1520350	50777-76-9	2-(Diphenylphosphino)benzaldehyde	10	Gram(GM)	09-Jul-18
1520351	1204-86-0	4-Morpholinobenzaldehyde	5	Gram(GM)	09-Jul-18
1520352	56-84-8	L-ASPARTIC ACID	2	Gram(GM)	09-Jul-18
1520353	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	09-Jul-18
1520354	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	09-Jul-18
1520356	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	09-Jul-18
1520355	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	09-Jul-18
1520358	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	09-Jul-18
1520357	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	09-Jul-18
1520359	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	09-Jul-18
1520360	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	09-Jul-18
1520361	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	09-Jul-18
1520362	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	09-Jul-18
1520363	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	09-Jul-18
1458004	7705-08-0	FERRIC CHLORIDE 40% SOLUTION	3400	Pounds(LB)	09-Jul-18
1458005	-	SODIUM BISULFITE 38-42%	2464	Pounds(LB)	09-Jul-18
1486616	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	09-Jul-18
1486623	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	09-Jul-18
1486617	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	09-Jul-18
1486618	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	09-Jul-18
1486619	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	09-Jul-18
1486620	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	09-Jul-18
1486624	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	09-Jul-18
1486625	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	09-Jul-18
1486626	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	09-Jul-18
1486627	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	09-Jul-18
1486622	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	09-Jul-18
1486621	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	09-Jul-18
1486629	-	LOCTITE 242 THREADLOCKER	50	Milliliter(ML)	09-Jul-18
1486614	-	Krylon Industrial QUIK-MARK Water-Based	17	Ounces(OZ)	09-Jul-18
1486615	-	Krylon Industrial QUIK-MARK Water-Based	17	Ounces(OZ)	09-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1495623	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Jul-18
1495624	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Jul-18
1495625	-	Pneumatic/Hydraulic Sealant	1.22	Ounces(OZ)	09-Jul-18
1495626	-	Pneumatic/Hydraulic Sealant	1.22	Ounces(OZ)	09-Jul-18
1495627	-	DUPLI-COLOR Acrylic Enamel Aerosol Paint	12	Ounces(OZ)	09-Jul-18
1495628	-	POWER STEERING FLUID	1	Quarts(QT)	09-Jul-18
1495629	-	Mobil 1 5W-40	1	Quarts(QT)	09-Jul-18
1495631	-	Mobil 1 5W-40	1	Quarts(QT)	09-Jul-18
1495630	-	Mobil 1 5W-40	1	Quarts(QT)	09-Jul-18
1495632	-	Mobil 1 5W-40	1	Quarts(QT)	09-Jul-18
1495633	-	Mobil 1 5W-40	1	Quarts(QT)	09-Jul-18
1495634	-	Mobil 1 5W-40	1	Quarts(QT)	09-Jul-18
1469077	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	09-Jul-18
1469055	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	09-Jul-18
1469081	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	09-Jul-18
1559110	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Jul-18
1559116	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Jul-18
1559111	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Jul-18
1559112	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Jul-18
1559113	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Jul-18
1559114	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Jul-18
1559115	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Jul-18
1559156	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559158	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559180	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559179	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559178	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559177	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559176	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559175	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559174	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559173	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559172	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559171	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559169	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559157	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559164	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559159	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559160	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559161	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559162	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559181	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559163	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559185	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559168	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559167	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559166	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559165	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559170	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559183	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559184	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559182	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Jul-18
1559186	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559199	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559204	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559203	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559202	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559200	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559198	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559197	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559196	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559188	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559201	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559195	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559187	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559189	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559190	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559191	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559192	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559193	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559194	-	ARGON/METHANE	220	Cubic Feet(CF)	09-Jul-18
1559205	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559206	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559214	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559217	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559216	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559215	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559213	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559212	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559211	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559210	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559208	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559209	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559207	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559218	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559223	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559224	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559225	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559226	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559222	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559220	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559221	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559219	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559227	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	09-Jul-18
1559229	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	09-Jul-18
1559232	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	09-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559230	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	09-Jul-18
1559231	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	09-Jul-18
1559228	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	09-Jul-18
1559117	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559121	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559134	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559139	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559122	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559131	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559125	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559137	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559132	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559140	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559133	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559138	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559135	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559141	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559142	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559143	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559144	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559145	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559146	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559123	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559148	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559136	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559130	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559129	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559128	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559127	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559126	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559120	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559124	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559147	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559118	-	Argon UHP	220	Cubic Feet(CF)	09-Jul-18
1559119	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	09-Jul-18
1520042	507-19-7	2-BROMO-2-METHYLPROPANE	250	Milliliter(ML)	09-Jul-18
1520043	507-19-7	2-BROMO-2-METHYLPROPANE	250	Milliliter(ML)	09-Jul-18
1520044	547-58-0	METHYL ORANGE	25	Gram(GM)	09-Jul-18
1520045	-	CHROMIUM STANDARD 1ML=1MG CR 1000	125	Milliliter(ML)	09-Jul-18
1478329	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478334	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478339	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478343	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478342	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478340	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478338	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478337	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478335	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478341	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478333	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478332	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478331	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478330	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1478336	-	LAQUER THINNER	5	Gallon(GAL)	09-Jul-18
1520046	-	Genesis Development Resin Base	1	Gallon(GAL)	09-Jul-18
1520364	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	09-Jul-18
1520365	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	09-Jul-18
1478344	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	09-Jul-18
1478354	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	09-Jul-18
1478353	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	09-Jul-18
1478352	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	09-Jul-18
1478351	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	09-Jul-18
1478346	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	09-Jul-18
1478355	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	09-Jul-18
1478345	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	09-Jul-18
1478347	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	09-Jul-18
1478348	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	09-Jul-18
1478349	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	09-Jul-18
1478350	-	ORANGE PEEL SPRAY ON TEXTURE WATER	25	Ounces(OZ)	09-Jul-18
1520366	9548-62-9	CRYSTAL VIOLET	25	Gram(GM)	09-Jul-18
1520367	81-88-9	RHODAMINE B	50	Gram(GM)	09-Jul-18
1520368	-	DETERGENT	1.5	Kilograms(KG)	09-Jul-18
1478356	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	09-Jul-18
1520375	-	DETERGENT	1.5	Kilograms(KG)	09-Jul-18
1520379	-	DETERGENT	1.5	Kilograms(KG)	09-Jul-18
1520378	-	DETERGENT	1.5	Kilograms(KG)	09-Jul-18
1520374	-	DETERGENT	1.5	Kilograms(KG)	09-Jul-18
1520373	-	DETERGENT	1.5	Kilograms(KG)	09-Jul-18
1520372	-	DETERGENT	1.5	Kilograms(KG)	09-Jul-18
1520371	-	DETERGENT	1.5	Kilograms(KG)	09-Jul-18
1520370	-	DETERGENT	1.5	Kilograms(KG)	09-Jul-18
1520369	-	DETERGENT	1.5	Kilograms(KG)	09-Jul-18
1520376	-	DETERGENT	1.5	Kilograms(KG)	09-Jul-18
1520377	-	DETERGENT	1.5	Kilograms(KG)	09-Jul-18
1478357	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	09-Jul-18
1478388	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Jul-18
1478389	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Jul-18
1478391	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Jul-18
1478390	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Jul-18
1478362	-	LAQUER THINNER	1	Gallon(GAL)	09-Jul-18
1478366	-	LAQUER THINNER	1	Gallon(GAL)	09-Jul-18
1478363	-	LAQUER THINNER	1	Gallon(GAL)	09-Jul-18
1478364	-	LAQUER THINNER	1	Gallon(GAL)	09-Jul-18
1478367	-	LAQUER THINNER	1	Gallon(GAL)	09-Jul-18
1478365	-	LAQUER THINNER	1	Gallon(GAL)	09-Jul-18
1520380	110-82-7	CYCLOHEXANE	2.5	Liters(L)	09-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478368	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	09-Jul-18
1478369	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	09-Jul-18
1478370	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	09-Jul-18
1478371	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	09-Jul-18
1478372	-	SPRAY ENAMEL BLACK	15	Ounces(OZ)	09-Jul-18
1478374	-	SPRAY ENAMEL BLACK	15	Ounces(OZ)	09-Jul-18
1478375	-	SPRAY ENAMEL BLACK	15	Ounces(OZ)	09-Jul-18
1478376	-	SPRAY ENAMEL BLACK	15	Ounces(OZ)	09-Jul-18
1478377	-	SPRAY ENAMEL BLACK	15	Ounces(OZ)	09-Jul-18
1478378	-	SPRAY ENAMEL BLACK	15	Ounces(OZ)	09-Jul-18
1478379	-	SPRAY ENAMEL BLACK	15	Ounces(OZ)	09-Jul-18
1478380	-	SPRAY ENAMEL BLACK	15	Ounces(OZ)	09-Jul-18
1478381	-	SPRAY ENAMEL BLACK	15	Ounces(OZ)	09-Jul-18
1478382	-	SPRAY ENAMEL BLACK	15	Ounces(OZ)	09-Jul-18
1478383	-	SPRAY ENAMEL BLACK	15	Ounces(OZ)	09-Jul-18
1478373	-	SPRAY ENAMEL BLACK	15	Ounces(OZ)	09-Jul-18
1478384	-	PSX 700 WHITE RESIN	1	Gallon(GAL)	09-Jul-18
1478386	-	PSX 700 WHITE RESIN	1	Gallon(GAL)	09-Jul-18
1478387	-	PSX 700 WHITE RESIN	1	Gallon(GAL)	09-Jul-18
1478385	-	PSX 700 WHITE RESIN	1	Gallon(GAL)	09-Jul-18
1478410	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Jul-18
1478411	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Jul-18
1478415	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Jul-18
1478412	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Jul-18
1478413	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Jul-18
1478414	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Jul-18
1478416	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Jul-18
1478417	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Jul-18
1478418	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Jul-18
1478419	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Jul-18
1520381	174855-57-3	1-Boc-4-(2-formylphenyl)piperazine	5	Gram(GM)	09-Jul-18
1520382	32358-94-4	5-(5-Methylthiophen-2-yl)thiophene-2-	1	Gram(GM)	09-Jul-18
1520383	32358-94-4	5-(5-Methylthiophen-2-yl)thiophene-2-	1	Gram(GM)	09-Jul-18
1520384	4420-74-0	(3-MERCAPTOPROPYL)-TRIMETHOXYSILANE	25	Gram(GM)	09-Jul-18
1520385	12027-06-4	AMMONIUM IODIDE	10	Gram(GM)	09-Jul-18
1520386	4724-48-5	1-OCTYLPHOSPHONIC ACID	1	Gram(GM)	09-Jul-18
1478392	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478398	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478409	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478408	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478407	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478406	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478405	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478404	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478403	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478402	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478401	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478399	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478397	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478395	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478394	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478393	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478396	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1478400	-	BROMICIDE TABLETS	50	Pounds(LB)	09-Jul-18
1520387	123847-85-8	N N'-Di(1-naphthyl)-N N'-diphenyl-(1 1'-biphenyl)-	1	Gram(GM)	09-Jul-18
1520388	71-36-3	1-BUTANOL	1	Liters(L)	09-Jul-18
1520389	71-36-3	1-BUTANOL	1	Liters(L)	09-Jul-18
1520390	25633-33-4	2'-Acetylneriifolin	2.5	Milligram(MG)	09-Jul-18
1520391	25633-33-4	2'-Acetylneriifolin	2.5	Milligram(MG)	09-Jul-18
1520392	25633-33-4	2'-Acetylneriifolin	2.5	Milligram(MG)	09-Jul-18
1520407	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	09-Jul-18
1520408	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	09-Jul-18
1520409	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	09-Jul-18
1520410	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	09-Jul-18
1520411	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	09-Jul-18
1520412	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	09-Jul-18
1520413	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	09-Jul-18
1520420	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	09-Jul-18
1520415	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	09-Jul-18
1520416	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	09-Jul-18
1520417	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	09-Jul-18
1520419	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	09-Jul-18
1520418	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	09-Jul-18
1520421	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	09-Jul-18
1520422	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	09-Jul-18
1520423	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	09-Jul-18
1520424	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	09-Jul-18
1520414	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	09-Jul-18
1530508	-	WASP & HORNET KILLER	12	Ounces(OZ)	09-Jul-18
1530518	-	WASP & HORNET KILLER	12	Ounces(OZ)	09-Jul-18
1530519	-	WASP & HORNET KILLER	12	Ounces(OZ)	09-Jul-18
1530517	-	WASP & HORNET KILLER	12	Ounces(OZ)	09-Jul-18
1530509	-	WASP & HORNET KILLER	12	Ounces(OZ)	09-Jul-18
1530516	-	WASP & HORNET KILLER	12	Ounces(OZ)	09-Jul-18
1530515	-	WASP & HORNET KILLER	12	Ounces(OZ)	09-Jul-18
1530514	-	WASP & HORNET KILLER	12	Ounces(OZ)	09-Jul-18
1530513	-	WASP & HORNET KILLER	12	Ounces(OZ)	09-Jul-18
1530510	-	WASP & HORNET KILLER	12	Ounces(OZ)	09-Jul-18
1530512	-	WASP & HORNET KILLER	12	Ounces(OZ)	09-Jul-18
1530511	-	WASP & HORNET KILLER	12	Ounces(OZ)	09-Jul-18
1530520	-	Ferris 2283-A Green Soluble Wax	1	Pounds(LB)	09-Jul-18
1530522	-	Ferris 2283-A Green Soluble Wax	1	Pounds(LB)	09-Jul-18
1530523	-	Ferris 2283-A Green Soluble Wax	1	Pounds(LB)	09-Jul-18
1530524	-	Ferris 2283-A Green Soluble Wax	1	Pounds(LB)	09-Jul-18
1530521	-	Ferris 2283-A Green Soluble Wax	1	Pounds(LB)	09-Jul-18
1530525	6419-19-8	Nitrilotri(methylphosphonic acid)	500	Milliliter(ML)	09-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1530526	877-24-7	POTASSIUM HYDROGEN PHTHALATE	100	Gram(GM)	09-Jul-18
1530527	1318-02-1	Zeolite Y sodium	100	Gram(GM)	09-Jul-18
1530528	1318-02-1	Zeolite Y sodium	100	Gram(GM)	09-Jul-18
1530529	68-12-2	N N-DIMETHYLFORMAMIDE	500	Milliliter(ML)	09-Jul-18
1530530	4569-45-3	9 9-Dimethylfluorene	5	Gram(GM)	09-Jul-18
1530531	68083-19-2	Silicone Resin	1	Gallon(GAL)	09-Jul-18
1530532	-	VACUUM OIL	1	Gallon(GAL)	09-Jul-18
1458006	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	09-Jul-18
1458007	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	09-Jul-18
1559153	74-98-6	PROPANE	25	Cubic Feet(CF)	09-Jul-18
1559155	74-98-6	PROPANE	25	Cubic Feet(CF)	09-Jul-18
1559154	74-98-6	PROPANE	25	Cubic Feet(CF)	09-Jul-18
1559233	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559237	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559234	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559236	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559243	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559238	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559239	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559240	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559241	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559242	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559235	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
981926	-	VACTRA OIL NO. 2	5	Gallon(GAL)	09-Jul-18
981921	25068-38-6	EPOXY RESIN	4	Ounces(OZ)	09-Jul-18
981925	25068-38-6	EPOXY RESIN	4	Ounces(OZ)	09-Jul-18
981923	25068-38-6	EPOXY RESIN	4	Ounces(OZ)	09-Jul-18
981922	25068-38-6	EPOXY RESIN	4	Ounces(OZ)	09-Jul-18
981924	25068-38-6	EPOXY RESIN	4	Ounces(OZ)	09-Jul-18
981916	-	LOCTITE	113.4	Gram(GM)	09-Jul-18
981920	-	LOCTITE	113.4	Gram(GM)	09-Jul-18
981919	-	LOCTITE	113.4	Gram(GM)	09-Jul-18
981918	-	LOCTITE	113.4	Gram(GM)	09-Jul-18
981917	-	LOCTITE	113.4	Gram(GM)	09-Jul-18
1559245	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559255	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559258	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559259	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559247	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559248	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559256	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559249	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559250	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559251	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559252	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559257	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559254	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559246	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559253	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559272	-	Refrigerant R22	30	Cubic Feet(CF)	09-Jul-18
1559273	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559274	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559275	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559276	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559277	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559278	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1559279	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Jul-18
1495711	7440-21-3	SILICON RTV SEALANT 732 MULTI PURPOSE	10.1	Ounces(OZ)	10-Jul-18
1478448	-	PARKLAND PANEL ADHESIVE	2	Gallon(GAL)	10-Jul-18
1495715	7440-21-3	SILICON RTV SEALANT 732 MULTI PURPOSE	10.1	Ounces(OZ)	10-Jul-18
1495714	7440-21-3	SILICON RTV SEALANT 732 MULTI PURPOSE	10.1	Ounces(OZ)	10-Jul-18
1495713	7440-21-3	SILICON RTV SEALANT 732 MULTI PURPOSE	10.1	Ounces(OZ)	10-Jul-18
1495712	7440-21-3	SILICON RTV SEALANT 732 MULTI PURPOSE	10.1	Ounces(OZ)	10-Jul-18
1495718	7440-21-3	SILICON RTV SEALANT 732 MULTI PURPOSE	10.1	Ounces(OZ)	10-Jul-18
1495716	7440-21-3	SILICON RTV SEALANT 732 MULTI PURPOSE	10.1	Ounces(OZ)	10-Jul-18
1495717	7440-21-3	SILICON RTV SEALANT 732 MULTI PURPOSE	10.1	Ounces(OZ)	10-Jul-18
1478449	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478493	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478492	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478491	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478490	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478494	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478488	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478502	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478489	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478495	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478496	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478497	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478498	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478499	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478501	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478503	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478504	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478505	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478487	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478476	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478500	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478455	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478463	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478462	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478461	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478460	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478459	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478458	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478478	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478456	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478466	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478454	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478453	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478452	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478451	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478450	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478480	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478457	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478473	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478485	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478484	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478483	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478481	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478479	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478477	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478464	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478474	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478465	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478472	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478471	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478470	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478469	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478468	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478467	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478486	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478475	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478482	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478515	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478506	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478507	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478508	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478509	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478511	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478512	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478514	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478510	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478516	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478517	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478518	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478519	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478520	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478513	-	CLEAR SILICONE WINDOW & DOOR SEALANT	9.8	Ounces(OZ)	10-Jul-18
1478521	-	SIKAFLEX -2C	1.5	Gallon(GAL)	10-Jul-18
1478527	-	SIKAFLEX -2C	1.5	Gallon(GAL)	10-Jul-18
1478525	-	SIKAFLEX -2C	1.5	Gallon(GAL)	10-Jul-18
1478528	-	SIKAFLEX -2C	1.5	Gallon(GAL)	10-Jul-18
1478524	-	SIKAFLEX -2C	1.5	Gallon(GAL)	10-Jul-18
1478526	-	SIKAFLEX -2C	1.5	Gallon(GAL)	10-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478522	-	SIKAFLEX -2C	1.5	Gallon(GAL)	10-Jul-18
1478523	-	SIKAFLEX -2C	1.5	Gallon(GAL)	10-Jul-18
1478529	-	Finium DTM-AT S/G Acrylic N/B	121.6	Ounces(OZ)	10-Jul-18
1478534	-	Finium DTM-AT S/G Acrylic N/B	121.6	Ounces(OZ)	10-Jul-18
1478530	-	Finium DTM-AT S/G Acrylic N/B	121.6	Ounces(OZ)	10-Jul-18
1478532	-	Finium DTM-AT S/G Acrylic N/B	121.6	Ounces(OZ)	10-Jul-18
1478533	-	Finium DTM-AT S/G Acrylic N/B	121.6	Ounces(OZ)	10-Jul-18
1478531	-	Finium DTM-AT S/G Acrylic N/B	121.6	Ounces(OZ)	10-Jul-18
1478535	-	Finium DTM-AT S/G Acrylic N/B	121.6	Ounces(OZ)	10-Jul-18
1478536	-	Finium DTM-AT S/G Acrylic N/B	121.6	Ounces(OZ)	10-Jul-18
1478537	-	Finium DTM-AT S/G Acrylic N/B	121.6	Ounces(OZ)	10-Jul-18
1478538	-	Finium DTM-AT S/G Acrylic N/B	121.6	Ounces(OZ)	10-Jul-18
1478539	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	10-Jul-18
1478542	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	10-Jul-18
1478541	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	10-Jul-18
1478540	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	10-Jul-18
1478543	-	Startex Lacquer Thinner	1	Gallon(GAL)	10-Jul-18
1478544	-	Startex Lacquer Thinner	1	Gallon(GAL)	10-Jul-18
1478545	-	Startex Lacquer Thinner	1	Gallon(GAL)	10-Jul-18
1478546	-	Startex Lacquer Thinner	1	Gallon(GAL)	10-Jul-18
1559266	75-71-8	DICHLORODIFLUROMETHANE (FREON 12)	220	Cubic Feet(CF)	10-Jul-18
1559262	75-71-8	DICHLORODIFLUROMETHANE (FREON 12)	220	Cubic Feet(CF)	10-Jul-18
1559263	75-71-8	DICHLORODIFLUROMETHANE (FREON 12)	220	Cubic Feet(CF)	10-Jul-18
1559265	75-71-8	DICHLORODIFLUROMETHANE (FREON 12)	220	Cubic Feet(CF)	10-Jul-18
1559261	75-71-8	DICHLORODIFLUROMETHANE (FREON 12)	220	Cubic Feet(CF)	10-Jul-18
1559267	75-71-8	DICHLORODIFLUROMETHANE (FREON 12)	220	Cubic Feet(CF)	10-Jul-18
1559268	75-71-8	DICHLORODIFLUROMETHANE (FREON 12)	220	Cubic Feet(CF)	10-Jul-18
1559269	75-71-8	DICHLORODIFLUROMETHANE (FREON 12)	220	Cubic Feet(CF)	10-Jul-18
1559270	75-71-8	DICHLORODIFLUROMETHANE (FREON 12)	220	Cubic Feet(CF)	10-Jul-18
1559271	75-71-8	DICHLORODIFLUROMETHANE (FREON 12)	220	Cubic Feet(CF)	10-Jul-18
1559264	75-71-8	DICHLORODIFLUROMETHANE (FREON 12)	220	Cubic Feet(CF)	10-Jul-18
1478639	-	Sikalastic 715 Top	5	Gallon(GAL)	10-Jul-18
1478662	-	Sikalastic 715 Top	5	Gallon(GAL)	10-Jul-18
1478640	-	Sikalastic 710 Base	5	Gallon(GAL)	10-Jul-18
1478663	-	Sikalastic 710 Base	5	Gallon(GAL)	10-Jul-18
1478645	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	10-Jul-18
1478647	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	10-Jul-18
1478650	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	10-Jul-18
1478649	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	10-Jul-18
1478646	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	10-Jul-18
1478648	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	10-Jul-18
1478652	-	Sikalastic 720 Base Part B	1	Gallon(GAL)	10-Jul-18
1478653	-	Sikalastic 720 Base Part B	1	Gallon(GAL)	10-Jul-18
1478654	-	Sikalastic 720 Base Part B	1	Gallon(GAL)	10-Jul-18
1478655	-	Sikalastic 720 Base Part B	1	Gallon(GAL)	10-Jul-18
1478664	-	Sikalastic 720 Base Part A	4	Gallon(GAL)	10-Jul-18
1478666	-	Sikalastic 720 Base Part A	4	Gallon(GAL)	10-Jul-18
1478665	-	Sikalastic 720 Base Part A	4	Gallon(GAL)	10-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478667	-	Sikalastic 720 Base Part A	4	Gallon(GAL)	10-Jul-18
1478692	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1478698	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1478693	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1478694	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1478696	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1478697	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1478695	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1478699	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1478700	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1478701	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1478778	-	BIN PRIMER SEALER	13	Ounces(OZ)	10-Jul-18
1478780	-	BIN PRIMER SEALER	13	Ounces(OZ)	10-Jul-18
1478781	-	BIN PRIMER SEALER	13	Ounces(OZ)	10-Jul-18
1478779	-	BIN PRIMER SEALER	13	Ounces(OZ)	10-Jul-18
1478702	-	HANDY FLUX FOR LOW TEMPERATURE BRAZING	0.25	Pounds(LB)	10-Jul-18
1478703	-	HANDY FLUX FOR LOW TEMPERATURE BRAZING	0.25	Pounds(LB)	10-Jul-18
1478783	-	BIN PRIMER SEALER	13	Ounces(OZ)	10-Jul-18
1478784	-	BIN PRIMER SEALER	13	Ounces(OZ)	10-Jul-18
1478641	-	Sikalastic FTP Primer Part B	1.25	Gallon(GAL)	10-Jul-18
1478644	-	Sikalastic FTP Primer Part B	1.25	Gallon(GAL)	10-Jul-18
1478642	-	Sikalastic FTP Primer Part B	1.25	Gallon(GAL)	10-Jul-18
1478643	-	Sikalastic FTP Primer Part B	1.25	Gallon(GAL)	10-Jul-18
1478651	-	Sikalastic FTP Primer Part A	5	Gallon(GAL)	10-Jul-18
1478658	-	Sikalastic 745 AL Part B	4	Gallon(GAL)	10-Jul-18
1478659	-	Sikalastic 745 AL Part B	4	Gallon(GAL)	10-Jul-18
1478660	-	Sikalastic 745 AL Part B	4	Gallon(GAL)	10-Jul-18
1478661	-	Sikalastic 745 AL Part B	4	Gallon(GAL)	10-Jul-18
1478656	-	SIKAFLEX -2C	1.5	Gallon(GAL)	10-Jul-18
1478657	-	SIKAFLEX -2C	1.5	Gallon(GAL)	10-Jul-18
1478668	-	Sikalastic 745 AL Part B	0.4	Gallon(GAL)	10-Jul-18
1478670	-	Sikalastic 745 AL Part B	0.4	Gallon(GAL)	10-Jul-18
1478669	-	Sikalastic 745 AL Part B	0.4	Gallon(GAL)	10-Jul-18
1478671	-	Sikalastic 745 AL Part B	0.4	Gallon(GAL)	10-Jul-18
1520224	73513-42-5	HEXANES	1	Liters(L)	10-Jul-18
1520225	1313-85-5	SODIUM SELENIDE	5	Gram(GM)	10-Jul-18
1520331	75-05-8	ACETONITRILE	18	Liters(L)	10-Jul-18
1520332	75-05-8	ACETONITRILE	18	Liters(L)	10-Jul-18
1520393	92-06-8	M-TERPHENYL	25	Gram(GM)	10-Jul-18
1520394	62-55-5	THIOACETAMIDE	25	Gram(GM)	10-Jul-18
1520395	67-66-3	CHLOROFORM HPLC FOR HIGH PERFORMANCE	1	Liters(L)	10-Jul-18
1520396	-	BUEHLER KONDUCTOMET I	0.45	Kilograms(KG)	10-Jul-18
1520397	68083-19-2	Silicone Resin	1	Gallon(GAL)	10-Jul-18
1520398	60-29-7	ETHYL ETHER ANHYDROUS	4	Liters(L)	10-Jul-18
1520399	7473-98-5	2-Hydroxy-2-methylpropiophenone	50	Milliliter(ML)	10-Jul-18
1479789	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	10-Jul-18
1479791	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	10-Jul-18
1479790	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	10-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520400	-	RNASE A	2.5	Milliliter(ML)	10-Jul-18
1520401	-	INSTAND BOND SUPERGLUE - HOUSE AND	10	Gram(GM)	10-Jul-18
1520479	-	VISCOSITY STANDARD	500	Milliliter(ML)	10-Jul-18
1520484	-	VISCOSITY STANDARD	500	Milliliter(ML)	10-Jul-18
1520480	-	VISCOSITY STANDARD	500	Milliliter(ML)	10-Jul-18
1479688	-	Startex Lacquer Thinner	5	Gallon(GAL)	10-Jul-18
1520481	-	VISCOSITY STANDARD	500	Milliliter(ML)	10-Jul-18
1520482	-	S6 VISCOSITY STANDARD	500	Milliliter(ML)	10-Jul-18
1520483	-	S2000 VISCOSITY STANDARD	500	Milliliter(ML)	10-Jul-18
1520485	-	VISCOSITY STANDARD	500	Milliliter(ML)	10-Jul-18
1520486	-	VISCOSITY STANDARD	500	Milliliter(ML)	10-Jul-18
1479716	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479783	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479758	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479782	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479784	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479785	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479786	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479787	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479788	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479780	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479781	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479741	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479734	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479735	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479736	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479737	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479760	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479748	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479779	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479731	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479742	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479743	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479744	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479745	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479746	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479747	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479739	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479725	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479717	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479718	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479719	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479720	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479721	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479722	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479733	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479724	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479732	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479726	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479727	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479728	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479729	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479730	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479740	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479723	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479738	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479765	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479766	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479767	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479768	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479769	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479770	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479764	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479772	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479771	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479773	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479774	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479775	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479776	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479777	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479778	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479749	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479755	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479750	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479751	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479753	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479763	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479754	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479752	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479756	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479757	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479759	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479761	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1479762	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	10-Jul-18
1520487	67-68-5	Qubit dsDNA BR Assay Kit	56	Milliliter(ML)	10-Jul-18
1520488	-	TORR SEAL	135	Gram(GM)	10-Jul-18
1530533	-	SYLGARD 184	3.9	Kilograms(KG)	10-Jul-18
1530535	-	SYLGARD 184	3.9	Kilograms(KG)	10-Jul-18
1530536	-	SYLGARD 184	3.9	Kilograms(KG)	10-Jul-18
1530534	-	SYLGARD 184	3.9	Kilograms(KG)	10-Jul-18
1530537	16184-89-7	4'-Bromo-2 2 2-trifluoroacetophenone	25	Gram(GM)	10-Jul-18
1530538	107-83-5	HEXANE MIXTURE OF ISOMERS	4	Liters(L)	10-Jul-18
1530539	108-88-3	TOLUENE ANHYDROUS	4	Liters(L)	10-Jul-18
1530541	112-88-9	1-OCTADECENE	1	Liters(L)	10-Jul-18
1530544	112-88-9	1-OCTADECENE	1	Liters(L)	10-Jul-18
1530542	112-88-9	1-OCTADECENE	1	Liters(L)	10-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1530543	112-88-9	1-OCTADECENE	1	Liters(L)	10-Jul-18
1530547	873-51-8	DICHLOROPHENYLBORANE	5	Gram(GM)	10-Jul-18
1530548	873-51-8	DICHLOROPHENYLBORANE	5	Gram(GM)	10-Jul-18
1530549	3283-12-3	Dimethylphosphinic acid	500	Milligram(MG)	10-Jul-18
1530550	3283-12-3	Dimethylphosphinic acid	500	Milligram(MG)	10-Jul-18
1530551	1513-65-1	2 6-Difluoropyridine	25	Gram(GM)	10-Jul-18
1530552	1513-65-1	2 6-Difluoropyridine	25	Gram(GM)	10-Jul-18
1530553	67-68-5	Quant-iT dsDNA Assay Kit high sensitivity	255	Milliliter(ML)	10-Jul-18
1530555	1822-00-0	(Trimethylsilyl)methyllithium solution	50	Milliliter(ML)	10-Jul-18
1530556	1822-00-0	(Trimethylsilyl)methyllithium solution	50	Milliliter(ML)	10-Jul-18
1479857	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479874	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479875	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479876	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479877	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479866	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479873	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479864	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479870	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479863	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479862	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479865	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479872	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479871	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479858	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479859	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479861	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479868	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479867	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479869	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479860	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479878	-	COTE ALL SAFETY YELLOW	128	Ounces(OZ)	10-Jul-18
1479792	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479795	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479796	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479794	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479793	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479797	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479798	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479687	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479689	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479703	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479712	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479711	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479710	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479708	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479706	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479690	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479704	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479709	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479702	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479701	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479700	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479699	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479698	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479697	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479696	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479695	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479694	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479693	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479691	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479692	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479705	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1479707	-	SOLO A4 SMOKE DETECTOR TESTER	8.5	Ounces(OZ)	10-Jul-18
1495719	-	K&N Air Filter Oil Aerosol	12.5	Ounces(OZ)	10-Jul-18
1479803	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1479805	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1479804	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1479807	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1479808	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1479811	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1479809	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1479810	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1479812	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1479806	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	10-Jul-18
1479813	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479841	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479820	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479818	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479821	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479842	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479826	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479840	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479843	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479822	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479823	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479839	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479825	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479817	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479827	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479828	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479829	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479831	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479830	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479848	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479824	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479814	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479845	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479838	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479832	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479833	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479834	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479844	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479835	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479846	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479819	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479815	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479816	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479847	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479836	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479837	-	PSX 700 CURE US	0.2	Gallon(GAL)	10-Jul-18
1479849	-	Cote All J.D. (Safety) Yellow	3.8	Liters(L)	10-Jul-18
1479850	-	3M Hi-Strength Spray Adhesive 90 (aerosol)	17.6	Ounces(OZ)	10-Jul-18
1479851	-	3M Hi-Strength Spray Adhesive 90 (aerosol)	17.6	Ounces(OZ)	10-Jul-18
1479853	-	3M Hi-Strength Spray Adhesive 90 (aerosol)	17.6	Ounces(OZ)	10-Jul-18
1479852	-	3M Hi-Strength Spray Adhesive 90 (aerosol)	17.6	Ounces(OZ)	10-Jul-18
1479887	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	10-Jul-18
1479890	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	10-Jul-18
1479889	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	10-Jul-18
1479888	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	10-Jul-18
1479926	-	MOBIL SHC GEAR 460	5	Gallon(GAL)	11-Jul-18
1479927	-	MOBIL SHC GEAR 460	5	Gallon(GAL)	11-Jul-18
1478785	-	3M HIGH STRENGTH 90	17.6	Ounces(OZ)	11-Jul-18
1478790	-	3M HIGH STRENGTH 90	17.6	Ounces(OZ)	11-Jul-18
1478789	-	3M HIGH STRENGTH 90	17.6	Ounces(OZ)	11-Jul-18
1478786	-	3M HIGH STRENGTH 90	17.6	Ounces(OZ)	11-Jul-18
1478788	-	3M HIGH STRENGTH 90	17.6	Ounces(OZ)	11-Jul-18
1478787	-	3M HIGH STRENGTH 90	17.6	Ounces(OZ)	11-Jul-18
1479856	-	SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT	4.5	Gallon(GAL)	11-Jul-18
1479885	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	11-Jul-18
1479886	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	11-Jul-18
1479891	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	11-Jul-18
1479894	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	11-Jul-18
1479895	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	11-Jul-18
1479893	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	11-Jul-18
1479892	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	11-Jul-18
1479896	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	11-Jul-18
1479897	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479898	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479899	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479900	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479901	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479902	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479903	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479908	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479904	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479907	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479909	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479910	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479911	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479905	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479906	-	PSX 700 CURE US	0.2	Gallon(GAL)	11-Jul-18
1479912	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	11-Jul-18
1479919	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	11-Jul-18
1479920	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	11-Jul-18
1479918	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	11-Jul-18
1479914	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	11-Jul-18
1479916	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	11-Jul-18
1479915	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	11-Jul-18
1479917	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	11-Jul-18
1479921	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	11-Jul-18
1479913	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	11-Jul-18
1479713	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	11-Jul-18
1479715	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	11-Jul-18
1479714	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	11-Jul-18
1478791	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478672	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478683	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478682	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478680	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478677	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478684	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478678	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478685	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478686	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478687	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478688	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478689	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478676	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478691	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478679	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478690	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478681	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478674	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478673	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1478675	811-97-2	SPRAY DUSTER	15	Ounces(OZ)	11-Jul-18
1520402	Multi	FAST DNA SPIN KIT FOR SOIL	50	Milliliter(ML)	11-Jul-18
1520403	1344-28-1	ALUMINA POWDER	1	Kilograms(KG)	11-Jul-18
1520404	1344-28-1	ALUMINA (1 MICRON)	1	Kilograms(KG)	11-Jul-18
1478269	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478273	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478274	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478288	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478272	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478275	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478287	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478271	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478270	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478276	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478285	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478277	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478282	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478278	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478279	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478284	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478280	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478283	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478281	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1478286	-	CLASS D DRY CHEMICAL FIRE	5	Gallon(GAL)	11-Jul-18
1055631	-	EQO-PURE 452	5	Gallon(GAL)	11-Jul-18
1520405	1318-02-1	Zeolite mordenite sodium	100	Gram(GM)	11-Jul-18
1520406	1318-02-1	Zeolite mordenite sodium	100	Gram(GM)	11-Jul-18
1520489	68083-19-2	Silicone Resin	1	Gallon(GAL)	11-Jul-18
1520490	107-06-2	1 2-DICHLOROETHANE (ETHYLENE DICHLORIDE	1	Liters(L)	11-Jul-18
1520491	107-06-2	1 2-DICHLOROETHANE (ETHYLENE DICHLORIDE	1	Liters(L)	11-Jul-18
1520551	7681-52-9	SODIUM HYPOCHLORITE	1	Liters(L)	11-Jul-18
1520552	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520555	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520554	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520553	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520591	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520590	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520589	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520588	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520587	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520586	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520585	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520566	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520584	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520569	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520559	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520560	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520583	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520582	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520561	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520562	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520563	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520564	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520565	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520568	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520557	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520558	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520556	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520567	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520570	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520571	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520581	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520580	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520579	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520578	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520577	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520576	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520575	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520574	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520573	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520572	-	LOCTITE 9394	50	Milliliter(ML)	11-Jul-18
1520592	-	Sulfite Equivalent Standard Solution	10	Milliliter(ML)	11-Jul-18
1520593	-	Sulfite Equivalent Standard Solution	10	Milliliter(ML)	11-Jul-18
1520594	-	Sulfite Standard Solution	500	Milliliter(ML)	11-Jul-18
1520595	-	Sulfite Standard Solution	500	Milliliter(ML)	11-Jul-18
1520596	18497-13-7	CHLOROPLATINIC ACID HEXAHYDRATE	5	Gram(GM)	11-Jul-18
1530554	1066-35-9	DIMETHYLCHLOROSILANE	50	Gram(GM)	11-Jul-18
1458010	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	11-Jul-18
1458011	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	11-Jul-18
1479854	-	AEON 9000 SP LUBRICANT	5	Gallon(GAL)	11-Jul-18
1479855	-	AEON 9000 SP LUBRICANT	5	Gallon(GAL)	11-Jul-18
1478792	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478874	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478873	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478872	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478871	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478870	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478875	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478868	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478880	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478867	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478866	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478865	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478869	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478876	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478877	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478864	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478879	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478861	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478881	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478882	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478883	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478884	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478885	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478886	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478878	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478851	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478838	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478839	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478840	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478841	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478842	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478843	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478844	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478845	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478846	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478847	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478848	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478863	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478850	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478887	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478852	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478853	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478854	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478855	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478856	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478857	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478858	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478859	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478860	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478891	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478862	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478849	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478803	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478889	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478814	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478813	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478812	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478811	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478810	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478809	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478808	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478807	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478806	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478816	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478804	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478817	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478802	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478801	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478800	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478799	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478798	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478797	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478796	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478795	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478794	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478793	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478805	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478829	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478890	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478837	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478892	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478893	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478836	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478835	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478834	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478833	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478832	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478815	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478830	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478888	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478828	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478827	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478826	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478825	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478824	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478823	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478822	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478821	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478820	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478819	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478818	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478831	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478894	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478897	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478958	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478947	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478969	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478968	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478967	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478966	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478965	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478964	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478963	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478962	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478961	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478971	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478959	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478972	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478957	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478956	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478955	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478954	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478953	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478952	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478951	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478950	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478949	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478895	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478960	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478983	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478995	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478994	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478993	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478992	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478991	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478990	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478989	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478988	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478987	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478986	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478970	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478984	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478946	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478982	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478981	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478980	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478979	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478978	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478977	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478976	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478975	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478974	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478973	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478985	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478908	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478948	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478919	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478918	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478917	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478916	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478915	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478914	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478913	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478912	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478911	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478921	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1478909	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478922	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478907	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478906	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478905	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478904	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478903	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478902	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478901	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478900	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478899	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478898	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478910	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478934	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478945	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478944	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478943	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478942	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478941	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478940	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478939	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478938	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478937	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478920	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478935	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478896	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478933	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478932	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478931	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478930	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478929	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478928	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478927	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478926	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478925	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478924	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478923	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478936	-	BLACK BEAUTY 50LB MEDIA BLAST	5	Pounds(LB)	11-Jul-18
1478996	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478998	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479075	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479082	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479081	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479080	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479079	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479078	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479099	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479076	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479085	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479074	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479073	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479072	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479071	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479070	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479069	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479077	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479089	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479097	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479042	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479095	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479094	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479093	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479092	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479083	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479090	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479084	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479088	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479033	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479034	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479087	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479086	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479066	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479091	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479035	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479068	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479049	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479048	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479047	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479046	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479045	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1478999	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479043	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479051	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479036	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479037	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479038	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479039	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479040	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479041	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479044	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479058	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479098	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479065	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479064	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479063	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479062	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479061	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479050	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479059	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479067	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479057	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479056	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479055	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479054	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479053	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479052	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479060	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479024	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479029	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479016	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479017	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479018	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479019	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479020	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479021	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479014	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479023	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479013	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479025	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479026	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479027	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479028	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479032	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479031	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479030	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479022	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479008	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479000	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479001	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479002	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479003	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479004	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479005	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479015	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479007	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479009	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479010	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479012	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479096	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479011	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479006	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479100	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479167	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479165	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479171	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479159	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479170	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479169	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479168	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479181	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479163	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479162	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479161	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479164	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479166	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479191	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479176	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479175	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479174	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479177	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479201	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479200	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479199	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479198	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479197	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479196	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479195	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479194	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479179	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479192	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479172	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479190	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479189	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479188	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479187	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479186	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479185	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479184	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479183	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479182	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479158	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479180	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479178	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479173	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479193	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479139	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479126	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479116	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479117	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479118	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479119	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479120	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479121	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479122	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479123	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479124	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479157	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479141	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479114	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479140	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479113	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479138	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479137	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479136	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479135	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479134	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479133	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479132	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479131	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479130	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479129	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479128	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479127	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479160	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479142	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479156	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479155	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479154	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479153	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479152	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479151	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479150	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479149	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479148	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479147	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479146	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479145	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479115	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479143	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479125	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479101	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479102	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479103	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479104	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479105	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479106	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479107	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479108	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479109	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479110	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479111	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479112	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479144	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479202	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479213	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479240	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479204	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479205	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479206	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479207	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479208	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479209	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479210	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479203	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479212	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479218	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479214	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479215	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479216	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479224	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479223	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479222	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479221	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479220	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479217	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479219	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479211	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479274	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479283	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479282	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479281	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479280	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479279	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479278	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479277	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479266	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479275	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479286	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479273	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479272	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479271	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479270	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479269	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479268	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479267	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479276	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479296	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479238	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479225	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479303	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479302	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479301	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479300	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479299	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479284	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479297	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479285	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479295	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479294	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479293	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479291	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479289	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479288	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479287	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479290	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479298	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479231	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479244	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479243	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479242	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479241	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479239	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479237	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479236	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479245	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479233	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479234	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479230	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479229	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479228	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479265	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479292	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479227	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479226	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479235	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479257	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479264	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479262	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479261	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479232	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479246	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479260	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479263	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479258	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479256	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479255	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479253	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479247	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479252	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479251	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479248	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479254	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479259	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479250	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479249	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479304	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479375	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479370	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479371	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479372	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479373	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479380	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479376	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479379	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479362	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479377	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479378	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479374	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479369	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479368	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479367	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479366	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479365	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479363	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479361	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479360	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479381	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479400	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479359	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479358	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479364	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479393	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479317	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479357	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479405	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479404	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479403	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479402	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479401	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479399	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479397	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479396	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479398	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479394	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479382	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479392	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479391	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479390	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479389	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479388	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479387	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479386	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479385	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479384	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479383	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479395	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479315	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479319	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479328	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479327	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479326	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479325	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479324	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479323	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479322	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479321	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479320	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479330	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479316	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479331	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479314	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479313	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479312	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479311	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479310	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479309	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479308	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479307	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479306	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479305	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479318	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479344	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479355	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479354	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479353	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479352	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479351	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479350	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479349	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479348	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479347	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479329	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479345	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479356	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479343	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479342	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479341	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479340	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479339	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479338	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479337	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479336	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479335	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479334	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479333	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479332	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479346	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479406	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479481	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479444	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479431	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479432	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479433	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479434	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479435	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479436	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479438	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479440	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479441	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479483	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479443	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479428	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479445	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479446	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479447	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479448	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479449	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479450	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479451	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479452	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479453	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479454	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479442	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479418	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479437	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479407	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479408	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479409	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479410	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479411	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479412	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479413	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479414	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479415	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479430	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479417	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479429	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479419	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479420	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479421	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479422	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479423	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479424	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479425	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479426	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479427	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479457	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479416	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479496	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479455	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479485	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479486	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479487	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479488	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479489	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479490	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479491	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479492	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479493	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479482	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479495	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479480	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479497	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479498	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479499	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479500	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479501	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479502	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479503	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479504	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479505	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479506	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479494	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479469	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479507	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479458	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479459	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479460	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479461	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479462	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479463	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479464	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479465	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479466	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479484	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479468	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479456	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479470	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479471	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479472	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479473	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479474	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479475	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479476	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479477	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479478	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479479	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479467	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479439	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479508	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479582	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479581	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479580	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479579	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479578	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479577	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479576	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479575	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479574	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479573	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479572	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479559	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479570	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479585	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479569	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479568	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479567	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479566	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479565	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479564	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479563	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479562	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479561	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479560	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479571	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479596	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479609	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479608	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479607	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479606	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479605	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479604	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479603	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479602	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479601	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479600	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479583	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479598	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479584	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479594	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479593	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479592	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479591	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479590	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479589	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479588	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479587	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479586	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479595	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479599	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479519	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479531	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479530	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479529	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479528	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479527	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479526	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479525	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479524	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479523	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479522	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479532	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479520	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479516	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479518	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479517	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479515	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479513	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479512	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479511	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479510	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479509	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479558	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479597	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479521	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479551	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479557	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479556	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479514	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479533	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479555	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479554	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479552	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479550	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479549	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479548	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479547	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479546	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479534	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479536	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479537	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479553	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479535	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479545	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479539	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479540	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479541	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479542	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479543	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479544	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479538	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479610	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479662	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479663	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479654	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479659	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479661	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479664	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479665	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479660	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479658	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479657	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479655	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479653	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479666	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479681	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479652	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479651	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479650	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479656	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479677	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479686	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479621	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479649	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479685	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479684	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479683	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479682	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479679	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479678	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479667	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479676	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479675	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479674	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479672	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479670	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479669	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479668	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479680	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479617	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479623	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479627	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479626	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479625	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479624	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479622	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479620	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479629	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479618	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479630	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479616	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479615	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479614	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479613	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479612	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479611	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479673	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479619	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479638	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479647	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479646	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479645	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479644	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479643	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479642	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479641	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479628	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479639	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479648	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479637	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479636	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479635	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479634	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479633	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479632	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479631	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479640	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1479671	-	BLACK BEAUTY 50LB MEDIA BLAST	50	Pounds(LB)	11-Jul-18
1477561	-	MOBIL GLYGOYLE 460	5	Gallon(GAL)	11-Jul-18
1477556	-	MOBIL GLYGOYLE 460	5	Gallon(GAL)	11-Jul-18
1477560	-	MOBIL GLYGOYLE 460	5	Gallon(GAL)	11-Jul-18
1477559	-	MOBIL GLYGOYLE 460	5	Gallon(GAL)	11-Jul-18
1477558	-	MOBIL GLYGOYLE 460	5	Gallon(GAL)	11-Jul-18
1477557	-	MOBIL GLYGOYLE 460	5	Gallon(GAL)	11-Jul-18
1055635	7778-77-0	POTASSIUM DIHYDROGENPHOSPHATE	40	Milliliter(ML)	11-Jul-18
1055636	7778-77-0	POTASSIUM DIHYDROGENPHOSPHATE	40	Milliliter(ML)	11-Jul-18
1055637	7778-77-0	POTASSIUM DIHYDROGENPHOSPHATE	40	Milliliter(ML)	11-Jul-18
1055632	1330-43-4	Disodium tetraborate anhydrous	40	Milliliter(ML)	11-Jul-18
1055633	1330-43-4	Disodium tetraborate anhydrous	40	Milliliter(ML)	11-Jul-18
1055634	1330-43-4	Disodium tetraborate anhydrous	40	Milliliter(ML)	11-Jul-18
1559280	7782-39-0	DEUTERIUM	300	Cubic	12-Jul-18
1559281	7782-39-0	DEUTERIUM	300	Cubic	12-Jul-18
1559282	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559309	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559301	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559302	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559303	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559304	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559305	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559306	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559307	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559315	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559308	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559288	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559310	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559311	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559312	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559313	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559314	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559300	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559316	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559287	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559299	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559290	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559284	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559286	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559283	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559289	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559291	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559297	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559293	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559298	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559294	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559295	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559296	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559292	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559285	-	Nitrogen UHP	220	Cubic Feet(CF)	12-Jul-18
1559317	-	AIR COMPRESSED	220	Cubic Feet(CF)	12-Jul-18
1559318	-	AIR COMPRESSED	220	Cubic Feet(CF)	12-Jul-18
1559319	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559336	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559334	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559337	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559333	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559335	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559338	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559339	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559340	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559341	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559332	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559343	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559325	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559344	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559342	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559320	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559327	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559331	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559321	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559322	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559323	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559324	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559326	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559328	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559329	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559330	-	Argon UHP	220	Cubic Feet(CF)	12-Jul-18
1559345	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	12-Jul-18
1559346	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	12-Jul-18
1559347	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	12-Jul-18
1559348	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	12-Jul-18
1559349	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	12-Jul-18
1559350	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	12-Jul-18
1559351	124-38-9	CARBON DIOXIDE GAS	50	Pounds(LB)	12-Jul-18
1559353	124-38-9	CARBON DIOXIDE GAS	50	Pounds(LB)	12-Jul-18
1559357	124-38-9	CARBON DIOXIDE GAS	50	Pounds(LB)	12-Jul-18
1559358	124-38-9	CARBON DIOXIDE GAS	50	Pounds(LB)	12-Jul-18
1559356	124-38-9	CARBON DIOXIDE GAS	50	Pounds(LB)	12-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559355	124-38-9	CARBON DIOXIDE GAS	50	Pounds(LB)	12-Jul-18
1559354	124-38-9	CARBON DIOXIDE GAS	50	Pounds(LB)	12-Jul-18
1559352	124-38-9	CARBON DIOXIDE GAS	50	Pounds(LB)	12-Jul-18
1559359	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559370	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559377	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559376	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559375	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559374	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559373	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559371	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559369	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559368	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559366	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559365	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559372	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559364	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559363	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559362	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559361	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559360	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559367	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	12-Jul-18
1559378	-	0.4% OXYGEN/BAL. NITROGEN	220	Cubic Feet(CF)	12-Jul-18
1559379	-	2% Oxygen/Balance Nitrogen	220	Cubic Feet(CF)	12-Jul-18
1559380	-	0.1% OXYGEN/BAL. NITROGEN	220	Cubic Feet(CF)	12-Jul-18
1559381	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	12-Jul-18
1559382	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	12-Jul-18
1559383	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	12-Jul-18
1559384	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	12-Jul-18
1559385	74-98-6	PROPANE	50	Pounds(LB)	12-Jul-18
1559390	74-98-6	PROPANE	50	Pounds(LB)	12-Jul-18
1559392	74-98-6	PROPANE	50	Pounds(LB)	12-Jul-18
1559393	74-98-6	PROPANE	50	Pounds(LB)	12-Jul-18
1559391	74-98-6	PROPANE	50	Pounds(LB)	12-Jul-18
1559395	74-98-6	PROPANE	50	Pounds(LB)	12-Jul-18
1559388	74-98-6	PROPANE	50	Pounds(LB)	12-Jul-18
1559387	74-98-6	PROPANE	50	Pounds(LB)	12-Jul-18
1559394	74-98-6	PROPANE	50	Pounds(LB)	12-Jul-18
1559386	74-98-6	PROPANE	50	Pounds(LB)	12-Jul-18
1559389	74-98-6	PROPANE	50	Pounds(LB)	12-Jul-18
1559396	1333-74-0	HYDROGEN	40	Cubic Feet(CF)	12-Jul-18
1559400	1333-74-0	HYDROGEN	40	Cubic Feet(CF)	12-Jul-18
1559403	1333-74-0	HYDROGEN	40	Cubic Feet(CF)	12-Jul-18
1559401	1333-74-0	HYDROGEN	40	Cubic Feet(CF)	12-Jul-18
1559399	1333-74-0	HYDROGEN	40	Cubic Feet(CF)	12-Jul-18
1559398	1333-74-0	HYDROGEN	40	Cubic Feet(CF)	12-Jul-18
1559397	1333-74-0	HYDROGEN	40	Cubic Feet(CF)	12-Jul-18
1559402	1333-74-0	HYDROGEN	40	Cubic Feet(CF)	12-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1495720	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1495728	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1495721	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1495722	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1495723	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1495724	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1495725	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1495726	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1495727	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1495730	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1495732	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1495731	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1495729	-	TRANSMISSION AND DRIVE TRAIN OIL	1	Gallon(GAL)	12-Jul-18
1383422	-	TAC 2® Adhesive Chain Lubricant	10	Ounces(OZ)	12-Jul-18
1383423	-	TAC 2® Adhesive Chain Lubricant	10	Ounces(OZ)	12-Jul-18
1148286	18038-99-8	Solvent Blue 128	2	Ounces(OZ)	12-Jul-18
1148287	97-56-3	Pylakrome Oil Yellow LX-7920	2	Ounces(OZ)	12-Jul-18
1148288	15403-56-2	Ero Blue	2	Ounces(OZ)	12-Jul-18
1148289	8003-22-3	Pylakrome Bright Yellow LX-11074	2	Ounces(OZ)	12-Jul-18
1453600	-	5-MINUTE EPOXY HARDENER	4	Ounces(OZ)	14-Jul-18
1453591	-	5-MINUTE EPOXY RESIN	4	Ounces(OZ)	14-Jul-18
1480022	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480029	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480041	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480037	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480039	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480038	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480023	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480026	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480028	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480030	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480031	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480032	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480033	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480034	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480035	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480036	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480027	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480024	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480040	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1480025	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1479934	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1479935	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1479922	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1479924	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1479925	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1479923	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	16-Jul-18
1422709	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1422717	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422710	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422711	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422712	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422713	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422714	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422716	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422719	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422718	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422724	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422723	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422722	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422721	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422720	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1422715	-	50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	16-Jul-18
1495635	-	DISINFECTANT SPRAY	12.5	Ounces(OZ)	16-Jul-18
1495637	-	DISINFECTANT SPRAY	12.5	Ounces(OZ)	16-Jul-18
1495638	-	DISINFECTANT SPRAY	12.5	Ounces(OZ)	16-Jul-18
1495636	-	DISINFECTANT SPRAY	12.5	Ounces(OZ)	16-Jul-18
1495733	-	76F Innerliner Repair Sealant	16	Ounces(OZ)	16-Jul-18
1495734	-	76F Innerliner Repair Sealant	16	Ounces(OZ)	16-Jul-18
1520236	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520239	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520238	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520240	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520241	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520242	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520243	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520244	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520245	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520246	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520247	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520248	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520249	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520250	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520251	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520237	-	stainless steel AISI STD 304L	10	Kilograms(KG)	17-Jul-18
1520436	75-05-8	ACETONITRILE HPLC	4	Liters(L)	17-Jul-18
1520439	75-05-8	ACETONITRILE HPLC	4	Liters(L)	17-Jul-18
1520438	75-05-8	ACETONITRILE HPLC	4	Liters(L)	17-Jul-18
1520437	75-05-8	ACETONITRILE HPLC	4	Liters(L)	17-Jul-18
1520440	67-56-1	METHANOL HPLC	2	Liters(L)	17-Jul-18
1520443	67-56-1	METHANOL HPLC	2	Liters(L)	17-Jul-18
1520442	67-56-1	METHANOL HPLC	2	Liters(L)	17-Jul-18
1520441	67-56-1	METHANOL HPLC	2	Liters(L)	17-Jul-18
1520444	60-29-7	DIETHYL ETHER	4	Liters(L)	17-Jul-18
1520447	60-29-7	DIETHYL ETHER	4	Liters(L)	17-Jul-18
1520445	60-29-7	DIETHYL ETHER	4	Liters(L)	17-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520446	60-29-7	DIETHYL ETHER	4	Liters(L)	17-Jul-18
1520448	110-54-3	HEXANE	4	Liters(L)	17-Jul-18
1520449	67-56-1	METHANOL	4	Liters(L)	17-Jul-18
1520450	67-56-1	METHANOL	4	Liters(L)	17-Jul-18
1520451	67-56-1	METHANOL	4	Liters(L)	17-Jul-18
1520452	67-56-1	METHANOL	4	Liters(L)	17-Jul-18
1520492	1313-13-9	MnO2 Resin	50	Gram(GM)	17-Jul-18
1520493	1313-13-9	MnO2 Resin	100	Gram(GM)	17-Jul-18
1520494	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	100	Gram(GM)	17-Jul-18
1520495	-	HIGH VACUUM GREASE	5.3	Ounces(OZ)	17-Jul-18
1520496	-	HIGH VACUUM GREASE	5.3	Ounces(OZ)	17-Jul-18
1520497	7681-11-0	POTASSIUM IODIDE	100	Gram(GM)	17-Jul-18
1520498	1313-85-5	SODIUM SELENIDE	1	Gram(GM)	17-Jul-18
1520499	593-84-0	GUANIDINE THIOCYANATE	50	Milliliter(ML)	17-Jul-18
1476823	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	17-Jul-18
1476824	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	17-Jul-18
1476828	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	17-Jul-18
1476825	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	17-Jul-18
1476826	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	17-Jul-18
1476829	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	17-Jul-18
1476830	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	17-Jul-18
1476827	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	17-Jul-18
1478155	-	Blackhawk Foaming Coil Cleaner	18	Ounces(OZ)	17-Jul-18
1478156	-	Blackhawk Foaming Coil Cleaner	18	Ounces(OZ)	17-Jul-18
1478157	-	Blackhawk Foaming Coil Cleaner	18	Ounces(OZ)	17-Jul-18
1478158	-	Blackhawk Foaming Coil Cleaner	18	Ounces(OZ)	17-Jul-18
1478160	-	Blackhawk Foaming Coil Cleaner	18	Ounces(OZ)	17-Jul-18
1478159	-	Blackhawk Foaming Coil Cleaner	18	Ounces(OZ)	17-Jul-18
1479928	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479932	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479930	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479929	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479933	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479931	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1520500	-	DNeasy PowerSoil HTP 96 Kit	5	Milliliter(ML)	17-Jul-18
1520501	-	DNeasy PowerWater Sterivex Kit	483	Milliliter(ML)	17-Jul-18
1520502	7732-18-5	WATER STERILE DIETHYLPYROCARBONATE	23	Milliliter(ML)	17-Jul-18
1520503	7732-18-5	WATER STERILE DIETHYLPYROCARBONATE	23	Milliliter(ML)	17-Jul-18
1520504	50-00-0	FORMALDEHYDE	5	Liters(L)	17-Jul-18
1520505	64-17-5	ALCOHOL ANHYDROUS REAGENT	1	Liters(L)	17-Jul-18
1520506	64-17-5	ALCOHOL ANHYDROUS REAGENT	1	Liters(L)	17-Jul-18
1520507	-	WP Demand	24	Milliliter(ML)	17-Jul-18
1520508	-	WP Demand	24	Milliliter(ML)	17-Jul-18
1520509	2622-05-1	ALLYLMAGNESIUM CHLORIDE	100	Milliliter(ML)	17-Jul-18
1520597	7758-05-6	POTASSIUM IODATE	100	Gram(GM)	17-Jul-18
1520598	-	3M DP420 OFF WHITE 1.25OZ EPOX	1.7	Ounces(OZ)	17-Jul-18
1520599	-	3M DP420 OFF WHITE 1.25OZ EPOX	1.7	Ounces(OZ)	17-Jul-18
1520600	-	Pre-filter Material Pre-filter Resin	100	Gram(GM)	17-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520601	7718-54-9	NICKEL(II) CHLORIDE	5	Gram(GM)	17-Jul-18
1520602	920-66-1	1 1 1 3 3 3-HEXAFLUORO-2-PROPANOL	25	Gram(GM)	17-Jul-18
1520603	68478-92-2	Platinum(0)-1 3-divinyl-1 1 3 3-	5	Gram(GM)	17-Jul-18
1520604	422-64-0	PENTAFLUOROPROPIONIC ACID	10	Gram(GM)	17-Jul-18
1520605	431-47-0	METHYL TRIFLUOROACETATE	25	Gram(GM)	17-Jul-18
1520606	7432-10-2	3-Tropanol	500	Milligram(MG)	17-Jul-18
1520607	5978-81-4	Apoatropine Hydrochloride	250	Milligram(MG)	17-Jul-18
1520333	1464-53-5	1 3-Butadiene diepoxide	25	Gram(GM)	17-Jul-18
1520510	-	CARBOXYL POLYSTYRENE PARTICLES	10	Milliliter(ML)	17-Jul-18
1520513	-	CARBOXYL POLYSTYRENE PARTICLES	10	Milliliter(ML)	17-Jul-18
1520512	-	CARBOXYL POLYSTYRENE PARTICLES	10	Milliliter(ML)	17-Jul-18
1520511	-	CARBOXYL POLYSTYRENE PARTICLES	10	Milliliter(ML)	17-Jul-18
1520514	50851-57-5	SULFONATED POLYSTYRENE	10	Milliliter(ML)	17-Jul-18
1479936	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479945	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479958	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479957	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479956	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479955	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479954	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479953	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479952	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479951	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479950	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479949	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479948	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479959	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479946	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479944	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479943	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479942	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479941	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479940	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479939	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479938	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479937	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1479947	-	DPD COMPOUND FOR FREE AND TOTAL	24	Gram(GM)	17-Jul-18
1520515	-	4arm-PEG10K-Acrylate	1	Gram(GM)	17-Jul-18
1520516	7440-65-5	YTTRIUM	5	Gram(GM)	17-Jul-18
1479960	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479985	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479968	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479981	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479969	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479970	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479971	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479972	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479973	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1479961	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479986	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479975	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479967	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479965	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479966	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479964	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479976	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479977	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479963	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479978	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479979	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479980	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479974	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479984	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479988	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479989	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479962	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479982	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479983	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479987	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	43	Milliliter(ML)	17-Jul-18
1479990	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1495735	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1480000	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480001	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480012	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480002	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480007	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480006	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480004	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480015	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480005	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480003	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1479999	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480016	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480014	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1479997	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1479996	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1479995	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1479994	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480013	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1479993	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1479992	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1479991	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480017	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1479998	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480008	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480011	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480010	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480019	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480009	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1480018	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	17-Jul-18
1479801	-	Vantage Plus Interior Latex Enamel	5	Gallon(GAL)	17-Jul-18
1520517	294-93-9	12-CROWN-4	1	Gram(GM)	17-Jul-18
1479802	-	Vantage Plus Interior Latex Enamel	5	Gallon(GAL)	17-Jul-18
1520518	17455-13-9	18-CROWN-6	5	Gram(GM)	17-Jul-18
1520520	1746-03-8	VINYL PHOSPHONIC ACID	5	Gram(GM)	17-Jul-18
1520524	5926-35-2	BIS(TRIMETHYLSILYL)CHLOROMETHANE	5	Gram(GM)	17-Jul-18
1520525	5926-35-2	BIS(TRIMETHYLSILYL)CHLOROMETHANE	5	Gram(GM)	17-Jul-18
1520526	14474-33-0	SCANDIUM (III) IODIDE	1	Gram(GM)	17-Jul-18
1520530	-	PCR SuperMix	100	Milliliter(ML)	17-Jul-18
1520531	-	PCR SuperMix	100	Milliliter(ML)	17-Jul-18
1520608	-	GRAPHITE LUBE	10	Ounces(OZ)	17-Jul-18
1520611	-	GRAPHITE LUBE	10	Ounces(OZ)	17-Jul-18
1520609	-	GRAPHITE LUBE	10	Ounces(OZ)	17-Jul-18
1520613	-	GRAPHITE LUBE	10	Ounces(OZ)	17-Jul-18
1520612	-	GRAPHITE LUBE	10	Ounces(OZ)	17-Jul-18
1520610	-	GRAPHITE LUBE	10	Ounces(OZ)	17-Jul-18
1520614	-	SYLGARD 184	1.1	Pounds(LB)	17-Jul-18
1520616	-	SYLGARD 184	1.1	Pounds(LB)	17-Jul-18
1520615	-	SYLGARD 184	1.1	Pounds(LB)	17-Jul-18
1520618	112-88-9	1-OCTADECENE	1000	Milliliter(ML)	17-Jul-18
1520619	112-88-9	1-OCTADECENE	1000	Milliliter(ML)	17-Jul-18
1520620	123-39-7	N-METHYLFORMAMIDE	1000	Gram(GM)	17-Jul-18
1520621	7789-75-5	CALCIUM FLUORIDE	500	Gram(GM)	17-Jul-18
1520622	68855-54-9	CELITE 545	454	Gram(GM)	17-Jul-18
1520623	672-66-2	DIMETHYLPHENYLPHOSPHINE	5	Gram(GM)	17-Jul-18
1495745	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495746	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495767	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495750	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495758	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495747	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495748	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495744	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495749	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495743	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495740	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495765	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495764	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495763	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495762	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495761	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495756	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495766	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495751	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1495757	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495741	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495755	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495754	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495753	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495752	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495760	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495759	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495738	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495737	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495736	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495742	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495739	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495771	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495770	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495769	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1495768	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	17-Jul-18
1520625	127-09-3	SODIUM ACETATE SOLUTION	100	Milliliter(ML)	17-Jul-18
1520626	930-30-3	2-CYCLOPENTENONE	25	Gram(GM)	17-Jul-18
1520627	1665-00-5	DICHLOROMETHANE-D2	25	Gram(GM)	17-Jul-18
1520628	1665-00-5	DICHLOROMETHANE-D2	25	Gram(GM)	17-Jul-18
1520629	-	CLOROX	1	Gallon(GAL)	17-Jul-18
1520631	-	CLOROX	1	Gallon(GAL)	17-Jul-18
1520630	-	CLOROX	1	Gallon(GAL)	17-Jul-18
1479879	-	Porch & Floor Coating Anti-Skid texture (Tint	3.43	Liters(L)	17-Jul-18
1479880	-	Porch & Floor Coating Anti-Skid texture (Tint	3.43	Liters(L)	17-Jul-18
1479884	-	Porch & Floor Coating Anti-Skid texture (Tint	3.43	Liters(L)	17-Jul-18
1479883	-	Porch & Floor Coating Anti-Skid texture (Tint	3.43	Liters(L)	17-Jul-18
1479882	-	Porch & Floor Coating Anti-Skid texture (Tint	3.43	Liters(L)	17-Jul-18
1479881	-	Porch & Floor Coating Anti-Skid texture (Tint	3.43	Liters(L)	17-Jul-18
1381218	-	RED DYE	16	Ounces(OZ)	17-Jul-18
1381219	-	RED DYE	16	Ounces(OZ)	17-Jul-18
1381220	-	BLUE DYE 41709	16	Ounces(OZ)	17-Jul-18
1476486	-	Excelsior Acrylic Wet Set	1	Gallon(GAL)	17-Jul-18
1476487	-	Excelsior Acrylic Wet Set	1	Gallon(GAL)	17-Jul-18
1476488	-	Excelsior Acrylic Wet Set	1	Gallon(GAL)	17-Jul-18
1476489	-	Excelsior Acrylic Wet Set	1	Gallon(GAL)	17-Jul-18
1381221	-	BLUE DYE 41709	16	Ounces(OZ)	17-Jul-18
1476881	-	CARLON REGULAR CLEAR PVC SOLVENT CEMENT	16	Ounces(OZ)	17-Jul-18
1520637	-	RESIN SOLUTION	3	Kilograms(KG)	17-Jul-18
1457055	-	TRA-BOND F113	1	Gram(GM)	17-Jul-18
1457061	-	TRA-BOND F113	1	Gram(GM)	17-Jul-18
1457059	-	TRA-BOND F113	1	Gram(GM)	17-Jul-18
1457060	-	TRA-BOND F113	1	Gram(GM)	17-Jul-18
1457056	-	TRA-BOND F113	1	Gram(GM)	17-Jul-18
1457058	-	TRA-BOND F113	1	Gram(GM)	17-Jul-18
1457062	-	TRA-BOND F113	1	Gram(GM)	17-Jul-18
1457057	-	TRA-BOND F113	1	Gram(GM)	17-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1457063	-	TRA-BOND F113	1	Gram(GM)	17-Jul-18
1457064	-	TRA-BOND F113	1	Gram(GM)	17-Jul-18
1476882	-	Zinc-It Instant Cold Galvanize	13	Ounces(OZ)	18-Jul-18
1476883	-	Zinc-It Instant Cold Galvanize	13	Ounces(OZ)	18-Jul-18
1476880	-	Roofing Granules C93	5	Gallon(GAL)	18-Jul-18
1476804	-	Roofing Granules C93	60	Pounds(LB)	18-Jul-18
1476806	-	Roofing Granules C93	60	Pounds(LB)	18-Jul-18
1476810	-	Roofing Granules C93	60	Pounds(LB)	18-Jul-18
1476805	-	Roofing Granules C93	60	Pounds(LB)	18-Jul-18
1476807	-	Roofing Granules C93	60	Pounds(LB)	18-Jul-18
1476808	-	Roofing Granules C93	60	Pounds(LB)	18-Jul-18
1476811	-	Roofing Granules C93	60	Pounds(LB)	18-Jul-18
1476812	-	Roofing Granules C93	60	Pounds(LB)	18-Jul-18
1476813	-	Roofing Granules C93	60	Pounds(LB)	18-Jul-18
1476809	-	Roofing Granules C93	60	Pounds(LB)	18-Jul-18
1476815	-	Roofing Granules C93	60	Pounds(LB)	18-Jul-18
1476814	-	Roofing Granules C93	60	Pounds(LB)	18-Jul-18
1520334	1344-28-1	ALUMINUM OXIDE	10	Kilograms(KG)	18-Jul-18
1520519	7782-92-5	SODIUM AMIDE	50	Gram(GM)	18-Jul-18
1480046	-	808-0020 TITANIUM WHITE	1	Liters(L)	18-Jul-18
1480067	-	Avalon Premium 100% Acrylic Interior Satin D/B	3.4	Liters(L)	18-Jul-18
1480069	-	Avalon Premium 100% Acrylic Interior Satin D/B	3.4	Liters(L)	18-Jul-18
1480070	-	Avalon Premium 100% Acrylic Interior Satin D/B	3.4	Liters(L)	18-Jul-18
1480068	-	Avalon Premium 100% Acrylic Interior Satin D/B	3.4	Liters(L)	18-Jul-18
1480071	-	Avalon Premium 100% Acrylic Interior Satin D/B	3.5	Liters(L)	18-Jul-18
1480074	-	Avalon Premium 100% Acrylic Interior Satin D/B	3.5	Liters(L)	18-Jul-18
1480073	-	Avalon Premium 100% Acrylic Interior Satin D/B	3.5	Liters(L)	18-Jul-18
1480072	-	Avalon Premium 100% Acrylic Interior Satin D/B	3.5	Liters(L)	18-Jul-18
1381226	-	GREEN DYE	16	Ounces(OZ)	18-Jul-18
1480075	-	Avalon Premium 100% Acrylic Interior Satin M/B	3.5	Liters(L)	18-Jul-18
1381227	-	GREEN DYE	16	Ounces(OZ)	18-Jul-18
1480079	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480085	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480086	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480087	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480080	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480081	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480082	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480083	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480084	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480088	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480089	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480090	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480091	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	18-Jul-18
1480092	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	18-Jul-18
1480093	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	18-Jul-18
1480094	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	18-Jul-18
1480095	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480096	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480098	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480097	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1480099	-	Avalon Premium 100% Acrylic Interior Satin W/B	18	Liters(L)	18-Jul-18
1381228	-	RED DYE	1	Pounds(LB)	18-Jul-18
1559404	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Liters(L)	18-Jul-18
1559405	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Liters(L)	18-Jul-18
1381229	-	BLUE DYE 41709	1	Pounds(LB)	18-Jul-18
1559406	-	OXYGEN IN NITROGEN	3	Pounds(LB)	18-Jul-18
1381230	-	RED DYE	1	Pounds(LB)	18-Jul-18
1480100	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	18-Jul-18
1480107	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	18-Jul-18
1480106	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	18-Jul-18
1480105	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	18-Jul-18
1480104	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	18-Jul-18
1480103	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	18-Jul-18
1480102	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	18-Jul-18
1480101	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	18-Jul-18
1480136	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480209	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480192	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480220	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480219	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480151	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480176	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480157	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480156	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480155	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480154	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480159	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480152	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480160	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480150	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480149	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480148	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480147	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480146	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480145	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480153	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480167	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480175	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480174	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480173	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480172	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480171	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480158	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480169	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480142	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480229	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480165	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480164	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480163	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480162	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480161	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480170	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480202	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480195	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480196	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480197	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480198	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480199	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480144	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480201	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480218	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480203	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480204	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480205	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480206	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480207	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480208	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480200	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480212	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480168	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480141	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480140	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480139	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480138	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480137	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480194	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480211	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480193	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480213	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480214	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480215	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480216	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480217	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480143	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480210	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480185	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480224	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480226	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480166	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480178	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480179	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480180	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480181	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480182	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480223	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480184	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480225	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480186	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480187	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480188	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480189	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480190	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480191	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480177	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480227	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480183	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480231	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480228	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480222	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480230	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1480221	-	Sikaflex-1C SL	10	Ounces(OZ)	18-Jul-18
1381235	-	RED DYE	1	Pounds(LB)	18-Jul-18
1381236	-	BLUE DYE 41709	1	Pint(PT)	18-Jul-18
1381237	-	RED DYE	1	Pint(PT)	18-Jul-18
1480232	-	Sikalastic 710 Base	5	Gallon(GAL)	18-Jul-18
1480233	-	Sikalastic 710 Base	5	Gallon(GAL)	18-Jul-18
1480234	-	Sikalastic 710 Base	5	Gallon(GAL)	18-Jul-18
1480235	-	Sikalastic 710 Base	5	Gallon(GAL)	18-Jul-18
1480240	-	Sikalastic 710 Base	5	Gallon(GAL)	18-Jul-18
1480241	-	Sikalastic 710 Base	5	Gallon(GAL)	18-Jul-18
1480236	-	Sikalastic 735 AL	5	Gallon(GAL)	18-Jul-18
1480237	-	Sikalastic 735 AL	5	Gallon(GAL)	18-Jul-18
1480238	-	Sikalastic 735 AL	5	Gallon(GAL)	18-Jul-18
1480239	-	Sikalastic 735 AL	5	Gallon(GAL)	18-Jul-18
1480242	-	Sikalastic 735 AL	5	Gallon(GAL)	18-Jul-18
1480243	-	Sikalastic 735 AL	5	Gallon(GAL)	18-Jul-18
1520521	60-29-7	DIETHYL ETHER	1	Liters(L)	18-Jul-18
1520523	60-29-7	DIETHYL ETHER	1	Liters(L)	18-Jul-18
1520522	60-29-7	DIETHYL ETHER	1	Liters(L)	18-Jul-18
1480050	-	808-2551 COLORTREND AXX ORGANIC YELLOW	1	Liters(L)	18-Jul-18
1480052	-	808-2551 COLORTREND AXX ORGANIC YELLOW	1	Liters(L)	18-Jul-18
1480053	-	808-2551 COLORTREND AXX ORGANIC YELLOW	1	Liters(L)	18-Jul-18
1480051	-	808-2551 COLORTREND AXX ORGANIC YELLOW	1	Liters(L)	18-Jul-18
1520527	1779-48-2	PHENYLPHOSPHINIC ACID	100	Gram(GM)	18-Jul-18
1520528	920-66-1	1 1 1 3 3 3-HEXAFLUORO-2-PROPANOL	100	Gram(GM)	18-Jul-18
1520529	-	ISOPROPYL ALCOHOL 70%	4	Liters(L)	18-Jul-18
1480054	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18
1520532	67-64-1	ACETONE OPTIMA	1	Liters(L)	18-Jul-18
1480059	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18
1480065	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18
1480056	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480055	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18
1480057	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18
1480058	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18
1480064	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18
1480061	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18
1480062	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18
1480066	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18
1480063	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18
1480060	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	18-Jul-18
1520533	67-64-1	ACETONE OPTIMA	1	Liters(L)	18-Jul-18
1520534	108-88-3	TOLUENE	4	Liters(L)	18-Jul-18
1520535	39443-39-5	SILICLAD	100	Gram(GM)	18-Jul-18
1520536	39443-39-5	SILICLAD	100	Gram(GM)	18-Jul-18
1520537	67-64-1	ACETONE	4	Liters(L)	18-Jul-18
1520538	67-64-1	ACETONE	4	Liters(L)	18-Jul-18
1520540	67-64-1	ACETONE	4	Liters(L)	18-Jul-18
1520539	67-64-1	ACETONE	4	Liters(L)	18-Jul-18
1520541	75-09-2	DICHLOROMETHANE	4	Liters(L)	18-Jul-18
1520544	75-09-2	DICHLOROMETHANE	4	Liters(L)	18-Jul-18
1520543	75-09-2	DICHLOROMETHANE	4	Liters(L)	18-Jul-18
1520542	75-09-2	DICHLOROMETHANE	4	Liters(L)	18-Jul-18
1520545	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	18-Jul-18
1520549	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	18-Jul-18
1520546	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	18-Jul-18
1520548	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	18-Jul-18
1520550	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	18-Jul-18
1520547	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	18-Jul-18
1520617	7580-67-8	LITHIUM HYDRIDE	500	Gram(GM)	18-Jul-18
1495772	-	GOJO Scrubbing Towels	20	Pounds(LB)	18-Jul-18
1495778	-	GOJO Scrubbing Towels	20	Pounds(LB)	18-Jul-18
1495781	-	GOJO Scrubbing Towels	20	Pounds(LB)	18-Jul-18
1495779	-	GOJO Scrubbing Towels	20	Pounds(LB)	18-Jul-18
1495777	-	GOJO Scrubbing Towels	20	Pounds(LB)	18-Jul-18
1495776	-	GOJO Scrubbing Towels	20	Pounds(LB)	18-Jul-18
1495775	-	GOJO Scrubbing Towels	20	Pounds(LB)	18-Jul-18
1495774	-	GOJO Scrubbing Towels	20	Pounds(LB)	18-Jul-18
1495773	-	GOJO Scrubbing Towels	20	Pounds(LB)	18-Jul-18
1495780	-	GOJO Scrubbing Towels	20	Pounds(LB)	18-Jul-18
1520632	17536-00-4	3 5-Diisopropylpyrazole	25	Gram(GM)	18-Jul-18
1520633	-	LOCTITE 349 ADHESIVE	50	Milliliter(ML)	18-Jul-18
1480042	-	Excelsior AW-510	4	Gallon(GAL)	18-Jul-18
1480043	-	Excelsior AW-510	4	Gallon(GAL)	18-Jul-18
1480044	-	Excelsior AW-510	4	Gallon(GAL)	18-Jul-18
1480045	-	Excelsior AW-510	4	Gallon(GAL)	18-Jul-18
1520634	78710-55-1	3 5-Dimethylbenzylamine	5	Gram(GM)	18-Jul-18
1520636	78710-55-1	3 5-Dimethylbenzylamine	5	Gram(GM)	18-Jul-18
1520635	78710-55-1	3 5-Dimethylbenzylamine	5	Gram(GM)	18-Jul-18
1520638	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	18-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520639	7722-84-1	HYDROGEN PEROXIDE 30% SOLUTION	500	Milliliter(ML)	18-Jul-18
1520641	7722-84-1	HYDROGEN PEROXIDE 30% SOLUTION	500	Milliliter(ML)	18-Jul-18
1520640	7722-84-1	HYDROGEN PEROXIDE 30% SOLUTION	500	Milliliter(ML)	18-Jul-18
1520642	7722-84-1	HYDROGEN PEROXIDE 30% SOLUTION	500	Milliliter(ML)	18-Jul-18
1520643	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	18-Jul-18
1520644	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	18-Jul-18
1520648	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	18-Jul-18
1520645	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	18-Jul-18
1520647	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	18-Jul-18
1520646	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	18-Jul-18
1520649	63181-98-6	Amberlite IRA743 free base	1	Kilograms(KG)	18-Jul-18
1520695	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520740	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520738	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520741	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520736	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520733	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520735	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520734	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520699	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520742	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520743	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520700	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520701	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520737	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520702	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520698	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520697	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520696	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520744	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520710	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520732	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520716	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520739	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520715	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520714	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520713	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520718	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520711	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520717	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520709	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520708	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520707	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520706	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520705	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520704	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520703	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520712	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520724	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520731	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520730	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520729	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520728	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520727	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520725	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520723	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520722	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520719	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520720	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520721	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520726	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Jul-18
1520790	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	18-Jul-18
1520791	693-98-1	2-METHYLIMIDAZOLE	500	Gram(GM)	18-Jul-18
1520792	7440-50-8	Metalon ICI-002HV Inkjettable Copper Ink	50	Milliliter(ML)	18-Jul-18
1520793	7440-50-8	Metalon ICI-002HV Inkjettable Copper Ink	50	Milliliter(ML)	18-Jul-18
1520794	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Jul-18
1520799	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Jul-18
1520796	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Jul-18
1520795	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Jul-18
1520797	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Jul-18
1520798	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Jul-18
1520800	18542-42-2	2-(METHYLTHIO)ETHYLAMINE	25	Gram(GM)	18-Jul-18
1520801	-	PowerUp SYBR Green Master Mix	5	Milliliter(ML)	18-Jul-18
1458012	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	18-Jul-18
1458013	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	18-Jul-18
1520650	25719-52-2	Poly(lauryl methacrylate) solution(a)	5	Gram(GM)	18-Jul-18
1520651	25719-52-2	Poly(lauryl methacrylate) solution(a)	5	Gram(GM)	18-Jul-18
1520652	542-91-6	DIETHYLSILANE	5	Milliliter(ML)	18-Jul-18
1520653	1571-33-1	PHENYLPHOSPHONIC ACID	5	Gram(GM)	18-Jul-18
1520654	356-24-1	Methyl heptafluorobutyrate	25	Gram(GM)	18-Jul-18
1520655	7601-90-3	PERCHLORIC ACID	500	Milliliter(ML)	18-Jul-18
1520745	10028-22-5	FERRIC SULFATE	55	Gallon(GAL)	18-Jul-18
1520746	10028-22-5	FERRIC SULFATE	55	Gallon(GAL)	18-Jul-18
1520747	10028-22-5	FERRIC SULFATE	55	Gallon(GAL)	18-Jul-18
1520748	10028-22-5	FERRIC SULFATE	55	Gallon(GAL)	18-Jul-18
1520802	7580-67-8	LITHIUM HYDRIDE	500	Gram(GM)	18-Jul-18
1520806	7580-67-8	LITHIUM HYDRIDE	500	Gram(GM)	18-Jul-18
1520809	7580-67-8	LITHIUM HYDRIDE	500	Gram(GM)	18-Jul-18
1520803	7580-67-8	LITHIUM HYDRIDE	500	Gram(GM)	18-Jul-18
1520805	7580-67-8	LITHIUM HYDRIDE	500	Gram(GM)	18-Jul-18
1520811	7580-67-8	LITHIUM HYDRIDE	500	Gram(GM)	18-Jul-18
1520807	7580-67-8	LITHIUM HYDRIDE	500	Gram(GM)	18-Jul-18
1520808	7580-67-8	LITHIUM HYDRIDE	500	Gram(GM)	18-Jul-18
1520810	7580-67-8	LITHIUM HYDRIDE	500	Gram(GM)	18-Jul-18
1520804	7580-67-8	LITHIUM HYDRIDE	500	Gram(GM)	18-Jul-18
1520812	7646-69-7	SODIUM HYDRIDE	1	Kilograms(KG)	18-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520813	616-76-2	5-FORMYLSALICYLIC ACID	5	Gram(GM)	18-Jul-18
1520814	143-15-7	1-Bromododecane	25	Gram(GM)	18-Jul-18
1520815	619-21-6	3-Formylbenzoic acid	5	Gram(GM)	18-Jul-18
1520816	1306-38-3	CERIUM(IV) OXIDE	500	Gram(GM)	18-Jul-18
1520824	1306-38-3	CERIUM(IV) OXIDE	500	Gram(GM)	18-Jul-18
1520823	1306-38-3	CERIUM(IV) OXIDE	500	Gram(GM)	18-Jul-18
1520821	1306-38-3	CERIUM(IV) OXIDE	500	Gram(GM)	18-Jul-18
1520822	1306-38-3	CERIUM(IV) OXIDE	500	Gram(GM)	18-Jul-18
1520817	1306-38-3	CERIUM(IV) OXIDE	500	Gram(GM)	18-Jul-18
1520818	1306-38-3	CERIUM(IV) OXIDE	500	Gram(GM)	18-Jul-18
1520819	1306-38-3	CERIUM(IV) OXIDE	500	Gram(GM)	18-Jul-18
1520820	1306-38-3	CERIUM(IV) OXIDE	500	Gram(GM)	18-Jul-18
1520825	1306-38-3	CERIUM(IV) OXIDE	500	Gram(GM)	18-Jul-18
1520826	4724-47-4	N-OCTADECYLPHOSPHONIC ACID	1	Gram(GM)	18-Jul-18
1520827	84000-07-7	Fmoc-N-Me-Ala-OH	25	Gram(GM)	18-Jul-18
1458014	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	18-Jul-18
1458018	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	18-Jul-18
1458017	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	18-Jul-18
1458016	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	18-Jul-18
1458015	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	18-Jul-18
1458021	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	18-Jul-18
1458020	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	18-Jul-18
1458019	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	18-Jul-18
1520040	-	GALLIUM STANDARD	10000	MicroGram(UG	19-Jul-18
1520041	-	GALLIUM STANDARD	10000	MicroGram(UG	19-Jul-18
1520425	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	19-Jul-18
1520435	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	19-Jul-18
1520434	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	19-Jul-18
1520433	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	19-Jul-18
1520428	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	19-Jul-18
1520432	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	19-Jul-18
1520431	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	19-Jul-18
1520429	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	19-Jul-18
1520426	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	19-Jul-18
1520427	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	19-Jul-18
1520430	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	19-Jul-18
1520453	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	19-Jul-18
1520455	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	19-Jul-18
1520457	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	19-Jul-18
1520458	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	19-Jul-18
1520454	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	19-Jul-18
1520456	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	19-Jul-18
1520460	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	19-Jul-18
1520459	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	19-Jul-18
1520461	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	19-Jul-18
1520463	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	19-Jul-18
1520464	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	19-Jul-18
1520462	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	19-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520465	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	19-Jul-18
1520468	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	19-Jul-18
1520467	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	19-Jul-18
1520469	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	19-Jul-18
1520470	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	19-Jul-18
1520466	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	19-Jul-18
1520656	-	EPOXY ADHESIVE	6.76	Ounces(OZ)	19-Jul-18
1520657	-	EPOXY ADHESIVE	6.76	Ounces(OZ)	19-Jul-18
1480256	-	Carlon Purple Primer Thomas & Betts	1	Quarts(QT)	19-Jul-18
1520658	-	Super Lube w/PTFE	3	Ounces(OZ)	19-Jul-18
1520660	-	Super Lube w/PTFE	3	Ounces(OZ)	19-Jul-18
1520659	-	Super Lube w/PTFE	3	Ounces(OZ)	19-Jul-18
1520661	5329-14-6	SULFAMIC ACID	500	Gram(GM)	19-Jul-18
1480257	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480287	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480281	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480282	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480283	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480284	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480286	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480288	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480289	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480290	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480293	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	19-Jul-18
1480270	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480285	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480258	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480259	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480260	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480261	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480262	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480263	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480264	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480265	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480266	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480267	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480268	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480269	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480296	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	19-Jul-18
1480280	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480339	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480331	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480346	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480345	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480344	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480343	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480342	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480348	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480340	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480349	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480338	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480337	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480336	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480335	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480334	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480333	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480294	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480341	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480275	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480353	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480354	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480355	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480356	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480357	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480358	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480347	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480276	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480330	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480274	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480273	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480272	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480292	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	19-Jul-18
1480271	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480351	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480350	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
148029	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	19-Jul-18
1480303	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480332	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480310	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480309	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480308	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480307	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480306	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480312	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480304	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480313	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480302	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	19-Jul-18
1480301	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	19-Jul-18
1480300	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	19-Jul-18
1480299	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	19-Jul-18
1480298	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	19-Jul-18
1480297	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	19-Jul-18
1480352	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480305	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480321	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480329	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480328	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480327	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480326	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480325	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480324	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480311	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480322	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480295	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	19-Jul-18
1480320	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480319	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480318	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480317	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480316	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480315	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480314	-	portland cement 1	50	Pounds(LB)	19-Jul-18
1480323	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480279	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480278	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480277	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480359	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480365	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480366	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480364	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480363	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480362	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480361	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1480360	-	Proseal Proseal Spray Fiberseal	1	Gallon(GAL)	19-Jul-18
1520662	7757-82-6	SODIUM SULFATE	1	Kilograms(KG)	19-Jul-18
1520663	7757-82-6	SODIUM SULFATE ANHYDROUS	2.5	Kilograms(KG)	19-Jul-18
1520664	7757-82-6	SODIUM SULFATE ANHYDROUS	2.5	Kilograms(KG)	19-Jul-18
1520749	7697-37-2	NITRIC ACID	600	Pounds(LB)	19-Jul-18
1520750	7697-37-2	NITRIC ACID	600	Pounds(LB)	19-Jul-18
1520751	7681-57-4	SODIUM METABISULFITE	50	Pounds(LB)	19-Jul-18
1520753	7681-57-4	SODIUM METABISULFITE	50	Pounds(LB)	19-Jul-18
1520752	7681-57-4	SODIUM METABISULFITE	50	Pounds(LB)	19-Jul-18
1520754	141-78-6	ETHYL ACETATE	4	Liters(L)	19-Jul-18
1520755	141-78-6	ETHYL ACETATE	4	Liters(L)	19-Jul-18
1520757	141-78-6	ETHYL ACETATE	4	Liters(L)	19-Jul-18
1520756	141-78-6	ETHYL ACETATE	4	Liters(L)	19-Jul-18
1520758	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	19-Jul-18
1520762	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	19-Jul-18
1520759	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	19-Jul-18
1520761	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	19-Jul-18
1520763	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	19-Jul-18
1520760	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	19-Jul-18
1520764	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	19-Jul-18
1520765	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	19-Jul-18
1520766	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Gallon(GAL)	19-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520829	118-71-8	3-HYDROXY-2-METHYL-4-PYRONE	250	Gram(GM)	19-Jul-18
1480244	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	19-Jul-18
1480255	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	19-Jul-18
1480250	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	19-Jul-18
1480251	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	19-Jul-18
1480252	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	19-Jul-18
1480253	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	19-Jul-18
1480249	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	19-Jul-18
1480248	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	19-Jul-18
1480247	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	19-Jul-18
1480246	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	19-Jul-18
1480245	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	19-Jul-18
1480254	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	19-Jul-18
1520828	4940-11-8	Ethyl maltol	100	Gram(GM)	19-Jul-18
1480367	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480371	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480376	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480368	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480369	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480370	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480382	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480389	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480388	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480387	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480386	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480385	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480384	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480374	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480383	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480372	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480381	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480380	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480379	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480378	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480377	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480390	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480375	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1480373	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	19-Jul-18
1520831	67-64-1	ACETONE	4	Liters(L)	19-Jul-18
1520832	67-64-1	ACETONE	4	Liters(L)	19-Jul-18
1520833	67-64-1	ACETONE	4	Liters(L)	19-Jul-18
1520834	67-64-1	ACETONE	4	Liters(L)	19-Jul-18
1520835	348-52-7	1-Fluoro-2-iodobenzene 99% stab. with copper	25	Gram(GM)	19-Jul-18
1520836	7681-57-4	SODIUM METABISULFITE	10000	Gram(GM)	19-Jul-18
1520837	7681-57-4	SODIUM METABISULFITE	10000	Gram(GM)	19-Jul-18
1520838	-	LOCTITE PASTE ANTI-SIEZE	8	Ounces(OZ)	19-Jul-18
1520839	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520867	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520842	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520841	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520840	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520864	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520843	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520866	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520868	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520869	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520871	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520872	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520873	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520874	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520863	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520865	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520857	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520862	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520861	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520860	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520870	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520858	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520844	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520856	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520855	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520854	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520853	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520852	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520845	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520851	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520846	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520847	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520848	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520849	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520859	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520850	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	50	Pounds(LB)	19-Jul-18
1520983	67-64-1	ACETONE	4	Liters(L)	19-Jul-18
1520986	67-64-1	ACETONE	4	Liters(L)	19-Jul-18
1520984	67-64-1	ACETONE	4	Liters(L)	19-Jul-18
1520985	67-64-1	ACETONE	4	Liters(L)	19-Jul-18
1520987	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520993	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520992	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520988	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520994	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520991	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520995	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520989	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1521000	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520990	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521003	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1521010	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1521008	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1521007	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1521006	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1521004	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520996	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1521002	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1521001	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1521009	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520999	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520998	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520997	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1521005	1310-73-2	SODIUM HYDROXIDE SOLUTION	500	Milliliter(ML)	19-Jul-18
1520925	-	RNeasy PowerSoil Total RNA Kit	2	Gram(GM)	19-Jul-18
1458022	-	NALCO 8735	639	Pounds(LB)	19-Jul-18
1458023	-	TRI-ACT 1820	450	Pounds(LB)	19-Jul-18
1458024	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	19-Jul-18
1458025	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	19-Jul-18
1458026	7664-93-9	SULFURIC ACID	50	Gallon(GAL)	19-Jul-18
1458027	7664-93-9	SULFURIC ACID	50	Gallon(GAL)	19-Jul-18
1458028	7664-93-9	SULFURIC ACID	50	Gallon(GAL)	19-Jul-18
1458029	7664-93-9	SULFURIC ACID	50	Gallon(GAL)	19-Jul-18
1480291	-	LPS-1 GREASELESS LUBRICANT	11	Ounces(OZ)	19-Jul-18
1520471	81290-20-2	TRIMETHYL(TRIFLUOROMETHYL)SILANE 0.5M	25	Gram(GM)	20-Jul-18
1520472	-	Stellaris RNA FISH Hybridization Buffer	10	Milliliter(ML)	20-Jul-18
1520473	-	Stellaris RNA FISH Hybridization Buffer	10	Milliliter(ML)	20-Jul-18
1520474	7664-93-9	SULFURIC ACID (TRACEPUR)	500	Milliliter(ML)	20-Jul-18
1520478	7664-93-9	SULFURIC ACID (TRACEPUR)	500	Milliliter(ML)	20-Jul-18
1520476	7664-93-9	SULFURIC ACID (TRACEPUR)	500	Milliliter(ML)	20-Jul-18
1520477	7664-93-9	SULFURIC ACID (TRACEPUR)	500	Milliliter(ML)	20-Jul-18
1520475	7664-93-9	SULFURIC ACID (TRACEPUR)	500	Milliliter(ML)	20-Jul-18
1520665	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	20-Jul-18
1520666	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	20-Jul-18
1520667	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	20-Jul-18
1520668	126-73-8	TRI-N-BUTYL PHOSPHATE	250	Milliliter(ML)	20-Jul-18
1520669	126-73-8	TRI-N-BUTYL PHOSPHATE	250	Milliliter(ML)	20-Jul-18
1520670	1779-48-2	PHENYLPHOSPHINIC ACID	100	Gram(GM)	20-Jul-18
1520674	1779-48-2	PHENYLPHOSPHINIC ACID	100	Gram(GM)	20-Jul-18
1520671	1779-48-2	PHENYLPHOSPHINIC ACID	100	Gram(GM)	20-Jul-18
1520672	1779-48-2	PHENYLPHOSPHINIC ACID	100	Gram(GM)	20-Jul-18
1520673	1779-48-2	PHENYLPHOSPHINIC ACID	100	Gram(GM)	20-Jul-18
1520675	-	Novec 73DE Engineered Fluid	1	Gallon(GAL)	20-Jul-18
1520676	1310-73-2	SODIUM HYDROXIDE --ALKALINE REAGANT	475	Milliliter(ML)	20-Jul-18
1520677	-	AMMONIA ISE FILL SOLUTION	60	Milliliter(ML)	20-Jul-18
1520678	7664-41-7	AMMONIA	100	Milliliter(ML)	20-Jul-18
1520679	7664-41-7	AMMONIA	100	Milliliter(ML)	20-Jul-18
1520680	7664-41-7	AMMONIA	100	Milliliter(ML)	20-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520681	7664-41-7	AMMONIA	100	Milliliter(ML)	20-Jul-18
1520682	-	Ammonia pH-adjusting ISA	475	Milliliter(ML)	20-Jul-18
1520687	-	Ammonia pH-adjusting ISA	475	Milliliter(ML)	20-Jul-18
1520686	-	Ammonia pH-adjusting ISA	475	Milliliter(ML)	20-Jul-18
1520685	-	Ammonia pH-adjusting ISA	475	Milliliter(ML)	20-Jul-18
1520683	-	Ammonia pH-adjusting ISA	475	Milliliter(ML)	20-Jul-18
1520684	-	Ammonia pH-adjusting ISA	475	Milliliter(ML)	20-Jul-18
1520688	67-56-1	METHANOL HPLC	4	Liters(L)	20-Jul-18
1520691	67-56-1	METHANOL HPLC	4	Liters(L)	20-Jul-18
1520689	67-56-1	METHANOL HPLC	4	Liters(L)	20-Jul-18
1520690	67-56-1	METHANOL HPLC	4	Liters(L)	20-Jul-18
1520923	64-17-5	ETHYL ALCOHOL ABSOLUTE	4	Liters(L)	20-Jul-18
1520924	-	ISOPROPYL ALCOHOL 70%	4	Liters(L)	20-Jul-18
1520926	7782-50-5	CHLORINE	2	Milliliter(ML)	20-Jul-18
1520936	7782-50-5	CHLORINE	2	Milliliter(ML)	20-Jul-18
1520931	7782-50-5	CHLORINE	2	Milliliter(ML)	20-Jul-18
1520937	7782-50-5	CHLORINE	2	Milliliter(ML)	20-Jul-18
1520935	7782-50-5	CHLORINE	2	Milliliter(ML)	20-Jul-18
1520934	7782-50-5	CHLORINE	2	Milliliter(ML)	20-Jul-18
1520933	7782-50-5	CHLORINE	2	Milliliter(ML)	20-Jul-18
1520932	7782-50-5	CHLORINE	2	Milliliter(ML)	20-Jul-18
1520927	7782-50-5	CHLORINE	2	Milliliter(ML)	20-Jul-18
1520930	7782-50-5	CHLORINE	2	Milliliter(ML)	20-Jul-18
1520929	7782-50-5	CHLORINE	2	Milliliter(ML)	20-Jul-18
1520928	7782-50-5	CHLORINE	2	Milliliter(ML)	20-Jul-18
1520938	877-24-7	BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	20-Jul-18
1520939	877-24-7	BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	20-Jul-18
1520942	-	BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	20-Jul-18
1520943	-	BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	20-Jul-18
1521012	7705-08-0	FERRIC CHLORIDE	55	Gallon(GAL)	20-Jul-18
1521013	375-22-4	HEPTAFLUOROBUTYRIC ACID	5	Milliliter(ML)	20-Jul-18
1521014	617-84-5	N N-DIETHYLFORMAMIDE	100	Gram(GM)	20-Jul-18
1521015	617-84-5	N N-DIETHYLFORMAMIDE	100	Gram(GM)	20-Jul-18
1521018	617-84-5	N N-DIETHYLFORMAMIDE	100	Gram(GM)	20-Jul-18
1521017	617-84-5	N N-DIETHYLFORMAMIDE	100	Gram(GM)	20-Jul-18
1521016	617-84-5	N N-DIETHYLFORMAMIDE	100	Gram(GM)	20-Jul-18
1521019	301-10-0	TIN (II) 2-ETHYLHEXANOATE	250	Gram(GM)	20-Jul-18
1521020	69991-67-9	FOMBLIN Y 25/6 L VAC	100	Gram(GM)	20-Jul-18
1521021	409-21-2	SILICON CARBIDE	250	Gram(GM)	20-Jul-18
1520692	7783-20-2	AMMONIUM SULFATE	12	Kilograms(KG)	20-Jul-18
1520693	138687-69-1	Pentafluorophenyl diphenylphosphinate	1	Gram(GM)	20-Jul-18
1520694	24937-79-9	POLYVINYLIDENE FLUORIDE	5	Gram(GM)	20-Jul-18
1520946	67-64-1	ACETONE FOR HPLC	4	Liters(L)	20-Jul-18
1520949	67-64-1	ACETONE FOR HPLC	4	Liters(L)	20-Jul-18
1520948	67-64-1	ACETONE FOR HPLC	4	Liters(L)	20-Jul-18
1520947	67-64-1	ACETONE FOR HPLC	4	Liters(L)	20-Jul-18
1520950	108-88-3	TOLUENE	4	Liters(L)	20-Jul-18
1520951	108-88-3	TOLUENE	4	Liters(L)	20-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520952	75-09-2	DICHLOROMETHANE	4	Liters(L)	20-Jul-18
1520959	75-09-2	DICHLOROMETHANE	4	Liters(L)	20-Jul-18
1520953	75-09-2	DICHLOROMETHANE	4	Liters(L)	20-Jul-18
1520955	75-09-2	DICHLOROMETHANE	4	Liters(L)	20-Jul-18
1520956	75-09-2	DICHLOROMETHANE	4	Liters(L)	20-Jul-18
1520957	75-09-2	DICHLOROMETHANE	4	Liters(L)	20-Jul-18
1520958	75-09-2	DICHLOROMETHANE	4	Liters(L)	20-Jul-18
1520954	75-09-2	DICHLOROMETHANE	4	Liters(L)	20-Jul-18
1520960	7664-39-3	HYDROFLUORIC ACID OPTIMA	500	Milliliter(ML)	20-Jul-18
1520962	7664-39-3	HYDROFLUORIC ACID OPTIMA	500	Milliliter(ML)	20-Jul-18
1520963	7664-39-3	HYDROFLUORIC ACID OPTIMA	500	Milliliter(ML)	20-Jul-18
1520961	7664-39-3	HYDROFLUORIC ACID OPTIMA	500	Milliliter(ML)	20-Jul-18
1521022	2516-99-6	3 3 3-Trifluoropropionic acid	25	Gram(GM)	20-Jul-18
1521023	421-06-7	2-Bromo-1 1 1-trifluoroethane	5	Gram(GM)	20-Jul-18
1521024	1665-00-5	DICHLOROMETHANE-D2	25	Milliliter(ML)	20-Jul-18
1521025	1665-00-5	DICHLOROMETHANE-D2	25	Milliliter(ML)	20-Jul-18
1521026	7365-45-9	HEPES	500	Gram(GM)	20-Jul-18
1521027	-	stainless steel AISI STD 304L	10	Kilograms(KG)	20-Jul-18
1521028	-	stainless steel AISI STD 304L	10	Kilograms(KG)	20-Jul-18
1521029	-	stainless steel AISI STD 304L	10	Kilograms(KG)	20-Jul-18
1521030	-	stainless steel AISI STD 304L	10	Kilograms(KG)	20-Jul-18
1521031	917-92-0	3 3-DIETHYL-1-BUTYNE	25	Milliliter(ML)	20-Jul-18
1521032	148893-10-1	HATU	5	Gram(GM)	20-Jul-18
1521033	39968-33-7	1-Hydroxy-7-azabenzotriazole	25	Gram(GM)	20-Jul-18
1521034	7775-41-9	SILVER(I) FLUORIDE	25	Gram(GM)	20-Jul-18
1521035	67-68-5	DIMETHYL SULFOXIDE	50	Milliliter(ML)	20-Jul-18
1521036	-	2-Chlorotrityl chloride resin (100-200 mesh)	100	Gram(GM)	20-Jul-18
1521055	67-63-0	2-PROPANOL	4	Liters(L)	20-Jul-18
1521056	67-63-0	2-PROPANOL	4	Liters(L)	20-Jul-18
1521058	67-63-0	2-PROPANOL	4	Liters(L)	20-Jul-18
1521057	67-63-0	2-PROPANOL	4	Liters(L)	20-Jul-18
1521059	68951-96-2	VINYL TERMINATED DIMETHYL-	3	Kilograms(KG)	20-Jul-18
1521060	68037-59-2	Poly(dimethylsiloxane-co-methylhydrosiloxane)	3	Kilograms(KG)	20-Jul-18
1521061	68951-96-2	(22-25% DIPHENYLSILOXANE)-(DIMETHYL-	100	Gram(GM)	20-Jul-18
1521062	68951-96-2	(22-25% DIPHENYLSILOXANE)-(DIMETHYL-	100	Gram(GM)	20-Jul-18
1521063	-	VINYL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	20-Jul-18
1521064	-	VINYL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	20-Jul-18
1521065	3296-90-0	2 2-BIS(BROMOMETHYL)-1 3-PROPANEDIOL	25	Gram(GM)	20-Jul-18
1521066	3229-00-3	Pentaerythritol tetrabromide	25	Gram(GM)	20-Jul-18
1458030	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	20-Jul-18
1458031	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	20-Jul-18
1480427	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480431	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480432	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480433	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480429	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480428	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480434	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480435	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480437	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480443	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480438	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480439	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480440	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480441	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480442	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480430	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480444	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480436	-	RUST COAT ENAMEL - BRIGHT RED	12	Ounces(OZ)	23-Jul-18
1480445	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480459	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480456	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480446	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480447	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480448	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480449	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480450	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480451	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480452	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480453	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480454	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480461	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480455	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480457	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480458	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480460	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480462	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480463	-	RUST COAT ENAMEL - BRIGHT YELLOW	12	Ounces(OZ)	23-Jul-18
1480464	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480478	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480479	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480480	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480469	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480467	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480477	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480465	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480466	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480468	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480470	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480472	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480473	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480476	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480474	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480475	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480471	-	RUST COAT ENAMEL GLOSS WHITE 780220	12	Ounces(OZ)	23-Jul-18
1480391	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480414	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480418	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480417	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480415	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480409	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480413	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480412	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480411	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480410	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480403	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480404	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480405	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480406	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480407	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480408	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480416	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480424	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480402	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480426	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480425	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480392	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480423	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480422	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480421	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480420	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480419	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480394	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480393	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480395	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480396	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480397	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480398	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480399	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480400	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480401	-	GE5050 SILICONE II ALUMINUM	10.1	Ounces(OZ)	23-Jul-18
1480108	-	2c SL PART A Sikaflex 2c SL PART B - KIT	1.5	Gallon(GAL)	23-Jul-18
1480116	-	2c SL PART A Sikaflex 2c SL PART B - KIT	1.5	Gallon(GAL)	23-Jul-18
1480113	-	2c SL PART A Sikaflex 2c SL PART B - KIT	1.5	Gallon(GAL)	23-Jul-18
1480115	-	2c SL PART A Sikaflex 2c SL PART B - KIT	1.5	Gallon(GAL)	23-Jul-18
1480114	-	2c SL PART A Sikaflex 2c SL PART B - KIT	1.5	Gallon(GAL)	23-Jul-18
1480109	-	2c SL PART A Sikaflex 2c SL PART B - KIT	1.5	Gallon(GAL)	23-Jul-18
1480110	-	2c SL PART A Sikaflex 2c SL PART B - KIT	1.5	Gallon(GAL)	23-Jul-18
1480111	-	2c SL PART A Sikaflex 2c SL PART B - KIT	1.5	Gallon(GAL)	23-Jul-18
1480112	-	2c SL PART A Sikaflex 2c SL PART B - KIT	1.5	Gallon(GAL)	23-Jul-18
1486554	-	KOOL-MIST FORMULA #77	1	Gallon(GAL)	23-Jul-18
1486555	-	KOOL-MIST FORMULA #77	1	Gallon(GAL)	23-Jul-18
1486553	-	KOOL-MIST FORMULA #77	1	Gallon(GAL)	23-Jul-18
1520767	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520775	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520779	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520788	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520787	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520786	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520785	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520784	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520783	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520782	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520789	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520780	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520770	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520778	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520776	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520774	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520773	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520772	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520771	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520769	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520777	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520781	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1520768	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	24-Jul-18
1521037	-	Lubrizol Pearlstick 5714	50	Pounds(LB)	24-Jul-18
1521038	7440-43-9	CADMIUM	30	Milliliter(ML)	24-Jul-18
1521039	-	LEAD STANDARD	30	Milliliter(ML)	24-Jul-18
1521040	-	COBALT STANDARD	30	Milliliter(ML)	24-Jul-18
1521041	10025-82-8	INDIUM(III) CHLORIDE	10	Gram(GM)	24-Jul-18
1521042	13465-09-3	INDIUM(III) BROMIDE	10	Gram(GM)	24-Jul-18
1521043	13510-35-5	Indium(III) iodide ultra dry	2	Gram(GM)	24-Jul-18
1480117	-	Sikaflex 2C NS EZ MIX PART A Sikaflex 2C NS EZ	1.5	Gallon(GAL)	24-Jul-18
1480124	-	Sikaflex 2C NS EZ MIX PART A Sikaflex 2C NS EZ	1.5	Gallon(GAL)	24-Jul-18
1480126	-	Sikaflex 2C NS EZ MIX PART A Sikaflex 2C NS EZ	1.5	Gallon(GAL)	24-Jul-18
1480125	-	Sikaflex 2C NS EZ MIX PART A Sikaflex 2C NS EZ	1.5	Gallon(GAL)	24-Jul-18
1480123	-	Sikaflex 2C NS EZ MIX PART A Sikaflex 2C NS EZ	1.5	Gallon(GAL)	24-Jul-18
1480122	-	Sikaflex 2C NS EZ MIX PART A Sikaflex 2C NS EZ	1.5	Gallon(GAL)	24-Jul-18
1480120	-	Sikaflex 2C NS EZ MIX PART A Sikaflex 2C NS EZ	1.5	Gallon(GAL)	24-Jul-18
1480119	-	Sikaflex 2C NS EZ MIX PART A Sikaflex 2C NS EZ	1.5	Gallon(GAL)	24-Jul-18
1480118	-	Sikaflex 2C NS EZ MIX PART A Sikaflex 2C NS EZ	1.5	Gallon(GAL)	24-Jul-18
1480127	-	Sikaflex 2C NS EZ MIX PART A Sikaflex 2C NS EZ	1.5	Gallon(GAL)	24-Jul-18
1480121	-	Sikaflex 2C NS EZ MIX PART A Sikaflex 2C NS EZ	1.5	Gallon(GAL)	24-Jul-18
1521045	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	24-Jul-18
1521051	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	24-Jul-18
1521054	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	24-Jul-18
1521047	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	24-Jul-18
1521048	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	24-Jul-18
1521053	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	24-Jul-18
1521050	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	24-Jul-18
1521052	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	24-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521046	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	24-Jul-18
1521049	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	250	Gram(GM)	24-Jul-18
1480128	-	Sikalastic FTP Primer Part B	5	Gallon(GAL)	24-Jul-18
1480135	-	Sikalastic FTP Primer Part B	5	Gallon(GAL)	24-Jul-18
1480130	-	Sikalastic FTP Primer Part B	5	Gallon(GAL)	24-Jul-18
1480132	-	Sikalastic FTP Primer Part B	5	Gallon(GAL)	24-Jul-18
1480134	-	Sikalastic FTP Primer Part B	5	Gallon(GAL)	24-Jul-18
1480133	-	Sikalastic FTP Primer Part B	5	Gallon(GAL)	24-Jul-18
1480129	-	Sikalastic FTP Primer Part B	5	Gallon(GAL)	24-Jul-18
1480131	-	Sikalastic FTP Primer Part B	5	Gallon(GAL)	24-Jul-18
1521067	78-80-8	2-Methyl-1-buten-3-yne	25	Gram(GM)	24-Jul-18
1521068	78-50-2	TRIOCTYLPHOSPHINE OXIDE	100	Gram(GM)	24-Jul-18
1521069	-	IC INSTRUMENT CHECK STANDARD 6	125	Milliliter(ML)	24-Jul-18
1521070	-	IC INSTRUMENT CHECK STANDARD 6	125	Milliliter(ML)	24-Jul-18
1521071	-	PERCHLORATE STANDARD	125	Milliliter(ML)	24-Jul-18
1521072	-	PERCHLORATE STANDARD	125	Milliliter(ML)	24-Jul-18
1521073	7647-15-6	BROMIDE STANDARD	125	Milliliter(ML)	24-Jul-18
1521074	7647-15-6	BROMIDE STANDARD	125	Milliliter(ML)	24-Jul-18
1521075	-	IC INSTRUMENT CHECK STANDARD 3	125	Milliliter(ML)	24-Jul-18
1521076	-	IC INSTRUMENT CHECK STANDARD 3	125	Milliliter(ML)	24-Jul-18
1521077	373-68-2	TETRAMETHYLAMMONIUM FLUORIDE	1	Gram(GM)	24-Jul-18
1521078	373-68-2	TETRAMETHYLAMMONIUM FLUORIDE	1	Gram(GM)	24-Jul-18
1521079	90-96-0	4 4'-DIMETHOXYBENZOPHENONE	25	Gram(GM)	24-Jul-18
1521080	90-94-8	4 4'-BIS(DIMETHYLAMINO)-BENZOPHENONE	100	Gram(GM)	24-Jul-18
1521081	611-97-2	4 4'-DIMETHYLBENZOPHENONE	10	Gram(GM)	24-Jul-18
1521082	768-60-5	4-Ethynylanisole	5	Gram(GM)	24-Jul-18
1521083	768-60-5	4-Ethynylanisole	5	Gram(GM)	24-Jul-18
1521084	705-31-7	4-ETHYNYL-a a a-TRIFLUOROTOLUENE	5	Gram(GM)	24-Jul-18
1521085	705-31-7	4-ETHYNYL-a a a-TRIFLUOROTOLUENE	5	Gram(GM)	24-Jul-18
1521086	14320-04-8	ZINC PHTHALOCYANINE	2	Gram(GM)	24-Jul-18
1521087	-	SUPERDEX 75 PREP GRADE	150	Milliliter(ML)	24-Jul-18
1521088	-	SUPERDEX 75 PREP GRADE	150	Milliliter(ML)	24-Jul-18
1521089	465-16-7	Oleandrin	5	Milligram(MG)	24-Jul-18
1521090	465-16-7	Oleandrin	5	Milligram(MG)	24-Jul-18
1521091	67-68-5	Qubit dsDNA BR Assay Kit	56	Milliliter(ML)	24-Jul-18
1521092	67-68-5	Qubit dsDNA HS Assay Kit	500	Milliliter(ML)	24-Jul-18
1521207	-	POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	24-Jul-18
1521208	-	COLLOIDAL SILICA SUSPENSION	32	Ounces(OZ)	24-Jul-18
1521209	50-81-7	L-ASCORBIC ACID	100	Gram(GM)	24-Jul-18
1521215	50-81-7	L-ASCORBIC ACID	100	Gram(GM)	24-Jul-18
1521210	50-81-7	L-ASCORBIC ACID	100	Gram(GM)	24-Jul-18
1521212	50-81-7	L-ASCORBIC ACID	100	Gram(GM)	24-Jul-18
1521214	50-81-7	L-ASCORBIC ACID	100	Gram(GM)	24-Jul-18
1521218	50-81-7	L-ASCORBIC ACID	100	Gram(GM)	24-Jul-18
1521219	50-81-7	L-ASCORBIC ACID	100	Gram(GM)	24-Jul-18
1521220	50-81-7	L-ASCORBIC ACID	100	Gram(GM)	24-Jul-18
1521216	50-81-7	L-ASCORBIC ACID	100	Gram(GM)	24-Jul-18
1521217	50-81-7	L-ASCORBIC ACID	100	Gram(GM)	24-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521211	50-81-7	L-ASCORBIC ACID	100	Gram(GM)	24-Jul-18
1521213	50-81-7	L-ASCORBIC ACID	100	Gram(GM)	24-Jul-18
1559407	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559410	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559415	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559419	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559418	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559417	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559420	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559416	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559421	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559413	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559411	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559409	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559408	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559414	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559412	-	Hydrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559422	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559434	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559435	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559436	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559437	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559438	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559439	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559440	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559442	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559428	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559433	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559443	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559441	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559431	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559430	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559429	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559432	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559427	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559426	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559425	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559424	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559423	-	Nitrogen UHP	220	Cubic Feet(CF)	24-Jul-18
1559444	-	AIR COMPRESSED	220	Cubic Feet(CF)	24-Jul-18
1559445	-	AIR COMPRESSED	220	Cubic Feet(CF)	24-Jul-18
1559446	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559455	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559456	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559464	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559463	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559462	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559461	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559460	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559459	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559458	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559465	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559449	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559457	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559448	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559450	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559451	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559452	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559453	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559454	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559447	-	Argon UHP	220	Cubic Feet(CF)	24-Jul-18
1559466	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559481	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559487	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559482	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559483	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559484	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559485	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559486	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559488	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559493	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559489	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559490	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559468	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559491	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559480	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559492	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559469	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559470	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559467	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559471	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559472	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559473	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559474	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559475	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559476	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559477	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559478	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559479	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Jul-18
1559494	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	24-Jul-18
1559495	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	24-Jul-18
1559496	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	24-Jul-18
1559497	-	OXYGEN IN NITROGEN	220	Cubic Feet(CF)	24-Jul-18
1559498	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559509	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559507	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559506	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559511	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559510	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559508	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559500	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559505	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559503	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559501	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559499	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559502	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559504	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559512	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559523	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559524	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559525	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559526	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559527	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559528	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559522	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559530	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559531	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559532	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559529	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559514	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559521	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559513	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559515	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559516	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559517	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559518	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559519	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559520	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Jul-18
1559533	74-98-6	PROPANE	220	Cubic Feet(CF)	24-Jul-18
1559260	75-71-8	DICHLORODIFLUROMETHANE (FREON 12)	220	Cubic Feet(CF)	24-Jul-18
1520964	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	25-Jul-18
1520966	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	25-Jul-18
1520969	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	25-Jul-18
1520965	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	25-Jul-18
1520967	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	25-Jul-18
1520968	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	25-Jul-18
1520970	1344-28-1	ALUMINUM OXIDE (ALUMINA)	5	Kilograms(KG)	25-Jul-18
1520971	64742-65-0	19 MECHANICAL PUMP OIL	1	Gallon(GAL)	25-Jul-18
1520974	64742-65-0	19 MECHANICAL PUMP OIL	1	Gallon(GAL)	25-Jul-18
1520972	64742-65-0	19 MECHANICAL PUMP OIL	1	Gallon(GAL)	25-Jul-18
1520973	64742-65-0	19 MECHANICAL PUMP OIL	1	Gallon(GAL)	25-Jul-18
1520975	64742-65-0	19 MECHANICAL PUMP OIL	1	Gallon(GAL)	25-Jul-18
1520976	76-05-1	TRIFLUOROACETIC ACID	500	Gram(GM)	25-Jul-18
1520978	76-05-1	TRIFLUOROACETIC ACID	500	Gram(GM)	25-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1520979	76-05-1	TRIFLUOROACETIC ACID	500	Gram(GM)	25-Jul-18
1520977	76-05-1	TRIFLUOROACETIC ACID	500	Gram(GM)	25-Jul-18
1520980	-	BREAK-FREE CLP	16	Ounces(OZ)	25-Jul-18
1520982	-	BREAK-FREE CLP	16	Ounces(OZ)	25-Jul-18
1520981	-	BREAK-FREE CLP	16	Ounces(OZ)	25-Jul-18
1521044	-	PRISM(TM) 460 LOW ODOR/BLOOM INST ADH	20	Gram(GM)	25-Jul-18
1521093	1341-49-7	DISSOLUTION SOLUTION - AMMONIUM	500	Milliliter(ML)	25-Jul-18
1521095	1341-49-7	DISSOLUTION SOLUTION - AMMONIUM	500	Milliliter(ML)	25-Jul-18
1521094	1341-49-7	DISSOLUTION SOLUTION - AMMONIUM	500	Milliliter(ML)	25-Jul-18
1521096	593-84-0	GUANIDINE THIOCYANATE	50	Milliliter(ML)	25-Jul-18
1521097	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	25-Jul-18
1521099	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	25-Jul-18
1521100	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	25-Jul-18
1521102	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	25-Jul-18
1521103	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	25-Jul-18
1521104	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	25-Jul-18
1521105	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	25-Jul-18
1521106	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	25-Jul-18
1521098	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	25-Jul-18
1521101	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	25-Jul-18
1521107	1076-43-3	BENZENE-D6	100	Gram(GM)	25-Jul-18
1521108	1076-43-3	BENZENE-D6	100	Gram(GM)	25-Jul-18
1521109	1076-43-3	BENZENE-D6	100	Gram(GM)	25-Jul-18
1521110	1076-43-3	BENZENE-D6	100	Gram(GM)	25-Jul-18
1521111	1076-43-3	BENZENE-D6	100	Gram(GM)	25-Jul-18
1521112	1076-43-3	BENZENE-D6	100	Gram(GM)	25-Jul-18
1521117	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	25-Jul-18
1521124	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	25-Jul-18
1521126	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	25-Jul-18
1521119	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	25-Jul-18
1521120	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	25-Jul-18
1521123	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	25-Jul-18
1521121	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	25-Jul-18
1521122	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	25-Jul-18
1521118	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	25-Jul-18
1521125	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	25-Jul-18
1521221	-	SYLGARD 184	0.5	Kilograms(KG)	25-Jul-18
1521222	67-56-1	METHANOL ANHYDROUS	1	Liters(L)	25-Jul-18
1521223	67-68-5	Qubit dsDNA HS Assay Kit	500	Milliliter(ML)	25-Jul-18
1521224	1282-37-7	FERROCENIUM TETRAFLUOROBORATE	5	Gram(GM)	25-Jul-18
1521226	1282-37-7	FERROCENIUM TETRAFLUOROBORATE	5	Gram(GM)	25-Jul-18
1521227	1282-37-7	FERROCENIUM TETRAFLUOROBORATE	5	Gram(GM)	25-Jul-18
1521225	1282-37-7	FERROCENIUM TETRAFLUOROBORATE	5	Gram(GM)	25-Jul-18
1521228	15321-51-4	IRON NONACARBONYL 99%	10	Gram(GM)	25-Jul-18
1521229	25390-16-3	TANGHININ	250	Milligram(MG)	25-Jul-18
1521230	-	MINIMUM ESSENTIAL MEDIUM ALPHA MEDIUM	500	Milliliter(ML)	25-Jul-18
1521231	-	MINIMUM ESSENTIAL MEDIUM ALPHA MEDIUM	500	Milliliter(ML)	25-Jul-18
1521238	-	MINIMUM ESSENTIAL MEDIUM ALPHA MEDIUM	500	Milliliter(ML)	25-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521233	-	MINIMUM ESSENTIAL MEDIUM ALPHA MEDIUM	500	Milliliter(ML)	25-Jul-18
1521234	-	MINIMUM ESSENTIAL MEDIUM ALPHA MEDIUM	500	Milliliter(ML)	25-Jul-18
1521235	-	MINIMUM ESSENTIAL MEDIUM ALPHA MEDIUM	500	Milliliter(ML)	25-Jul-18
1521237	-	MINIMUM ESSENTIAL MEDIUM ALPHA MEDIUM	500	Milliliter(ML)	25-Jul-18
1521239	-	MINIMUM ESSENTIAL MEDIUM ALPHA MEDIUM	500	Milliliter(ML)	25-Jul-18
1521240	-	MINIMUM ESSENTIAL MEDIUM ALPHA MEDIUM	500	Milliliter(ML)	25-Jul-18
1521241	-	MINIMUM ESSENTIAL MEDIUM ALPHA MEDIUM	500	Milliliter(ML)	25-Jul-18
1521232	-	MINIMUM ESSENTIAL MEDIUM ALPHA MEDIUM	500	Milliliter(ML)	25-Jul-18
1521236	-	MINIMUM ESSENTIAL MEDIUM ALPHA MEDIUM	500	Milliliter(ML)	25-Jul-18
1521271	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521293	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521292	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521291	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521290	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521294	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521275	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521274	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521272	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521273	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521288	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521282	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521317	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521318	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521319	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521295	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521289	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521277	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521315	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521278	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521314	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521287	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521286	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521285	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521284	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521283	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521279	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521280	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521281	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521276	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521305	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521296	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521297	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521298	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521299	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521300	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521301	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521302	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521316	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521304	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521320	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521306	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521307	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521308	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521309	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521310	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521311	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521312	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521313	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521303	-	PETRO BOND POLYMER	5	Gallon(GAL)	25-Jul-18
1521321	67-56-1	METHANOL HPLC	4	Liters(L)	25-Jul-18
1521328	67-56-1	METHANOL HPLC	4	Liters(L)	25-Jul-18
1521327	67-56-1	METHANOL HPLC	4	Liters(L)	25-Jul-18
1521326	67-56-1	METHANOL HPLC	4	Liters(L)	25-Jul-18
1521325	67-56-1	METHANOL HPLC	4	Liters(L)	25-Jul-18
1521324	67-56-1	METHANOL HPLC	4	Liters(L)	25-Jul-18
1521323	67-56-1	METHANOL HPLC	4	Liters(L)	25-Jul-18
1521322	67-56-1	METHANOL HPLC	4	Liters(L)	25-Jul-18
1521329	-	BREAK-FREE CLP	1	Gallon(GAL)	25-Jul-18
1521330	-	DC 3-6559 ACCELERATOR	0.5	Kilograms(KG)	25-Jul-18
1521331	-	HIGH VACUUM GREASE	5.3	Ounces(OZ)	25-Jul-18
1331534	7681-52-9	SODIUM HYPOCHLORITE	3.57	Liters(L)	25-Jul-18
981927	8042-47-5	Light Mineral Oil	55	Gallon(GAL)	25-Jul-18
981928	8042-47-5	Light Mineral Oil	55	Gallon(GAL)	25-Jul-18
1559537	-	AIR COMPRESSED	220	Cubic Feet(CF)	26-Jul-18
1559540	-	AIR COMPRESSED	220	Cubic Feet(CF)	26-Jul-18
1559541	-	AIR COMPRESSED	220	Cubic Feet(CF)	26-Jul-18
1559539	-	AIR COMPRESSED	220	Cubic Feet(CF)	26-Jul-18
1559538	-	AIR COMPRESSED	220	Cubic Feet(CF)	26-Jul-18
1559542	-	AIR COMPRESSED	220	Cubic Feet(CF)	26-Jul-18
1559543	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559544	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559534	75-45-6	CHLORODIFLUOROMETHANE	30	Pounds(LB)	26-Jul-18
1559535	-	2.9% Hydrogen/Bal. Argon	220	Cubic Feet(CF)	26-Jul-18
1559536	-	2.9% Hydrogen/Bal. Argon	220	Cubic Feet(CF)	26-Jul-18
1559545	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559572	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559562	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559563	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559564	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559565	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559566	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559567	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559568	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559569	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559571	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559573	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559574	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559546	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559561	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559570	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559547	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559559	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559558	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559557	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559556	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559555	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559554	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559553	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559552	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559551	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559550	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559549	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559548	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559560	-	Nitrogen UHP	220	Cubic Feet(CF)	26-Jul-18
1559575	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559590	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559601	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559603	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559600	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559599	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559598	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559597	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559596	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559595	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559594	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559593	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559592	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559591	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559602	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559578	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559589	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559577	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559576	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559579	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559580	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559581	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559583	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559584	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559585	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559586	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559588	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559582	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1559587	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	26-Jul-18
1480517	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	26-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480521	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	26-Jul-18
1480528	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	26-Jul-18
1480527	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	26-Jul-18
1480526	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	26-Jul-18
1480525	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	26-Jul-18
1480524	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	26-Jul-18
1480522	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	26-Jul-18
1480520	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	26-Jul-18
1480519	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	26-Jul-18
1480518	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	26-Jul-18
1480523	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	26-Jul-18
1559604	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559615	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559616	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559618	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559620	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559624	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559622	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559623	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559614	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559617	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559621	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559612	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559611	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559610	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559609	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559608	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559607	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559606	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559605	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559619	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559613	7440-59-7	Helium UHP	220	Cubic Feet(CF)	26-Jul-18
1559625	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559638	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559639	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559640	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559641	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559642	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559643	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559637	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559645	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559630	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559646	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559644	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559636	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559635	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559634	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559633	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559631	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559629	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559628	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559627	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559626	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559647	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559648	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559632	-	Argon UHP	220	Cubic Feet(CF)	26-Jul-18
1559654	-	Argon UHP	40	Cubic Feet(CF)	26-Jul-18
1559653	-	Argon UHP	40	Cubic Feet(CF)	26-Jul-18
1480567	-	808-9907 COLORTREND B LAMP BLACK	1	Liters(L)	26-Jul-18
1480570	-	808-9907 COLORTREND B LAMP BLACK	1	Liters(L)	26-Jul-18
1480568	-	808-9907 COLORTREND B LAMP BLACK	1	Liters(L)	26-Jul-18
1480569	-	808-9907 COLORTREND B LAMP BLACK	1	Liters(L)	26-Jul-18
1480571	-	808-9907 COLORTREND B LAMP BLACK	1	Liters(L)	26-Jul-18
1480572	-	808-9907 COLORTREND B LAMP BLACK	1	Liters(L)	26-Jul-18
1480573	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	26-Jul-18
1480577	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	26-Jul-18
1480578	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	26-Jul-18
1480576	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	26-Jul-18
1480575	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	26-Jul-18
1480574	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	26-Jul-18
1480582	-	Cote All J.D. (Safety) Yellow	3.8	Liters(L)	26-Jul-18
1480583	-	Cote All J.D. (Safety) Yellow	3.8	Liters(L)	26-Jul-18
1480584	-	Cote All J.D. (Safety) Yellow	3.8	Liters(L)	26-Jul-18
1480585	-	Cote All J.D. (Safety) Yellow	3.8	Liters(L)	26-Jul-18
1480586	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	26-Jul-18
1480589	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	26-Jul-18
1480590	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	26-Jul-18
1480588	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	26-Jul-18
1480592	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	26-Jul-18
1480587	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	26-Jul-18
1480593	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	26-Jul-18
1480594	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	26-Jul-18
1480595	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	26-Jul-18
1480591	-	Avalon Premium 100% Acrylic Interior Satin W/B	3.6	Liters(L)	26-Jul-18
1480579	-	Avalon Premium 100% Acrylic Interior Flat W/B	18	Liters(L)	26-Jul-18
1480580	-	Avalon Premium 100% Acrylic Interior Flat W/B	18	Liters(L)	26-Jul-18
1480581	-	Avalon Premium 100% Acrylic Interior Flat W/B	18	Liters(L)	26-Jul-18
1559649	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	26-Jul-18
1559650	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	26-Jul-18
1559651	-	AIR COMPRESSED	220	Cubic Feet(CF)	26-Jul-18
1559652	-	AIR COMPRESSED	220	Cubic Feet(CF)	26-Jul-18
1559655	-	Propane Nitrogen	150	Cubic Feet(CF)	26-Jul-18
1559656	-	CARBON MONOXIDE IN NITROGEN	150	Cubic Feet(CF)	26-Jul-18
1559657	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	26-Jul-18
1559658	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18
1559667	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559668	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18
1559663	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18
1559666	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18
1559665	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18
1559664	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18
1559661	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18
1559660	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18
1559659	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18
1559670	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18
1559669	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18
1559662	74-98-6	PROPANE	50	Cubic Feet(CF)	26-Jul-18
1480596	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480601	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480600	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480599	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480597	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480611	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480603	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480604	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480605	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480606	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480607	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480608	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480609	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480610	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480602	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480598	-	Hi-Solids Polyurethane Activator (Part T)	32	Ounces(OZ)	26-Jul-18
1480616	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480624	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480631	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480630	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480629	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480628	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480627	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480625	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480623	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480622	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480621	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480620	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480619	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480618	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480617	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480626	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	3.6	Liters(L)	26-Jul-18
1480670	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	26-Jul-18
1480671	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	26-Jul-18
1480675	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	26-Jul-18
1480672	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	26-Jul-18
1480673	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	26-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480674	65997-15-1	PORTLAND CEMENT	50	Pounds(LB)	26-Jul-18
1521113	-	POTASSIUM IODIDE-IODATE S	1000	Milliliter(ML)	26-Jul-18
1521114	-	POTASSIUM IODIDE-IODATE S	1000	Milliliter(ML)	26-Jul-18
1521115	-	STARCH INDICATOR SOLUTION	100	Milliliter(ML)	26-Jul-18
1521116	-	STARCH INDICATOR SOLUTION	100	Milliliter(ML)	26-Jul-18
1521127	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521136	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521151	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521150	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521149	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521148	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521147	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521146	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521145	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521143	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521141	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521140	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521139	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521137	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521144	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521135	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521134	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521133	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521132	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521131	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521130	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521129	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521128	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521152	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521206	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521138	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521194	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521179	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521181	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521193	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521202	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521201	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521200	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521153	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521199	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521142	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521198	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521197	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521178	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521195	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521180	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521182	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521183	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521184	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521185	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521186	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521187	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521188	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521189	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521190	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521191	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521192	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521196	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521165	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521158	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521159	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521160	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521161	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521205	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521162	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521204	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521156	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521203	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521155	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521157	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521164	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521163	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521166	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521167	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521168	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521169	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521170	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521171	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521172	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521173	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521174	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521175	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521154	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521176	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521177	64-17-5	ETHYL ALCOHOL 95%	4	Gallon(GAL)	26-Jul-18
1521242	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	50	Gram(GM)	26-Jul-18
1521243	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	50	Gram(GM)	26-Jul-18
1521245	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	50	Gram(GM)	26-Jul-18
1521244	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	50	Gram(GM)	26-Jul-18
1457479	-	EPOXY ADHESIVE	50	Milliliter(ML)	26-Jul-18
1457484	-	EPOXY ADHESIVE	50	Milliliter(ML)	26-Jul-18
1457488	-	EPOXY ADHESIVE	50	Milliliter(ML)	26-Jul-18
1457487	-	EPOXY ADHESIVE	50	Milliliter(ML)	26-Jul-18
1457485	-	EPOXY ADHESIVE	50	Milliliter(ML)	26-Jul-18
1457483	-	EPOXY ADHESIVE	50	Milliliter(ML)	26-Jul-18
1457482	-	EPOXY ADHESIVE	50	Milliliter(ML)	26-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1457481	-	EPOXY ADHESIVE	50	Milliliter(ML)	26-Jul-18
1457480	-	EPOXY ADHESIVE	50	Milliliter(ML)	26-Jul-18
1457486	-	EPOXY ADHESIVE	50	Milliliter(ML)	26-Jul-18
1457998	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	26-Jul-18
1457999	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	26-Jul-18
1458000	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	26-Jul-18
1458001	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	26-Jul-18
1458002	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	26-Jul-18
1458003	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	26-Jul-18
1480612	-	High Solids Compliant Thinner #1	5	Gallon(GAL)	26-Jul-18
1480613	-	High Solids Compliant Thinner #1	5	Gallon(GAL)	26-Jul-18
1480632	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480636	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480635	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480639	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480634	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480633	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480638	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480637	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480656	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480661	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480660	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480662	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480657	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480659	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480658	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480663	-	Hi-Solids Polyurethane - Gloss (Part S) Extra	3.54	Liters(L)	26-Jul-18
1480640	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480647	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480641	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480642	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480654	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480653	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480652	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480651	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480650	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480643	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480649	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480648	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480646	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480644	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480645	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1480655	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	26-Jul-18
1521246	100-21-0	TEREPHTHALIC ACID	500	Gram(GM)	26-Jul-18
1521247	151-21-3	Chemagic DNA Bacteria Kit	10	Milliliter(ML)	26-Jul-18
1521248	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	26-Jul-18
1521249	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	26-Jul-18
1521250	109-66-0	PENTANE ANHYDROUS	1	Liters(L)	26-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521251	109-66-0	PENTANE ANHYDROUS	1	Liters(L)	26-Jul-18
1521252	109-66-0	PENTANE ANHYDROUS	1	Liters(L)	26-Jul-18
1521253	112-90-3	OLEYLAMINE 70%	500	Gram(GM)	26-Jul-18
1521254	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	26-Jul-18
1521257	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	26-Jul-18
1521256	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	26-Jul-18
1521255	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	26-Jul-18
1521262	7782-42-5	GRAPHITE POWDER	25	Gram(GM)	26-Jul-18
1521263	25583-20-4	TITANIUM NITRIDE	25	Gram(GM)	26-Jul-18
1521264	25583-20-4	TITANIUM NITRIDE	5	Gram(GM)	26-Jul-18
1521265	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	26-Jul-18
1521268	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	26-Jul-18
1521266	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	26-Jul-18
1521267	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	26-Jul-18
1521269	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	26-Jul-18
1521270	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	26-Jul-18
1521332	-	KOD Hot Start DNA Polymerase	200	Milliliter(ML)	26-Jul-18
1331535	7681-52-9	SODIUM HYPOCHLORITE	3.57	Liters(L)	26-Jul-18
1331536	7681-52-9	SODIUM HYPOCHLORITE	3.57	Liters(L)	26-Jul-18
1495782	-	RANDO HDZ	55	Gallon(GAL)	27-Jul-18
1495783	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	27-Jul-18
1495790	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	27-Jul-18
1495791	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	27-Jul-18
1495788	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	27-Jul-18
1495785	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	27-Jul-18
1495786	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	27-Jul-18
1495789	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	27-Jul-18
1495784	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	27-Jul-18
1495787	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	27-Jul-18
1495792	-	PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	27-Jul-18
1495793	-	PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	27-Jul-18
1495794	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	27-Jul-18
1495795	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	27-Jul-18
1495796	-	3M Rubberized Undercoating Black PN08883	19.7	Ounces(OZ)	27-Jul-18
1495797	-	3M Rubberized Undercoating Black PN08883	19.7	Ounces(OZ)	27-Jul-18
1521374	-	Cooper's Own Self Dissolving Lily Tabs	40	Gram(GM)	30-Jul-18
1521378	-	Cooper's Own Self Dissolving Lily Tabs	40	Gram(GM)	30-Jul-18
1521375	-	Cooper's Own Self Dissolving Lily Tabs	40	Gram(GM)	30-Jul-18
1521377	-	Cooper's Own Self Dissolving Lily Tabs	40	Gram(GM)	30-Jul-18
1521376	-	Cooper's Own Self Dissolving Lily Tabs	40	Gram(GM)	30-Jul-18
1521379	7772-98-7	SODIUM THIOSULFATE	1000	Milliliter(ML)	30-Jul-18
1521380	7772-98-7	SODIUM THIOSULFATE	1000	Milliliter(ML)	30-Jul-18
1521381	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	30-Jul-18
1521382	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	30-Jul-18
1521383	-	Iodate-Iodide	13	Milliliter(ML)	30-Jul-18
1521384	-	Iodate-Iodide	13	Milliliter(ML)	30-Jul-18
1521385	67-56-1	METHANOL HPLC	4	Liters(L)	30-Jul-18
1521386	67-56-1	METHANOL HPLC	4	Liters(L)	30-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521387	67-56-1	METHANOL HPLC	4	Liters(L)	30-Jul-18
1521388	67-56-1	METHANOL HPLC	4	Liters(L)	30-Jul-18
1521389	-	Dissolved Oxygen 3 Powder Pillows	60	Milliliter(ML)	30-Jul-18
1521390	64-17-5	ETHYL ALCOHOL PURE	1	Gallon(GAL)	30-Jul-18
1521392	64-17-5	ETHYL ALCOHOL PURE	1	Gallon(GAL)	30-Jul-18
1521393	64-17-5	ETHYL ALCOHOL PURE	1	Gallon(GAL)	30-Jul-18
1521391	64-17-5	ETHYL ALCOHOL PURE	1	Gallon(GAL)	30-Jul-18
1521394	-	GREAT STUFF FOAM SEALANT	16	Ounces(OZ)	30-Jul-18
1521399	-	GREAT STUFF FOAM SEALANT	16	Ounces(OZ)	30-Jul-18
1521405	-	GREAT STUFF FOAM SEALANT	16	Ounces(OZ)	30-Jul-18
1521404	-	GREAT STUFF FOAM SEALANT	16	Ounces(OZ)	30-Jul-18
1521403	-	GREAT STUFF FOAM SEALANT	16	Ounces(OZ)	30-Jul-18
1521402	-	GREAT STUFF FOAM SEALANT	16	Ounces(OZ)	30-Jul-18
1521400	-	GREAT STUFF FOAM SEALANT	16	Ounces(OZ)	30-Jul-18
1521398	-	GREAT STUFF FOAM SEALANT	16	Ounces(OZ)	30-Jul-18
1521397	-	GREAT STUFF FOAM SEALANT	16	Ounces(OZ)	30-Jul-18
1521396	-	GREAT STUFF FOAM SEALANT	16	Ounces(OZ)	30-Jul-18
1521395	-	GREAT STUFF FOAM SEALANT	16	Ounces(OZ)	30-Jul-18
1521401	-	GREAT STUFF FOAM SEALANT	16	Ounces(OZ)	30-Jul-18
1521406	63231-60-7	MICROCRYSTALLINE WAX	10	Pounds(LB)	30-Jul-18
1521408	63231-60-7	MICROCRYSTALLINE WAX	10	Pounds(LB)	30-Jul-18
1521407	63231-60-7	MICROCRYSTALLINE WAX	10	Pounds(LB)	30-Jul-18
1521409	-	SODIUM HYDROXIDE SOLUTIONS	100	Milliliter(ML)	30-Jul-18
1521487	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521496	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521502	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521501	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521500	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521499	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521488	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521497	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521495	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521494	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521493	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521492	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521491	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521490	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521489	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521498	-	DRY-FILM LUBRICANT	8	Ounces(OZ)	30-Jul-18
1521513	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	30-Jul-18
1521519	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	30-Jul-18
1521522	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	30-Jul-18
1521517	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	30-Jul-18
1521521	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	30-Jul-18
1521520	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	30-Jul-18
1521518	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	30-Jul-18
1521516	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	30-Jul-18
1521515	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	30-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521514	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	30-Jul-18
1495798	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	30-Jul-18
1495802	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	30-Jul-18
1495807	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	30-Jul-18
1495806	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	30-Jul-18
1495805	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	30-Jul-18
1495799	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	30-Jul-18
1495803	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	30-Jul-18
1495801	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	30-Jul-18
1495800	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	30-Jul-18
1495804	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	30-Jul-18
1495808	-	PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Jul-18
1495809	-	PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Jul-18
1495810	-	PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Jul-18
1495811	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	30-Jul-18
1495812	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	30-Jul-18
1521333	10138-52-0	GADOLINIUM(III) CHLORIDE ANHYDROUS	5	Gram(GM)	30-Jul-18
1521334	-	LOCTITE 330	25	Milliliter(ML)	30-Jul-18
1521335	-	LOCTITE 330	25	Milliliter(ML)	30-Jul-18
1521336	-	LOCTITE 330	25	Milliliter(ML)	30-Jul-18
1521337	10042-88-3	TERBIUM(III) CHLORIDE ANHYDROUS	2	Gram(GM)	30-Jul-18
1521338	13709-36-9	XENON DIFLUORIDE	2	Gram(GM)	31-Jul-18
1521339	877-24-7	POTASSIUM HYDROGEN PHTHALATE	100	Gram(GM)	31-Jul-18
1521340	77-98-5	TETRAETHYL AMMONIUM HYDROXIDE	500	Gram(GM)	31-Jul-18
1521410	-	OHM Shield Floor Cleaner	1	Gallon(GAL)	31-Jul-18
1521411	-	OHM Shield Floor Cleaner	1	Gallon(GAL)	31-Jul-18
1521413	-	OHM Shield Floor Cleaner	1	Gallon(GAL)	31-Jul-18
1521412	-	OHM Shield Floor Cleaner	1	Gallon(GAL)	31-Jul-18
1521414	-	ARATHANE 5750-A/B	1	Quarts(QT)	31-Jul-18
1521523	107-21-1	ETHYLENE GLYCOL	500	Milliliter(ML)	31-Jul-18
1521524	107-21-1	ETHYLENE GLYCOL	500	Milliliter(ML)	31-Jul-18
1521525	-	VITON FLUOROELASTOMER	3.2	Gram(GM)	31-Jul-18
1521527	-	VITON FLUOROELASTOMER	3.2	Gram(GM)	31-Jul-18
1521528	-	VITON FLUOROELASTOMER	3.2	Gram(GM)	31-Jul-18
1521526	-	VITON FLUOROELASTOMER	3.2	Gram(GM)	31-Jul-18
1521529	-	VITON FLUOROELASTOMER	3.2	Gram(GM)	31-Jul-18
1521530	75-37-6	1 1-DIFLUOROETHANE	10	Ounces(OZ)	31-Jul-18
1521531	75-37-6	1 1-DIFLUOROETHANE	10	Ounces(OZ)	31-Jul-18
1521532	7447-40-7	Reference Electrode Filling Solution - Silver/Silver	4	Ounces(OZ)	31-Jul-18
1521533	76-05-1	TRIFLUOROACETIC ACID	500	Gram(GM)	31-Jul-18
1480664	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	16.9	Liters(L)	31-Jul-18
1480665	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	16.9	Liters(L)	31-Jul-18
1480666	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	16.9	Liters(L)	31-Jul-18
1521534	13813-45-1	LUTETIUM(III) IODIDE	5	Gram(GM)	31-Jul-18
1521535	7439-91-0	LANTHANUM POWDER	5	Gram(GM)	31-Jul-18
1521536	1984-15-2	METHYLENEDIPHOSPHONIC ACID	5	Gram(GM)	31-Jul-18
1521537	64-18-6	FORMIC ACID	500	Gram(GM)	31-Jul-18
1521538	75-09-2	Kovats Test Mix	1	Milliliter(ML)	31-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521541	75-09-2	Kovats Test Mix	1	Milliliter(ML)	31-Jul-18
1521546	75-09-2	Kovats Test Mix	1	Milliliter(ML)	31-Jul-18
1521545	75-09-2	Kovats Test Mix	1	Milliliter(ML)	31-Jul-18
1521544	75-09-2	Kovats Test Mix	1	Milliliter(ML)	31-Jul-18
1521542	75-09-2	Kovats Test Mix	1	Milliliter(ML)	31-Jul-18
1521540	75-09-2	Kovats Test Mix	1	Milliliter(ML)	31-Jul-18
1521539	75-09-2	Kovats Test Mix	1	Milliliter(ML)	31-Jul-18
1521543	75-09-2	Kovats Test Mix	1	Milliliter(ML)	31-Jul-18
1521547	75-09-2	Kovats Test Mix	1	Milliliter(ML)	31-Jul-18
1521559	-	SILVER EPOXY	1	Ounces(OZ)	31-Jul-18
1521561	-	SILVER EPOXY	1	Ounces(OZ)	31-Jul-18
1521566	-	SILVER EPOXY	1	Ounces(OZ)	31-Jul-18
1521567	-	SILVER EPOXY	1	Ounces(OZ)	31-Jul-18
1521568	-	SILVER EPOXY	1	Ounces(OZ)	31-Jul-18
1521564	-	SILVER EPOXY	1	Ounces(OZ)	31-Jul-18
1521562	-	SILVER EPOXY	1	Ounces(OZ)	31-Jul-18
1521560	-	SILVER EPOXY	1	Ounces(OZ)	31-Jul-18
1521565	-	SILVER EPOXY	1	Ounces(OZ)	31-Jul-18
1521563	-	SILVER EPOXY	1	Ounces(OZ)	31-Jul-18
1521569	14220-17-8	POTASSIUM TETRACYANONICKELATE(II)	100	Gram(GM)	31-Jul-18
1521570	631-61-8	AMMONIUM ACETATE	50	Gram(GM)	31-Jul-18
1521571	-	FMOC-GLY-WANG RESIN	100	Gram(GM)	31-Jul-18
1521572	-	Dionex Combined Seven Anion Standard I	50	Milliliter(ML)	31-Jul-18
1521573	-	Dionex Combined Seven Anion Standard I	50	Milliliter(ML)	31-Jul-18
1458032	7681-52-9	SODIUM HYPOCHLORITE	330	Gallon(GAL)	31-Jul-18
1458033	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	31-Jul-18
1458034	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	31-Jul-18
1458036	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	31-Jul-18
1458035	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	31-Jul-18
1521342	466-07-9	NERIIFOLIN	5	Milligram(MG)	31-Jul-18
1521548	-	PS-HOBt(HL)	25	Gram(GM)	31-Jul-18
1521549	74257-00-4	1-(2-MESITYLENSESULFONYL)-3-NITRO-1H-1 2 4-	500	Gram(GM)	31-Jul-18
1521550	-	FULLCURE 840	3.6	Kilograms(KG)	31-Jul-18
1521551	-	FULLCURE 840	3.6	Kilograms(KG)	31-Jul-18
1521552	-	OBJET VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	31-Jul-18
1521553	-	FULLCURE 705	3.6	Kilograms(KG)	31-Jul-18
1521554	7778-18-9	W.A. HAMMOND DRIERITE (INDICATING	5	Pounds(LB)	31-Jul-18
1521574	7787-58-8	BISMUTH(III) BROMIDE	1	Gram(GM)	31-Jul-18
1521582	-	TALC POWDER	500	Gram(GM)	31-Jul-18
1521583	7727-43-7	BARIUM SULFATE	1	Kilograms(KG)	31-Jul-18
1521585	598-54-9	COPPER (I) ACETATE	10	Gram(GM)	31-Jul-18
1521586	13762-51-1	POTASSIUM BOROHYDRIDE	100	Gram(GM)	31-Jul-18
1521631	-	AX Oil	1	Gallon(GAL)	31-Jul-18
1521632	-	AX Oil	1	Gallon(GAL)	31-Jul-18
1521633	-	AX Oil	1	Gallon(GAL)	31-Jul-18
1521634	-	AX Oil	1	Gallon(GAL)	31-Jul-18
1521635	-	AX Oil	1	Gallon(GAL)	31-Jul-18
1521636	-	AX Oil	5	Gallon(GAL)	31-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521637	-	Kinney KV-100 Mechanical Vacuum Pump Oil	1	Gallon(GAL)	31-Jul-18
1521639	-	Kinney KV-100 Mechanical Vacuum Pump Oil	1	Gallon(GAL)	31-Jul-18
1521640	-	Kinney KV-100 Mechanical Vacuum Pump Oil	1	Gallon(GAL)	31-Jul-18
1521641	-	Kinney KV-100 Mechanical Vacuum Pump Oil	1	Gallon(GAL)	31-Jul-18
1521638	-	Kinney KV-100 Mechanical Vacuum Pump Oil	1	Gallon(GAL)	31-Jul-18
1521642	-	Kinney KV-100 Mechanical Vacuum Pump Oil	5	Gallon(GAL)	31-Jul-18
1521643	7664-93-9	SULFURIC ACID (TRACEPUR)	500	Milliliter(ML)	31-Jul-18
1521644	7664-93-9	SULFURIC ACID (TRACEPUR)	500	Milliliter(ML)	31-Jul-18
1521645	7664-93-9	SULFURIC ACID (TRACEPUR)	500	Milliliter(ML)	31-Jul-18
1521646	7664-93-9	SULFURIC ACID (TRACEPUR)	500	Milliliter(ML)	31-Jul-18
1521647	7664-93-9	SULFURIC ACID (TRACEPUR)	500	Milliliter(ML)	31-Jul-18
1521648	75-26-3	2-BROMOPROPANE (ISOPROPYL BROMIDE)	1	Liters(L)	31-Jul-18
1521649	7718-98-1	VANADIUM(III) CHLORIDE	10	Gram(GM)	31-Jul-18
1521650	1992-48-9	Tetraisopropyl Orthosilicate	10	Milliliter(ML)	31-Jul-18
1521651	1066-54-2	TRIMETHYLSILYLACETYLENE 98%	100	Gram(GM)	31-Jul-18
1521652	1066-54-2	TRIMETHYLSILYLACETYLENE 98%	100	Gram(GM)	31-Jul-18
1521653	518-47-8	FLUORESCEIN SODIUM SALT	1	Milligram(MG)	31-Jul-18
1521654	518-47-8	FLUORESCEIN SODIUM SALT	1	Milligram(MG)	31-Jul-18
1521655	518-47-8	FLUORESCEIN SODIUM SALT	1	Milligram(MG)	31-Jul-18
1521656	7719-09-7	THIONYL CHLORIDE	100	Milliliter(ML)	31-Jul-18
1458037	-	SODIUM BISULFITE 38-42%	2464	Pounds(LB)	31-Jul-18
1458038	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	31-Jul-18
1458040	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	31-Jul-18
1458039	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	31-Jul-18
1521346	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521351	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521356	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521357	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521358	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521359	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521360	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521361	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521352	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521350	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521349	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521348	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521347	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521355	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521353	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521354	110-54-3	HEXANE HPLC	16	Liters(L)	31-Jul-18
1521362	811-97-2	AERO-DUSTER	11	Ounces(OZ)	31-Jul-18
1521365	811-97-2	AERO-DUSTER	11	Ounces(OZ)	31-Jul-18
1521369	811-97-2	AERO-DUSTER	11	Ounces(OZ)	31-Jul-18
1521368	811-97-2	AERO-DUSTER	11	Ounces(OZ)	31-Jul-18
1521367	811-97-2	AERO-DUSTER	11	Ounces(OZ)	31-Jul-18
1521366	811-97-2	AERO-DUSTER	11	Ounces(OZ)	31-Jul-18
1521364	811-97-2	AERO-DUSTER	11	Ounces(OZ)	31-Jul-18
1521373	811-97-2	AERO-DUSTER	11	Ounces(OZ)	31-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521370	811-97-2	AERO-DUSTER	11	Ounces(OZ)	31-Jul-18
1521371	811-97-2	AERO-DUSTER	11	Ounces(OZ)	31-Jul-18
1521372	811-97-2	AERO-DUSTER	11	Ounces(OZ)	31-Jul-18
1521363	811-97-2	AERO-DUSTER	11	Ounces(OZ)	31-Jul-18
1521775	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521796	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521788	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521789	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521790	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521791	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521792	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521793	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521795	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521784	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521797	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521798	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521794	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521787	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521785	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521799	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521783	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521782	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521781	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521780	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521779	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521778	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521777	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521776	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521829	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521786	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521838	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521827	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521828	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521801	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521830	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521831	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521832	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521833	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521834	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521835	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521825	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521837	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521824	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521839	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521840	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521841	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521842	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521843	-	CLOROX	1	Gallon(GAL)	31-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521844	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521845	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521846	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521847	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521848	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521836	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521813	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521802	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521849	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521804	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521805	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521806	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521807	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521808	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521809	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521810	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521826	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521812	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521800	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521814	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521815	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521816	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521817	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521818	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521819	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521820	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521821	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521822	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521823	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521811	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521803	-	CLOROX	1	Gallon(GAL)	31-Jul-18
1521341	120-57-0	PIPERONAL	25	Gram(GM)	31-Jul-18
1521555	-	HIGH PURITY DI-ELECTRIC SILICONE GEL	2	Pint(PT)	31-Jul-18
1521556	-	HIGH PURITY DI-ELECTRIC SILICONE GEL	2	Pint(PT)	31-Jul-18
1521557	1992-48-9	Tetraisopropyl Orthosilicate	10	Milliliter(ML)	31-Jul-18
1521658	1405-41-0	GENTAMYCIN SULFATE	5	Gram(GM)	31-Jul-18
1521659	84-74-2	DIBUTYL PHTHALATE	4	Liters(L)	31-Jul-18
1521661	84-74-2	DIBUTYL PHTHALATE	4	Liters(L)	31-Jul-18
1521660	84-74-2	DIBUTYL PHTHALATE	4	Liters(L)	31-Jul-18
1521662	7697-37-2	NITRIC ACID	2.5	Liters(L)	31-Jul-18
1521663	-	Minimum Essential Medium (MEM) Corning	500	Milliliter(ML)	31-Jul-18
1521667	-	Minimum Essential Medium (MEM) Corning	500	Milliliter(ML)	31-Jul-18
1521665	-	Minimum Essential Medium (MEM) Corning	500	Milliliter(ML)	31-Jul-18
1521666	-	Minimum Essential Medium (MEM) Corning	500	Milliliter(ML)	31-Jul-18
1521664	-	Minimum Essential Medium (MEM) Corning	500	Milliliter(ML)	31-Jul-18
1521668	-	Minimum Essential Medium (MEM) Corning	500	Milliliter(ML)	31-Jul-18
1521703	7722-84-1	HYDROGEN PEROXIDE 30% SOLUTION	1	Liters(L)	31-Jul-18
1521704	7722-84-1	HYDROGEN PEROXIDE 30% SOLUTION	1	Liters(L)	31-Jul-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521705	68609-97-2	Lord E-301 Adhesive Black	1	Pint(PT)	31-Jul-18
1521706	68609-97-2	Lord E-301 Adhesive Black	1	Pint(PT)	31-Jul-18
1521707	100641-15-4	Thulium(III) nitrate hydrate	10	Gram(GM)	31-Jul-18
1521720	-	DEVCON EPOXY	9	Pint(PT)	31-Jul-18
1521721	-	DEVCON EPOXY	9	Pint(PT)	31-Jul-18
1480565	-	PermAcryl Exterior Latex Enamel 1533	12	Ounces(OZ)	31-Jul-18
1480566	-	PermAcryl Exterior Latex Enamel 1533	12	Ounces(OZ)	31-Jul-18
1320480	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	31-Jul-18
1497340	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497357	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497355	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497354	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497350	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497352	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497351	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497356	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497349	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497348	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497347	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497346	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497345	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497344	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497358	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497342	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497353	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497341	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497343	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	31-Jul-18
1497359	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	31-Jul-18
1497360	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	31-Jul-18
1497361	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	31-Jul-18
1497362	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	31-Jul-18
1497363	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	31-Jul-18
1497364	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	31-Jul-18
1495813	-	AW HYDRAULIC FLUID ISO 32	5	Gallon(GAL)	31-Jul-18
1495814	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	31-Jul-18
1495815	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	31-Jul-18
1495816	-	PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL	1	Quarts(QT)	31-Jul-18
1495817	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	31-Jul-18
1495818	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	31-Jul-18
1495819	-	MOBIL 1 5W-50	1	Quarts(QT)	31-Jul-18
1495821	-	MOBIL 1 5W-50	1	Quarts(QT)	31-Jul-18
1495820	-	MOBIL 1 5W-50	1	Quarts(QT)	31-Jul-18
1480529	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480539	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480548	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480546	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480545	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480544	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480543	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480542	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480537	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480540	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480538	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480550	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480549	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480541	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480534	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480530	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480532	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480564	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480547	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480533	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480551	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480563	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480562	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480561	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480531	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480559	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480535	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480558	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480557	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480556	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480555	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480554	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480553	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480536	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480552	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480560	-	Contact Cleaner 2000 Precision Cleaner	10	Ounces(OZ)	01-Aug-18
1480668	-	GacoFlex 2-Part Epoxy Primer/Filler - Part B	5	Gallon(GAL)	01-Aug-18
1480669	-	GacoFlex SeamSeal Solvent-Free Silicone Sealant	5	Gallon(GAL)	01-Aug-18
1480676	-	WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	01-Aug-18
1480678	-	WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	01-Aug-18
1480481	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480506	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480482	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480483	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480484	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480485	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480486	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480487	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480508	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480497	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480498	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480499	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480500	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480501	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480502	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480503	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480488	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480496	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480504	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480505	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480509	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480510	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480511	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480512	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480513	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480514	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480515	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480516	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480507	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480494	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480492	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480491	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480489	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480495	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480490	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1480493	-	GE5010 Waterproof Silicone	10.1	Ounces(OZ)	01-Aug-18
1521587	7440-50-8	COPPER PLUS	454	Gram(GM)	01-Aug-18
1521588	7440-50-8	COPPER PLUS	454	Gram(GM)	01-Aug-18
1521589	11105-02-5	SILVER VANADATE	40	Gram(GM)	01-Aug-18
1521590	11105-02-5	SILVER VANADATE	40	Gram(GM)	01-Aug-18
1521591	67-68-5	SYBR GREEN	20	Microliter	01-Aug-18
1521592	7783-85-9	AMMONIUM IRON(II) SULFATE HEXAHYDRATE	100	Gram(GM)	01-Aug-18
1521593	348-52-7	2-Fluoroiodobenzene	25	Gallon(GAL)	01-Aug-18
1521594	348-52-7	2-Fluoroiodobenzene	25	Gallon(GAL)	01-Aug-18
1521595	1310-73-2	SODIUM HYDROXIDE	1	Kilograms(KG)	01-Aug-18
1521596	617-86-7	TRIETHYLSILANE	25	Gram(GM)	01-Aug-18
1521597	123-86-4	N-BUTYL ACETATE	2500	Milliliter(ML)	01-Aug-18
1521598	-	N-DODECANE	100	Milliliter(ML)	01-Aug-18
1521599	298-07-7	BIS(2-ETHYLHEXYL) PHOSPHATE	100	Gram(GM)	01-Aug-18
1521600	67-63-0	2-PROPANOL	4	Liters(L)	01-Aug-18
1521601	67-63-0	2-PROPANOL	4	Liters(L)	01-Aug-18
1521603	67-63-0	2-PROPANOL	4	Liters(L)	01-Aug-18
1521602	67-63-0	2-PROPANOL	4	Liters(L)	01-Aug-18
1521604	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	01-Aug-18
1521609	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	01-Aug-18
1521606	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	01-Aug-18
1521608	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	01-Aug-18
1521610	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	01-Aug-18
1521611	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	01-Aug-18
1521612	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	01-Aug-18
1521613	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	01-Aug-18
1521607	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	01-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521605	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	01-Aug-18
1521708	7757-82-6	SODIUM SULFATE ANHYDROUS	500	Gram(GM)	01-Aug-18
1521709	7757-82-6	SODIUM SULFATE ANHYDROUS	500	Gram(GM)	01-Aug-18
1521710	-	ION CHROMATOGRAPHY CHLORIDE STANDARD	100	Milliliter(ML)	01-Aug-18
1521713	-	ION CHROMATOGRAPHY CHLORIDE STANDARD	100	Milliliter(ML)	01-Aug-18
1521711	-	ION CHROMATOGRAPHY CHLORIDE STANDARD	100	Milliliter(ML)	01-Aug-18
1521712	-	ION CHROMATOGRAPHY CHLORIDE STANDARD	100	Milliliter(ML)	01-Aug-18
1521714	7631-99-4	NITRATE STANDARD	100	Milliliter(ML)	01-Aug-18
1521715	7631-99-4	NITRATE STANDARD	100	Milliliter(ML)	01-Aug-18
1521716	7631-99-4	NITRATE STANDARD	100	Milliliter(ML)	01-Aug-18
1521717	7631-99-4	NITRATE STANDARD	100	Milliliter(ML)	01-Aug-18
1521718	-	ION CHROMATOGRAPHY PHOSPHATE STANDARD	500	Milliliter(ML)	01-Aug-18
1521719	-	ION CHROMATOGRAPHY PHOSPHATE STANDARD	500	Milliliter(ML)	01-Aug-18
1521722	7778-80-5	SULFATE ION STANDARD SOLUTION	100	Milliliter(ML)	01-Aug-18
1521724	4028-23-3	ALLYDIMETHYLCHLOROSILANE	10	Gram(GM)	01-Aug-18
1521726	4028-23-3	ALLYDIMETHYLCHLOROSILANE	10	Gram(GM)	01-Aug-18
1521725	4028-23-3	ALLYDIMETHYLCHLOROSILANE	10	Gram(GM)	01-Aug-18
1521723	7778-80-5	SULFATE ION STANDARD SOLUTION	100	Milliliter(ML)	01-Aug-18
1521727	7439-97-6	MERCURY	500	Gram(GM)	01-Aug-18
1521728	75-79-6	METHYLTRICHLOROSILANE	100	Gram(GM)	01-Aug-18
1458042	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	01-Aug-18
1458043	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	01-Aug-18
1495822	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495833	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495840	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495839	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495837	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495836	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495834	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495838	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495832	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495831	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495830	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495829	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495828	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495827	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495826	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495825	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495824	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495823	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1495835	-	15W-40 MOTOR OIL	1	Quarts(QT)	01-Aug-18
1521615	7704-34-9	SULFUR POWDER	500	Gram(GM)	01-Aug-18
1521616	16940-66-2	SODIUM BOROHYDRIDE (98%)	100	Gram(GM)	01-Aug-18
1521617	71-43-2	BENZENE	1	Liters(L)	01-Aug-18
1521622	71-43-2	BENZENE	1	Liters(L)	01-Aug-18
1521621	71-43-2	BENZENE	1	Liters(L)	01-Aug-18
1521620	71-43-2	BENZENE	1	Liters(L)	01-Aug-18
1521618	71-43-2	BENZENE	1	Liters(L)	01-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521619	71-43-2	BENZENE	1	Liters(L)	01-Aug-18
1521623	3388-04-3	2-(3 4-	25	Milliliter(ML)	01-Aug-18
1521624	10026-04-7	SILICON TETRACHLORIDE	100	Milliliter(ML)	01-Aug-18
1485658	-	Fire Stop Wrap Strip	1	Pounds(LB)	02-Aug-18
1485660	-	Fire Stop Wrap Strip	1	Pounds(LB)	02-Aug-18
1485659	-	Fire Stop Wrap Strip	1	Pounds(LB)	02-Aug-18
1485661	-	Fire Stop Wrap Strip	1	Pounds(LB)	02-Aug-18
1486879	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486897	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486888	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486880	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486881	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486882	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486883	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486884	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486885	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486886	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486887	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486906	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486912	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486913	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486914	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486910	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486909	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486901	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486908	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486911	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486907	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486905	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486904	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486893	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486902	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486899	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486890	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486898	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486889	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486896	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486895	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486894	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486903	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486891	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486900	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486892	-	FS-One Max	10	Ounces(OZ)	02-Aug-18
1486630	-	HIT-RE-500-SD	11.1	Ounces(OZ)	02-Aug-18
1486631	-	HIT-RE-500-SD	11.1	Ounces(OZ)	02-Aug-18
1486632	-	HIT-RE-500-SD	11.1	Ounces(OZ)	02-Aug-18
1486634	-	HIT-RE-500-SD	11.1	Ounces(OZ)	02-Aug-18
1486637	-	HIT-RE-500-SD	11.1	Ounces(OZ)	02-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1486633	-	HIT-RE-500-SD	11.1	Ounces(OZ)	02-Aug-18
1486636	-	HIT-RE-500-SD	11.1	Ounces(OZ)	02-Aug-18
1486635	-	HIT-RE-500-SD	11.1	Ounces(OZ)	02-Aug-18
1483827	-	MOBIL DTE 25	5	Gallon(GAL)	02-Aug-18
1483829	-	MOBIL DTE 25	5	Gallon(GAL)	02-Aug-18
1483828	-	MOBIL DTE 25	5	Gallon(GAL)	02-Aug-18
1486556	-	TAP MAGIC CUTTING FLUID	4	Ounces(OZ)	02-Aug-18
1486557	-	TAP MAGIC CUTTING FLUID	4	Ounces(OZ)	02-Aug-18
1486558	-	TAP MAGIC CUTTING FLUID	4	Ounces(OZ)	02-Aug-18
1486559	-	TAP MAGIC CUTTING FLUID	4	Ounces(OZ)	02-Aug-18
1483825	-	MISTIC METAL MOVER ALUMICUT CUTTING	1	Pint(PT)	02-Aug-18
1483826	-	MISTIC METAL MOVER ALUMICUT CUTTING	1	Pint(PT)	02-Aug-18
1483813	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1483818	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1483819	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1483815	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1483816	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1483814	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1483824	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1483820	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1483821	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1483822	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1483823	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1483817	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486783	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486798	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486799	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486800	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486801	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486802	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486807	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486803	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486804	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486785	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486805	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486797	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486806	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486796	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486795	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486794	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486793	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486792	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486791	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486790	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486789	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486788	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486786	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486784	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1486808	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486816	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486787	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486852	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486845	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486859	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486858	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486857	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486856	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486855	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486861	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486853	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486862	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486851	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486850	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486849	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486848	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486847	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486814	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486854	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486869	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486870	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486878	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486877	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486876	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486875	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486874	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486860	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486871	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486844	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486868	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486867	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486866	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486865	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486864	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486863	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486873	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486818	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486846	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486825	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486824	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486823	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486822	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486821	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486827	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486819	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486828	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486817	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1486815	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486813	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486812	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486811	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486810	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486820	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486835	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486843	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486842	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486841	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486840	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486839	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486838	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486826	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486836	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486809	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486834	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486833	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486832	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486831	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486830	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486829	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486837	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1486872	-	WHITE LIGHTNING SILICONE ULTRA ALL PURPOSE	10.1	Ounces(OZ)	02-Aug-18
1483812	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486414	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Aug-18
1486415	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	02-Aug-18
1486277	-	DEVCON EPOXY	50	Milliliter(ML)	02-Aug-18
1486278	-	DEVCON EPOXY	50	Milliliter(ML)	02-Aug-18
1486711	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486727	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486728	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486729	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486730	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486731	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486732	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486733	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486725	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486724	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486723	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486712	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486714	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486726	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486713	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486722	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486721	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486720	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486719	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1486718	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486717	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486716	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486715	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486734	-	AERO KROIL	10	Ounces(OZ)	02-Aug-18
1486543	-	Citrax EP No. 1	400	Milliliter(ML)	02-Aug-18
1486545	-	Citrax EP No. 1	400	Milliliter(ML)	02-Aug-18
1486546	-	Citrax EP No. 1	400	Milliliter(ML)	02-Aug-18
1486547	-	Citrax EP No. 1	400	Milliliter(ML)	02-Aug-18
1486548	-	Citrax EP No. 1	400	Milliliter(ML)	02-Aug-18
1486544	-	Citrax EP No. 1	400	Milliliter(ML)	02-Aug-18
1486549	57-55-6	Greenlee Cable Gel Lubricant WGEL Winter	1	Quarts(QT)	02-Aug-18
1486550	57-55-6	Greenlee Cable Gel Lubricant WGEL Winter	1	Quarts(QT)	02-Aug-18
1486551	57-55-6	Greenlee Cable Gel Lubricant WGEL Winter	1	Quarts(QT)	02-Aug-18
1485655	14808-60-7	SIKADUR 42 Grout-Pak Part C	50	Pounds(LB)	02-Aug-18
1485656	14808-60-7	SIKADUR 42 Grout-Pak Part C	50	Pounds(LB)	02-Aug-18
1486529	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486532	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486540	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486530	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486541	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486539	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486538	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486537	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486536	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486534	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486533	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486531	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486542	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486535	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	02-Aug-18
1486613	-	WHITE LITHIUM GREASE SPRAY	16	Ounces(OZ)	02-Aug-18
1521625	799268-49-8	1 2-dioleoyl-sn-glycero-3-phosphoethanolamine-	10	Milligram(MG)	02-Aug-18
1521626	76078-28-9	1 2-bis(10 12-tricosadiynoyl)-sn-glycero-3-	25	Milligram(MG)	02-Aug-18
1521627	76078-28-9	1 2-bis(10 12-tricosadiynoyl)-sn-glycero-3-	25	Milligram(MG)	02-Aug-18
1521628	144750-73-2	1 2-bis(10 12-tricosadiynoyl)-sn-glycero-3-	25	Milligram(MG)	02-Aug-18
1521629	144750-73-2	1 2-bis(10 12-tricosadiynoyl)-sn-glycero-3-	25	Milligram(MG)	02-Aug-18
1521669	1309-42-8	MAGNESIUM HYDROXIDE	50	Pounds(LB)	02-Aug-18
1521729	-	Diamond Compound	18	Gram(GM)	02-Aug-18
1521740	-	Diamond Compound	18	Gram(GM)	02-Aug-18
1521735	-	Diamond Compound	18	Gram(GM)	02-Aug-18
1521730	-	Diamond Compound	18	Gram(GM)	02-Aug-18
1521731	-	Diamond Compound	18	Gram(GM)	02-Aug-18
1521732	-	Diamond Compound	18	Gram(GM)	02-Aug-18
1521738	-	Diamond Compound	18	Gram(GM)	02-Aug-18
1521733	-	Diamond Compound	18	Gram(GM)	02-Aug-18
1521734	-	Diamond Compound	18	Gram(GM)	02-Aug-18
1521737	-	Diamond Compound	18	Gram(GM)	02-Aug-18
1521736	-	Diamond Compound	18	Gram(GM)	02-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521739	-	Diamond Compound	18	Gram(GM)	02-Aug-18
1521741	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	02-Aug-18
1521742	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	02-Aug-18
1521743	7681-57-4	SODIUM METABISULFITE	10000	Gram(GM)	02-Aug-18
1521744	-	FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	02-Aug-18
1521745	-	FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	02-Aug-18
1521747	-	FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	02-Aug-18
1521746	-	FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	02-Aug-18
1521748	-	FREE CHLORINE INDICATOR SOLUTION FOR CL-17	473	Milliliter(ML)	02-Aug-18
1521749	-	FREE CHLORINE INDICATOR SOLUTION FOR CL-17	473	Milliliter(ML)	02-Aug-18
1521750	-	FREE CHLORINE INDICATOR SOLUTION FOR CL-17	473	Milliliter(ML)	02-Aug-18
1521751	-	FREE CHLORINE INDICATOR SOLUTION FOR CL-17	473	Milliliter(ML)	02-Aug-18
1521752	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	02-Aug-18
1521753	67-72-1	HEXACHLOROETHANE	100	Gram(GM)	02-Aug-18
1521754	-	DPD COMPOUND FOR FREE AND TOTAL	25	Gram(GM)	02-Aug-18
1521755	-	DPD COMPOUND FOR FREE AND TOTAL	25	Gram(GM)	02-Aug-18
1521759	-	DPD COMPOUND FOR FREE AND TOTAL	25	Gram(GM)	02-Aug-18
1521756	-	DPD COMPOUND FOR FREE AND TOTAL	25	Gram(GM)	02-Aug-18
1521757	-	DPD COMPOUND FOR FREE AND TOTAL	25	Gram(GM)	02-Aug-18
1521758	-	DPD COMPOUND FOR FREE AND TOTAL	25	Gram(GM)	02-Aug-18
1521760	-	TOTAL CHLORINE INDICATOR SOLUTION# 22634-	473	Milliliter(ML)	02-Aug-18
1521761	-	TOTAL CHLORINE INDICATOR SOLUTION# 22634-	473	Milliliter(ML)	02-Aug-18
1521762	-	TOTAL CHLORINE INDICATOR SOLUTION# 22634-	473	Milliliter(ML)	02-Aug-18
1521763	-	TOTAL CHLORINE INDICATOR SOLUTION# 22634-	473	Milliliter(ML)	02-Aug-18
1521764	-	TOTAL CHLORINE INDICATOR SOLUTION# 22634-	473	Milliliter(ML)	02-Aug-18
1521765	1310-73-2	SODIUM HYDROXIDE 50%	4	Liters(L)	02-Aug-18
1521766	1310-58-3	POTASSIUM HYDROXIDE	1	Kilograms(KG)	02-Aug-18
1521767	7439-98-7	MOLYBDENUM STANDARD SOLUTION	50	Milliliter(ML)	02-Aug-18
1521768	-	SNOOP LEAK DETECT	8	Ounces(OZ)	02-Aug-18
1521770	-	SNOOP LEAK DETECT	8	Ounces(OZ)	02-Aug-18
1521769	-	SNOOP LEAK DETECT	8	Ounces(OZ)	02-Aug-18
1521771	-	Tough Resin	1	Liters(L)	02-Aug-18
1521772	-	Black Resin	1	Liters(L)	02-Aug-18
1521773	-	Grey Resin	1	Liters(L)	02-Aug-18
1559675	-	PROPANE-ISOBUTANE BLEND	7.75	Ounces(OZ)	02-Aug-18
1559678	-	PROPANE-ISOBUTANE BLEND	7.75	Ounces(OZ)	02-Aug-18
1559676	-	PROPANE-ISOBUTANE BLEND	7.75	Ounces(OZ)	02-Aug-18
1559677	-	PROPANE-ISOBUTANE BLEND	7.75	Ounces(OZ)	02-Aug-18
1521774	-	Rigid Resin	1	Liters(L)	02-Aug-18
1521855	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521864	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521874	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521873	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521872	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521871	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521870	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521869	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521868	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521867	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521865	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521863	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521862	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521861	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521860	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521859	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521858	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521857	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521856	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521866	7440-46-2	CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	02-Aug-18
1521919	25360-32-1	CARBONYL DIHYDRO TRIS TRIPHENYL	1	Gram(GM)	02-Aug-18
1521920	25360-32-1	CARBONYL DIHYDRO TRIS TRIPHENYL	1	Gram(GM)	02-Aug-18
1521921	4045-44-7	PENTAMETHYLCYCLOPENTADIENE	25	Gram(GM)	02-Aug-18
1521924	4045-44-7	PENTAMETHYLCYCLOPENTADIENE	25	Gram(GM)	02-Aug-18
1521922	4045-44-7	PENTAMETHYLCYCLOPENTADIENE	25	Gram(GM)	02-Aug-18
1521923	4045-44-7	PENTAMETHYLCYCLOPENTADIENE	25	Gram(GM)	02-Aug-18
1521925	12184-52-0	Bis(cyclooctatetraene)iron(0)	500	Milligram(MG)	02-Aug-18
1521926	12184-52-0	Bis(cyclooctatetraene)iron(0)	500	Milligram(MG)	02-Aug-18
1559674	75-45-6	CHLORODIFLUOROMETHANE	30	Pounds(LB)	02-Aug-18
1559672	75-45-6	CHLORODIFLUOROMETHANE	30	Pounds(LB)	02-Aug-18
1559673	75-45-6	CHLORODIFLUOROMETHANE	30	Pounds(LB)	02-Aug-18
1559671	75-45-6	CHLORODIFLUOROMETHANE	30	Pounds(LB)	02-Aug-18
1559776	7440-59-7	HELIUM	220	Cubic Feet(CF)	02-Aug-18
1559777	7440-59-7	HELIUM	220	Cubic Feet(CF)	02-Aug-18
1559779	7440-59-7	HELIUM	220	Cubic Feet(CF)	02-Aug-18
1559778	7440-59-7	HELIUM	220	Cubic Feet(CF)	02-Aug-18
1521927	643-79-8	PHTHALALDEHYDE	1	Milliliter(ML)	02-Aug-18
1458045	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	02-Aug-18
1458046	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	02-Aug-18
1458047	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	02-Aug-18
1458049	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	02-Aug-18
1458051	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	02-Aug-18
1458050	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	02-Aug-18
1458048	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	02-Aug-18
1495841	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Aug-18
1495847	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Aug-18
1495846	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Aug-18
1495842	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Aug-18
1495843	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Aug-18
1495845	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Aug-18
1495844	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	03-Aug-18
1495848	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	03-Aug-18
1495849	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	03-Aug-18
1495850	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	03-Aug-18
1495851	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	03-Aug-18
1495852	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	03-Aug-18
1495853	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	03-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1495855	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	03-Aug-18
1495854	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	03-Aug-18
1495856	-	RONSON MULTI-FILL ULTRA BUTANE FUEL	5.82	Ounces(OZ)	03-Aug-18
1495857	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495863	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495868	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495876	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495875	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495874	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495873	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495872	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495871	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495870	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495869	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495860	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495865	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495859	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495867	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495861	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495862	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495864	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495866	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495858	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	03-Aug-18
1495877	-	POWER STEERING FLUID	1	Quarts(QT)	03-Aug-18
1495878	-	SUPER HEAVY DUTY BRAKE FLUID	1	Quarts(QT)	03-Aug-18
1495879	-	SUPER HEAVY DUTY BRAKE FLUID	12	Ounces(OZ)	03-Aug-18
1495880	-	DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Aug-18
1495881	-	Pneumatic/Hydraulic Sealant	1.22	Ounces(OZ)	03-Aug-18
1495882	-	Pneumatic/Hydraulic Sealant	1.22	Ounces(OZ)	03-Aug-18
1495883	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495895	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495884	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495896	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495894	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495893	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495892	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495891	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495889	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495888	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495887	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495886	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495885	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495890	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495897	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	03-Aug-18
1495898	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495912	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495913	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495914	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1495915	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495916	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495920	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495917	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495919	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495911	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495900	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495918	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495910	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495909	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495908	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495906	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495904	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495903	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495901	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495907	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495899	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495921	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495902	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1495905	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	03-Aug-18
1521576	7087-68-5	N N-DIISOPROPYLETHYLAMINE	500	Milliliter(ML)	03-Aug-18
1480745	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	03-Aug-18
1480756	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	03-Aug-18
1480757	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	03-Aug-18
1480758	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Aug-18
1521630	-	Accumax - Cell Aggregate Dissociation Medium	100	Milliliter(ML)	03-Aug-18
1521850	7087-68-5	N N-DIISOPROPYLETHYLAMINE	100	Milliliter(ML)	03-Aug-18
1521853	7087-68-5	N N-DIISOPROPYLETHYLAMINE	100	Milliliter(ML)	03-Aug-18
1521851	7087-68-5	N N-DIISOPROPYLETHYLAMINE	100	Milliliter(ML)	03-Aug-18
1521852	7087-68-5	N N-DIISOPROPYLETHYLAMINE	100	Milliliter(ML)	03-Aug-18
1521854	7087-68-5	N N-DIISOPROPYLETHYLAMINE	100	Milliliter(ML)	03-Aug-18
1521875	811-97-2	AERO-DUSTER	11	Ounces(OZ)	03-Aug-18
1480773	-	COTE ALL WHITE BASE	1	Gallon(GAL)	03-Aug-18
1521879	811-97-2	AERO-DUSTER	11	Ounces(OZ)	03-Aug-18
1521877	811-97-2	AERO-DUSTER	11	Ounces(OZ)	03-Aug-18
1521876	811-97-2	AERO-DUSTER	11	Ounces(OZ)	03-Aug-18
1521878	811-97-2	AERO-DUSTER	11	Ounces(OZ)	03-Aug-18
1521880	811-97-2	AERO-DUSTER	11	Ounces(OZ)	03-Aug-18
1480774	-	COTE ALL WHITE BASE	1	Gallon(GAL)	03-Aug-18
1480775	-	COTE ALL WHITE BASE	1	Gallon(GAL)	03-Aug-18
1480776	-	COTE ALL WHITE BASE	1	Gallon(GAL)	03-Aug-18
1480777	-	COTE ALL WHITE BASE	1	Gallon(GAL)	03-Aug-18
1480778	-	COTE ALL WHITE BASE	1	Gallon(GAL)	03-Aug-18
1521928	631-61-8	AMMONIUM ACETATE	50	Gram(GM)	03-Aug-18
1521929	7783-20-2	AMMONIUM SULFATE	1	Kilograms(KG)	03-Aug-18
1521930	-	Kluberalfa GR Y VAC 3 Grease	100	Gram(GM)	03-Aug-18
1521931	-	Kluberalfa GR Y VAC 3 Grease	100	Gram(GM)	03-Aug-18
1521932	1336-21-6	AMMONIUM HYDROXIDE 30%	500	Milliliter(ML)	03-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521933	9003-53-6	POLYSTYRENE MICROSPHERES	15	Milliliter(ML)	03-Aug-18
1521934	9003-53-6	POLYSTYRENE MICROSPHERES	15	Milliliter(ML)	03-Aug-18
1480779	-	Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	03-Aug-18
1480780	-	Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	03-Aug-18
1480781	-	Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	03-Aug-18
1480782	-	Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	03-Aug-18
1480783	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	03-Aug-18
1480785	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	03-Aug-18
1480786	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	03-Aug-18
1480787	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	03-Aug-18
1480784	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	03-Aug-18
1480808	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	03-Aug-18
1480811	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	03-Aug-18
1480810	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	03-Aug-18
1480809	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	03-Aug-18
1480788	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480792	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480791	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480790	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480789	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480798	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480805	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480804	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480803	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480807	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480800	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480801	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480802	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1480806	-	PSX 700 CURE US	0.2	Gallon(GAL)	03-Aug-18
1521935	68410-23-1	VERSAMID 140	1	Quarts(QT)	03-Aug-18
1521936	2037-26-5	TOLUENE-D8	10	Milliliter(ML)	03-Aug-18
1521937	10043-11-5	BORON NITRIDE	2	Pounds(LB)	03-Aug-18
1521938	12069-32-8	BORON CARBIDE	2	Pounds(LB)	03-Aug-18
1521940	12069-32-8	BORON CARBIDE	2	Pounds(LB)	03-Aug-18
1521939	12069-32-8	BORON CARBIDE	2	Pounds(LB)	03-Aug-18
1521953	497-19-8	SODIUM CARBONATE	500	Gram(GM)	03-Aug-18
1521964	497-19-8	SODIUM CARBONATE	500	Gram(GM)	03-Aug-18
1521963	497-19-8	SODIUM CARBONATE	500	Gram(GM)	03-Aug-18
1521962	497-19-8	SODIUM CARBONATE	500	Gram(GM)	03-Aug-18
1521961	497-19-8	SODIUM CARBONATE	500	Gram(GM)	03-Aug-18
1521960	497-19-8	SODIUM CARBONATE	500	Gram(GM)	03-Aug-18
1521959	497-19-8	SODIUM CARBONATE	500	Gram(GM)	03-Aug-18
1521958	497-19-8	SODIUM CARBONATE	500	Gram(GM)	03-Aug-18
1521957	497-19-8	SODIUM CARBONATE	500	Gram(GM)	03-Aug-18
1521956	497-19-8	SODIUM CARBONATE	500	Gram(GM)	03-Aug-18
1521954	497-19-8	SODIUM CARBONATE	500	Gram(GM)	03-Aug-18
1521955	497-19-8	SODIUM CARBONATE	500	Gram(GM)	03-Aug-18
1521965	-	LEITSILBER 200 SILVER PAINT	30	Gram(GM)	03-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521966	-	THERMAL EPOXY	450	Milliliter(ML)	03-Aug-18
1521967	7664-93-9	SULFURIC ACID	500	Milliliter(ML)	03-Aug-18
1521968	7664-93-9	SULFURIC ACID	500	Milliliter(ML)	03-Aug-18
1521969	1336-21-6	AMMONIUM HYDROXIDE 30%	500	Milliliter(ML)	03-Aug-18
1521970	10043-11-5	BORON NITRIDE	200	Gram(GM)	03-Aug-18
1521971	10043-11-5	BORON NITRIDE	200	Gram(GM)	03-Aug-18
1521973	7782-40-3	DIAMOND POWDER 15-30 MICRONS	100	Gram(GM)	03-Aug-18
1522024	-	3M SUPER 77 SPRAY ADHESIVE	6	Ounces(OZ)	03-Aug-18
1522030	-	3M SUPER 77 SPRAY ADHESIVE	6	Ounces(OZ)	03-Aug-18
1522025	-	3M SUPER 77 SPRAY ADHESIVE	6	Ounces(OZ)	03-Aug-18
1522026	-	3M SUPER 77 SPRAY ADHESIVE	6	Ounces(OZ)	03-Aug-18
1522027	-	3M SUPER 77 SPRAY ADHESIVE	6	Ounces(OZ)	03-Aug-18
1522029	-	3M SUPER 77 SPRAY ADHESIVE	6	Ounces(OZ)	03-Aug-18
1522031	-	3M SUPER 77 SPRAY ADHESIVE	6	Ounces(OZ)	03-Aug-18
1522032	-	3M SUPER 77 SPRAY ADHESIVE	6	Ounces(OZ)	03-Aug-18
1522033	-	3M SUPER 77 SPRAY ADHESIVE	6	Ounces(OZ)	03-Aug-18
1522034	-	3M SUPER 77 SPRAY ADHESIVE	6	Ounces(OZ)	03-Aug-18
1522035	-	3M SUPER 77 SPRAY ADHESIVE	6	Ounces(OZ)	03-Aug-18
1522028	-	3M SUPER 77 SPRAY ADHESIVE	6	Ounces(OZ)	03-Aug-18
1458052	-	Nexguard 22350	551	Pounds(LB)	03-Aug-18
1458053	-	Nexguard 22350	551	Pounds(LB)	03-Aug-18
1458054	-	Nalco 22341	503	Pounds(LB)	03-Aug-18
1458775	-	TRI-ACT 1820	450	Pounds(LB)	03-Aug-18
1495922	-	ULTRA GREY SILICONE GASKET MAKER	3.5	Ounces(OZ)	03-Aug-18
1458776	-	NALCO 1720 OXYGEN SCAVENGER SOLUTION	528	Pounds(LB)	03-Aug-18
1458777	-	NALCO 7408 CHLORINE SCAVENGER SOLUTION	55	Gallon(GAL)	03-Aug-18
1480731	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480735	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480736	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480738	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480744	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480743	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480737	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480734	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480733	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480732	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480739	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480742	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480740	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1480741	-	C6: Portland Cement Based Concrete Products	50	Pounds(LB)	03-Aug-18
1458778	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	03-Aug-18
1495923	-	Battery Cleaner with Acid Indicator	11	Ounces(OZ)	03-Aug-18
1480759	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Aug-18
1480761	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Aug-18
1480762	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Aug-18
1480763	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Aug-18
1480764	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Aug-18
1480765	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480766	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Aug-18
1480767	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Aug-18
1480768	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Aug-18
1480769	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Aug-18
1480760	-	Permaflex Elastomeric W/B	5	Gallon(GAL)	03-Aug-18
1495924	-	Battery Cleaner with Acid Indicator	11	Ounces(OZ)	03-Aug-18
1458783	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	03-Aug-18
1458780	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	03-Aug-18
1458782	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	03-Aug-18
1458781	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	03-Aug-18
1458779	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	03-Aug-18
1480797	-	SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT	4.5	Gallon(GAL)	03-Aug-18
1417661	-	SOLDER PASTE	500	Gram(GM)	03-Aug-18
1480793	-	Startex Lacquer Thinner	1	Gallon(GAL)	03-Aug-18
1480795	-	Startex Lacquer Thinner	1	Gallon(GAL)	03-Aug-18
1480796	-	Startex Lacquer Thinner	1	Gallon(GAL)	03-Aug-18
1480794	-	Startex Lacquer Thinner	1	Gallon(GAL)	03-Aug-18
1480770	-	Finium DTM-AT S/G Acrylic D/B	1	Gallon(GAL)	03-Aug-18
1480772	-	Finium DTM-AT S/G Acrylic D/B	1	Gallon(GAL)	03-Aug-18
1480771	-	Finium DTM-AT S/G Acrylic D/B	1	Gallon(GAL)	03-Aug-18
1495925	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	06-Aug-18
1559766	74-82-8	METHANE	220	Cubic Feet(CF)	07-Aug-18
1559767	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559768	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559769	-	5% Hydrogen/10% Carbon Dioxide/Balance	220	Cubic Feet(CF)	07-Aug-18
1559770	-	5% Hydrogen/10% Carbon Dioxide/Balance	220	Cubic Feet(CF)	07-Aug-18
1480861	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480939	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480940	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480871	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480927	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480868	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480869	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480870	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480872	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480873	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480930	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480906	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480875	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480876	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480877	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480878	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480879	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480911	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480874	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480901	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480922	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480923	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480924	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480925	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480928	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480895	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480896	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480897	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480898	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480908	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480900	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480910	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480902	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480863	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480903	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480904	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480905	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480881	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480907	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480880	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480909	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480899	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480918	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480894	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480890	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480914	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480891	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480892	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480893	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480929	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480866	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480926	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480921	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480917	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480916	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480862	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480912	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480913	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480915	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480867	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480919	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480934	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480885	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480883	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480886	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480931	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480932	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480920	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480884	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480865	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480933	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480935	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480936	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480937	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480938	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480887	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480888	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480889	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480864	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1480882	-	Garnet Abrasive Grains and Powders	55	Pounds(LB)	07-Aug-18
1559775	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Aug-18
1559679	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559693	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559680	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559681	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559682	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559683	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559684	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559685	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559686	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559687	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559688	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559689	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559690	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559692	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559701	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559694	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559695	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559696	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559697	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559698	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559699	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559700	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559702	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559704	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559705	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559706	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559707	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559691	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559703	-	Nitrogen UHP	220	Cubic Feet(CF)	07-Aug-18
1559708	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559721	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559709	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559710	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559711	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559712	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559713	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559714	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559715	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559717	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559720	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559716	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559722	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559723	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559724	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559725	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559726	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559727	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559728	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559729	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559730	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559731	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559719	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1559718	7440-59-7	Helium UHP	220	Cubic Feet(CF)	07-Aug-18
1458041	-	1413 CONDUCTIVITY/TDS STANDARD	500	Milliliter(ML)	07-Aug-18
1480977	-	LOW VISCOSITY WHITE WATER BASED WEATHER	1	Gallon(GAL)	07-Aug-18
1480978	-	LOW VISCOSITY WHITE WATER BASED WEATHER	1	Gallon(GAL)	07-Aug-18
1480965	-	USG ACOUSTICAL SEALANT	29	Ounces(OZ)	07-Aug-18
1480973	-	USG ACOUSTICAL SEALANT	29	Ounces(OZ)	07-Aug-18
1480972	-	USG ACOUSTICAL SEALANT	29	Ounces(OZ)	07-Aug-18
1480971	-	USG ACOUSTICAL SEALANT	29	Ounces(OZ)	07-Aug-18
1480976	-	USG ACOUSTICAL SEALANT	29	Ounces(OZ)	07-Aug-18
1480970	-	USG ACOUSTICAL SEALANT	29	Ounces(OZ)	07-Aug-18
1480974	-	USG ACOUSTICAL SEALANT	29	Ounces(OZ)	07-Aug-18
1480966	-	USG ACOUSTICAL SEALANT	29	Ounces(OZ)	07-Aug-18
1480967	-	USG ACOUSTICAL SEALANT	29	Ounces(OZ)	07-Aug-18
1480968	-	USG ACOUSTICAL SEALANT	29	Ounces(OZ)	07-Aug-18
1480969	-	USG ACOUSTICAL SEALANT	29	Ounces(OZ)	07-Aug-18
1480975	-	USG ACOUSTICAL SEALANT	29	Ounces(OZ)	07-Aug-18
1559738	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559751	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559739	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559740	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559741	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559742	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559743	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559744	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559745	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559746	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559747	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559748	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559750	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559752	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559749	-	AIR COMPRESSED	220	Cubic Feet(CF)	07-Aug-18
1559753	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18
1559764	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559765	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18
1559756	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18
1559763	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18
1559762	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18
1559761	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18
1559760	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18
1559758	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18
1559757	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18
1559754	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18
1559755	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18
1559759	-	Argon UHP	220	Cubic Feet(CF)	07-Aug-18
1454381	-	ACETONE STANDARD	1	Gallon(GAL)	07-Aug-18
1454380	-	ACETONE STANDARD	1	Gallon(GAL)	07-Aug-18
1480941	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480946	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480961	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480964	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480942	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480958	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480963	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480960	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480959	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480962	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480945	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480943	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480952	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480947	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480948	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480949	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480950	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480951	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480957	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480956	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480955	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480944	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480953	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1480954	-	Techspray Duster	15	Ounces(OZ)	07-Aug-18
1559732	-	Helium 10% / Bal Argon	220	Cubic Feet(CF)	08-Aug-18
1559737	-	Helium 10% / Bal Argon	220	Cubic Feet(CF)	08-Aug-18
1559733	-	Helium 10% / Bal Argon	220	Cubic Feet(CF)	08-Aug-18
1559734	-	Helium 10% / Bal Argon	220	Cubic Feet(CF)	08-Aug-18
1559736	-	Helium 10% / Bal Argon	220	Cubic Feet(CF)	08-Aug-18
1559735	-	Helium 10% / Bal Argon	220	Cubic Feet(CF)	08-Aug-18
1559780	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559801	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559784	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559782	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559783	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559798	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559799	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559781	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559820	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559829	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559828	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559827	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559826	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559786	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559825	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559824	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559823	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559800	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559821	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559810	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559819	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559818	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559817	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559816	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559815	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559814	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559813	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559812	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559822	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559787	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559797	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559796	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559795	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559794	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559793	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559792	7647-01-0	HYDROGEN CHLORIDE ANHYDROUS	227	Gram(GM)	08-Aug-18
1559791	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559790	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559830	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559803	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559831	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559802	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559785	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559804	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559805	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559806	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559807	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559808	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559809	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559811	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559789	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559788	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559832	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559833	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	08-Aug-18
1559834	-	AIR COMPRESSED	220	Cubic Feet(CF)	08-Aug-18
1559835	-	AIR COMPRESSED	220	Cubic Feet(CF)	08-Aug-18
1559836	-	AIR COMPRESSED	220	Cubic Feet(CF)	08-Aug-18
1559837	-	AIR COMPRESSED	220	Cubic Feet(CF)	08-Aug-18
1317224	-	OBJET VEROBLACKPLUS RGD875	1	Kilograms(KG)	08-Aug-18
1317225	-	OBJET VEROBLACKPLUS RGD875	1	Kilograms(KG)	08-Aug-18
1495926	-	732 MULTI-PURPOSE SEALANT	10.1	Ounces(OZ)	08-Aug-18
1495927	-	732 MULTI-PURPOSE SEALANT	10.1	Ounces(OZ)	08-Aug-18
931196	7439-98-7	MOLYBDENUM	12	Ounces(OZ)	08-Aug-18
1495928	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	1	Gallon(GAL)	09-Aug-18
1495931	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	1	Gallon(GAL)	09-Aug-18
1495930	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	1	Gallon(GAL)	09-Aug-18
1495929	-	MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill	1	Gallon(GAL)	09-Aug-18
1495932	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	09-Aug-18
1495933	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	09-Aug-18
1495935	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	09-Aug-18
1495934	-	MACROPOXY 646 Fast Cure Epoxy (Part B)	1	Gallon(GAL)	09-Aug-18
1495936	-	Blaw-Kote	5	Gallon(GAL)	09-Aug-18
1495938	-	Blaw-Kote	5	Gallon(GAL)	09-Aug-18
1495937	-	Blaw-Kote	5	Gallon(GAL)	09-Aug-18
1481053	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	09-Aug-18
1481054	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	09-Aug-18
1481055	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	09-Aug-18
1495939	-	John Deere Hy-Gard Transmission/Hydraulic Oil	5	Gallon(GAL)	09-Aug-18
1559838	-	HIGH VACUUM LEAK SEALANT	16	Ounces(OZ)	10-Aug-18
1559839	-	HIGH VACUUM LEAK SEALANT	16	Ounces(OZ)	10-Aug-18
1559840	-	HIGH VACUUM LEAK SEALANT	16	Ounces(OZ)	10-Aug-18
1559841	-	HIGH VACUUM LEAK SEALANT	16	Ounces(OZ)	10-Aug-18
1559842	71-43-2	BENZENE	1.55	Cubic Feet(CF)	10-Aug-18
1559843	-	OXYGEN IN NITROGEN	1.55	Cubic Feet(CF)	10-Aug-18
1559844	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-18
1559846	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-18
1559847	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-18
1559848	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-18
1559849	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-18
1559850	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-18
1559851	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-18
1559852	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-18
1559853	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-18
1559854	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-18
1559845	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-18
1559855	74-98-6	PROPANE	50	Pounds(LB)	10-Aug-18
1559856	74-98-6	PROPANE	25	Pounds(LB)	10-Aug-18
1559857	74-98-6	PROPANE	25	Pounds(LB)	10-Aug-18
1559858	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559870	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559860	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559861	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559862	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559863	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559864	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559865	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559866	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559859	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559868	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559869	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559872	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559873	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559874	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559875	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559876	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559877	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559867	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559871	-	ARGON 90% METHANE 10%	220	Cubic Feet(CF)	10-Aug-18
1559878	-	5% Hydrogen/10% Carbon Dioxide/Balance	220	Cubic Feet(CF)	10-Aug-18
1559879	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559887	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559880	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559882	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559883	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559884	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559886	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559888	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559889	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559890	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559891	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559892	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559893	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559885	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559881	-	Nitrogen UHP	220	Cubic Feet(CF)	10-Aug-18
1559894	-	AIR COMPRESSED	220	Cubic Feet(CF)	10-Aug-18
1559897	-	AIR COMPRESSED	220	Cubic Feet(CF)	10-Aug-18
1559896	-	AIR COMPRESSED	220	Cubic Feet(CF)	10-Aug-18
1559898	-	AIR COMPRESSED	220	Cubic Feet(CF)	10-Aug-18
1559899	-	AIR COMPRESSED	220	Cubic Feet(CF)	10-Aug-18
1559900	-	AIR COMPRESSED	220	Cubic Feet(CF)	10-Aug-18
1559901	-	AIR COMPRESSED	220	Cubic Feet(CF)	10-Aug-18
1559902	-	AIR COMPRESSED	220	Cubic Feet(CF)	10-Aug-18
1559903	-	AIR COMPRESSED	220	Cubic Feet(CF)	10-Aug-18
1559895	-	AIR COMPRESSED	220	Cubic Feet(CF)	10-Aug-18
1559904	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559906	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559913	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559919	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559918	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559917	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559915	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559905	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559912	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559911	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559910	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559909	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559920	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559907	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559916	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559908	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559928	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559921	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559930	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559932	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559933	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559929	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559914	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559931	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559927	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559926	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559925	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559924	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559923	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1559922	-	Argon UHP	220	Cubic Feet(CF)	10-Aug-18
1202849	-	WATER SOUBLE SOLDERING FLUX	0.32	Ounces(OZ)	10-Aug-18
1202850	-	FLUX REMOVER	0.32	Ounces(OZ)	10-Aug-18
1522075	-	VACSEAL HIGH VACUUM LEAK SEALANT	0.5	Ounces(OZ)	12-Aug-18
1522074	-	VACSEAL HIGH VACUUM LEAK SEALANT	0.5	Ounces(OZ)	12-Aug-18
1521614	7440-29-1	THORIUM ICP STANDARD 1000UG/ML	125	Milliliter(ML)	13-Aug-18
1495940	-	RTV1473 Acetoxy Curing Sealant	3	Ounces(OZ)	13-Aug-18
1480979	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480985	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480992	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481018	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481005	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480980	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480981	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480982	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480983	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480984	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480986	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480988	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480989	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480987	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480991	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481004	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480993	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1480994	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480995	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480996	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480997	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480998	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480999	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481000	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481001	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481002	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481003	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1480990	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481023	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481041	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481042	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481043	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481044	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481046	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481048	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481049	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	13-Aug-18
1481050	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	50	Pounds(LB)	13-Aug-18
1481040	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481006	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481045	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481024	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481025	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481026	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481027	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481028	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481029	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481030	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481031	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481032	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481016	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481015	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481007	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481008	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481009	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481034	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481010	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481011	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481012	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481013	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481047	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481014	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481039	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481035	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481033	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481022	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481021	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481019	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481036	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481017	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481037	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481038	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481020	-	DAP Alex Painters Acrylic Latex Caulk - All Colors	10	Ounces(OZ)	13-Aug-18
1481051	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	13-Aug-18
1481052	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	13-Aug-18
1521881	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521887	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521882	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521883	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521884	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521886	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521888	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521889	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521890	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521885	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521891	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521896	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521895	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521894	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521893	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521892	67-64-1	ACETONE	4	Liters(L)	13-Aug-18
1521897	9004-34-6	CELLULOSE	1	Kilograms(KG)	13-Aug-18
1521898	8042-47-5	WHITE MINERAL OIL	1	Liters(L)	13-Aug-18
1521899	8042-47-5	WHITE MINERAL OIL	1	Liters(L)	13-Aug-18
1481056	-	DOWFROST 50 Heat Transfer Fluid	55	Gallon(GAL)	13-Aug-18
1521900	534-07-6	BIS (CHLOROMETHYL) KETONE	10	Gram(GM)	13-Aug-18
1521901	-	Objet DurusWhite RGD430	3.6	Kilograms(KG)	13-Aug-18
1521902	71-43-2	BENZENE	4	Liters(L)	13-Aug-18
1521903	-	SHELL EPON RESIN 828	1	Pint(PT)	13-Aug-18
1521912	-	SHELL EPON RESIN 828	1	Pint(PT)	13-Aug-18
1521910	-	SHELL EPON RESIN 828	1	Pint(PT)	13-Aug-18
1521909	-	SHELL EPON RESIN 828	1	Pint(PT)	13-Aug-18
1521908	-	SHELL EPON RESIN 828	1	Pint(PT)	13-Aug-18
1521907	-	SHELL EPON RESIN 828	1	Pint(PT)	13-Aug-18
1521906	-	SHELL EPON RESIN 828	1	Pint(PT)	13-Aug-18
1521904	-	SHELL EPON RESIN 828	1	Pint(PT)	13-Aug-18
1521911	-	SHELL EPON RESIN 828	1	Pint(PT)	13-Aug-18
1521905	-	SHELL EPON RESIN 828	1	Pint(PT)	13-Aug-18
1521913	1119-72-8	cis cis-Muconic acid	5	Gram(GM)	13-Aug-18
1521914	75-05-8	ACETONITRILE ANHYDROUS	1	Liters(L)	13-Aug-18
1521915	7447-39-4	COPPER(II) CHLORIDE	1	Kilograms(KG)	13-Aug-18
1521916	7783-20-2	RNAlater	500	Milliliter(ML)	13-Aug-18
1521917	56-92-8	HISTAMINE DIHYDROCHLORIDE	100	Gram(GM)	13-Aug-18
1521918	-	ARATHANE 5750-A/B	1	Quarts(QT)	13-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521972	64-17-5	ETHYL ALCOHOL DENATURED HPLC	4	Liters(L)	13-Aug-18
1521974	-	ODOROSIDE A	100	Milligram(MG)	13-Aug-18
1521975	61217-80-9	ODOROSIDE H	5	Milligram(MG)	13-Aug-18
1521976	61217-80-9	ODOROSIDE H	5	Milligram(MG)	13-Aug-18
1521521977	52-90-4	L-CYSTEINE	100	Gram(GM)	13-Aug-18
1521978	14024-48-7	COBALT(II) ACETYLACETONATE	25	Gram(GM)	13-Aug-18
1521979	4045-44-7	1 2 3 4 5-PENTAMETHYLCYCLOPENTADIENE	5	Milliliter(ML)	13-Aug-18
1521980	-	ActinGreen 488 ReadyProbes Reagent	50	Milliliter(ML)	13-Aug-18
1521981	-	ActinGreen 488 ReadyProbes Reagent	50	Milliliter(ML)	13-Aug-18
1521982	-	THERMO SCIENTIFIC*PIERCE* TCEP HCl	5	Milliliter(ML)	13-Aug-18
1521986	-	THERMO SCIENTIFIC*PIERCE* TCEP HCl	5	Milliliter(ML)	13-Aug-18
1521984	-	THERMO SCIENTIFIC*PIERCE* TCEP HCl	5	Milliliter(ML)	13-Aug-18
1521985	-	THERMO SCIENTIFIC*PIERCE* TCEP HCl	5	Milliliter(ML)	13-Aug-18
1521983	-	THERMO SCIENTIFIC*PIERCE* TCEP HCl	5	Milliliter(ML)	13-Aug-18
1521987	7181-87-5	1 3-Dimethyl-1H-benzimidazolium iodide	4	Gram(GM)	13-Aug-18
1521988	14470-28-1	4-Methoxytriphenylmethyl chloride	100	Gram(GM)	13-Aug-18
1521989	-	PHOSPHATE BUFFERED SALINE	1	Liters(L)	13-Aug-18
1521991	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1522001	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1522005	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1522004	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1522002	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1522000	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1521999	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1521998	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1521997	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1521995	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1521994	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1521993	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1521992	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1522003	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1521996	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	13-Aug-18
1522006	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	13-Aug-18
1522007	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	13-Aug-18
1522008	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	13-Aug-18
1522009	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	13-Aug-18
1522010	64-17-5	ETHANOL	500	Milliliter(ML)	13-Aug-18
1522011	64-17-5	ETHANOL	500	Milliliter(ML)	13-Aug-18
1522012	64-17-5	ETHANOL	500	Milliliter(ML)	13-Aug-18
1522013	64-17-5	ETHANOL	500	Milliliter(ML)	13-Aug-18
1522014	75-09-2	DICHLOROMETHANE	4	Liters(L)	13-Aug-18
1522015	56-92-8	HISTAMINE DIHYDROCHLORIDE	1	Gram(GM)	13-Aug-18
1522016	6600-40-4	L-Norvaline	1	Gram(GM)	13-Aug-18
1522017	127-09-3	SODIUM ACETATE ANHYDROUS	250	Gram(GM)	13-Aug-18
1522018	-	HEXYLTRIMETHYLAMMONIUM BROMIDE	25	Gram(GM)	13-Aug-18
1522063	13601-19-9	SODIUM FERROCYANIDE DECAHYDRATE	500	Gram(GM)	13-Aug-18
1522064	54451-25-1	CERIUM(III) CARBONATE HYDRATE	50	Gram(GM)	13-Aug-18
1522065	12082-08-5	BENZENE CHROMIUM TRICARBONYL	1	Gram(GM)	13-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522066	208111-00-6	6-(2-Thienyl)-2-pyridinecarboxaldehyde	1	Gram(GM)	13-Aug-18
1522067	5949-05-3	(S)-(-)-Citronellal	5	Gram(GM)	13-Aug-18
1522068	106-23-0	(±)-Citronellal	100	Milliliter(ML)	13-Aug-18
1458784	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	13-Aug-18
1458785	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	13-Aug-18
1458044	-	Rubber Cleaner & Rejuvenator	12	Ounces(OZ)	13-Aug-18
1521990	123-91-1	1 4-DIOXANE	1	Liters(L)	13-Aug-18
1522019	7647-01-0	HYDROGEN CHLORIDE (HYDROCHLORIC ACID	18.23	Gram(GM)	13-Aug-18
1522020	7647-01-0	HYDROGEN CHLORIDE (HYDROCHLORIC ACID	18.23	Gram(GM)	13-Aug-18
1522021	1302-78-9	PLUG N DIKE DRY GRANULAR	10	Pounds(LB)	13-Aug-18
1522022	1302-78-9	PLUG N DIKE DRY GRANULAR	10	Pounds(LB)	13-Aug-18
1522036	-	Chemical Oxygen Demand (COD) Mercury-Free	25	Milliliter(ML)	13-Aug-18
1522039	-	Chemical Oxygen Demand (COD) Mercury-Free	25	Milliliter(ML)	13-Aug-18
1522041	-	Chemical Oxygen Demand (COD) Mercury-Free	25	Milliliter(ML)	13-Aug-18
1522040	-	Chemical Oxygen Demand (COD) Mercury-Free	25	Milliliter(ML)	13-Aug-18
1522037	-	Chemical Oxygen Demand (COD) Mercury-Free	25	Milliliter(ML)	13-Aug-18
1522038	-	Chemical Oxygen Demand (COD) Mercury-Free	25	Milliliter(ML)	13-Aug-18
1522042	126-73-8	TRI-N-BUTYL PHOSPHATE	250	Milliliter(ML)	14-Aug-18
1522043	126-73-8	TRI-N-BUTYL PHOSPHATE	250	Milliliter(ML)	14-Aug-18
1522044	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Gram(GM)	14-Aug-18
1522045	67-63-0	2-PROPANOL	4	Liters(L)	14-Aug-18
1522046	67-63-0	2-PROPANOL	4	Liters(L)	14-Aug-18
1522048	67-63-0	2-PROPANOL	4	Liters(L)	14-Aug-18
1522047	67-63-0	2-PROPANOL	4	Liters(L)	14-Aug-18
1522049	67-64-1	ACETONE	4	Liters(L)	14-Aug-18
1522052	67-64-1	ACETONE	4	Liters(L)	14-Aug-18
1522051	67-64-1	ACETONE	4	Liters(L)	14-Aug-18
1522050	67-64-1	ACETONE	4	Liters(L)	14-Aug-18
1522053	110-82-7	CYCLOHEXANE	4	Liters(L)	14-Aug-18
1522054	433-27-2	Trifluoroacetaldehyde ethyl hemiacetal	25	Gram(GM)	14-Aug-18
1522055	-	POP-7 Polymer for 3130/3130xl Genetic	3500	Microliter	14-Aug-18
1522056	-	POP-7 Polymer for 3130/3130xl Genetic	3500	Microliter	14-Aug-18
1522057	-	POP-7 Polymer for 3130/3130xl Genetic	3500	Microliter	14-Aug-18
1522058	-	POP-7 Polymer for 3130/3130xl Genetic	3500	Microliter	14-Aug-18
1522059	68609-97-2	Lord E-301 Adhesive Black	3	Pounds(LB)	14-Aug-18
1522060	7487-88-9	MAGNESIUM SULFATE ANHYDROUS	500	Gram(GM)	14-Aug-18
1522061	-	SiliaSep Flash Cartridge	12	Gram(GM)	14-Aug-18
1522062	-	SiliaSep Flash Cartridge	12	Gram(GM)	14-Aug-18
1522069	625-86-5	2 5-DIMETHYLFURAN	100	Milliliter(ML)	14-Aug-18
1522070	625-86-5	2 5-DIMETHYLFURAN	100	Milliliter(ML)	14-Aug-18
1522071	108-90-7	CHLOROBENZENE	2	Liters(L)	14-Aug-18
1522072	100-97-0	HEXAMETHYLENETETRAMINE	250	Gram(GM)	14-Aug-18
1522073	-	Spurr Low Viscosity Embedding Kit	1050	Gram(GM)	14-Aug-18
1522076	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	14-Aug-18
1522077	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	14-Aug-18
1522078	258273-75-5	Butyltrimethylammonium	500	Gram(GM)	14-Aug-18
1522079	27774-13-6	VANADYL SULFATE	10	Gram(GM)	14-Aug-18
1522080	18542-42-2	2-(METHYLTHIO)ETHYLAMINE	25	Gram(GM)	14-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522081	1002-69-3	1-CHLORODECANE	100	Gram(GM)	14-Aug-18
1522082	149-57-5	2-ETHYLHEXANOIC ACID	100	Milliliter(ML)	14-Aug-18
1522083	61-54-1	TRYPTAMINE	50	Gram(GM)	14-Aug-18
1522084	7440-62-2	VANADIUM TURNINGS	25	Gram(GM)	14-Aug-18
1522135	110-54-3	N-HEXANE	50	Milliliter(ML)	14-Aug-18
1522136	64-17-5	ETHYL ALCOHOL PURE	4	Gallon(GAL)	14-Aug-18
1522137	64-17-5	ETHYL ALCOHOL PURE	4	Gallon(GAL)	14-Aug-18
1522138	64-17-5	ETHYL ALCOHOL PURE	4	Gallon(GAL)	14-Aug-18
1522139	64-17-5	ETHYL ALCOHOL PURE	4	Gallon(GAL)	14-Aug-18
1522140	7697-37-2	NITRIC ACID	2.5	Liters(L)	14-Aug-18
1522141	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522149	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522153	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522154	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522152	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522151	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522150	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522147	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522146	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522145	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522144	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522143	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522142	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522148	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522155	-	LOCTITE ABLESTIK 2902	2.65	Gram(GM)	14-Aug-18
1522156	10043-11-5	BORON NITRIDE	1	Pounds(LB)	14-Aug-18
1522157	10043-11-5	BORON NITRIDE	1	Pounds(LB)	14-Aug-18
1522158	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522166	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522169	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522170	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522171	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522167	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522161	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522165	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522164	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522168	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522162	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522160	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522159	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522163	-	ULTIMA GOLD	5	Liters(L)	14-Aug-18
1522172	1310-73-2	SODIUM HYDROXIDE	500	Milliliter(ML)	14-Aug-18
1522173	1310-73-2	SODIUM HYDROXIDE	500	Milliliter(ML)	14-Aug-18
1522174	67-56-1	METHANOL REAGENT ACS	4	Liters(L)	14-Aug-18
1522176	67-56-1	METHANOL REAGENT ACS	4	Liters(L)	14-Aug-18
1522177	67-56-1	METHANOL REAGENT ACS	4	Liters(L)	14-Aug-18
1522178	67-56-1	METHANOL REAGENT ACS	4	Liters(L)	14-Aug-18
1522179	67-56-1	METHANOL REAGENT ACS	4	Liters(L)	14-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522180	67-56-1	METHANOL REAGENT ACS	4	Liters(L)	14-Aug-18
1522181	67-56-1	METHANOL REAGENT ACS	4	Liters(L)	14-Aug-18
1522175	67-56-1	METHANOL REAGENT ACS	4	Liters(L)	14-Aug-18
1522182	108-88-3	TOLUENE	4	Liters(L)	14-Aug-18
1522185	108-88-3	TOLUENE	4	Liters(L)	14-Aug-18
1522183	108-88-3	TOLUENE	4	Liters(L)	14-Aug-18
1522184	108-88-3	TOLUENE	4	Liters(L)	14-Aug-18
1522186	71-43-2	BENZENE	1	Liters(L)	14-Aug-18
1522187	71-43-2	BENZENE	1	Liters(L)	14-Aug-18
1522188	71-43-2	BENZENE	1	Liters(L)	14-Aug-18
1522189	71-43-2	BENZENE	1	Liters(L)	14-Aug-18
1522190	71-43-2	BENZENE	1	Liters(L)	14-Aug-18
1522191	71-43-2	BENZENE	1	Liters(L)	14-Aug-18
1522192	-	Copper Conductive Paint	4	Ounces(OZ)	14-Aug-18
1522193	-	Copper Conductive Paint	4	Ounces(OZ)	14-Aug-18
1522194	825-22-9	2-Amino-3-fluorobenzoic Acid	25	Gram(GM)	14-Aug-18
1522195	71-48-7	COBALT(II) ACETATE	50	Gram(GM)	14-Aug-18
1522196	-	OBJET VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	14-Aug-18
1522197	-	OBJET VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	14-Aug-18
1522198	-	OBJET VEROCLEAR RGD810	3.5	Kilograms(KG)	14-Aug-18
1522301	-	VACSEAL HIGH VACUUM LEAK SEALANT	16	Ounces(OZ)	14-Aug-18
1522303	-	VACSEAL HIGH VACUUM LEAK SEALANT	16	Ounces(OZ)	14-Aug-18
1522302	-	VACSEAL HIGH VACUUM LEAK SEALANT	16	Ounces(OZ)	14-Aug-18
1522304	-	VACSEAL HIGH VACUUM LEAK SEALANT	16	Ounces(OZ)	14-Aug-18
1458786	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	14-Aug-18
1458790	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	14-Aug-18
1458788	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	14-Aug-18
1458787	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	14-Aug-18
1458789	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	14-Aug-18
1458791	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	14-Aug-18
1458794	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	14-Aug-18
1458795	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	14-Aug-18
1458793	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	14-Aug-18
1458792	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	14-Aug-18
1521671	1066-30-4	CHROMIC ACETATE	1	Kilograms(KG)	14-Aug-18
1521672	109-99-9	TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	14-Aug-18
1521673	109-99-9	TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	14-Aug-18
1521674	110-54-3	N-HEXANE	1	Liters(L)	14-Aug-18
1521675	110-54-3	N-HEXANE	1	Liters(L)	14-Aug-18
1521676	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	14-Aug-18
1521677	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	14-Aug-18
1521678	75-09-2	DICHLOROMETHANE	4	Liters(L)	14-Aug-18
1521679	109-99-9	TETRAHYDROFURAN	500	Milliliter(ML)	14-Aug-18
1521680	109-99-9	TETRAHYDROFURAN	500	Milliliter(ML)	14-Aug-18
1521681	-	STAINLESS STEEL POWDER	5	Kilograms(KG)	14-Aug-18
1521682	-	STAINLESS STEEL POWDER	5	Kilograms(KG)	14-Aug-18
1521683	71-43-2	BENZENE	1	Liters(L)	14-Aug-18
1521684	1076-43-3	BENZENE-D6	100	Gram(GM)	14-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521686	1076-43-3	BENZENE-D6	100	Gram(GM)	14-Aug-18
1521688	1076-43-3	BENZENE-D6	100	Gram(GM)	14-Aug-18
1521687	1076-43-3	BENZENE-D6	100	Gram(GM)	14-Aug-18
1521685	1076-43-3	BENZENE-D6	100	Gram(GM)	14-Aug-18
1521689	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	14-Aug-18
1521690	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	14-Aug-18
1521696	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	14-Aug-18
1521695	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	14-Aug-18
1521694	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	14-Aug-18
1521693	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	14-Aug-18
1521692	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	14-Aug-18
1521691	1693-74-9	TETRAHYDROFURAN-D8	10	Gram(GM)	14-Aug-18
1521697	1665-00-5	METHYLENE CHLORIDE-D2	25	Gram(GM)	14-Aug-18
1521700	1665-00-5	METHYLENE CHLORIDE-D2	25	Gram(GM)	14-Aug-18
1521698	1665-00-5	METHYLENE CHLORIDE-D2	25	Gram(GM)	14-Aug-18
1521699	1665-00-5	METHYLENE CHLORIDE-D2	25	Gram(GM)	14-Aug-18
1521701	71-43-2	BENZENE	1	Liters(L)	14-Aug-18
1521702	584-08-7	POTASSIUM CARBONATE	10	Gram(GM)	14-Aug-18
1522199	584-08-7	POTASSIUM CARBONATE ANHYDROUS	2.5	Kilograms(KG)	14-Aug-18
1522200	-	STANDARD MULTI-ELEMENT ICP-MS	125	Milliliter(ML)	14-Aug-18
1522201	-	Detection Solution	1	Liters(L)	14-Aug-18
1522202	60-29-7	DIETHYL ETHER	1	Liters(L)	14-Aug-18
1522203	60-29-7	DIETHYL ETHER	1	Liters(L)	14-Aug-18
1522204	1072-63-5	1-Vinylimidazole 99%	100	Gram(GM)	14-Aug-18
1522279	60-29-7	ETHYL ETHER	500	Milliliter(ML)	14-Aug-18
1522280	60-29-7	ETHYL ETHER	500	Milliliter(ML)	14-Aug-18
1522282	60-29-7	ETHYL ETHER	500	Milliliter(ML)	14-Aug-18
1522281	60-29-7	ETHYL ETHER	500	Milliliter(ML)	14-Aug-18
1522283	17575-22-3	Lanatoside C	100	Milligram(MG)	14-Aug-18
1522284	20830-75-5	DIGOXIN	10	Milligram(MG)	14-Aug-18
1522285	20830-75-5	DIGOXIN	10	Milligram(MG)	14-Aug-18
1522286	41463-83-6	3 3 3-Trifluoropropionyl chloride	25	Gram(GM)	14-Aug-18
1522287	7325-46-4	1 4-PHENYLENEDIACETIC ACI	25	Gram(GM)	14-Aug-18
1522288	88-99-3	PHTHALIC ACID	25	Gram(GM)	14-Aug-18
1522289	56074-20-5	Boc-iminodiacetic acid	25	Gram(GM)	14-Aug-18
1522290	6704-31-0	3-Oxetanone	25	Gram(GM)	14-Aug-18
1522291	-	Sulfonate Polystyrene Particles	10	Milliliter(ML)	14-Aug-18
1522292	7447-40-7	POTASSIUM CHLORIDE	500	Gram(GM)	14-Aug-18
1522293	-	Detection Solution	1	Liters(L)	14-Aug-18
1481058	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481085	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481077	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481078	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481079	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481080	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481081	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481082	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481093	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481084	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481074	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481086	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481087	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481088	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481089	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481091	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481083	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481067	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481059	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481060	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481061	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481062	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481063	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481064	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481076	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481066	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481075	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481068	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481069	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481070	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481071	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481072	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481073	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481092	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481065	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481109	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481094	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481112	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481090	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481110	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481108	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481107	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481106	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481105	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481104	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481103	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481102	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481101	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481099	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481098	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481097	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481096	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481095	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481100	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481111	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1481057	497-19-8	SODIUM CARBONATE (SODA ASH) ANHYDROUS	50	Pounds(LB)	14-Aug-18
1522294	-	MAGNESIUM TRISILICATE	1	Kilograms(KG)	14-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522023	110-00-9	FURAN	100	Milliliter(ML)	14-Aug-18
1522089	7697-37-2	HNO3 1 GAL PRESERVATION VIAL	100	Milliliter(ML)	14-Aug-18
1522092	7697-37-2	HNO3 1 GAL PRESERVATION VIAL	100	Milliliter(ML)	14-Aug-18
1522090	7697-37-2	HNO3 1 GAL PRESERVATION VIAL	100	Milliliter(ML)	14-Aug-18
1522093	7697-37-2	HNO3 1 GAL PRESERVATION VIAL	100	Milliliter(ML)	14-Aug-18
1522091	7697-37-2	HNO3 1 GAL PRESERVATION VIAL	100	Milliliter(ML)	14-Aug-18
1522094	7697-37-2	HNO3 1 GAL PRESERVATION VIAL	500	Milliliter(ML)	14-Aug-18
1522096	7697-37-2	HNO3 1 GAL PRESERVATION VIAL	500	Milliliter(ML)	14-Aug-18
1522095	7697-37-2	HNO3 1 GAL PRESERVATION VIAL	500	Milliliter(ML)	14-Aug-18
1522098	7697-37-2	HNO3 1 GAL PRESERVATION VIAL	500	Milliliter(ML)	14-Aug-18
1522097	7697-37-2	HNO3 1 GAL PRESERVATION VIAL	500	Milliliter(ML)	14-Aug-18
1522099	7697-37-2	HNO3 1 GAL PRESERVATION VIAL	1000	Milliliter(ML)	14-Aug-18
1522100	7697-37-2	HNO3 1 GAL PRESERVATION VIAL	1000	Milliliter(ML)	14-Aug-18
1522101	Multi	HOPPE'S NO. 9	1	Pint(PT)	14-Aug-18
1522102	14807-96-6	TALCUM POWDER	500	Gram(GM)	14-Aug-18
1522103	63231-60-7	MICROCRYSTALLINE WAX	10	Pounds(LB)	14-Aug-18
1522205	1074-82-4	PHTHALIMIDE POTASSIUM SALT	100	Gram(GM)	14-Aug-18
1522206	584-08-7	POTASSIUM CARBONATE	500	Gram(GM)	14-Aug-18
1522213	-	pH Buffer Solutions Hach	500	Milliliter(ML)	14-Aug-18
1522214	-	pH Buffer Solutions Hach	500	Milliliter(ML)	14-Aug-18
1522215	-	pH Buffer Solutions Hach	500	Milliliter(ML)	14-Aug-18
1522216	-	pH Buffer Solutions Hach	500	Milliliter(ML)	14-Aug-18
693066	-	NALCO 1820 CORROSION INHIBITOR SOLUTION	450	Pounds(LB)	14-Aug-18
693075	-	NALCO 1720 OXYGEN SCAVENGER SOLUTION	200	Gallon(GAL)	14-Aug-18
1522217	144-55-8	SODIUM BICARBONATE	500	Gram(GM)	15-Aug-18
1522218	-	RESIN ANION EXCHANGE 1-X4	500	Gram(GM)	15-Aug-18
1522219	-	RESIN ANION EXCHANGE 1-X4	500	Gram(GM)	15-Aug-18
1522220	1310-73-2	SODIUM HYDROXIDE	1	Liters(L)	15-Aug-18
1522221	1310-73-2	SODIUM HYDROXIDE	1	Liters(L)	15-Aug-18
1522222	1310-73-2	SODIUM HYDROXIDE	1	Liters(L)	15-Aug-18
1522223	1310-73-2	SODIUM HYDROXIDE	1	Liters(L)	15-Aug-18
1522224	1310-73-2	SODIUM HYDROXIDE	1	Liters(L)	15-Aug-18
1522225	1310-73-2	SODIUM HYDROXIDE	1	Liters(L)	15-Aug-18
1522226	544-63-8	tetradecanoic acid	250	Gram(GM)	15-Aug-18
1522227	-	COPPER OXIDE (RARE EARTH BASE)	50	Gram(GM)	15-Aug-18
1522228	-	COPPER OXIDE (RARE EARTH BASE)	50	Gram(GM)	15-Aug-18
1522229	-	COPPER OXIDE (RARE EARTH BASE)	50	Gram(GM)	15-Aug-18
1522230	-	SCHUTZE REAGENT	100	Gram(GM)	15-Aug-18
1522231	-	SCHUTZE REAGENT	100	Gram(GM)	15-Aug-18
1522232	-	QUARTZ WOOL	50	Gram(GM)	15-Aug-18
1522233	-	QUARTZ WOOL	50	Gram(GM)	15-Aug-18
1522234	1308-38-9	CHROMIUM(III) OXIDE	2	Kilograms(KG)	15-Aug-18
1522235	111-25-1	1-BROMOHEXANE	100	Gram(GM)	15-Aug-18
1522236	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	15-Aug-18
1522237	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	15-Aug-18
1522238	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	15-Aug-18
1522239	67-56-1	METHANOL	4	Liters(L)	15-Aug-18
1522240	67-56-1	METHANOL	4	Liters(L)	15-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522241	67-56-1	METHANOL	4	Liters(L)	15-Aug-18
1522242	67-56-1	METHANOL	4	Liters(L)	15-Aug-18
1522243	3109-63-5	TETRABUTYLAMMONIUM	100	Gram(GM)	15-Aug-18
1522251	3109-63-5	TETRABUTYLAMMONIUM	100	Gram(GM)	15-Aug-18
1522252	3109-63-5	TETRABUTYLAMMONIUM	100	Gram(GM)	15-Aug-18
1522250	3109-63-5	TETRABUTYLAMMONIUM	100	Gram(GM)	15-Aug-18
1522249	3109-63-5	TETRABUTYLAMMONIUM	100	Gram(GM)	15-Aug-18
1522248	3109-63-5	TETRABUTYLAMMONIUM	100	Gram(GM)	15-Aug-18
1522246	3109-63-5	TETRABUTYLAMMONIUM	100	Gram(GM)	15-Aug-18
1522245	3109-63-5	TETRABUTYLAMMONIUM	100	Gram(GM)	15-Aug-18
1522244	3109-63-5	TETRABUTYLAMMONIUM	100	Gram(GM)	15-Aug-18
1522247	3109-63-5	TETRABUTYLAMMONIUM	100	Gram(GM)	15-Aug-18
1522253	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522258	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522267	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522266	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522265	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522264	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522263	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522262	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522261	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522259	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522256	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522255	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522254	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522268	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522257	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522260	77-92-9	CITRIC ACID	5	Liters(L)	15-Aug-18
1522269	7447-40-7	Luna Universal One-Step RT-qPCR Kit	50	Milliliter(ML)	15-Aug-18
1522270	7447-40-7	POTASSIUM CHLORIDE	500	Gram(GM)	15-Aug-18
1522271	10034-99-8	MAGNESIUM SULFATE HEPTAHYDRATE	1	Kilograms(KG)	15-Aug-18
1522272	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	500	Gram(GM)	15-Aug-18
1522273	1074-82-4	PHTHALIMIDE POTASSIUM SALT	100	Gram(GM)	15-Aug-18
1522274	584-08-7	POTASSIUM CARBONATE ANHYDROUS	500	Gram(GM)	15-Aug-18
1522275	-	LOCTITE SUPER GLUE	20	Gram(GM)	15-Aug-18
1522277	-	LOCTITE SUPER GLUE	20	Gram(GM)	15-Aug-18
1522276	-	LOCTITE SUPER GLUE	20	Gram(GM)	15-Aug-18
1522278	67-63-0	ISOPROPYL ALCHOL 2-PROPANOL OPTIMA	4	Liters(L)	15-Aug-18
1522295	-	Insulin-like Growth Factor-I human	50	MicroGram(UG	15-Aug-18
1522296	-	Insulin-like Growth Factor-I human	50	MicroGram(UG	15-Aug-18
1522353	-	BUEHLER RELEASE AGENT	4	Ounces(OZ)	15-Aug-18
1522354	-	BUEHLER RELEASE AGENT	4	Ounces(OZ)	15-Aug-18
1458796	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Aug-18
1458798	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Aug-18
1458797	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Aug-18
1458800	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Aug-18
1458799	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Aug-18
1522104	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522122	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522111	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522113	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522123	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522112	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522121	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522120	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522109	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522118	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522117	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522116	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522115	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522114	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522110	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522106	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522107	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522105	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522108	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522119	10045-94-0	MERCURIC NITRATE	100	Milliliter(ML)	15-Aug-18
1522124	441-38-3	ALPHA-BENZOIN OXIME	100	Gram(GM)	15-Aug-18
1522125	-	EXTRUDE MEDIUM	50	Milliliter(ML)	15-Aug-18
1522126	-	EXTRUDE MEDIUM	50	Milliliter(ML)	15-Aug-18
1522128	-	EXTRUDE MEDIUM	50	Milliliter(ML)	15-Aug-18
1522130	-	EXTRUDE MEDIUM	50	Milliliter(ML)	15-Aug-18
1522127	-	EXTRUDE MEDIUM	50	Milliliter(ML)	15-Aug-18
1522129	-	EXTRUDE MEDIUM	50	Milliliter(ML)	15-Aug-18
1522131	26134-62-3	LITHIUM NITRIDE	1	Kilograms(KG)	15-Aug-18
1522132	26134-62-3	LITHIUM NITRIDE	1	Kilograms(KG)	15-Aug-18
1522133	-	CLEAR-OX	5	Gram(GM)	15-Aug-18
1522134	-	Monarch Total RNA Miniprep Kit	50	Milliliter(ML)	15-Aug-18
1522355	-	CFDA-SE	500	MicroGram(UG	15-Aug-18
1522356	64-19-7	ACETIC ACID	50	Milliliter(ML)	15-Aug-18
1522357	-	RESIN SEALANT LOW VAPOR PRESSURE EPOXY	118	Gram(GM)	15-Aug-18
1522358	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	15-Aug-18
1522359	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	15-Aug-18
1522360	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	15-Aug-18
1522361	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	15-Aug-18
1522362	67-68-5	Vybrant DyeCycle Orange Stain	400	Microliter	15-Aug-18
1522363	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522367	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522370	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522369	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522368	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522372	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522371	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522374	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522364	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522365	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522366	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522373	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522375	100-51-6	BENZYL ALCOHOL ANHYDROUS 99+%	100	Milliliter(ML)	15-Aug-18
1522376	67-63-0	ISOPROPYL ALCOHOL	4	Liters(L)	15-Aug-18
1522377	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	15-Aug-18
1522384	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	15-Aug-18
1522383	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	15-Aug-18
1522382	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	15-Aug-18
1522381	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	15-Aug-18
1522379	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	15-Aug-18
1522378	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	15-Aug-18
1522380	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	15-Aug-18
1522385	141-78-6	ETHYL ACETATE	4	Liters(L)	15-Aug-18
1522388	141-78-6	ETHYL ACETATE	4	Liters(L)	15-Aug-18
1522386	141-78-6	ETHYL ACETATE	4	Liters(L)	15-Aug-18
1522387	141-78-6	ETHYL ACETATE	4	Liters(L)	15-Aug-18
1522389	-	Dissolved Oxygen 3 Powder Pillows	60	Milliliter(ML)	15-Aug-18
1522390	-	Dissolved Oxygen 3 Powder Pillows	60	Milliliter(ML)	15-Aug-18
1522391	-	STARCH INDICATOR SOLUTION	100	Milliliter(ML)	15-Aug-18
1522392	-	STARCH INDICATOR SOLUTION	100	Milliliter(ML)	15-Aug-18
1522393	-	DIPHENYLCARBAZONE REAGENT POWDER	100	Milliliter(ML)	15-Aug-18
1522398	-	DIPHENYLCARBAZONE REAGENT POWDER	100	Milliliter(ML)	15-Aug-18
1522394	-	DIPHENYLCARBAZONE REAGENT POWDER	100	Milliliter(ML)	15-Aug-18
1522395	-	DIPHENYLCARBAZONE REAGENT POWDER	100	Milliliter(ML)	15-Aug-18
1522397	-	DIPHENYLCARBAZONE REAGENT POWDER	100	Milliliter(ML)	15-Aug-18
1522396	-	DIPHENYLCARBAZONE REAGENT POWDER	100	Milliliter(ML)	15-Aug-18
1522399	-	DIPHENYLCARBAZONE REAGENT POWDER	100	Milliliter(ML)	15-Aug-18
1522400	-	DIPHENYLCARBAZONE REAGENT POWDER	100	Milliliter(ML)	15-Aug-18
1522401	-	DIPHENYLCARBAZONE REAGENT POWDER	100	Milliliter(ML)	15-Aug-18
1522402	-	DIPHENYLCARBAZONE REAGENT POWDER	100	Milliliter(ML)	15-Aug-18
1522403	-	Hardness 1 Buffer Solution	100	Milliliter(ML)	15-Aug-18
1522406	-	Hardness 1 Buffer Solution	100	Milliliter(ML)	15-Aug-18
1522407	-	Hardness 1 Buffer Solution	100	Milliliter(ML)	15-Aug-18
1522404	-	Hardness 1 Buffer Solution	100	Milliliter(ML)	15-Aug-18
1522405	-	Hardness 1 Buffer Solution	100	Milliliter(ML)	15-Aug-18
1522408	10025-77-1	IRON(III) CHLORIDE HEXAHYDRATE	500	Gram(GM)	15-Aug-18
1522409	10025-77-1	IRON(III) CHLORIDE HEXAHYDRATE	500	Gram(GM)	15-Aug-18
1522410	10025-77-1	IRON(III) CHLORIDE HEXAHYDRATE	500	Gram(GM)	15-Aug-18
1522411	10025-77-1	IRON(III) CHLORIDE HEXAHYDRATE	500	Gram(GM)	15-Aug-18
1522412	10025-77-1	IRON(III) CHLORIDE HEXAHYDRATE	500	Gram(GM)	15-Aug-18
1522413	10025-77-1	IRON(III) CHLORIDE HEXAHYDRATE	500	Gram(GM)	15-Aug-18
1522414	10025-77-1	IRON(III) CHLORIDE HEXAHYDRATE	500	Gram(GM)	15-Aug-18
1522416	10025-77-1	IRON(III) CHLORIDE HEXAHYDRATE	500	Gram(GM)	15-Aug-18
1522415	10025-77-1	IRON(III) CHLORIDE HEXAHYDRATE	500	Gram(GM)	15-Aug-18
1522417	-	YTTRIUM PLASMA STANDARDS 1 000 PPM 10	50	Milliliter(ML)	15-Aug-18
1522418	-	NICKEL PLASMA STANDARD	50	Milliliter(ML)	15-Aug-18
1522423	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522427	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522431	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522430	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522428	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522426	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522425	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522424	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522429	-	LOCTITE SUPER GLUE	4	Gram(GM)	15-Aug-18
1522495	12125-02-9	AMMONIUM CHLORIDE	500	Gram(GM)	15-Aug-18
1458801	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	15-Aug-18
1458802	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	15-Aug-18
1522419	-	HYDROBROMIC ACID OPTIMA	1	Liters(L)	15-Aug-18
1522420	-	HYDROBROMIC ACID OPTIMA	1	Liters(L)	15-Aug-18
1522421	-	ETHANOL ANHYDROUS	20	Liters(L)	15-Aug-18
1522432	7722-84-1	HYDROGEN PEROXIDE	500	Milliliter(ML)	15-Aug-18
1522433	7722-84-1	HYDROGEN PEROXIDE	500	Milliliter(ML)	15-Aug-18
1522434	7722-84-1	HYDROGEN PEROXIDE	500	Milliliter(ML)	15-Aug-18
1522435	7722-84-1	HYDROGEN PEROXIDE	500	Milliliter(ML)	15-Aug-18
1522436	-	TORR SEAL	118	Gram(GM)	15-Aug-18
1522437	75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	4	Liters(L)	15-Aug-18
1522438	75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	4	Liters(L)	15-Aug-18
1522439	48209-28-5	Copper(I) trifluoromethanesulfonate toluene	5	Gram(GM)	15-Aug-18
1522440	48209-28-5	Copper(I) trifluoromethanesulfonate toluene	5	Gram(GM)	15-Aug-18
1522441	48209-28-5	Copper(I) trifluoromethanesulfonate toluene	5	Gram(GM)	15-Aug-18
1522442	644-97-3	DICHLOROPHENYLPHOSPHINE	5	Gram(GM)	15-Aug-18
1522443	-	Tri-Flow Lubricant	18	Ounces(OZ)	15-Aug-18
1522444	Multi	FerroZine Iron Reagent Solution Pillows	5	Gram(GM)	15-Aug-18
1522445	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	500	Milliliter(ML)	15-Aug-18
1522446	110-71-4	1 2-DIMETHOXYETHANE	500	Milliliter(ML)	15-Aug-18
1522447	110-71-4	1 2-DIMETHOXYETHANE	500	Milliliter(ML)	15-Aug-18
1522496	-	TEVA RESIN	2	Milliliter(ML)	15-Aug-18
1522497	-	TRU RESIN	2	Milliliter(ML)	15-Aug-18
1522548	68410-23-1	VERSAMID 140	1	Quarts(QT)	15-Aug-18
1522549	68410-23-1	VERSAMID 140	1	Quarts(QT)	15-Aug-18
1522550	594-61-6	2-HYDROXYISOBUTYRIC ACID	500	Gram(GM)	15-Aug-18
1522783	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522874	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522866	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522873	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522872	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522871	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522870	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522861	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522848	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522849	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522850	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522842	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522851	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522852	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522853	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522854	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522855	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522856	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522857	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522858	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522868	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522860	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522869	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522862	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522863	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522864	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522865	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522843	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522844	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522845	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522846	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522847	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522816	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522841	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522867	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522859	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522796	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522818	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522808	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522807	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522806	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522805	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522804	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522803	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522802	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522801	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522800	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522799	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522828	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522797	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522875	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522795	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522794	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522793	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522792	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522791	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522790	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522789	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522788	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522787	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522786	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522785	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522784	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522798	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522824	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522839	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522838	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522837	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522836	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522835	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522834	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522833	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522832	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522831	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522830	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522829	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522809	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522825	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522840	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522823	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522822	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522821	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522820	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522819	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522810	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522817	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522815	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522814	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522813	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522812	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522811	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522827	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522879	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522826	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522882	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522880	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522878	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522877	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522881	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1522876	-	TRA-BOND F113	2	Gram(GM)	15-Aug-18
1458803	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	15-Aug-18
1522297	-	2.5% Calcium Gluconate Gel	25	Gram(GM)	15-Aug-18
1522300	-	2.5% Calcium Gluconate Gel	25	Gram(GM)	15-Aug-18
1522298	-	2.5% Calcium Gluconate Gel	25	Gram(GM)	15-Aug-18
1522299	-	2.5% Calcium Gluconate Gel	25	Gram(GM)	15-Aug-18
1522448	104-87-0	P-TOLUALDEHYDE	100	Gram(GM)	15-Aug-18
1522449	1122-62-9	2-ACETYLPYRIDINE	100	Gram(GM)	15-Aug-18
1522450	112-02-7	CETYLTRIMETHYL AMMONIUM CHLORIDE	500	Milliliter(ML)	15-Aug-18
1522451	7440-39-3	BARIUM DENDRITIC PIECES	25	Gram(GM)	15-Aug-18
1522452	7778-18-9	DRIERITE 8 MESH (CALCIUM SULPHATE	2.3	Kilograms(KG)	15-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522453	625-86-5	2 5-DIMETHYLFURAN	100	Milliliter(ML)	15-Aug-18
1522454	938-16-9	2 2-DIMETHYLPROPIOPHENONE	5	Gram(GM)	15-Aug-18
1522455	938-16-9	2 2-DIMETHYLPROPIOPHENONE	5	Gram(GM)	15-Aug-18
1522456	24677-78-9	2 3-DIHYDROXYBENZALDEHYDE	5	Gram(GM)	15-Aug-18
1522457	24677-78-9	2 3-DIHYDROXYBENZALDEHYDE	5	Gram(GM)	15-Aug-18
1522551	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	15-Aug-18
1522557	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	15-Aug-18
1522555	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	15-Aug-18
1522554	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	15-Aug-18
1522553	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	15-Aug-18
1522552	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	15-Aug-18
1522556	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	15-Aug-18
1522558	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	15-Aug-18
1522559	122-00-9	4'-METHYLACETOPHENONE	1	Kilograms(KG)	15-Aug-18
1522560	64-17-5	ETHANOL	1	Liters(L)	15-Aug-18
1522563	64-17-5	ETHANOL	1	Liters(L)	15-Aug-18
1522562	64-17-5	ETHANOL	1	Liters(L)	15-Aug-18
1522561	64-17-5	ETHANOL	1	Liters(L)	15-Aug-18
1522564	1529-47-1	CHLOROTRIMETHYLGERMANE	25	Gram(GM)	15-Aug-18
1522565	-	CLR	1	Gallon(GAL)	15-Aug-18
1522566	-	CLR	1	Gallon(GAL)	15-Aug-18
1458804	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Aug-18
1458806	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Aug-18
1458805	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Aug-18
1458807	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Aug-18
1522305	-	STOPCOCK GREASE	25	Gram(GM)	16-Aug-18
1522458	67-63-0	2-PROPANOL	20	Liters(L)	16-Aug-18
1522459	67-64-1	ACETONE	4	Liters(L)	16-Aug-18
1522461	67-64-1	ACETONE	4	Liters(L)	16-Aug-18
1522462	67-64-1	ACETONE	4	Liters(L)	16-Aug-18
1522460	67-64-1	ACETONE	4	Liters(L)	16-Aug-18
1522463	67-63-0	2-PROPANOL	4	Liters(L)	16-Aug-18
1522465	67-63-0	2-PROPANOL	4	Liters(L)	16-Aug-18
1522466	67-63-0	2-PROPANOL	4	Liters(L)	16-Aug-18
1522464	67-63-0	2-PROPANOL	4	Liters(L)	16-Aug-18
1522467	64-17-5	ALCOHOL USP ETHYL ALCOHOL 190 PROOF	1	Gallon(GAL)	16-Aug-18
1522470	64-17-5	ALCOHOL USP ETHYL ALCOHOL 190 PROOF	1	Gallon(GAL)	16-Aug-18
1522469	64-17-5	ALCOHOL USP ETHYL ALCOHOL 190 PROOF	1	Gallon(GAL)	16-Aug-18
1522468	64-17-5	ALCOHOL USP ETHYL ALCOHOL 190 PROOF	1	Gallon(GAL)	16-Aug-18
1522471	56-23-5	CARBON TETRACHLORIDE	500	Milliliter(ML)	16-Aug-18
1522472	56-23-5	CARBON TETRACHLORIDE	500	Milliliter(ML)	16-Aug-18
1522473	67-64-1	ACETONE OPTIMA	1	Liters(L)	16-Aug-18
1522474	67-64-1	ACETONE OPTIMA	1	Liters(L)	16-Aug-18
1522475	1336-21-6	AMMONIUM HYDROXIDE	2.5	Liters(L)	16-Aug-18
1522476	142-31-4	OCTYL SULFATE SODIUM	5	Gram(GM)	16-Aug-18
1522477	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522488	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522487	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522486	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522485	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522484	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522483	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522482	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522481	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522480	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522479	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522478	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522494	1079-66-9	CHLORODIPHENYLPHOSPHINE	25	Gram(GM)	16-Aug-18
1522617	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522618	75-09-2	DICHLOROMETHANE	4	Liters(L)	16-Aug-18
1522619	64742-65-0	PUMP OIL VACUUM 4L	4	Liters(L)	16-Aug-18
1522620	64742-65-0	PUMP OIL VACUUM 4L	4	Liters(L)	16-Aug-18
1522621	64742-65-0	19 MECHANICAL PUMP OIL	4	Liters(L)	16-Aug-18
1522622	64742-65-0	19 MECHANICAL PUMP OIL	4	Liters(L)	16-Aug-18
1522623	64742-65-0	19 MECHANICAL PUMP OIL	4	Liters(L)	16-Aug-18
1522624	64742-65-0	19 MECHANICAL PUMP OIL	4	Liters(L)	16-Aug-18
1522625	-	CELVACENE LIGHT VACUUM GREASE	1	Pint(PT)	16-Aug-18
1522629	-	CELVACENE LIGHT VACUUM GREASE	1	Pint(PT)	16-Aug-18
1522626	-	CELVACENE LIGHT VACUUM GREASE	1	Pint(PT)	16-Aug-18
1522627	-	CELVACENE LIGHT VACUUM GREASE	1	Pint(PT)	16-Aug-18
1522628	-	CELVACENE LIGHT VACUUM GREASE	1	Pint(PT)	16-Aug-18
1522630	64-18-6	FORMIC ACID	50	Milliliter(ML)	16-Aug-18
1522631	-	PERCHLORATE	500	Milliliter(ML)	16-Aug-18
1522632	-	PERCHLORATE	500	Milliliter(ML)	16-Aug-18
1522633	75178-96-0	N-Boc-1 3-diaminopropane	100	Gram(GM)	16-Aug-18
1522634	75178-96-0	N-Boc-1 3-diaminopropane	100	Gram(GM)	16-Aug-18
1522635	75178-96-0	N-Boc-1 3-diaminopropane	100	Gram(GM)	16-Aug-18
1522636	75178-96-0	N-Boc-1 3-diaminopropane	100	Gram(GM)	16-Aug-18
1522637	6456-74-2	tert-Butyl glycinate	100	Gram(GM)	16-Aug-18
1522638	-	40% Platinum Cobalt (3:1 ratio) on Vulcan	1	Gram(GM)	16-Aug-18
1522711	17927-65-0	ALUMINUM SULFATE HYDRATE	2.5	Kilograms(KG)	16-Aug-18
1522712	17927-65-0	ALUMINUM SULFATE HYDRATE	2.5	Kilograms(KG)	16-Aug-18
1458808	-	Nexguard 22350	551	Pounds(LB)	16-Aug-18
1458809	-	NALCO 7408 CHLORINE SCAVENGER SOLUTION	55	Gallon(GAL)	16-Aug-18
1458810	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	16-Aug-18
1458811	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	16-Aug-18
1458812	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	16-Aug-18
1458813	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	16-Aug-18
1458815	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	16-Aug-18
1458814	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	16-Aug-18
1486753	-	Stop Gap	16	Ounces(OZ)	16-Aug-18
1486754	-	Stop Gap	16	Ounces(OZ)	16-Aug-18
1486756	-	Stop Gap	16	Ounces(OZ)	16-Aug-18
1486757	-	Stop Gap	16	Ounces(OZ)	16-Aug-18
1486758	-	Stop Gap	16	Ounces(OZ)	16-Aug-18
1486755	-	Stop Gap	16	Ounces(OZ)	16-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1482534	-	Stick-Kut	15	Ounces(OZ)	16-Aug-18
1486735	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	16-Aug-18
1486740	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	16-Aug-18
1486737	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	16-Aug-18
1486736	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	16-Aug-18
1486738	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	16-Aug-18
1486739	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	16-Aug-18
1486741	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Aug-18
1486748	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Aug-18
1486745	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Aug-18
1486744	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Aug-18
1486743	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Aug-18
1486742	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Aug-18
1486749	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Aug-18
1486747	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Aug-18
1486751	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Aug-18
1486752	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Aug-18
1486746	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Aug-18
1486750	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Aug-18
1486562	-	Mobil Vacuoline 1409	5	Gallon(GAL)	16-Aug-18
1486563	-	Mobil Vacuoline 1409	5	Gallon(GAL)	16-Aug-18
1486416	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	16-Aug-18
1486419	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	16-Aug-18
1486417	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	16-Aug-18
1486418	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	16-Aug-18
1486560	-	BLASOCUT 2000	5	Gallon(GAL)	16-Aug-18
1486561	-	BLASOCUT 2000	5	Gallon(GAL)	16-Aug-18
1432965	-	HERCULES REAL TUFF TEFLON PASTE THREAD	0.5	Pint(PT)	16-Aug-18
1432966	-	HERCULES REAL TUFF TEFLON PASTE THREAD	0.5	Pint(PT)	16-Aug-18
1432967	-	HERCULES REAL TUFF TEFLON PASTE THREAD	0.5	Pint(PT)	16-Aug-18
1432968	-	HERCULES REAL TUFF TEFLON PASTE THREAD	0.5	Pint(PT)	16-Aug-18
1432970	-	vic-lube	1	Quarts(QT)	16-Aug-18
1432971	-	silvabrite 100	1	Pounds(LB)	16-Aug-18
1432999	-	BRIDGIT SOLDERING PASTE FLUX	0.25	Pint(PT)	16-Aug-18
1433004	-	BRIDGIT SOLDERING PASTE FLUX	0.25	Pint(PT)	16-Aug-18
1433003	-	BRIDGIT SOLDERING PASTE FLUX	0.25	Pint(PT)	16-Aug-18
1433002	-	BRIDGIT SOLDERING PASTE FLUX	0.25	Pint(PT)	16-Aug-18
1433001	-	BRIDGIT SOLDERING PASTE FLUX	0.25	Pint(PT)	16-Aug-18
1433000	-	BRIDGIT SOLDERING PASTE FLUX	0.25	Pint(PT)	16-Aug-18
1433005	-	BRIDGIT SOLDERING PASTE FLUX	0.25	Pint(PT)	16-Aug-18
1433009	-	BRIDGIT SOLDERING PASTE FLUX	0.25	Pint(PT)	16-Aug-18
1433010	-	BRIDGIT SOLDERING PASTE FLUX	0.25	Pint(PT)	16-Aug-18
1433008	-	BRIDGIT SOLDERING PASTE FLUX	0.25	Pint(PT)	16-Aug-18
1433007	-	BRIDGIT SOLDERING PASTE FLUX	0.25	Pint(PT)	16-Aug-18
1433006	-	BRIDGIT SOLDERING PASTE FLUX	0.25	Pint(PT)	16-Aug-18
1433011	-	TSP All Purpose Heavy Duty Cleaner	4	Pounds(LB)	16-Aug-18
1433013	-	HERCULES PURPLE PVC PRIMER	1	Quarts(QT)	16-Aug-18
1433012	-	HERCULES CLEAR PVC PIPE CEMENT	1	Quarts(QT)	16-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1433014	-	Oatey All Purpose Cement	0.5	Pint(PT)	16-Aug-18
1433015	-	Oatey All Purpose Cement	0.5	Pint(PT)	16-Aug-18
1433016	-	JB Fast Vac Base	1	Quarts(QT)	16-Aug-18
1433019	-	JB Fast Vac Base	1	Quarts(QT)	16-Aug-18
1433020	-	JB Fast Vac Base	1	Quarts(QT)	16-Aug-18
1433021	-	JB Fast Vac Base	1	Quarts(QT)	16-Aug-18
1433022	-	JB Fast Vac Base	1	Quarts(QT)	16-Aug-18
1433018	-	JB Fast Vac Base	1	Quarts(QT)	16-Aug-18
1433017	-	JB Fast Vac Base	1	Quarts(QT)	16-Aug-18
1433023	-	JB Fast Vac Base	1	Quarts(QT)	16-Aug-18
1433024	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	16-Aug-18
1433029	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	16-Aug-18
1433028	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	16-Aug-18
1433025	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	16-Aug-18
1433026	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	16-Aug-18
1433031	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	16-Aug-18
1433027	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	16-Aug-18
1433030	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	16-Aug-18
1433039	-	HERCULES PURPLE PVC PRIMER	1	Quarts(QT)	16-Aug-18
1433040	-	HERCULES CLEAR PVC PIPE CEMENT	1	Quarts(QT)	16-Aug-18
1433033	-	Bridgit Lead Free Solder	1	Pounds(LB)	16-Aug-18
1433034	-	Bridgit Lead Free Solder	1	Pounds(LB)	16-Aug-18
1433032	-	Bridgit Burn Resistant Solder Paste Flux	0.25	Pint(PT)	16-Aug-18
1433036	-	FAST GREEN ALCOHOLIC SOLUTION	1	Gallon(GAL)	16-Aug-18
1433035	-	Loctite 565 Thread Sealant Controlled Strength	250	Milliliter(ML)	16-Aug-18
1433037	57-55-6	Arctik Snow PG-96	55	Gallon(GAL)	16-Aug-18
1433038	57-55-6	Arctik Snow PG-96	55	Gallon(GAL)	16-Aug-18
1433045	-	TRU-BLU	1	Pint(PT)	16-Aug-18
1433046	-	TRU-BLU	1	Pint(PT)	16-Aug-18
1433041	-	NOKORODE REGULAR PASTE FLUX (LEAD-FREE)	1	Pounds(LB)	16-Aug-18
1433042	-	NOKORODE REGULAR PASTE FLUX (LEAD-FREE)	1	Pounds(LB)	16-Aug-18
1433043	-	silvabrite 100	1	Pounds(LB)	16-Aug-18
1433044	-	silvabrite 100	1	Pounds(LB)	16-Aug-18
1522489	67-63-0	2-PROPANOL	4	Liters(L)	16-Aug-18
1522490	67-63-0	2-PROPANOL	4	Liters(L)	16-Aug-18
1522492	-	DOUBLE-BUBBLE EPOXY	350	Gram(GM)	16-Aug-18
1522493	2657-67-2	meso-1 2 3 4-Tetrabromobutane	25	Gram(GM)	16-Aug-18
1522713	64742-65-0	Alcatel 119	1	Liters(L)	16-Aug-18
1522714	64742-65-0	Alcatel 119	1	Liters(L)	16-Aug-18
1522715	930-30-3	2-CYCLOPENTENONE	25	Gram(GM)	16-Aug-18
1522716	11077-24-0	FERROCENIUM HEXAFLUOROPHOSPHATE	5	Gram(GM)	16-Aug-18
1522717	25952-53-8	N-(3-Dimethylaminopropyl)-N'-ethylcarbodiimide	1	Gram(GM)	16-Aug-18
1522718	25952-53-8	N-(3-Dimethylaminopropyl)-N'-ethylcarbodiimide	1	Gram(GM)	16-Aug-18
1522719	106627-54-7	N-HYDROXYSULFOSUCCINIMIDE SODIUM SALT	1	Gram(GM)	16-Aug-18
1522720	2319-57-5	L-Threitol	1	Gram(GM)	16-Aug-18
1522724	2319-57-5	L-Threitol	1	Gram(GM)	16-Aug-18
1522721	2319-57-5	L-Threitol	1	Gram(GM)	16-Aug-18
1522722	2319-57-5	L-Threitol	1	Gram(GM)	16-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522723	2319-57-5	L-Threitol	1	Gram(GM)	16-Aug-18
1522725	1947-58-6	2 3-Dibromo-1 4-butanediol	25	Gram(GM)	16-Aug-18
1522726	5333-42-6	2-Octyl-1-dodecanol	25	Milliliter(ML)	16-Aug-18
1522727	7647-14-5	SODIUM CHLORIDE	500	Gram(GM)	16-Aug-18
1522728	123-86-4	N-BUTYL ACETATE	2500	Milliliter(ML)	16-Aug-18
1522729	-	RPMI MEDIUM 1640	500	Milliliter(ML)	16-Aug-18
1522730	-	RPMI MEDIUM 1640	500	Milliliter(ML)	16-Aug-18
1522731	-	CLOROX	1	Gallon(GAL)	16-Aug-18
1522733	-	CLOROX	1	Gallon(GAL)	16-Aug-18
1522732	-	CLOROX	1	Gallon(GAL)	16-Aug-18
1522753	-	OBJET VEROCLEAR RGD810	3.6	Kilograms(KG)	16-Aug-18
1522754	-	OBJET VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	16-Aug-18
1522888	-	CONDUCTIVITY STANDARD	100	Milliliter(ML)	16-Aug-18
1522893	-	CONDUCTIVITY STANDARD	100	Milliliter(ML)	16-Aug-18
1522891	-	CONDUCTIVITY STANDARD	100	Milliliter(ML)	16-Aug-18
1522892	-	CONDUCTIVITY STANDARD	100	Milliliter(ML)	16-Aug-18
1522898	-	CONDUCTIVITY STANDARD	100	Milliliter(ML)	16-Aug-18
1522889	-	CONDUCTIVITY STANDARD	100	Milliliter(ML)	16-Aug-18
1522890	-	CONDUCTIVITY STANDARD	100	Milliliter(ML)	16-Aug-18
1522894	-	CONDUCTIVITY STANDARD	100	Milliliter(ML)	16-Aug-18
1522895	-	CONDUCTIVITY STANDARD	100	Milliliter(ML)	16-Aug-18
1522897	-	CONDUCTIVITY STANDARD	100	Milliliter(ML)	16-Aug-18
1522899	-	CONDUCTIVITY STANDARD	100	Milliliter(ML)	16-Aug-18
1522896	-	CONDUCTIVITY STANDARD	100	Milliliter(ML)	16-Aug-18
1522927	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522946	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522945	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522936	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522931	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522986	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522981	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522985	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522983	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522984	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522951	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522949	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522947	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522950	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522928	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522938	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522930	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522944	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522932	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522933	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522934	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522935	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522937	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522948	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522939	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522940	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522941	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522942	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522943	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522929	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522965	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522953	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522954	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522955	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522956	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522957	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522959	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522961	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522962	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522952	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522964	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522958	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522966	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522967	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522972	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522971	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522970	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522969	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522968	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522980	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522963	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522975	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522979	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522982	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522978	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522977	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522960	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522976	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522974	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522973	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	16-Aug-18
1522987	67-56-1	METHANOL	4	Liters(L)	16-Aug-18
1522988	67-56-1	METHANOL	4	Liters(L)	16-Aug-18
1458816	-	SODIUM BISULFITE 38-42%	2464	Pounds(LB)	16-Aug-18
1458817	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	16-Aug-18
1458820	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	16-Aug-18
1458818	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	16-Aug-18
1458819	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	16-Aug-18
1559934	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559935	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559940	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559943	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559941	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1559936	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559937	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559938	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559939	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559942	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559944	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	16-Aug-18
1559947	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	16-Aug-18
1559946	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	16-Aug-18
1559945	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	16-Aug-18
1559953	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559952	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559949	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559950	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559951	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1559948	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Aug-18
1496081	1310-73-2	SODIUM HYDROXIDE BEADS	50	Pounds(LB)	16-Aug-18
1559954	7727-37-9	NITROGEN COMPRESSED GAS	3	Kilograms(KG)	16-Aug-18
1559955	-	HYDROGEN 10% IN ARGON	220	Cubic Feet(CF)	16-Aug-18
1559956	-	HYDROGEN 10% IN ARGON	220	Cubic Feet(CF)	16-Aug-18
1559957	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560008	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560007	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560006	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560005	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560004	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560003	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560002	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560017	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560001	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560024	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560029	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560028	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560027	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560026	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560030	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560015	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560009	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560025	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560023	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560022	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560021	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560016	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560019	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560018	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560010	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560011	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560012	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560013	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560020	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1560014	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Aug-18
1559958	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559971	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559970	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559969	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559961	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559963	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559967	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559966	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559965	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559964	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559972	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559962	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559980	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559968	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559973	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559974	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559975	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559976	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559977	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559979	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559981	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559959	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559960	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1559978	-	BUTANE	115	Milliliter(ML)	16-Aug-18
1496087	1310-73-2	SODIUM HYDROXIDE BEADS	50	Pounds(LB)	16-Aug-18
1496088	1310-73-2	SODIUM HYDROXIDE BEADS	50	Pounds(LB)	16-Aug-18
1496077	1310-73-2	SODIUM HYDROXIDE BEADS	50	Pounds(LB)	16-Aug-18
1559989	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	16-Aug-18
1559990	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	16-Aug-18
1496084	1310-73-2	SODIUM HYDROXIDE BEADS	50	Pounds(LB)	16-Aug-18
1496080	1310-73-2	SODIUM HYDROXIDE BEADS	50	Pounds(LB)	16-Aug-18
1559991	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	16-Aug-18
1559996	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	16-Aug-18
1559993	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	16-Aug-18
1559995	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	16-Aug-18
1559994	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	16-Aug-18
1559997	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	16-Aug-18
1559998	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	16-Aug-18
1559999	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	16-Aug-18
1560000	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	16-Aug-18
1559992	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	16-Aug-18
1560031	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Aug-18
1560034	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Aug-18
1560039	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Aug-18
1560038	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Aug-18
1560037	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560035	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Aug-18
1560033	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Aug-18
1560032	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Aug-18
1560036	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Aug-18
1560040	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560049	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560043	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560053	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560052	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560051	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560054	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560050	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560047	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560046	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560044	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560042	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560041	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560048	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560045	-	Argon UHP	220	Cubic Feet(CF)	16-Aug-18
1560055	7440-59-7	HELIUM	220	Cubic Feet(CF)	16-Aug-18
1560063	7440-59-7	HELIUM	220	Cubic Feet(CF)	16-Aug-18
1560056	7440-59-7	HELIUM	220	Cubic Feet(CF)	16-Aug-18
1560058	7440-59-7	HELIUM	220	Cubic Feet(CF)	16-Aug-18
1560065	7440-59-7	HELIUM	220	Cubic Feet(CF)	16-Aug-18
1560059	7440-59-7	HELIUM	220	Cubic Feet(CF)	16-Aug-18
1560060	7440-59-7	HELIUM	220	Cubic Feet(CF)	16-Aug-18
1560062	7440-59-7	HELIUM	220	Cubic Feet(CF)	16-Aug-18
1560064	7440-59-7	HELIUM	220	Cubic Feet(CF)	16-Aug-18
1560057	7440-59-7	HELIUM	220	Cubic Feet(CF)	16-Aug-18
1560061	7440-59-7	HELIUM	220	Cubic Feet(CF)	16-Aug-18
1560066	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560075	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560089	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560090	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560092	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560093	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560079	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560087	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560080	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560081	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560078	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560069	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560086	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560088	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560076	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560091	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560074	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560073	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560085	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560084	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560083	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560082	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560072	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560071	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560070	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560067	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560077	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560095	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560094	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1560068	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Aug-18
1520830	917-58-8	POTASSIUM ETHOXIDE	100	Gram(GM)	17-Aug-18
1521577	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	17-Aug-18
1521578	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	17-Aug-18
1521580	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	17-Aug-18
1521579	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	17-Aug-18
1495941	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	17-Aug-18
1495942	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	17-Aug-18
1495943	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	17-Aug-18
1495944	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	17-Aug-18
1387931	-	INDUSTREX SINGLE PART DEVELOPER	20	Liters(L)	20-Aug-18
1387932	-	INDUSTREX SINGLE PART DEVELOPER	20	Liters(L)	20-Aug-18
1387935	-	INDUSTREX SINGLE PART DEVELOPER	20	Liters(L)	20-Aug-18
1387934	-	INDUSTREX SINGLE PART DEVELOPER	20	Liters(L)	20-Aug-18
1387933	-	INDUSTREX SINGLE PART DEVELOPER	20	Liters(L)	20-Aug-18
1387940	-	INDUSTREX SINGLE PART DEVELOPER	20	Liters(L)	20-Aug-18
1387939	-	INDUSTREX SINGLE PART DEVELOPER	20	Liters(L)	20-Aug-18
1387938	-	INDUSTREX SINGLE PART DEVELOPER	20	Liters(L)	20-Aug-18
1387937	-	INDUSTREX SINGLE PART DEVELOPER	20	Liters(L)	20-Aug-18
1387936	-	INDUSTREX SINGLE PART DEVELOPER	20	Liters(L)	20-Aug-18
1387941	-	INDUSTREX FIXER AND REPLENISHER	30	Liters(L)	20-Aug-18
1387950	-	INDUSTREX FIXER AND REPLENISHER	30	Liters(L)	20-Aug-18
1387942	-	INDUSTREX FIXER AND REPLENISHER	30	Liters(L)	20-Aug-18
1387943	-	INDUSTREX FIXER AND REPLENISHER	30	Liters(L)	20-Aug-18
1387944	-	INDUSTREX FIXER AND REPLENISHER	30	Liters(L)	20-Aug-18
1387945	-	INDUSTREX FIXER AND REPLENISHER	30	Liters(L)	20-Aug-18
1387946	-	INDUSTREX FIXER AND REPLENISHER	30	Liters(L)	20-Aug-18
1387947	-	INDUSTREX FIXER AND REPLENISHER	30	Liters(L)	20-Aug-18
1387948	-	INDUSTREX FIXER AND REPLENISHER	30	Liters(L)	20-Aug-18
1387949	-	INDUSTREX FIXER AND REPLENISHER	30	Liters(L)	20-Aug-18
1521581	4006-38-6	DI-I-BUTYLPHOSPHINE	25	Gram(GM)	20-Aug-18
1522306	-	SYLGARD 184	10	Gram(GM)	20-Aug-18
1522351	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	20-Aug-18
1522352	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	20-Aug-18
1522491	-	Decachlorobiphenyl in Acetone	10	Milliliter(ML)	20-Aug-18
1522734	123-91-1	P-DIOXANE	1	Liters(L)	20-Aug-18
1522735	554-68-7	TRIETHYLAMINE HYDROCHLORIDE	240	Gram(GM)	20-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522736	-	High Temperature Silicone Based Bath Oil	1	Liters(L)	20-Aug-18
1522737	-	5-MINUTE EPOXY	25	Milliliter(ML)	20-Aug-18
1522739	-	5-MINUTE EPOXY	25	Milliliter(ML)	20-Aug-18
1522738	-	5-MINUTE EPOXY	25	Milliliter(ML)	20-Aug-18
1522740	-	5-MINUTE EPOXY	25	Milliliter(ML)	20-Aug-18
1522741	-	5-MINUTE EPOXY	25	Milliliter(ML)	20-Aug-18
1522742	-	5-MINUTE EPOXY	25	Milliliter(ML)	20-Aug-18
1522743	-	5-MINUTE EPOXY	25	Milliliter(ML)	20-Aug-18
1522744	-	5-MINUTE EPOXY	25	Milliliter(ML)	20-Aug-18
1522745	-	5-MINUTE EPOXY	25	Milliliter(ML)	20-Aug-18
1522746	-	5-MINUTE EPOXY	25	Milliliter(ML)	20-Aug-18
1522747	1344-28-1	ALUMINUM OXIDE GAMMA .05	1	Pint(PT)	20-Aug-18
1522748	-	SUNNEN HONING OIL MB-30-55	5	Gallon(GAL)	20-Aug-18
1522749	1313-97-9	Neodymium(III) oxide REacton	250	Gram(GM)	20-Aug-18
1522750	-	M-BOND 610 KIT	25	Gram(GM)	20-Aug-18
1522751	76-84-6	TRIPHENYLMETHANOL (TRIPHENYLCARBINOL	25	Gram(GM)	20-Aug-18
1522752	3012-65-5	AMMONIUM CITRATE DIBASIC	500	Gram(GM)	20-Aug-18
1522883	69011-20-7	AG 50W-X8 RESIN	100	Gram(GM)	20-Aug-18
1522906	-	NOVEC ENGINEERED FLUID	1	Gallon(GAL)	20-Aug-18
1522907	-	3M Novec Engineered Fluid HFE-72DA	1	Gallon(GAL)	20-Aug-18
1522922	-	Low-Level Total Residual Chlorine	1	Gallon(GAL)	20-Aug-18
1522923	-	Low Level Total Residual Chlorine	2	Milliliter(ML)	20-Aug-18
1522924	-	pH WasteWatR	250	Milliliter(ML)	20-Aug-18
1522925	1303-96-4	577	250	Milliliter(ML)	20-Aug-18
1522926	872-50-4	N-METHYL-2-PYRROLIDONE	200	Milliliter(ML)	20-Aug-18
1522989	-	BREAK FREE CLP CLEANER LU	16	Ounces(OZ)	20-Aug-18
1522994	-	BREAK FREE CLP CLEANER LU	16	Ounces(OZ)	20-Aug-18
1522991	-	BREAK FREE CLP CLEANER LU	16	Ounces(OZ)	20-Aug-18
1522993	-	BREAK FREE CLP CLEANER LU	16	Ounces(OZ)	20-Aug-18
1522992	-	BREAK FREE CLP CLEANER LU	16	Ounces(OZ)	20-Aug-18
1522990	-	BREAK FREE CLP CLEANER LU	16	Ounces(OZ)	20-Aug-18
1522995	-	Break-Free CLP Cleaner/Lubricant/Preservative	1	Gallon(GAL)	20-Aug-18
1522999	-	EPON RESIN 815	1	Gallon(GAL)	20-Aug-18
1523000	-	EPON RESIN 815	1	Gallon(GAL)	20-Aug-18
1523004	-	ANION STANDARD PERCHLORATE SOLUTION	500	Milliliter(ML)	20-Aug-18
1523005	-	ANION STANDARD PERCHLORATE SOLUTION	500	Milliliter(ML)	20-Aug-18
1523006	-	LOCTITE BLACK MAX SEALANT	1	Ounces(OZ)	20-Aug-18
1523007	7440-44-0	CARBON ACTIVATED	500	Gram(GM)	20-Aug-18
1523008	12007-60-2	LITHIUM TETRABORATE	1	Kilograms(KG)	20-Aug-18
1523009	12007-60-2	LITHIUM TETRABORATE	1	Kilograms(KG)	20-Aug-18
1523071	-	Kerr-TotalCare #28415	50	Milliliter(ML)	20-Aug-18
1523072	-	Kerr-TotalCare #28415	50	Milliliter(ML)	20-Aug-18
1523073	-	Kerr-TotalCare #28415	50	Milliliter(ML)	20-Aug-18
1523074	-	Kerr-TotalCare #28415	50	Milliliter(ML)	20-Aug-18
1522884	108-88-3	TOLUENE	4	Liters(L)	20-Aug-18
1522886	108-88-3	TOLUENE	4	Liters(L)	20-Aug-18
1522887	108-88-3	TOLUENE	4	Liters(L)	20-Aug-18
1522885	108-88-3	TOLUENE	4	Liters(L)	20-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522900	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	20-Aug-18
1522901	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	20-Aug-18
1522902	67-63-0	2-PROPANOL	5	Liters(L)	20-Aug-18
1522904	67-63-0	2-PROPANOL	5	Liters(L)	20-Aug-18
1522905	67-63-0	2-PROPANOL	5	Liters(L)	20-Aug-18
1522903	67-63-0	2-PROPANOL	5	Liters(L)	20-Aug-18
1522908	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	1	Liters(L)	20-Aug-18
1522918	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	1	Liters(L)	20-Aug-18
1522914	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	1	Liters(L)	20-Aug-18
1522919	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	1	Liters(L)	20-Aug-18
1522916	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	1	Liters(L)	20-Aug-18
1522915	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	1	Liters(L)	20-Aug-18
1522911	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	1	Liters(L)	20-Aug-18
1522912	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	1	Liters(L)	20-Aug-18
1522913	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	1	Liters(L)	20-Aug-18
1522910	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	1	Liters(L)	20-Aug-18
1522909	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	1	Liters(L)	20-Aug-18
1522917	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	1	Liters(L)	20-Aug-18
1522920	7440-17-7	RUBIDIUM	125	Milliliter(ML)	20-Aug-18
1522921	110-54-3	N-HEXANE	4	Liters(L)	20-Aug-18
1522997	67-56-1	METHANOL	4	Liters(L)	20-Aug-18
1522998	67-56-1	METHANOL	4	Liters(L)	20-Aug-18
1523010	-	MCA-1 M-PREP CONDITIONER A	2	Ounces(OZ)	20-Aug-18
1523011	-	MCA-1 M-PREP CONDITIONER A	2	Ounces(OZ)	20-Aug-18
1523014	-	MCA-1 M-PREP CONDITIONER A	2	Ounces(OZ)	20-Aug-18
1523012	-	MCA-1 M-PREP CONDITIONER A	2	Ounces(OZ)	20-Aug-18
1523013	-	MCA-1 M-PREP CONDITIONER A	2	Ounces(OZ)	20-Aug-18
1523015	-	MN5A-1 M-Preneutralizer 5A	2	Ounces(OZ)	20-Aug-18
1523016	-	MN5A-1 M-Preneutralizer 5A	2	Ounces(OZ)	20-Aug-18
1523019	-	MN5A-1 M-Preneutralizer 5A	2	Ounces(OZ)	20-Aug-18
1523017	-	MN5A-1 M-Preneutralizer 5A	2	Ounces(OZ)	20-Aug-18
1523018	-	MN5A-1 M-Preneutralizer 5A	2	Ounces(OZ)	20-Aug-18
1523020	-	MCA-2 M-PREP CONDITIONER A	16	Ounces(OZ)	20-Aug-18
1523022	-	MCA-2 M-PREP CONDITIONER A	16	Ounces(OZ)	20-Aug-18
1523021	-	MCA-2 M-PREP CONDITIONER A	16	Ounces(OZ)	20-Aug-18
1523023	-	MCA-2 M-PREP CONDITIONER A	16	Ounces(OZ)	20-Aug-18
1523024	-	MCA-2 M-PREP CONDITIONER A	16	Ounces(OZ)	20-Aug-18
1523025	-	MN5A-2	16	Ounces(OZ)	20-Aug-18
1523028	-	MN5A-2	16	Ounces(OZ)	20-Aug-18
1523029	-	MN5A-2	16	Ounces(OZ)	20-Aug-18
1523027	-	MN5A-2	16	Ounces(OZ)	20-Aug-18
1523026	-	MN5A-2	16	Ounces(OZ)	20-Aug-18
1523030	-	CSM-3 Degreaser	20	Ounces(OZ)	20-Aug-18
1523031	-	CSM-3 Degreaser	20	Ounces(OZ)	20-Aug-18
1523032	-	CSM-3 Degreaser	20	Ounces(OZ)	20-Aug-18
1523033	-	CSM-3 Degreaser	20	Ounces(OZ)	20-Aug-18
1523034	-	CSM-3 Degreaser	20	Ounces(OZ)	20-Aug-18
1523035	1310-73-2	SODIUM HYDROXIDE	1	Kilograms(KG)	20-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1523036	1310-73-2	SODIUM HYDROXIDE	1	Kilograms(KG)	20-Aug-18
1523037	7727-73-3	SODIUM SULFATE DECAHYDRATE	1	Kilograms(KG)	20-Aug-18
1523038	-	CLOROX	1	Gallon(GAL)	20-Aug-18
1523040	-	CLOROX	1	Gallon(GAL)	20-Aug-18
1523039	-	CLOROX	1	Gallon(GAL)	20-Aug-18
1523041	142-87-0	DECYL SODIUM SULFATE	10	Gram(GM)	20-Aug-18
1523042	9003-39-8	POLYVINYLPYRROLIDONE	1	Kilograms(KG)	20-Aug-18
1523043	1619-84-7	HEXAFLUOROACETONE AZINE	1	Gram(GM)	20-Aug-18
1523044	1619-84-7	HEXAFLUOROACETONE AZINE	1	Gram(GM)	20-Aug-18
1523045	78-50-2	TRIOCTYLPHOSPHINE OXIDE	500	Gram(GM)	20-Aug-18
1523046	111-01-3	SQUALINE	500	Gram(GM)	20-Aug-18
1523047	-	CLEAR RTV SILICONE ADH. SLNT	3	Ounces(OZ)	20-Aug-18
1523055	-	CLEAR RTV SILICONE ADH. SLNT	3	Ounces(OZ)	20-Aug-18
1523053	-	CLEAR RTV SILICONE ADH. SLNT	3	Ounces(OZ)	20-Aug-18
1523056	-	CLEAR RTV SILICONE ADH. SLNT	3	Ounces(OZ)	20-Aug-18
1523052	-	CLEAR RTV SILICONE ADH. SLNT	3	Ounces(OZ)	20-Aug-18
1523051	-	CLEAR RTV SILICONE ADH. SLNT	3	Ounces(OZ)	20-Aug-18
1523050	-	CLEAR RTV SILICONE ADH. SLNT	3	Ounces(OZ)	20-Aug-18
1523049	-	CLEAR RTV SILICONE ADH. SLNT	3	Ounces(OZ)	20-Aug-18
1523048	-	CLEAR RTV SILICONE ADH. SLNT	3	Ounces(OZ)	20-Aug-18
1523054	-	CLEAR RTV SILICONE ADH. SLNT	3	Ounces(OZ)	20-Aug-18
1523057	-	Nickel Resin	50	Gram(GM)	20-Aug-18
1523058	107792-63-2	CERIUM(IV) TRIFLUOROMETH-SULFONATE	5	Gram(GM)	20-Aug-18
1523059	-	EPOXY	4	Ounces(OZ)	20-Aug-18
1523060	-	STOPCOCK GREASE	5.3	Ounces(OZ)	20-Aug-18
1523061	7664-38-2	PHOSPHORIC ACID 85%	1	Liters(L)	20-Aug-18
1523062	7664-38-2	PHOSPHORIC ACID 85%	1	Liters(L)	20-Aug-18
1523075	7789-78-8	CALCIUM HYDRIDE	50	Gram(GM)	20-Aug-18
1523076	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	20-Aug-18
1523077	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	20-Aug-18
1523078	7440-46-2	CESIUM METAL	5	Gram(GM)	20-Aug-18
1523079	75-05-8	ACETONITRILE	4	Liters(L)	20-Aug-18
1523086	75-05-8	ACETONITRILE	4	Liters(L)	20-Aug-18
1523085	75-05-8	ACETONITRILE	4	Liters(L)	20-Aug-18
1523084	75-05-8	ACETONITRILE	4	Liters(L)	20-Aug-18
1523083	75-05-8	ACETONITRILE	4	Liters(L)	20-Aug-18
1523082	75-05-8	ACETONITRILE	4	Liters(L)	20-Aug-18
1523081	75-05-8	ACETONITRILE	4	Liters(L)	20-Aug-18
1523080	75-05-8	ACETONITRILE	4	Liters(L)	20-Aug-18
1523088	74507-62-3	BIS(PENTAMETHYLCYCLOPENTADIENYL)COBALT	1	Gram(GM)	20-Aug-18
1523089	74507-62-3	BIS(PENTAMETHYLCYCLOPENTADIENYL)COBALT	1	Gram(GM)	20-Aug-18
1523090	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	500	Milliliter(ML)	20-Aug-18
1523091	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	500	Milliliter(ML)	20-Aug-18
1523092	67-66-3	CHLOROFORM ANHYDROUS	2	Liters(L)	20-Aug-18
1523093	1330-20-7	XYLENES	2.5	Liters(L)	20-Aug-18
1523094	1330-20-7	XYLENES	2.5	Liters(L)	20-Aug-18
1523095	1330-20-7	XYLENES	2.5	Liters(L)	20-Aug-18
1523096	367-11-3	1 2-DIFLUOROBENZENE	50	Gram(GM)	20-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1523097	367-11-3	1 2-DIFLUOROBENZENE	50	Gram(GM)	20-Aug-18
1523098	367-11-3	1 2-DIFLUOROBENZENE	50	Gram(GM)	20-Aug-18
1523099	367-11-3	1 2-DIFLUOROBENZENE	50	Gram(GM)	20-Aug-18
1523100	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	20-Aug-18
1523101	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	20-Aug-18
1523102	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	20-Aug-18
1523103	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	20-Aug-18
1523104	67-63-0	2-PROPANOL	20	Liters(L)	20-Aug-18
1523105	1309-48-4	MAGNESIUM OXIDE	10	Kilograms(KG)	20-Aug-18
1523106	1309-48-4	MAGNESIUM OXIDE	10	Kilograms(KG)	20-Aug-18
1523107	7697-37-2	NITRIC ACID	500	Milliliter(ML)	20-Aug-18
1523112	7697-37-2	NITRIC ACID	500	Milliliter(ML)	20-Aug-18
1523108	7697-37-2	NITRIC ACID	500	Milliliter(ML)	20-Aug-18
1523109	7697-37-2	NITRIC ACID	500	Milliliter(ML)	20-Aug-18
1523111	7697-37-2	NITRIC ACID	500	Milliliter(ML)	20-Aug-18
1523110	7697-37-2	NITRIC ACID	500	Milliliter(ML)	20-Aug-18
1523113	10045-89-3	FERROUS AMMONIUM SULFATE	1	Liters(L)	20-Aug-18
1523114	10045-89-3	FERROUS AMMONIUM SULFATE	1	Liters(L)	20-Aug-18
806991	-	SYNTHETIC SHREDDER OIL FOR GBC SHREDDERS	16	Ounces(OZ)	20-Aug-18
806992	-	4-CYCLE MOTOR OIL	1	Quarts(QT)	20-Aug-18
806993	111-42-4	WELD KLEEN 350 ANTI-SPATTER LIQUID	1	Gallon(GAL)	20-Aug-18
806994	-	ITW FLUID PRODUCTS RUST-LICK WS-5050	1	Gallon(GAL)	20-Aug-18
806995	-	ITW FLUID PRODUCTS RUST-LICK WS-5050	1	Gallon(GAL)	20-Aug-18
1148290	-	Storage Phosphor Paint Type F5m	251	Milliliter(ML)	21-Aug-18
1148293	-	Storage Phosphor Paint Type F5m	251	Milliliter(ML)	21-Aug-18
1148292	-	Storage Phosphor Paint Type F5m	251	Milliliter(ML)	21-Aug-18
1148291	-	Storage Phosphor Paint Type F5m	252	Milliliter(ML)	21-Aug-18
1148294	13780-48-8	EUROPIUM(II) BROMIDE	5	Gram(GM)	21-Aug-18
1523063	-	EXPULSION SOLUTION AMTAX	237	Milliliter(ML)	21-Aug-18
1523067	-	EXPULSION SOLUTION AMTAX	237	Milliliter(ML)	21-Aug-18
1523064	-	EXPULSION SOLUTION AMTAX	237	Milliliter(ML)	21-Aug-18
1523066	-	EXPULSION SOLUTION AMTAX	237	Milliliter(ML)	21-Aug-18
1523065	-	EXPULSION SOLUTION AMTAX	237	Milliliter(ML)	21-Aug-18
1523068	-	EXPULSION SOLUTION AMTAX	237	Milliliter(ML)	21-Aug-18
1523069	1309-48-4	MAGNESIUM OXIDE	25	Gram(GM)	21-Aug-18
1523070	7647-14-5	SODIUM CHLORIDE	50	Gram(GM)	21-Aug-18
1523116	-	Diamond Suspension Polycrystal .25um	16	Ounces(OZ)	21-Aug-18
1523117	-	Diamond Suspension Polycrystal .25um	16	Ounces(OZ)	21-Aug-18
1523118	-	DIAMOND SUSPENSION POLYCRYSTALLINE 1UM	16	Ounces(OZ)	21-Aug-18
1523119	-	DIAMOND SUSPENSION POLYCRYSTALLINE 1UM	16	Ounces(OZ)	21-Aug-18
1523120	-	DIAMOND SUSPENSION POLYCRYSTALLINE 1UM	16	Ounces(OZ)	21-Aug-18
1523121	-	DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	21-Aug-18
1523123	-	DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	21-Aug-18
1523122	-	DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	21-Aug-18
1523124	-	ALLIED POLY DIAMOND COMPOUND .25 MICRON	18	Gram(GM)	21-Aug-18
1523125	-	Diamond compound syringe	18	Gram(GM)	21-Aug-18
1523127	-	Diamond compound syringe	18	Gram(GM)	21-Aug-18
1523126	-	Diamond compound syringe	18	Gram(GM)	21-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1523128	56-81-5	SlowFade Gold Antifade Mountant	10	Milliliter(ML)	21-Aug-18
1523129	56-81-5	SlowFade Gold Antifade Mountant	10	Milliliter(ML)	21-Aug-18
1523130	4731-53-7	TRI-N-OCTYLPHOSPHINE	500	Gram(GM)	21-Aug-18
1523131	25838-59-9	ALUMINUM NITRATE PURATRONIC	500	Gram(GM)	21-Aug-18
1523132	10034-88-5	SODIUM BISULFATE MONOHYDRATE	100	Gram(GM)	22-Aug-18
1523133	10034-88-5	SODIUM BISULFATE MONOHYDRATE	100	Gram(GM)	22-Aug-18
1523143	1707-03-5	DIPHENYLPHOSPHINIC ACID	25	Gram(GM)	22-Aug-18
1523144	123-39-7	N-METHYLFORMAMIDE	1	Liters(L)	22-Aug-18
1523145	123-39-7	N-METHYLFORMAMIDE	1	Liters(L)	22-Aug-18
1523146	123-39-7	N-METHYLFORMAMIDE	1	Liters(L)	22-Aug-18
1523147	5431-44-7	2 6-PYRIDINEDICARBOXALDEHYDE	5	Gram(GM)	22-Aug-18
1523148	5431-44-7	2 6-PYRIDINEDICARBOXALDEHYDE	5	Gram(GM)	22-Aug-18
1523149	13494-98-9	YTTRIUM (III) NITRATE	100	Gram(GM)	22-Aug-18
1523150	13494-98-9	YTTRIUM (III) NITRATE	100	Gram(GM)	22-Aug-18
1523151	-	TRACE ELEMENTS IN COAL NBS 1632	50	Gram(GM)	22-Aug-18
1523152	-	TRACE ELEMENTS IN COAL FLY ASH	75	Gram(GM)	22-Aug-18
1458821	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	22-Aug-18
1458822	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	22-Aug-18
1458823	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	22-Aug-18
1458825	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	22-Aug-18
1458824	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	22-Aug-18
1458826	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	22-Aug-18
1497365	-	DIESEL FUEL SUPPLEMENT	20	Ounces(OZ)	22-Aug-18
1497366	-	HEAVY DUTY BRAKE FLUID	1	Gallon(GAL)	22-Aug-18
1523115	556-52-5	GLYCIDOL	500	Gram(GM)	22-Aug-18
1523134	631-61-8	AMMONIUM ACETATE	500	Gram(GM)	22-Aug-18
1455563	-	Clear Flex 30	1	Gallon(GAL)	22-Aug-18
1455564	-	Clear Flex 30	1	Gallon(GAL)	22-Aug-18
1455565	-	Clear Flex 30	1	Gallon(GAL)	22-Aug-18
1455566	-	Clear Flex 30	1	Gallon(GAL)	22-Aug-18
1495956	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495957	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495961	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495958	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495966	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495959	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495963	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495965	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495960	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495967	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495968	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495969	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495970	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495964	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1495962	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	22-Aug-18
1523135	-	PHOSPHOROUS STANDARD SOLUTION	250	Milliliter(ML)	22-Aug-18
1523136	-	SULFUR STANDARD	250	Milliliter(ML)	22-Aug-18
1523137	7440-70-2	CALCIUM STANDARD SOLUTION	250	Milliliter(ML)	22-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1495971	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	22-Aug-18
1495972	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	22-Aug-18
1495975	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	22-Aug-18
1495973	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	22-Aug-18
1495974	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	22-Aug-18
1523138	-	SILICON STANDARD SOLUTION	250	Milliliter(ML)	22-Aug-18
1523139	919-30-2	3-AMINOPROPYLTRIETHOXYSILANE	100	Milliliter(ML)	22-Aug-18
1495976	-	DA1605 FLAT BLACK ACRYLIC ENAMEL	12	Ounces(OZ)	22-Aug-18
1523140	109-99-9	TETRAHYDROFURAN ANHYDROUS 99.9%	100	Milliliter(ML)	22-Aug-18
1523141	109-99-9	TETRAHYDROFURAN ANHYDROUS 99.9%	100	Milliliter(ML)	22-Aug-18
1495977	-	DA1605 FLAT BLACK ACRYLIC ENAMEL	12	Ounces(OZ)	22-Aug-18
1523142	105-58-8	DIETHYL CARBONATE	1	Liters(L)	22-Aug-18
1523153	-	3M Scotch-Weld Epoxy Adhesive 2216/EC	43	Milliliter(ML)	22-Aug-18
1523160	-	3M Scotch-Weld Epoxy Adhesive 2216/EC	43	Milliliter(ML)	22-Aug-18
1523155	-	3M Scotch-Weld Epoxy Adhesive 2216/EC	43	Milliliter(ML)	22-Aug-18
1523157	-	3M Scotch-Weld Epoxy Adhesive 2216/EC	43	Milliliter(ML)	22-Aug-18
1523154	-	3M Scotch-Weld Epoxy Adhesive 2216/EC	43	Milliliter(ML)	22-Aug-18
1523158	-	3M Scotch-Weld Epoxy Adhesive 2216/EC	43	Milliliter(ML)	22-Aug-18
1523159	-	3M Scotch-Weld Epoxy Adhesive 2216/EC	43	Milliliter(ML)	22-Aug-18
1523164	-	3M Scotch-Weld Epoxy Adhesive 2216/EC	43	Milliliter(ML)	22-Aug-18
1523163	-	3M Scotch-Weld Epoxy Adhesive 2216/EC	43	Milliliter(ML)	22-Aug-18
1523162	-	3M Scotch-Weld Epoxy Adhesive 2216/EC	43	Milliliter(ML)	22-Aug-18
1523161	-	3M Scotch-Weld Epoxy Adhesive 2216/EC	43	Milliliter(ML)	22-Aug-18
1523156	-	3M Scotch-Weld Epoxy Adhesive 2216/EC	43	Milliliter(ML)	22-Aug-18
1495978	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	22-Aug-18
1523165	109-99-9	TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	22-Aug-18
1523170	109-99-9	TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	22-Aug-18
1523166	109-99-9	TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	22-Aug-18
1523167	109-99-9	TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	22-Aug-18
1523169	109-99-9	TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	22-Aug-18
1523168	109-99-9	TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	22-Aug-18
1495979	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	22-Aug-18
1495980	-	732 MULTI-PURPOSE SEALANT	10.1	Ounces(OZ)	22-Aug-18
1523171	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	22-Aug-18
1523176	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	22-Aug-18
1523173	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	22-Aug-18
1523174	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	22-Aug-18
1523172	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	22-Aug-18
1523175	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	22-Aug-18
1523177	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	22-Aug-18
1523178	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	22-Aug-18
1523179	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	22-Aug-18
1523180	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	22-Aug-18
1523181	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	22-Aug-18
1523182	110-54-3	HEXANE (HEXANE ANHYDROUS)	1	Liters(L)	22-Aug-18
1495981	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	22-Aug-18
1523183	109-66-0	PENTANE ANHYDROUS	1	Liters(L)	22-Aug-18
1523186	109-66-0	PENTANE ANHYDROUS	1	Liters(L)	22-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1523187	109-66-0	PENTANE ANHYDROUS	1	Liters(L)	22-Aug-18
1523188	109-66-0	PENTANE ANHYDROUS	1	Liters(L)	22-Aug-18
1523184	109-66-0	PENTANE ANHYDROUS	1	Liters(L)	22-Aug-18
1523185	109-66-0	PENTANE ANHYDROUS	1	Liters(L)	22-Aug-18
1495982	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	22-Aug-18
1523189	1822-00-0	TRIMETHYLSILYLMETHYLLITHIUM	50	Milliliter(ML)	22-Aug-18
1523192	1822-00-0	TRIMETHYLSILYLMETHYLLITHIUM	50	Milliliter(ML)	22-Aug-18
1523190	1822-00-0	TRIMETHYLSILYLMETHYLLITHIUM	50	Milliliter(ML)	22-Aug-18
1523191	1822-00-0	TRIMETHYLSILYLMETHYLLITHIUM	50	Milliliter(ML)	22-Aug-18
1523193	4648-54-8	AZIDOTRIMETHYLSILANE	50	Gram(GM)	22-Aug-18
1523194	-	Diamond Powder GMM 8-12	200	Gram(GM)	22-Aug-18
1523195	-	Diamond Powder GMM 10-20	100	Gram(GM)	22-Aug-18
1523196	-	Diamond Powder BMP-I 2-4	100	Gram(GM)	22-Aug-18
1523197	67-64-1	ACETONE	1	Liters(L)	22-Aug-18
1523198	1004-38-2	2 4 6-TRIAMINOPYRIMIDINE	500	Gram(GM)	22-Aug-18
1523199	1336-21-6	AMMONIUM HYDROXIDE OPTIMA	250	Milliliter(ML)	22-Aug-18
1523215	-	MOBIL DTE 25 HYDRAULIC OIL	5	Gallon(GAL)	22-Aug-18
1202851	25036-25-3	EPOXY RESIN	1	Pint(PT)	22-Aug-18
1202852	25036-25-3	EPOXY RESIN	1	Pint(PT)	22-Aug-18
1202853	25036-25-3	EPOXY RESIN	1	Pint(PT)	22-Aug-18
806946	-	LOCTITE	2.68	Ounces(OZ)	22-Aug-18
806954	-	LOCTITE	2.68	Ounces(OZ)	22-Aug-18
806948	-	LOCTITE	2.68	Ounces(OZ)	22-Aug-18
806953	-	LOCTITE	2.68	Ounces(OZ)	22-Aug-18
806951	-	LOCTITE	2.68	Ounces(OZ)	22-Aug-18
806949	-	LOCTITE	2.68	Ounces(OZ)	22-Aug-18
806955	-	LOCTITE	2.68	Ounces(OZ)	22-Aug-18
806947	-	LOCTITE	2.68	Ounces(OZ)	22-Aug-18
806950	-	LOCTITE	2.68	Ounces(OZ)	22-Aug-18
806952	-	LOCTITE	2.68	Ounces(OZ)	22-Aug-18
1202854	25036-25-3	EPOXY RESIN	1	Pint(PT)	22-Aug-18
1202855	-	3M ELECTRICAL RESIN (PART B)	1	Gallon(GAL)	22-Aug-18
1202856	-	SCOTCHCAST ELECTRICAL RESIN 281 [PART A]	1	Gallon(GAL)	22-Aug-18
1202858	-	SCOTCHCAST ELECTRICAL RESIN 281 [PART A]	1	Gallon(GAL)	22-Aug-18
1202857	-	SCOTCHCAST ELECTRICAL RESIN 281 [PART B]	1	Gallon(GAL)	22-Aug-18
1202859	25036-25-3	EPOXY RESIN	1	Pint(PT)	22-Aug-18
1202860	25036-25-3	EPOXY RESIN	1	Pint(PT)	22-Aug-18
1202861	25036-25-3	EPOXY RESIN	1	Pint(PT)	22-Aug-18
1386037	-	EPOXY RESIN	3	Pounds(LB)	22-Aug-18
1386029	-	EPOXY RESIN	3	Pounds(LB)	22-Aug-18
1386030	-	EPOXY RESIN	3	Pounds(LB)	22-Aug-18
1386031	-	EPOXY RESIN	3	Pounds(LB)	22-Aug-18
1386032	-	EPOXY RESIN	3	Pounds(LB)	22-Aug-18
1386033	-	EPOXY RESIN	3	Pounds(LB)	22-Aug-18
1386034	-	EPOXY RESIN	3	Pounds(LB)	22-Aug-18
1202862	25036-25-3	EPOXY RESIN	1	Pint(PT)	22-Aug-18
1386040	-	EPOXY RESIN	3	Pounds(LB)	22-Aug-18
1386039	-	EPOXY RESIN	3	Pounds(LB)	22-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1202863	25036-25-3	EPOXY RESIN	1	Pint(PT)	22-Aug-18
1202864	25036-25-3	EPOXY RESIN	1	Pint(PT)	22-Aug-18
1560101	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	22-Aug-18
1560103	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	22-Aug-18
1560102	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	22-Aug-18
1560105	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	22-Aug-18
1560104	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	22-Aug-18
1560106	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	22-Aug-18
1560107	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	22-Aug-18
1560099	7727-37-9	NITROGEN COMPRESSED GAS	20	Cubic Feet(CF)	22-Aug-18
1560100	7727-37-9	NITROGEN COMPRESSED GAS	20	Cubic Feet(CF)	22-Aug-18
806906	-	Expo White Board Cleaner	128	Ounces(OZ)	22-Aug-18
1386067	74-98-6	PROPANE	14.1	Ounces(OZ)	22-Aug-18
806909	-	HYDRAULIC OIL	1	Gallon(GAL)	22-Aug-18
1560110	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560121	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560122	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560123	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560124	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560120	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560126	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560115	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560127	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560128	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560125	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560119	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560118	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560116	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560114	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560113	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560112	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560111	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560129	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560130	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560117	-	Nitrogen UHP	220	Cubic Feet(CF)	23-Aug-18
1560131	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560141	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560132	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560133	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560134	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560135	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560136	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560137	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560138	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560140	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560142	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560143	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560145	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560144	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560139	-	Argon UHP	220	Cubic Feet(CF)	23-Aug-18
1560146	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560171	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560162	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560163	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560164	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560165	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560175	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560174	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560172	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560170	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560169	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560167	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560161	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560166	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560173	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560151	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560168	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560160	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560154	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560152	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560150	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560149	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560148	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560147	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560156	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560155	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560159	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560157	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560158	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560153	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	23-Aug-18
1560176	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560188	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560189	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560190	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560191	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560192	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560194	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560195	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560187	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560181	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560196	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560193	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560185	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560184	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560182	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560180	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560179	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560178	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560177	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560186	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560183	7440-59-7	Helium UHP	220	Cubic Feet(CF)	23-Aug-18
1560197	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560207	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560208	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560209	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560210	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560211	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560212	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560206	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560202	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560204	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560203	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560205	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560201	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560200	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560199	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560198	124-38-9	CARBON DIOXIDE	50	Pounds(LB)	23-Aug-18
1560213	-	AIR COMPRESSED	220	Cubic Feet(CF)	23-Aug-18
1560216	-	AIR COMPRESSED	220	Cubic Feet(CF)	23-Aug-18
1560217	-	AIR COMPRESSED	220	Cubic Feet(CF)	23-Aug-18
1560215	-	AIR COMPRESSED	220	Cubic Feet(CF)	23-Aug-18
1560214	-	AIR COMPRESSED	220	Cubic Feet(CF)	23-Aug-18
1560218	-	AIR COMPRESSED	220	Cubic Feet(CF)	23-Aug-18
1560219	-	25% CARBON DIOXIDE/75% ARGON	220	Cubic Feet(CF)	23-Aug-18
1560220	-	25% CARBON DIOXIDE/75% ARGON	220	Cubic Feet(CF)	23-Aug-18
1560221	-	25% CARBON DIOXIDE/75% ARGON	220	Cubic Feet(CF)	23-Aug-18
1560222	-	25% CARBON DIOXIDE/75% ARGON	220	Cubic Feet(CF)	23-Aug-18
1560223	-	25% CARBON DIOXIDE/75% ARGON	220	Cubic Feet(CF)	23-Aug-18
1560224	-	25% CARBON DIOXIDE/75% ARGON	220	Cubic Feet(CF)	23-Aug-18
1560225	-	25% CARBON DIOXIDE/75% ARGON	220	Cubic Feet(CF)	23-Aug-18
1560226	74-98-6	PROPANE	50	Pounds(LB)	23-Aug-18
1560232	74-98-6	PROPANE	50	Pounds(LB)	23-Aug-18
1560230	74-98-6	PROPANE	50	Pounds(LB)	23-Aug-18
1560233	74-98-6	PROPANE	50	Pounds(LB)	23-Aug-18
1560231	74-98-6	PROPANE	50	Pounds(LB)	23-Aug-18
1560228	74-98-6	PROPANE	50	Pounds(LB)	23-Aug-18
1560227	74-98-6	PROPANE	50	Pounds(LB)	23-Aug-18
1560229	74-98-6	PROPANE	50	Pounds(LB)	23-Aug-18
1497367	-	GOJO Scrubbing Towels	12.5	Pounds(LB)	23-Aug-18
1497372	-	GOJO Scrubbing Towels	12.5	Pounds(LB)	23-Aug-18
1497369	-	GOJO Scrubbing Towels	12.5	Pounds(LB)	23-Aug-18
1497370	-	GOJO Scrubbing Towels	12.5	Pounds(LB)	23-Aug-18
1497371	-	GOJO Scrubbing Towels	12.5	Pounds(LB)	23-Aug-18
1497373	-	GOJO Scrubbing Towels	12.5	Pounds(LB)	23-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497374	-	GOJO Scrubbing Towels	12.5	Pounds(LB)	23-Aug-18
1497375	-	GOJO Scrubbing Towels	12.5	Pounds(LB)	23-Aug-18
1497376	-	GOJO Scrubbing Towels	12.5	Pounds(LB)	23-Aug-18
1497368	-	GOJO Scrubbing Towels	12.5	Pounds(LB)	23-Aug-18
1522307	67-64-1	ACETONE	200	Liters(L)	23-Aug-18
1523200	-	APIEZON L GREASE	50	Gram(GM)	23-Aug-18
1523201	-	APIEZON L GREASE	50	Gram(GM)	23-Aug-18
1523202	-	Kerr-TotalCare #28415	50	Milliliter(ML)	23-Aug-18
1523207	-	Kerr-TotalCare #28415	50	Milliliter(ML)	23-Aug-18
1523206	-	Kerr-TotalCare #28415	50	Milliliter(ML)	23-Aug-18
1523205	-	Kerr-TotalCare #28415	50	Milliliter(ML)	23-Aug-18
1523204	-	Kerr-TotalCare #28415	50	Milliliter(ML)	23-Aug-18
1523203	-	Kerr-TotalCare #28415	50	Milliliter(ML)	23-Aug-18
1523208	7664-39-3	HYDROFLUORIC ACID	500	Milliliter(ML)	23-Aug-18
1523209	540-80-7	TERT-BUTYL NITRATE	100	Milliliter(ML)	23-Aug-18
1523210	-	SPINEL POWDER	4	Kilograms(KG)	23-Aug-18
1523211	1344-28-1	ALUMINUM OXIDE	10	Kilograms(KG)	23-Aug-18
1523212	1344-28-1	ALUMINUM OXIDE	10	Kilograms(KG)	23-Aug-18
1523213	-	QIAQUICK GEL EXTRACTION KIT	261.35	Milliliter(ML)	23-Aug-18
1523216	-	Epoxy Powder - Black Glass Filled Non-Stick	5	Pounds(LB)	23-Aug-18
1523217	-	EpoxySet Hardener - Part B EpoxySet Resin - Part	144	Ounces(OZ)	23-Aug-18
1523218	-	Micro Organic Soap	32	Ounces(OZ)	23-Aug-18
1523219	-	Micro Organic Soap	32	Ounces(OZ)	23-Aug-18
1523220	1344-28-1	ALUMINA POWDER	1	Pounds(LB)	23-Aug-18
1523222	1344-28-1	ALUMINA POWDER	1	Pounds(LB)	23-Aug-18
1523221	1344-28-1	ALUMINA POWDER	1	Pounds(LB)	23-Aug-18
1523223	-	Colloidal Silica	128	Ounces(OZ)	23-Aug-18
1523224	-	Colloidal Silica	128	Ounces(OZ)	23-Aug-18
1523225	-	Diamond Suspension Glycol Based	1	Gallon(GAL)	23-Aug-18
1523226	-	Diamond Suspension Glycol Based	1	Gallon(GAL)	23-Aug-18
1523227	-	AG 50W-X4 50-100 100-200 200-400 sodium	500	Gram(GM)	23-Aug-18
1523228	-	AG 50W-X4 50-100 100-200 200-400 sodium	500	Gram(GM)	23-Aug-18
1523229	7681-55-2	SODIUM IODATE	25	Gram(GM)	23-Aug-18
1523230	108-32-7	CYCLIC PROPYLENE CARBONATE	500	Milliliter(ML)	23-Aug-18
1523231	108-05-4	VINYL ACETATE	25	Milliliter(ML)	23-Aug-18
1523232	105-53-3	DIETHYL MALONATE	500	Gram(GM)	23-Aug-18
1523233	-	Diamond Powder GMM 8-12	200	Gram(GM)	23-Aug-18
1523234	96-49-1	ETHYLENE CARBONATE	1	Liters(L)	23-Aug-18
1523287	-	EXTRUDE MEDIUM	50	Milliliter(ML)	23-Aug-18
1523290	-	EXTRUDE MEDIUM	50	Milliliter(ML)	23-Aug-18
1523289	-	EXTRUDE MEDIUM	50	Milliliter(ML)	23-Aug-18
1523288	-	EXTRUDE MEDIUM	50	Milliliter(ML)	23-Aug-18
1523291	7205-98-3	Chloromethyl phenyl sulfone	5	Gram(GM)	23-Aug-18
1523292	60456-22-6	(S)-(-)-4-(Chloromethyl)-2 2-dimethyl-1 3-	5	Gram(GM)	23-Aug-18
1523293	18592-13-7	6-(Chloromethyl)uracil	5	Gram(GM)	23-Aug-18
1523294	18592-13-7	6-(Chloromethyl)uracil	5	Gram(GM)	23-Aug-18
1523295	4857-04-9	2-(Chloromethyl)benzimidazole	25	Gram(GM)	23-Aug-18
578532	1344-28-1	Alumina	2	Kilograms(KG)	23-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
578533	1344-28-1	Alumina	2	Kilograms(KG)	23-Aug-18
1560234	7440-01-9	NEON	126	Pounds(LB)	24-Aug-18
1560235	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	102	Liters(L)	24-Aug-18
1560236	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	102	Liters(L)	24-Aug-18
1560237	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Aug-18
1560242	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Aug-18
1560238	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Aug-18
1560239	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Aug-18
1560240	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Aug-18
1560241	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Aug-18
1560243	7727-37-9	NITROGEN COMPRESSED GAS	20	Cubic Feet(CF)	24-Aug-18
1560244	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	24-Aug-18
1560245	-	2% HYDROGEN/BAL. ARGON	220	Cubic Feet(CF)	24-Aug-18
1522308	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	27-Aug-18
1522313	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	27-Aug-18
1522312	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	27-Aug-18
1522311	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	27-Aug-18
1522310	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	27-Aug-18
1522309	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	27-Aug-18
1522314	7664-93-9	SULFURIC ACID SOLUTION 10% V/V	465	Pounds(LB)	27-Aug-18
1522317	7664-93-9	SULFURIC ACID SOLUTION 10% V/V	465	Pounds(LB)	27-Aug-18
1522316	7664-93-9	SULFURIC ACID SOLUTION 10% V/V	465	Pounds(LB)	27-Aug-18
1522315	7664-93-9	SULFURIC ACID SOLUTION 10% V/V	465	Pounds(LB)	27-Aug-18
1523087	7677-24-9	TRIMETHYLSILYL CYANIDE	25	Gram(GM)	27-Aug-18
1523235	5407-04-5	3-Dimethylamino-1-propyl chloride	100	Gram(GM)	27-Aug-18
1523236	1074-82-4	PHTHALIMIDE POTASSIUM SALT	100	Gram(GM)	27-Aug-18
1523237	26570-48-9	POLY(ETHYLENE GLYCOL)DIACRYLATE	500	Milliliter(ML)	27-Aug-18
1523238	26570-48-9	POLY(ETHYLENE GLYCOL)DIACRYLATE	500	Milliliter(ML)	27-Aug-18
1523239	28961-43-5	Ethoxylated (3) Trimethylolpropane Triacrylate	250	Milliliter(ML)	27-Aug-18
1523240	2855-27-8	1 2 4-Trivinylcyclohexane mixture of isomers	100	Gram(GM)	27-Aug-18
1523241	1303-86-2	BORIC ANHYDRIDE	1	Kilograms(KG)	27-Aug-18
1523242	-	BacTiter-Glo	200	Milliliter(ML)	27-Aug-18
1523243	-	Q5 Hot Start High-Fidelity 2X Master Mix	50	Microliter	27-Aug-18
1523244	75-16-1	METHYLMAGNESIUM BROMIDE 3.0 M IN	0	Milliliter(ML)	27-Aug-18
1523245	75-16-1	METHYLMAGNESIUM BROMIDE 3.0 M IN	0	Milliliter(ML)	27-Aug-18
1523246	75-16-1	METHYLMAGNESIUM BROMIDE 3.0 M IN	0	Milliliter(ML)	27-Aug-18
1523247	75-16-1	METHYLMAGNESIUM BROMIDE 3.0 M IN	0	Milliliter(ML)	27-Aug-18
1523248	7664-39-3	HYDROFLUORIC ACID	2	Gallon(GAL)	27-Aug-18
1523249	7664-39-3	HYDROFLUORIC ACID	2	Gallon(GAL)	27-Aug-18
1523250	-	NITRAVER TEST N TUBE REAGENT SET	50	Milliliter(ML)	27-Aug-18
1523257	-	NITRAVER TEST N TUBE REAGENT SET	50	Milliliter(ML)	27-Aug-18
1523252	-	NITRAVER TEST N TUBE REAGENT SET	50	Milliliter(ML)	27-Aug-18
1523253	-	NITRAVER TEST N TUBE REAGENT SET	50	Milliliter(ML)	27-Aug-18
1523254	-	NITRAVER TEST N TUBE REAGENT SET	50	Milliliter(ML)	27-Aug-18
1523256	-	NITRAVER TEST N TUBE REAGENT SET	50	Milliliter(ML)	27-Aug-18
1523255	-	NITRAVER TEST N TUBE REAGENT SET	50	Milliliter(ML)	27-Aug-18
1523258	-	NITRAVER TEST N TUBE REAGENT SET	50	Milliliter(ML)	27-Aug-18
1523259	-	NITRAVER TEST N TUBE REAGENT SET	50	Milliliter(ML)	27-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1523251	-	NITRAVER TEST N TUBE REAGENT SET	50	Milliliter(ML)	27-Aug-18
1523260	-	FULLCURE 705	1	Kilograms(KG)	27-Aug-18
1523261	-	FULLCURE 705	1	Kilograms(KG)	27-Aug-18
1523262	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	1	Kilograms(KG)	27-Aug-18
1523263	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	1	Kilograms(KG)	27-Aug-18
1523264	10378-47-9	Ceric Ammonium Sulfate 0.100 Normal in 1	20	Liters(L)	27-Aug-18
1523265	-	POLYFAST	1	Kilograms(KG)	27-Aug-18
1523266	1344-28-1	AP-A Powder	1	Kilograms(KG)	27-Aug-18
1523267	-	OP-S SUSPENSION	5	Liters(L)	27-Aug-18
1523268	-	OP-S SUSPENSION	5	Liters(L)	27-Aug-18
1523269	-	OP-S SUSPENSION	5	Liters(L)	27-Aug-18
1523270	-	OP-S SUSPENSION	5	Liters(L)	27-Aug-18
1523297	1392221-69-0	FK 102 Co(II) PF6 salt	5	Gram(GM)	27-Aug-18
1523298	1346416-71-4	FK 102 Co(III) PF6 salt	5	Gram(GM)	27-Aug-18
1523299	101-83-7	DICYCLOHEXYLAMINE 99%	5	Gram(GM)	27-Aug-18
1523300	101-83-7	DICYCLOHEXYLAMINE 99%	5	Gram(GM)	27-Aug-18
1523301	-	FULLCURE 840	3.6	Kilograms(KG)	27-Aug-18
1523302	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	1	Kilograms(KG)	27-Aug-18
1523304	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	1	Kilograms(KG)	27-Aug-18
1523303	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	1	Kilograms(KG)	27-Aug-18
1523305	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	1	Kilograms(KG)	27-Aug-18
1523306	-	DPD TOT CHLOR ACCUVAC PK/25	25	Milliliter(ML)	27-Aug-18
1523314	-	DPD TOT CHLOR ACCUVAC PK/25	25	Milliliter(ML)	27-Aug-18
1523313	-	DPD TOT CHLOR ACCUVAC PK/25	25	Milliliter(ML)	27-Aug-18
1523312	-	DPD TOT CHLOR ACCUVAC PK/25	25	Milliliter(ML)	27-Aug-18
1523311	-	DPD TOT CHLOR ACCUVAC PK/25	25	Milliliter(ML)	27-Aug-18
1523310	-	DPD TOT CHLOR ACCUVAC PK/25	25	Milliliter(ML)	27-Aug-18
1523309	-	DPD TOT CHLOR ACCUVAC PK/25	25	Milliliter(ML)	27-Aug-18
1523315	-	DPD TOT CHLOR ACCUVAC PK/25	25	Milliliter(ML)	27-Aug-18
1523307	-	DPD TOT CHLOR ACCUVAC PK/25	25	Milliliter(ML)	27-Aug-18
1523316	-	DPD TOT CHLOR ACCUVAC PK/25	25	Milliliter(ML)	27-Aug-18
1523317	-	DPD TOT CHLOR ACCUVAC PK/25	25	Milliliter(ML)	27-Aug-18
1523308	-	DPD TOT CHLOR ACCUVAC PK/25	25	Milliliter(ML)	27-Aug-18
1523324	7758-02-3	POTASSIUM BROMIDE	0.5	Gram(GM)	27-Aug-18
1523325	-	Stellaris RNA FISH Wash Buffer A	60	Milliliter(ML)	27-Aug-18
1523326	-	Stellaris RNA FISH Wash Buffer B	20	Milliliter(ML)	27-Aug-18
1523327	-	Stellaris RNA FISH Hybridization Buffer	10	Milliliter(ML)	27-Aug-18
1523328	-	LIVE/DEAD Fixable Green Dead Cell Stain Kit	160	Milliliter(ML)	27-Aug-18
1523329	-	LIVE/DEAD Fixable Red Dead Cell Stain Kit	160	Milliliter(ML)	27-Aug-18
1523330	25952-53-8	1-(3-DIMETHYLAMINOPROPYL)-3-	100	Gram(GM)	27-Aug-18
1523331	38245-38-4	NEODYMIUM (III) CARBONATE HYDRATE	50	Gram(GM)	27-Aug-18
1523332	2923-28-6	SILVER TRIFLUOROMETHANESULFONATE	25	Gram(GM)	27-Aug-18
1523333	14014-06-3	SODIUM DEUTEROXIDE	10	Gram(GM)	27-Aug-18
1523334	-	MOLD RELEASE 225	9	Ounces(OZ)	27-Aug-18
1523335	-	MOLD RELEASE 225	9	Ounces(OZ)	27-Aug-18
1523336	64-17-5	ETHYL ALCOHOL DENATURED HPLC	500	Milliliter(ML)	27-Aug-18
1523338	64-17-5	ETHYL ALCOHOL DENATURED HPLC	500	Milliliter(ML)	27-Aug-18
1523341	64-17-5	ETHYL ALCOHOL DENATURED HPLC	500	Milliliter(ML)	27-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1523339	64-17-5	ETHYL ALCOHOL DENATURED HPLC	500	Milliliter(ML)	27-Aug-18
1523337	64-17-5	ETHYL ALCOHOL DENATURED HPLC	500	Milliliter(ML)	27-Aug-18
1523340	64-17-5	ETHYL ALCOHOL DENATURED HPLC	500	Milliliter(ML)	27-Aug-18
1523342	1070-89-9	SODIUM (BISTRIMETHYLSILYL) AMIDE	10	Gram(GM)	27-Aug-18
1523343	-	LB AGAR MILLER	500	Gram(GM)	27-Aug-18
1523344	150-76-5	4-METHOXYPHENOL	250	Gram(GM)	27-Aug-18
1523345	128-37-0	2 6-DI-TERT-BUTYL-4-METHYLPHENOL	250	Gram(GM)	27-Aug-18
1523346	123-31-9	HYDROQUINONE	250	Gram(GM)	27-Aug-18
1458827	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	27-Aug-18
1458828	7786-30-3	MAGNESIUM CHLORIDE	33001	Pounds(LB)	27-Aug-18
1458831	7786-30-3	MAGNESIUM CHLORIDE	33001	Pounds(LB)	27-Aug-18
1458832	7786-30-3	MAGNESIUM CHLORIDE	33001	Pounds(LB)	27-Aug-18
1458830	7786-30-3	MAGNESIUM CHLORIDE	33001	Pounds(LB)	27-Aug-18
1458829	7786-30-3	MAGNESIUM CHLORIDE	33001	Pounds(LB)	27-Aug-18
1202865	-	FULLCURE 840	1	Kilograms(KG)	27-Aug-18
1523271	36051-31-7	GUANOSINE 5'-TRIPHOSPHATE	250	Milligram(MG)	28-Aug-18
1523272	36051-31-7	GUANOSINE 5'-TRIPHOSPHATE	250	Milligram(MG)	28-Aug-18
1523273	141-52-6	SODIUM ETHOXIDE	100	Gram(GM)	28-Aug-18
1523274	107-06-2	1 2-DICHLOROETHANE	100	Milliliter(ML)	28-Aug-18
1523347	-	Clear Resin	1	Liters(L)	28-Aug-18
1523348	-	Grey Resin	1	Liters(L)	28-Aug-18
1560249	7782-39-0	DEUTERIUM	5000	Liters(L)	28-Aug-18
1523349	-	DAP 684 Clear Silicone Rubber Sealant	2.8	Ounces(OZ)	28-Aug-18
1523358	-	DAP 684 Clear Silicone Rubber Sealant	2.8	Ounces(OZ)	28-Aug-18
1523350	-	DAP 684 Clear Silicone Rubber Sealant	2.8	Ounces(OZ)	28-Aug-18
1523351	-	DAP 684 Clear Silicone Rubber Sealant	2.8	Ounces(OZ)	28-Aug-18
1523352	-	DAP 684 Clear Silicone Rubber Sealant	2.8	Ounces(OZ)	28-Aug-18
1523353	-	DAP 684 Clear Silicone Rubber Sealant	2.8	Ounces(OZ)	28-Aug-18
1523354	-	DAP 684 Clear Silicone Rubber Sealant	2.8	Ounces(OZ)	28-Aug-18
1523355	-	DAP 684 Clear Silicone Rubber Sealant	2.8	Ounces(OZ)	28-Aug-18
1523356	-	DAP 684 Clear Silicone Rubber Sealant	2.8	Ounces(OZ)	28-Aug-18
1523357	-	DAP 684 Clear Silicone Rubber Sealant	2.8	Ounces(OZ)	28-Aug-18
1523359	-	KLEENOL 30	1	Gallon(GAL)	28-Aug-18
1523360	-	Thermoset Hardener No. 67	0.5	Pint(PT)	28-Aug-18
1523361	3099-28-3	2 6-BIS(CHLOROMETHYL)PYRIDINE	25	Gram(GM)	28-Aug-18
1523362	-	Norland Optical Adhesive 164	10	Gram(GM)	28-Aug-18
1523363	-	Norland Optical Adhesive 164	10	Gram(GM)	28-Aug-18
1523364	-	Norland Optical Adhesive 164	10	Gram(GM)	28-Aug-18
1523365	-	Norland Optical Adhesive 164	10	Gram(GM)	28-Aug-18
1523366	-	Norland Optical Adhesive 164	10	Gram(GM)	28-Aug-18
1523367	-	Norland Optical Adhesive 164	10	Gram(GM)	28-Aug-18
1523368	-	NORLAND OPTICAL ADHESIVE 65	10	Gram(GM)	28-Aug-18
1523369	-	NORLAND OPTICAL ADHESIVE 65	10	Gram(GM)	28-Aug-18
1523370	-	NORLAND OPTICAL ADHESIVE 65	10	Gram(GM)	28-Aug-18
1523371	936255-80-0	[3-amino-2-(aminomethyl)propyl]dimethylamine	1	Gallon(GAL)	28-Aug-18
1523372	13587-52-5	NITRIC ACID D	5	Gram(GM)	28-Aug-18
1523373	157380-45-5	CHX-A-DTPA	100	Milligram(MG)	28-Aug-18
1495983	-	O'Reilly Motor Oil SAE 10W-40	1	Quarts(QT)	28-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1495984	-	O'Reilly Motor Oil SAE 10W-40	1	Quarts(QT)	28-Aug-18
1495986	-	O'Reilly Motor Oil SAE 10W-40	1	Quarts(QT)	28-Aug-18
1495987	-	O'Reilly Motor Oil SAE 10W-40	1	Quarts(QT)	28-Aug-18
1495988	-	O'Reilly Motor Oil SAE 10W-40	1	Quarts(QT)	28-Aug-18
1495989	-	O'Reilly Motor Oil SAE 10W-40	1	Quarts(QT)	28-Aug-18
1495990	-	O'Reilly Motor Oil SAE 10W-40	1	Quarts(QT)	28-Aug-18
1495991	-	O'Reilly Motor Oil SAE 10W-40	1	Quarts(QT)	28-Aug-18
1495985	-	O'Reilly Motor Oil SAE 10W-40	1	Quarts(QT)	28-Aug-18
1495992	-	Parts Plus Type F ATF	1	Quarts(QT)	28-Aug-18
1495997	-	Parts Plus Type F ATF	1	Quarts(QT)	28-Aug-18
1495993	-	Parts Plus Type F ATF	1	Quarts(QT)	28-Aug-18
1495995	-	Parts Plus Type F ATF	1	Quarts(QT)	28-Aug-18
1495996	-	Parts Plus Type F ATF	1	Quarts(QT)	28-Aug-18
1495994	-	Parts Plus Type F ATF	1	Quarts(QT)	28-Aug-18
1495998	-	Parts Plus Type F ATF	1	Quarts(QT)	28-Aug-18
1497377	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	28-Aug-18
1497378	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	28-Aug-18
1497379	-	3M Super 77 Multipurpose Adhesive (Aerosol)	16.75	Ounces(OZ)	28-Aug-18
1497380	-	3M Super 77 Multipurpose Adhesive (Aerosol)	7.3	Ounces(OZ)	28-Aug-18
1497381	-	SYNPOWER 75W-90 SYNTHETIC GEAR OIL	1	Quarts(QT)	28-Aug-18
1497382	-	SYNPOWER 75W-90 SYNTHETIC GEAR OIL	1	Quarts(QT)	28-Aug-18
1523374	56491-86-2	NOTA	1	Gram(GM)	28-Aug-18
1523375	83834-39-3	NOTP	1	Gram(GM)	28-Aug-18
1497383	-	Parts Plus Power Steering Fld	1	Quarts(QT)	28-Aug-18
1523376	294-90-6	CYCLEN	25	Gram(GM)	28-Aug-18
1523431	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523432	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523433	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523434	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523435	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523436	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523437	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523438	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523439	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523442	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523446	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523444	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523445	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523441	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523440	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523443	141-78-6	ETHYL ACETATE	4	Liters(L)	28-Aug-18
1523447	302-01-2	HYDRAZINE ANHYDROUS	100	Gram(GM)	28-Aug-18
1523448	546-68-9	TITANIUM (IV) ISOPROPOXIDE	100	Gram(GM)	28-Aug-18
1497384	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	28-Aug-18
1523449	460-40-2	3 3 3-Trifluoropropanal Contains condensation	5	Gram(GM)	28-Aug-18
1458833	-	SODIUM BISULFITE 38-42%	2464	Pounds(LB)	28-Aug-18
1458834	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	28-Aug-18
1458835	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	28-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497385	-	Premium Blue HEAVY DUTY DIESEL SAE 15W-40	1	Gallon(GAL)	28-Aug-18
1523377	7632-05-5	SODIUM PHOSPHATE	1	Liters(L)	28-Aug-18
1523378	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	500	Milliliter(ML)	28-Aug-18
1523379	13446-18-9	MAGNESIUM NITRATE HEXAHYDRATE	50	Gram(GM)	28-Aug-18
1523380	12069-32-8	BORON CARBIDE	1.6	Pounds(LB)	28-Aug-18
1523381	12069-32-8	BORON CARBIDE	1.6	Pounds(LB)	28-Aug-18
1523382	294-90-6	CYCLEN (1 4 7 10-TETRAAZACYCLODODECANE)	25	Gram(GM)	28-Aug-18
1523383	-	METAPHOR AGAROSE	500	Gram(GM)	28-Aug-18
1523384	-	SNOOP LEAK DETECT	8	Ounces(OZ)	28-Aug-18
1523385	-	SNOOP LEAK DETECT	8	Ounces(OZ)	28-Aug-18
1523386	7440-43-9	CADMIUM STANDARD	125	Milliliter(ML)	28-Aug-18
1523450	-	QUANTI-IT PICOGREEN DS DNA REAGENT	1000	Microliter	28-Aug-18
1523451	7440-09-7	POTASSIUM LUMP	5	Gram(GM)	28-Aug-18
1523452	927-74-2	3-BUTYN-1-OL	5	Gram(GM)	28-Aug-18
1523453	7446-70-0	ALUMINUM CHLORIDE ANHYDROUS	5	Gram(GM)	28-Aug-18
1523454	-	MycoFluor Mycoplasma Detection Kit	10.5	Milliliter(ML)	28-Aug-18
1523455	96-47-9	2-METHYLTETRAHYDROFURAN	100	Milliliter(ML)	28-Aug-18
1523456	96-47-9	2-METHYLTETRAHYDROFURAN	100	Milliliter(ML)	28-Aug-18
1523457	96-47-9	2-METHYLTETRAHYDROFURAN	100	Milliliter(ML)	28-Aug-18
1523458	96-47-9	2-METHYLTETRAHYDROFURAN	100	Milliliter(ML)	28-Aug-18
1523459	96-14-0	3-METHYLPENTANE	100	Milliliter(ML)	28-Aug-18
1523460	96-14-0	3-METHYLPENTANE	100	Milliliter(ML)	28-Aug-18
1523461	96-14-0	3-METHYLPENTANE	100	Milliliter(ML)	28-Aug-18
1523462	96-14-0	3-METHYLPENTANE	100	Milliliter(ML)	28-Aug-18
1523463	1336-21-6	AMMONIA (DUETERATED N-15)	2.5	Liters(L)	28-Aug-18
1523464	1336-21-6	AMMONIA (DUETERATED N-15)	2.5	Liters(L)	28-Aug-18
1523465	108-95-2	PHENOL-CHLOROFORM-ISOAMYL ALCOHOL	100	Milliliter(ML)	28-Aug-18
1523466	119478-56-7	Meropenem trihydrate	50	Milligram(MG)	28-Aug-18
1523467	193419-86-2	Fluorescein o-acrylate	1	Gram(GM)	28-Aug-18
1523468	-	ADENOSINE-5-TRIPHOSPHATE	10	Gram(GM)	28-Aug-18
1523469	-	4-PENTYN-1-OL	5	Gram(GM)	28-Aug-18
1458836	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	28-Aug-18
1458838	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	28-Aug-18
1458839	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	28-Aug-18
1458840	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	28-Aug-18
1458841	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	28-Aug-18
1458837	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	28-Aug-18
1481150	-	SHAW 4100	4	Gallon(GAL)	28-Aug-18
1481154	-	SHAW 4100	4	Gallon(GAL)	28-Aug-18
1481153	-	SHAW 4100	4	Gallon(GAL)	28-Aug-18
1481152	-	SHAW 4100	4	Gallon(GAL)	28-Aug-18
1481151	-	SHAW 4100	4	Gallon(GAL)	28-Aug-18
1481155	-	SHAW 4100	4	Gallon(GAL)	28-Aug-18
1481156	-	HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	28-Aug-18
1481158	-	HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	28-Aug-18
1481160	-	HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	28-Aug-18
1481157	-	HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	28-Aug-18
1481159	-	HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	28-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1486762	-	Stop Gap	12	Ounces(OZ)	28-Aug-18
1486763	-	Stop Gap	12	Ounces(OZ)	28-Aug-18
1486764	-	Stop Gap	12	Ounces(OZ)	28-Aug-18
1486759	-	Stop Gap	12	Ounces(OZ)	28-Aug-18
1486760	-	Stop Gap	12	Ounces(OZ)	28-Aug-18
1486761	-	Stop Gap	12	Ounces(OZ)	28-Aug-18
1486638	-	MOBIL DTE 25	5	Gallon(GAL)	28-Aug-18
1486061	-	EDM 244 Di-Electric Fluid	55	Gallon(GAL)	28-Aug-18
1486062	-	EDM 244 Di-Electric Fluid	55	Gallon(GAL)	28-Aug-18
1486564	-	LOCTITE 567 THREAD SEALANT	1.69	Ounces(OZ)	28-Aug-18
1486566	-	LOCTITE 567 THREAD SEALANT	1.69	Ounces(OZ)	28-Aug-18
1486565	-	LOCTITE 567 THREAD SEALANT	1.69	Ounces(OZ)	28-Aug-18
1486420	-	MOBIL DTE 24	5	Gallon(GAL)	28-Aug-18
1481205	-	PSX 700 CURE US	0.2	Gallon(GAL)	28-Aug-18
1486421	-	MOBIL DTE 24	5	Gallon(GAL)	28-Aug-18
1481207	-	PSX 700 CURE US	0.2	Gallon(GAL)	28-Aug-18
1481206	-	PSX 700 CURE US	0.2	Gallon(GAL)	28-Aug-18
1481208	-	PSX 700 CURE US	0.2	Gallon(GAL)	28-Aug-18
1486422	10043-11-5	BORON NITRIDE SPRAY	13	Ounces(OZ)	28-Aug-18
1481209	-	PSX 700 WHITE RESIN	1	Gallon(GAL)	28-Aug-18
1481210	-	PSX 700 WHITE RESIN	1	Gallon(GAL)	28-Aug-18
1481211	-	PSX 700 CURE US	0.2	Gallon(GAL)	28-Aug-18
1481214	-	PSX 700 CURE US	0.2	Gallon(GAL)	28-Aug-18
1481216	-	PSX 700 CURE US	0.2	Gallon(GAL)	28-Aug-18
1481213	-	PSX 700 CURE US	0.2	Gallon(GAL)	28-Aug-18
1481212	-	PSX 700 CURE US	0.2	Gallon(GAL)	28-Aug-18
1481215	-	PSX 700 CURE US	0.2	Gallon(GAL)	28-Aug-18
1481329	-	Sikalastic FTP Primer Part B	7	Gallon(GAL)	28-Aug-18
1481332	-	Sikalastic FTP Primer Part B	7	Gallon(GAL)	28-Aug-18
1481331	-	Sikalastic FTP Primer Part B	7	Gallon(GAL)	28-Aug-18
1481333	-	Sikalastic FTP Primer Part B	7	Gallon(GAL)	28-Aug-18
1481335	-	Sikalastic FTP Primer Part B	7	Gallon(GAL)	28-Aug-18
1481330	-	Sikalastic FTP Primer Part B	7	Gallon(GAL)	28-Aug-18
1481336	-	Sikalastic FTP Primer Part B	7	Gallon(GAL)	28-Aug-18
1481334	-	Sikalastic FTP Primer Part B	7	Gallon(GAL)	28-Aug-18
1481373	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	28-Aug-18
1481380	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	28-Aug-18
1481379	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	28-Aug-18
1481378	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	28-Aug-18
1481377	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	28-Aug-18
1481376	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	28-Aug-18
1481374	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	28-Aug-18
1481375	-	Sikalastic FTP Primer Part A	1	Gallon(GAL)	28-Aug-18
1481429	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	28-Aug-18
1481433	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	28-Aug-18
1481432	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	28-Aug-18
1481430	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	28-Aug-18
1481431	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	28-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481434	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	28-Aug-18
1572799	-	Urethane Foam Part A Component	1	Pint(PT)	29-Aug-18
1572800	-	Urethane Foam Part B Component	1	Pint(PT)	29-Aug-18
1433052	-	silvabrite 100	1	Pounds(LB)	29-Aug-18
1433053	-	silvabrite 100	1	Pounds(LB)	29-Aug-18
1433054	-	Megaloc	0.5	Pint(PT)	29-Aug-18
1433055	-	Megaloc	0.5	Pint(PT)	29-Aug-18
1433057	-	Oatey Purple Primer	0.25	Pint(PT)	29-Aug-18
1433056	-	Hercules PVC plastic pipe cement (clear med	0.25	Pint(PT)	29-Aug-18
1433051	-	HERCULES PURPLE PVC PRIMER	1	Quarts(QT)	29-Aug-18
1433050	-	Hercules PVC plastic pipe cement (clear med	1	Quarts(QT)	29-Aug-18
1433047	64742-53-6	Hercules Dark Cutting Oil	1	Gallon(GAL)	29-Aug-18
1433048	64742-53-6	Hercules Dark Cutting Oil	1	Gallon(GAL)	29-Aug-18
1433049	-	RECTORSEAL TRU-BLU PIPE THREAD SEALANT	1	Pint(PT)	29-Aug-18
1572801	-	OATEY REGULAR CLEARPVC CEMENT	4	Ounces(OZ)	29-Aug-18
1572802	-	PURPLE PRIMER FOR CPVC OR PVC	4	Ounces(OZ)	29-Aug-18
1420799	-	LEYBONOL LVO 100	5	Liters(L)	29-Aug-18
1420800	-	LEYBONOL LVO 210 Oil	5	Liters(L)	29-Aug-18
1572803	-	Ascot Tire and Tube Mounting Compound	25	Pounds(LB)	29-Aug-18
1572806	-	Ascot Tire and Tube Mounting Compound	25	Pounds(LB)	29-Aug-18
1572805	-	Ascot Tire and Tube Mounting Compound	25	Pounds(LB)	29-Aug-18
1572807	-	Ascot Tire and Tube Mounting Compound	25	Pounds(LB)	29-Aug-18
1572804	-	Ascot Tire and Tube Mounting Compound	25	Pounds(LB)	29-Aug-18
1572808	-	AW HYDRAULIC FLUID ISO 32	5	Gallon(GAL)	29-Aug-18
1522318	64742-53-6	UNIVOLT N 61	55	Gallon(GAL)	29-Aug-18
1523387	-	2 Part Epoxy	8	Ounces(OZ)	29-Aug-18
1523388	-	HIGH VACUUM GREASE	5.3	Ounces(OZ)	29-Aug-18
1523392	-	HIGH VACUUM GREASE	5.3	Ounces(OZ)	29-Aug-18
1523389	-	HIGH VACUUM GREASE	5.3	Ounces(OZ)	29-Aug-18
1523390	-	HIGH VACUUM GREASE	5.3	Ounces(OZ)	29-Aug-18
1523391	-	HIGH VACUUM GREASE	5.3	Ounces(OZ)	29-Aug-18
1523394	-	HIGH VACUUM GREASE	5.3	Ounces(OZ)	29-Aug-18
1523393	-	HIGH VACUUM GREASE	5.3	Ounces(OZ)	29-Aug-18
1523395	-	HIGH VACUUM GREASE	5.3	Ounces(OZ)	29-Aug-18
1523396	96-47-9	2-METHYLTETRAHYDROFURAN	100	Milliliter(ML)	29-Aug-18
1523397	558-37-2	3 3-DIMETHYL-1-BUTENE	100	Milliliter(ML)	29-Aug-18
1523398	-	Wright Stain Modified	500	Milliliter(ML)	29-Aug-18
1523399	121-44-8	TRIETHYLAMINE	500	Milliliter(ML)	29-Aug-18
1523400	67-63-0	ISOPROPYL ALCOHOL	5	Gallon(GAL)	29-Aug-18
1523401	12125-02-9	NITROGEN-AMMONIA STANDARD	500	Milliliter(ML)	29-Aug-18
1523402	12125-02-9	NITROGEN-AMMONIA STANDARD	500	Milliliter(ML)	29-Aug-18
1523403	20694-39-7	MANGANESE(II) NITRATE TETRAHYDRATE	250	Gram(GM)	29-Aug-18
1523404	7784-27-2	ALUMINUM NITRATE NONAHYDRATE	100	Gram(GM)	29-Aug-18
1523405	7783-20-2	AMMONIUM SULFATE	500	Gram(GM)	29-Aug-18
1523406	7783-20-2	AMMONIUM SULFATE	500	Gram(GM)	29-Aug-18
1523407	1122-62-9	2-ACETYLPYRIDINE	100	Gram(GM)	29-Aug-18
1523409	1122-62-9	2-ACETYLPYRIDINE	100	Gram(GM)	29-Aug-18
1523408	1122-62-9	2-ACETYLPYRIDINE	100	Gram(GM)	29-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1523410	75-09-2	DICHLOROMETHANE	4	Liters(L)	29-Aug-18
1523411	75-09-2	DICHLOROMETHANE	4	Liters(L)	29-Aug-18
1523474	-	AMORPHOUS FUSED SILICA POWDER	55	Pounds(LB)	29-Aug-18
1523476	10025-78-2	TRICHLOROSILANE	100	Gram(GM)	29-Aug-18
1523477	7580-67-8	LITHIUM HYDRIDE	5	Gram(GM)	29-Aug-18
1523478	7580-67-8	LITHIUM HYDRIDE	5	Gram(GM)	29-Aug-18
1523479	-	BseRI	200	Milliliter(ML)	29-Aug-18
1523480	-	Pierce LAL Chromogenic Endotoxin Quantitation	60	Milliliter(ML)	29-Aug-18
1523481	7580-67-8	LITHIUM HYDRIDE	100	Gram(GM)	29-Aug-18
1523503	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523550	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523559	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523558	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523557	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523556	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523555	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523554	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523553	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523548	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523551	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523560	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523547	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523549	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523577	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523552	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523570	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523511	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523546	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523576	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523574	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523573	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523575	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523571	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523561	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523569	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523568	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523567	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523565	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523563	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523562	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523572	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523512	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523513	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523522	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523521	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523520	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523519	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523518	-	CLOROX	1	Gallon(GAL)	29-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1523517	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523516	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523524	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523514	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523525	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523510	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523509	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523508	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523507	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523506	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523505	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523504	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523564	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523515	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523534	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523544	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523543	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523542	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523541	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523540	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523539	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523538	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523537	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523523	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523535	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523545	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523533	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523532	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523531	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523530	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523529	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523528	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523527	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523526	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523536	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1523566	-	CLOROX	1	Gallon(GAL)	29-Aug-18
1458842	-	Nalco 22341	503	Pounds(LB)	29-Aug-18
1458843	-	TRI-ACT 1820	450	Pounds(LB)	29-Aug-18
1458844	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	29-Aug-18
1458845	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	29-Aug-18
1420802	-	APEIZON GREASE	50	Gram(GM)	30-Aug-18
1522319	7631-99-4	SODIUM NITRATE	10000	Gram(GM)	31-Aug-18
1522320	7631-99-4	SODIUM NITRATE	10000	Gram(GM)	31-Aug-18
1522321	7631-99-4	SODIUM NITRATE	10000	Gram(GM)	31-Aug-18
1522322	7631-99-4	SODIUM NITRATE	10000	Gram(GM)	31-Aug-18
1522323	7631-99-4	SODIUM NITRATE	10000	Gram(GM)	31-Aug-18
1522324	7631-99-4	SODIUM NITRATE	10000	Gram(GM)	31-Aug-18
1522325	68-12-2	N N-DIMETHYLFORMAMIDE	200	Milliliter(ML)	31-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1522326	7783-99-5	SILVER NITRITE	10	Gram(GM)	31-Aug-18
1522327	7803-57-8	HYDRAZINE MONOHYDRATE	100	Gram(GM)	31-Aug-18
1522328	15710-66-4	MANGANESE(II) NITRATE HYDRATE	50	Gram(GM)	31-Aug-18
1522329	76-05-1	TRIFLUOROACETIC ACID	500	Gram(GM)	31-Aug-18
1522330	68076-36-8	N-Boc-1 4-butanediamine	100	Gram(GM)	31-Aug-18
1522331	68076-36-8	N-Boc-1 4-butanediamine	100	Gram(GM)	31-Aug-18
1522332	68076-36-8	N-Boc-1 4-butanediamine	100	Gram(GM)	31-Aug-18
1522333	6485-79-6	TRIISOPROPYLSILANE	100	Milliliter(ML)	31-Aug-18
1522334	6485-79-6	TRIISOPROPYLSILANE	100	Milliliter(ML)	31-Aug-18
1523412	-	HN03 Custom Standard	100	Milliliter(ML)	31-Aug-18
1523413	-	HN03 Custom Standard	100	Milliliter(ML)	31-Aug-18
1523416	-	HN03 Custom Standard	100	Milliliter(ML)	31-Aug-18
1523415	-	HN03 Custom Standard	100	Milliliter(ML)	31-Aug-18
1523414	-	HN03 Custom Standard	100	Milliliter(ML)	31-Aug-18
1523417	-	HN03 Custom Standard	500	Milliliter(ML)	31-Aug-18
1523418	-	HN03 Custom Standard	500	Milliliter(ML)	31-Aug-18
1523419	-	HN03 Custom Standard	500	Milliliter(ML)	31-Aug-18
1523420	-	HN03 Custom Standard	500	Milliliter(ML)	31-Aug-18
1523421	-	HN03 Custom Standard	100	Milliliter(ML)	31-Aug-18
1523422	-	HN03 Custom Standard	100	Milliliter(ML)	31-Aug-18
1523423	7664-93-9	H2SO4 500ML PRESERVATION VIALS	98.08	Gram(GM)	31-Aug-18
1523426	7664-93-9	H2SO4 500ML PRESERVATION VIALS	98.08	Gram(GM)	31-Aug-18
1523424	7664-93-9	H2SO4 500ML PRESERVATION VIALS	98.08	Gram(GM)	31-Aug-18
1523425	7664-93-9	H2SO4 500ML PRESERVATION VIALS	98.08	Gram(GM)	31-Aug-18
1523427	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	31-Aug-18
1523428	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	31-Aug-18
1523429	7719-09-7	THIONYL CHLORIDE	1	Liters(L)	31-Aug-18
1523430	7440-33-7	Copper Coated Tungsten	20	Kilograms(KG)	31-Aug-18
1523482	67-64-1	ACETONE	4	Liters(L)	31-Aug-18
1523483	67-64-1	ACETONE	4	Liters(L)	31-Aug-18
1523484	-	HYSOL EA 9394	50	Milliliter(ML)	31-Aug-18
1523485	-	2711 Montana Soil	50	Gram(GM)	31-Aug-18
1523486	-	TREE MARKING PAINT	12	Ounces(OZ)	31-Aug-18
1523487	-	TREE MARKING PAINT	12	Ounces(OZ)	31-Aug-18
1523488	-	TREE MARKING PAINT	12	Ounces(OZ)	31-Aug-18
1523489	-	TREE MARKING PAINT	12	Ounces(OZ)	31-Aug-18
1523490	-	TREE MARKING PAINT	12	Ounces(OZ)	31-Aug-18
1523491	-	TREE MARKING PAINT	12	Ounces(OZ)	31-Aug-18
1523492	-	TREE MARKING PAINT	12	Ounces(OZ)	31-Aug-18
1523493	-	TREE MARKING PAINT	12	Ounces(OZ)	31-Aug-18
1523578	-	Buehler Epothin 2 Hardener / SDS# 9130500	16	Ounces(OZ)	31-Aug-18
1523579	-	Buehler Epothin 2 Hardener / SDS# 9130500	16	Ounces(OZ)	31-Aug-18
1523580	-	Buehler Epothin 2 Resin / SDS# 9130600	1	Gallon(GAL)	31-Aug-18
1523581	-	Buehler Epothin 2 Resin / SDS# 9130600	1	Gallon(GAL)	31-Aug-18
1523582	7789-02-8	CHROMIUM(III) NITRATE NONAHYDRATE	100	Gram(GM)	31-Aug-18
1523583	108-88-3	TOLUENE	4	Liters(L)	31-Aug-18
1523584	108-88-3	TOLUENE	4	Liters(L)	31-Aug-18
1523647	-	GELCODE BLUE SAFE PROTEIN STAIN	1	Liters(L)	31-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1523649	-	GELCODE BLUE SAFE PROTEIN STAIN	1	Liters(L)	31-Aug-18
1523648	-	GELCODE BLUE SAFE PROTEIN STAIN	1	Liters(L)	31-Aug-18
1523650	-	NUPAGE 4-12% BT GEL	10	Milliliter(ML)	31-Aug-18
1523651	-	NUPAGE 4-12% BT GEL	10	Milliliter(ML)	31-Aug-18
1523652	-	TAE BUFFER 40X	1000	Milliliter(ML)	31-Aug-18
1523653	-	TAE BUFFER 40X	1000	Milliliter(ML)	31-Aug-18
1481435	-	Startex Lacquer Thinner	1	Gallon(GAL)	31-Aug-18
1481436	-	Startex Lacquer Thinner	1	Gallon(GAL)	31-Aug-18
1481437	-	STARTEX PAINT THINNER	2.5	Gallon(GAL)	31-Aug-18
1481438	-	STARTEX PAINT THINNER	2.5	Gallon(GAL)	31-Aug-18
1481439	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	31-Aug-18
1481440	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	31-Aug-18
1523497	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	31-Aug-18
1523498	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	31-Aug-18
1523499	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	31-Aug-18
1523500	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	31-Aug-18
1523501	-	Phusion* Hot Start II High-Fidelity DNA	100	Milliliter(ML)	31-Aug-18
1523502	-	Phusion* Hot Start II High-Fidelity DNA	100	Milliliter(ML)	31-Aug-18
1523585	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	31-Aug-18
1523588	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	31-Aug-18
1523586	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	31-Aug-18
1523587	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	31-Aug-18
1523589	141-78-6	ETHYL ACETATE	4	Liters(L)	31-Aug-18
1523593	141-78-6	ETHYL ACETATE	4	Liters(L)	31-Aug-18
1523594	141-78-6	ETHYL ACETATE	4	Liters(L)	31-Aug-18
1523595	141-78-6	ETHYL ACETATE	4	Liters(L)	31-Aug-18
1523596	141-78-6	ETHYL ACETATE	4	Liters(L)	31-Aug-18
1523592	141-78-6	ETHYL ACETATE	4	Liters(L)	31-Aug-18
1523591	141-78-6	ETHYL ACETATE	4	Liters(L)	31-Aug-18
1523590	141-78-6	ETHYL ACETATE	4	Liters(L)	31-Aug-18
1523597	75-09-2	METHYLENE CHLORIDE	4	Liters(L)	31-Aug-18
1523599	75-09-2	METHYLENE CHLORIDE	4	Liters(L)	31-Aug-18
1523600	75-09-2	METHYLENE CHLORIDE	4	Liters(L)	31-Aug-18
1523598	75-09-2	METHYLENE CHLORIDE	4	Liters(L)	31-Aug-18
1523601	67-56-1	METHANOL HPLC	4	Liters(L)	31-Aug-18
1523604	67-56-1	METHANOL HPLC	4	Liters(L)	31-Aug-18
1523603	67-56-1	METHANOL HPLC	4	Liters(L)	31-Aug-18
1523602	67-56-1	METHANOL HPLC	4	Liters(L)	31-Aug-18
1523605	64-17-5	ETHANOL (ETHYL ALCOHOL)	4	Liters(L)	31-Aug-18
1523606	64-17-5	ETHANOL (ETHYL ALCOHOL)	4	Liters(L)	31-Aug-18
1523607	64-17-5	ETHANOL (ETHYL ALCOHOL)	4	Liters(L)	31-Aug-18
1523608	64-17-5	ETHANOL (ETHYL ALCOHOL)	4	Liters(L)	31-Aug-18
1523609	60-29-7	ETHYL ETHER	4	Liters(L)	31-Aug-18
1523611	60-29-7	ETHYL ETHER	4	Liters(L)	31-Aug-18
1523612	60-29-7	ETHYL ETHER	4	Liters(L)	31-Aug-18
1523610	60-29-7	ETHYL ETHER	4	Liters(L)	31-Aug-18
1523654	-	3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE	2	Ounces(OZ)	31-Aug-18
1521523655	-	2 6-LUTIDINE N-OXIDE	5	Gram(GM)	31-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481447	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481448	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481593	-	Lysol Disinfectant Cleaner	12.5	Ounces(OZ)	31-Aug-18
1481594	-	Lysol Disinfectant Cleaner	12.5	Ounces(OZ)	31-Aug-18
1481595	-	Lysol Disinfectant Cleaner	12.5	Ounces(OZ)	31-Aug-18
1481596	-	Lysol Disinfectant Cleaner	12.5	Ounces(OZ)	31-Aug-18
1481597	-	Lysol Disinfectant Cleaner	12.5	Ounces(OZ)	31-Aug-18
1481598	-	Lysol Disinfectant Cleaner	12.5	Ounces(OZ)	31-Aug-18
1498159	-	Lysol Disinfectant Cleaner	12.5	Ounces(OZ)	31-Aug-18
1498160	-	Lysol Disinfectant Cleaner	12.5	Ounces(OZ)	31-Aug-18
1498161	-	Lysol Disinfectant Cleaner	12.5	Ounces(OZ)	31-Aug-18
1498162	-	Lysol Disinfectant Cleaner	12.5	Ounces(OZ)	31-Aug-18
1498163	-	Lysol Disinfectant Cleaner	12.5	Ounces(OZ)	31-Aug-18
1498164	-	Lysol Disinfectant Cleaner	12.5	Ounces(OZ)	31-Aug-18
1523656	-	TEC CLEANER	2.5	Liters(L)	31-Aug-18
1523657	7664-93-9	H2SO4 500ML PRESERVATION VIALS	100	Milliliter(ML)	31-Aug-18
1523658	7664-93-9	H2SO4 500ML PRESERVATION VIALS	100	Milliliter(ML)	31-Aug-18
1523659	7664-93-9	Sulfuric Acid Aqueous Solution	100	Milliliter(ML)	31-Aug-18
1523660	7664-93-9	Sulfuric Acid Aqueous Solution	100	Milliliter(ML)	31-Aug-18
1498165	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498233	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498234	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498235	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498236	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498237	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498239	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498228	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498168	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498166	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498238	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498204	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498192	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498181	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498172	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498173	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498182	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498203	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498194	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498205	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498176	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498208	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498207	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498206	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498211	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498202	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498213	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498193	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498174	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498175	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498201	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498230	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498200	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498167	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498209	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498210	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498171	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498179	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498214	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498178	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498177	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498199	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498198	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498197	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498196	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498195	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498180	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498219	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498216	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498187	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498186	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498185	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498184	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498189	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498220	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498190	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498218	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498217	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498212	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498183	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498170	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498215	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498221	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498226	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498232	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498231	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498229	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498169	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498188	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498227	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498225	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498224	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498223	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498191	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1498222	-	Clorox Regular-Bleach	3.78	Quarts(QT)	31-Aug-18
1523661	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523667	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1523675	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523674	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523672	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523671	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523670	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523668	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523676	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523666	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523665	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523664	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523663	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523662	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523669	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523678	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523679	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523680	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523681	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523682	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523683	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523684	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523677	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523673	-	Super Lube w/PTFE	11	Ounces(OZ)	31-Aug-18
1523685	-	TEVA RESIN	2	Milliliter(ML)	31-Aug-18
1523686	-	TEVA RESIN	2	Milliliter(ML)	31-Aug-18
1523687	-	TRU RESIN	2	Milliliter(ML)	31-Aug-18
1523688	-	TRU RESIN	2	Milliliter(ML)	31-Aug-18
1523689	-	THERAMIC ENG. EPOXY 450A RESIN	1	Pounds(LB)	31-Aug-18
1523690	-	THERAMIC ENG. EPOXY 450A RESIN	1	Pounds(LB)	31-Aug-18
1498260	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	31-Aug-18
1523691	-	CLEAR CATALYST	1	Pounds(LB)	31-Aug-18
1498265	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	31-Aug-18
1498261	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	31-Aug-18
1498262	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	31-Aug-18
1498264	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	31-Aug-18
1498266	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	31-Aug-18
1498267	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	31-Aug-18
1498263	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	31-Aug-18
1523692	-	CLEAR CATALYST	1	Pounds(LB)	31-Aug-18
1523693	88-89-1	PICRIC ACID	500	Gram(GM)	31-Aug-18
1523698	88-89-1	PICRIC ACID	500	Gram(GM)	31-Aug-18
1523697	88-89-1	PICRIC ACID	500	Gram(GM)	31-Aug-18
1523694	88-89-1	PICRIC ACID	500	Gram(GM)	31-Aug-18
1523696	88-89-1	PICRIC ACID	500	Gram(GM)	31-Aug-18
1523695	88-89-1	PICRIC ACID	500	Gram(GM)	31-Aug-18
1523699	111-40-0	DIETHYLENETRIAMINE	100	Milliliter(ML)	31-Aug-18
1523700	121-44-8	TRIETHYLAMINE	500	Milliliter(ML)	31-Aug-18
1498300	-	PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	31-Aug-18
1498301	-	PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	31-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498307	-	PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	31-Aug-18
1498308	-	PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	31-Aug-18
1498309	-	PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	31-Aug-18
1498305	-	PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	31-Aug-18
1498304	-	PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	31-Aug-18
1498302	-	PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	31-Aug-18
1498306	-	PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	31-Aug-18
1498303	-	PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	31-Aug-18
1523701	109-73-9	BUTYLAMINE	250	Milliliter(ML)	31-Aug-18
1523702	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	31-Aug-18
1523707	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	31-Aug-18
1523706	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	31-Aug-18
1523705	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	31-Aug-18
1523703	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	31-Aug-18
1523704	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	31-Aug-18
1523708	7758-89-6	COPPER(I) CHLORIDE	100	Gram(GM)	31-Aug-18
1523709	142-29-0	CYCLOPENTENE	100	Milliliter(ML)	31-Aug-18
1523717	142-29-0	CYCLOPENTENE	100	Milliliter(ML)	31-Aug-18
1523713	142-29-0	CYCLOPENTENE	100	Milliliter(ML)	31-Aug-18
1523716	142-29-0	CYCLOPENTENE	100	Milliliter(ML)	31-Aug-18
1523712	142-29-0	CYCLOPENTENE	100	Milliliter(ML)	31-Aug-18
1523714	142-29-0	CYCLOPENTENE	100	Milliliter(ML)	31-Aug-18
1523718	142-29-0	CYCLOPENTENE	100	Milliliter(ML)	31-Aug-18
1523710	142-29-0	CYCLOPENTENE	100	Milliliter(ML)	31-Aug-18
1523715	142-29-0	CYCLOPENTENE	100	Milliliter(ML)	31-Aug-18
1523711	142-29-0	CYCLOPENTENE	100	Milliliter(ML)	31-Aug-18
1498298	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	31-Aug-18
1498299	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	31-Aug-18
1523719	625-86-5	2 5-DIMETHYLFURAN	100	Milliliter(ML)	31-Aug-18
1458846	56-81-5	GLYCERIN	262	Gallon(GAL)	31-Aug-18
1458847	56-81-5	GLYCERIN	262	Gallon(GAL)	31-Aug-18
1498314	-	Avalon Premium 100% Acrylic Interior Satin M/B	1	Gallon(GAL)	31-Aug-18
1498317	-	Avalon Premium 100% Acrylic Interior Satin M/B	1	Gallon(GAL)	31-Aug-18
1498315	-	Avalon Premium 100% Acrylic Interior Satin M/B	1	Gallon(GAL)	31-Aug-18
1498316	-	Avalon Premium 100% Acrylic Interior Satin M/B	1	Gallon(GAL)	31-Aug-18
1498318	-	Avalon Premium 100% Acrylic Interior Satin M/B	1	Gallon(GAL)	31-Aug-18
1498320	-	Avalon Premium 100% Acrylic Interior Satin M/B	1	Gallon(GAL)	31-Aug-18
1498321	-	Avalon Premium 100% Acrylic Interior Satin M/B	1	Gallon(GAL)	31-Aug-18
1498319	-	Avalon Premium 100% Acrylic Interior Satin M/B	1	Gallon(GAL)	31-Aug-18
1498322	-	Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	31-Aug-18
1498332	-	Avalon Premium 100% Acrylic Interior Satin N/B	1	Gallon(GAL)	31-Aug-18
1498334	-	Avalon Premium 100% Acrylic Interior Satin N/B	1	Gallon(GAL)	31-Aug-18
1498335	-	Avalon Premium 100% Acrylic Interior Satin N/B	1	Gallon(GAL)	31-Aug-18
1498336	-	Avalon Premium 100% Acrylic Interior Satin N/B	1	Gallon(GAL)	31-Aug-18
1498337	-	Avalon Premium 100% Acrylic Interior Satin N/B	1	Gallon(GAL)	31-Aug-18
1498333	-	Avalon Premium 100% Acrylic Interior Satin N/B	1	Gallon(GAL)	31-Aug-18
1498338	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	31-Aug-18
1498340	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	31-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498341	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	31-Aug-18
1498339	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	31-Aug-18
1498342	-	Startex Lacquer Thinner	1	Gallon(GAL)	31-Aug-18
1498343	-	Startex Lacquer Thinner	1	Gallon(GAL)	31-Aug-18
1498344	-	Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	31-Aug-18
1498345	-	Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	31-Aug-18
1498352	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	31-Aug-18
1498366	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498367	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498371	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498370	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498369	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498368	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498372	-	Cote All Safety Green	1	Gallon(GAL)	31-Aug-18
1498373	-	Cote All Safety Green	1	Gallon(GAL)	31-Aug-18
1498374	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	31-Aug-18
1498375	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	31-Aug-18
1498376	-	Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	31-Aug-18
1498377	-	Startex Lacquer Thinner	1	Gallon(GAL)	31-Aug-18
1498378	-	Startex Lacquer Thinner	1	Gallon(GAL)	31-Aug-18
1498391	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498393	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498392	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498394	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498396	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498398	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498401	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498399	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498397	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498400	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498402	-	Cote All Safety Blue	128	Ounces(OZ)	31-Aug-18
1498403	-	Cote All Safety Blue	128	Ounces(OZ)	31-Aug-18
1498310	-	Cote All Safety Blue	128	Ounces(OZ)	31-Aug-18
1498311	-	Cote All Safety Blue	128	Ounces(OZ)	31-Aug-18
1481113	-	TOUCH N FOAM SEALANT	12	Ounces(OZ)	31-Aug-18
1481116	-	TOUCH N FOAM SEALANT	12	Ounces(OZ)	31-Aug-18
1481124	-	TOUCH N FOAM SEALANT	12	Ounces(OZ)	31-Aug-18
1481123	-	TOUCH N FOAM SEALANT	12	Ounces(OZ)	31-Aug-18
1481122	-	TOUCH N FOAM SEALANT	12	Ounces(OZ)	31-Aug-18
1481121	-	TOUCH N FOAM SEALANT	12	Ounces(OZ)	31-Aug-18
1481120	-	TOUCH N FOAM SEALANT	12	Ounces(OZ)	31-Aug-18
1481119	-	TOUCH N FOAM SEALANT	12	Ounces(OZ)	31-Aug-18
1481117	-	TOUCH N FOAM SEALANT	12	Ounces(OZ)	31-Aug-18
1481115	-	TOUCH N FOAM SEALANT	12	Ounces(OZ)	31-Aug-18
1481114	-	TOUCH N FOAM SEALANT	12	Ounces(OZ)	31-Aug-18
1481118	-	TOUCH N FOAM SEALANT	12	Ounces(OZ)	31-Aug-18
1481413	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481420	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481428	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481427	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481426	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481425	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481424	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481423	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481417	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481421	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481419	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481418	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481416	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481415	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481414	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1481422	-	PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-18
1498268	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498270	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498269	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498274	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498282	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498296	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498294	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498292	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498291	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498290	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498289	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498288	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498287	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498286	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498285	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498297	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498283	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498295	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498281	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498272	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498280	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498279	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498271	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498273	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498275	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498276	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498277	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498278	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498284	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1498293	-	PSX 700 CURE US	0.2	Gallon(GAL)	31-Aug-18
1418054	-	ARMAFLEX 520	1	Gallon(GAL)	04-Sep-18
1418055	-	ARMAFLEX 520	1	Gallon(GAL)	04-Sep-18
1481233	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	04-Sep-18
1481237	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	04-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481236	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	04-Sep-18
1481235	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	04-Sep-18
1481234	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	04-Sep-18
1420801	-	TECCEM Fluoronox MS 30/2	1	Kilograms(KG)	04-Sep-18
1481225	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	04-Sep-18
1481227	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	04-Sep-18
1481228	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	04-Sep-18
1481229	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	04-Sep-18
1481230	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	04-Sep-18
1481231	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	04-Sep-18
1481232	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	04-Sep-18
1481226	-	SBS MEMBRANE ADHESIVE MATRIX 102	4.75	Gallon(GAL)	04-Sep-18
1560306	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560330	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560322	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560323	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560324	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560325	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560326	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560327	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560321	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560329	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560331	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560332	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560333	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560334	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560328	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560335	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560318	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560319	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560317	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560316	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560315	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560314	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560313	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560312	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560311	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560310	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560309	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560308	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560307	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1560320	-	Nitrogen UHP	220	Cubic Feet(CF)	04-Sep-18
1498353	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498355	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498361	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498354	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498364	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498363	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498362	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498360	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498359	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498358	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498357	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498356	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498379	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498389	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498388	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498387	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498385	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498386	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498390	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498381	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498382	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498383	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498384	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498380	-	4592 PRO GRADE - AEROSOL WALL TEXTURE	25	Ounces(OZ)	04-Sep-18
1498424	-	LOW VISCOSITY WHITE WATER BASED WEATHER	1	Gallon(GAL)	04-Sep-18
1498425	-	LOW VISCOSITY WHITE WATER BASED WEATHER	1	Gallon(GAL)	04-Sep-18
1560336	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560344	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560337	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560338	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560339	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560340	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560341	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560343	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560345	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560346	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560347	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560348	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560349	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560342	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1560350	-	AIR COMPRESSED	220	Cubic Feet(CF)	04-Sep-18
1560352	-	AIR COMPRESSED	220	Cubic Feet(CF)	04-Sep-18
1560351	-	AIR COMPRESSED	220	Cubic Feet(CF)	04-Sep-18
1560353	-	AIR COMPRESSED	220	Cubic Feet(CF)	04-Sep-18
1560354	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	04-Sep-18
1560355	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	04-Sep-18
1560356	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	04-Sep-18
1560357	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	04-Sep-18
1560358	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	04-Sep-18
1560359	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560360	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560250	-	Refrigerant R22	30	Pounds(LB)	04-Sep-18
1560251	-	Refrigerant R22	30	Pounds(LB)	04-Sep-18
1560252	-	Pentafluoroethane/Difluoromethane	30	Cubic Feet(CF)	04-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481125	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481146	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481147	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481138	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481144	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481143	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481142	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481141	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481145	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481139	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481126	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481137	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481136	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481135	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481134	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481133	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481132	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481131	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481130	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481129	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481128	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481127	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481140	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481149	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481148	-	Techspray 152a Duster	15	Ounces(OZ)	04-Sep-18
1481161	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481171	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481169	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481176	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481179	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481175	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481173	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481178	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481172	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481181	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481180	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481182	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481170	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481174	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481164	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481183	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481184	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481163	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481177	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481165	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481166	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481167	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481168	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481162	-	Sikasil 728 SL	29	Ounces(OZ)	04-Sep-18
1481217	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	04-Sep-18
1481220	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	04-Sep-18
1481219	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	04-Sep-18
1481218	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	04-Sep-18
1560271	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560282	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560281	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560279	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560280	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560275	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560272	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560276	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560274	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560273	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560277	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1560278	7440-59-7	Helium UHP	220	Cubic Feet(CF)	04-Sep-18
1481337	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481338	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481339	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481340	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481341	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481342	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481344	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481345	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481346	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481347	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481343	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481348	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481353	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481352	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481351	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481355	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481349	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481354	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481360	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481359	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481358	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481357	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481356	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1481350	-	Sikaflex¿2c NS/SL Part B	1.5	Gallon(GAL)	04-Sep-18
1560283	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560297	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560298	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560299	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560300	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560296	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560302	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560292	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560303	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560305	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560301	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560295	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560293	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560291	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560290	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560289	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560288	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560287	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560286	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560285	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560284	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560294	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1560304	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	04-Sep-18
1481383	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481398	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481384	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481390	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481387	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481386	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481385	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481388	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481412	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481389	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481391	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481392	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481393	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481394	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481395	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481396	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481397	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481399	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481407	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481409	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481410	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481411	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481400	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481408	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481406	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481405	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481404	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481403	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481402	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481401	-	MasterSeal NP 1 Gray	10.1	Ounces(OZ)	04-Sep-18
1481441	-	Zinsser Spray B-I-N	13	Ounces(OZ)	04-Sep-18
1481446	-	Zinsser Spray B-I-N	13	Ounces(OZ)	04-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481442	-	Zinsser Spray B-I-N	13	Ounces(OZ)	04-Sep-18
1481444	-	Zinsser Spray B-I-N	13	Ounces(OZ)	04-Sep-18
1481445	-	Zinsser Spray B-I-N	13	Ounces(OZ)	04-Sep-18
1481443	-	Zinsser Spray B-I-N	13	Ounces(OZ)	04-Sep-18
1498346	-	Zinsser Spray B-I-N	13	Ounces(OZ)	04-Sep-18
1498351	-	Zinsser Spray B-I-N	13	Ounces(OZ)	04-Sep-18
1498350	-	Zinsser Spray B-I-N	13	Ounces(OZ)	04-Sep-18
1498349	-	Zinsser Spray B-I-N	13	Ounces(OZ)	04-Sep-18
1498348	-	Zinsser Spray B-I-N	13	Ounces(OZ)	04-Sep-18
1498347	-	Zinsser Spray B-I-N	13	Ounces(OZ)	04-Sep-18
1560361	124-38-9	CARBON DIOXIDE GAS	50	Pounds(LB)	04-Sep-18
1560362	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	04-Sep-18
1481361	-	Sikaflex¿2c NS EZ Mix Part A limestone	1.5	Gallon(GAL)	04-Sep-18
1481369	-	Sikaflex¿2c NS EZ Mix Part A limestone	1.5	Gallon(GAL)	04-Sep-18
1481368	-	Sikaflex¿2c NS EZ Mix Part A limestone	1.5	Gallon(GAL)	04-Sep-18
1481362	-	Sikaflex¿2c NS EZ Mix Part A limestone	1.5	Gallon(GAL)	04-Sep-18
1481367	-	Sikaflex¿2c NS EZ Mix Part A limestone	1.5	Gallon(GAL)	04-Sep-18
1481366	-	Sikaflex¿2c NS EZ Mix Part A limestone	1.5	Gallon(GAL)	04-Sep-18
1481365	-	Sikaflex¿2c NS EZ Mix Part A limestone	1.5	Gallon(GAL)	04-Sep-18
1481364	-	Sikaflex¿2c NS EZ Mix Part A limestone	1.5	Gallon(GAL)	04-Sep-18
1481363	-	Sikaflex¿2c NS EZ Mix Part A limestone	1.5	Gallon(GAL)	04-Sep-18
1481371	-	Sikaflex¿2c NS EZ Mix Part A limestone	1.5	Gallon(GAL)	04-Sep-18
1481372	-	Sikaflex¿2c NS EZ Mix Part A limestone	1.5	Gallon(GAL)	04-Sep-18
1481370	-	Sikaflex¿2c NS EZ Mix Part A limestone	1.5	Gallon(GAL)	04-Sep-18
1523494	7631-99-4	SODIUM NITRATE	10000	Gram(GM)	05-Sep-18
1523495	7646-85-7	ZINC CHLORIDE	200	Gram(GM)	05-Sep-18
1523496	7646-85-7	ZINC CHLORIDE	200	Gram(GM)	05-Sep-18
1523613	76-05-1	TRIFLUOROACETIC ACID	100	Milliliter(ML)	05-Sep-18
1523614	76-05-1	TRIFLUOROACETIC ACID	100	Milliliter(ML)	05-Sep-18
1523616	76-05-1	TRIFLUOROACETIC ACID	100	Milliliter(ML)	05-Sep-18
1523615	76-05-1	TRIFLUOROACETIC ACID	100	Milliliter(ML)	05-Sep-18
1523617	75-05-8	ACETONITRILE ANHYDROUS	100	Milliliter(ML)	05-Sep-18
1523618	68-12-2	N N-DIMETHYLFORMAMIDE	100	Milliliter(ML)	05-Sep-18
1523619	73513-42-5	HEXANES	4	Liters(L)	05-Sep-18
1523622	73513-42-5	HEXANES	4	Liters(L)	05-Sep-18
1523620	73513-42-5	HEXANES	4	Liters(L)	05-Sep-18
1523623	73513-42-5	HEXANES	4	Liters(L)	05-Sep-18
1523621	73513-42-5	HEXANES	4	Liters(L)	05-Sep-18
1523624	73513-42-5	HEXANES	4	Liters(L)	05-Sep-18
1523625	73513-42-5	HEXANES	4	Liters(L)	05-Sep-18
1523626	73513-42-5	HEXANES	4	Liters(L)	05-Sep-18
1523627	2752-64-9	Mesaconitine	10	Milligram(MG)	05-Sep-18
1523628	2752-64-9	Mesaconitine	10	Milligram(MG)	05-Sep-18
1523720	-	Chemical Oxygen Demand (COD) Mercury-Free	25	Milliliter(ML)	05-Sep-18
1523724	-	Chemical Oxygen Demand (COD) Mercury-Free	25	Milliliter(ML)	05-Sep-18
1523723	-	Chemical Oxygen Demand (COD) Mercury-Free	25	Milliliter(ML)	05-Sep-18
1523725	-	Chemical Oxygen Demand (COD) Mercury-Free	25	Milliliter(ML)	05-Sep-18
1523722	-	Chemical Oxygen Demand (COD) Mercury-Free	25	Milliliter(ML)	05-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1523721	-	Chemical Oxygen Demand (COD) Mercury-Free	25	Milliliter(ML)	05-Sep-18
1523726	68410-23-1	VERSAMID 140	1	Gallon(GAL)	05-Sep-18
1523729	68410-23-1	VERSAMID 140	1	Gallon(GAL)	05-Sep-18
1523728	68410-23-1	VERSAMID 140	1	Gallon(GAL)	05-Sep-18
1523727	68410-23-1	VERSAMID 140	1	Gallon(GAL)	05-Sep-18
1523731	68410-23-1	VERSAMID 140	1	Gallon(GAL)	05-Sep-18
1523730	68410-23-1	VERSAMID 140	1	Gallon(GAL)	05-Sep-18
1523732	26628-22-8	Agencourt AMPure XP	60	Milliliter(ML)	05-Sep-18
1523733	460-40-2	3 3 3-Trifluoropropanal Contains condensation	5	Gram(GM)	05-Sep-18
1523734	460-40-2	3 3 3-Trifluoropropanal Contains condensation	5	Gram(GM)	05-Sep-18
1523735	-	HYDRAZOBENZENE	25	Gram(GM)	05-Sep-18
1524079	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524106	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524095	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524096	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524097	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524098	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524099	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524100	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524101	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524102	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524103	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524094	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524105	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524086	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524104	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524093	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524092	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524091	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524090	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524089	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524087	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524085	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524084	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524083	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524082	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524081	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524080	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524107	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524088	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524147	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524138	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524157	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524156	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524155	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524154	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524153	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524152	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524175	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524159	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524148	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524160	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524146	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524145	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524144	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524143	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524142	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524141	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524140	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524139	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524150	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524169	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524176	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524177	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524178	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524179	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524108	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524174	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524173	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524172	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524158	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524170	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524149	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524168	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524167	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524166	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524165	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524164	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524163	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524162	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524161	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524171	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524121	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524136	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524135	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524134	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524133	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524132	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524131	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524130	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524129	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524128	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524127	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524126	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524125	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524137	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524151	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524124	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524120	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524119	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524118	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524117	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524116	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524115	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524114	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524113	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524112	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524111	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524110	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524109	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524123	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524122	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524184	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524208	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524195	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524210	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524211	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524197	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524196	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524222	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524216	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524215	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524180	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524181	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524206	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524183	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524207	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524185	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524186	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524187	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524188	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524189	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524190	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524191	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524192	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524212	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524193	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524213	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524194	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524214	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524182	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524221	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524199	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524200	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524201	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524202	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524203	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524219	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524209	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524220	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524218	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524217	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524227	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524226	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524225	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524224	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524223	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524228	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524205	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524204	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1524198	88-89-1	PICRIC ACID	500	Gram(GM)	05-Sep-18
1458848	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	05-Sep-18
1458849	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	05-Sep-18
1458850	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	05-Sep-18
1458851	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	05-Sep-18
1458853	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	05-Sep-18
1458852	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	05-Sep-18
1522335	-	FORMULA 314-T	25	Pounds(LB)	05-Sep-18
1522339	-	FORMULA 314-T	25	Pounds(LB)	05-Sep-18
1522343	-	FORMULA 314-T	25	Pounds(LB)	05-Sep-18
1522336	-	FORMULA 314-T	25	Pounds(LB)	05-Sep-18
1522337	-	FORMULA 314-T	25	Pounds(LB)	05-Sep-18
1522338	-	FORMULA 314-T	25	Pounds(LB)	05-Sep-18
1522340	-	FORMULA 314-T	25	Pounds(LB)	05-Sep-18
1522341	-	FORMULA 314-T	25	Pounds(LB)	05-Sep-18
1522342	-	FORMULA 314-T	25	Pounds(LB)	05-Sep-18
1522346	-	MIL-A-3920 Optical Adhesive with Resiliency	1	Ounces(OZ)	05-Sep-18
1522347	-	NORLAND OPTICAL ADHESIVE 63	1	Ounces(OZ)	05-Sep-18
1523736	62-31-7	DOPAMINE HYDROCHLORIDE	25	Gram(GM)	05-Sep-18
1523737	62-31-7	DOPAMINE HYDROCHLORIDE	25	Gram(GM)	05-Sep-18
1523738	9004-74-4	POLY(ETHYLENE GLYCOL) METHYL ETHER	250	Gram(GM)	05-Sep-18
1523739	530-62-1	N N'-CARBONYLDIIMIDAZOLE	5	Gram(GM)	05-Sep-18
1523740	4519-28-2	Tetramethylphosphonium bromide	1	Gram(GM)	05-Sep-18
1523741	14630-40-1	BIS(TRIMETHYLSILYL)ACETYLENE	10	Gram(GM)	05-Sep-18
1523742	16029-98-4	IODOTRIMETHYLSILANE	25	Gram(GM)	05-Sep-18
1523743	840-65-3	DIMETHYL 2 6-NAPHTHALENE DICARBOXYLATE	25	Gram(GM)	05-Sep-18
1523744	840-65-3	DIMETHYL 2 6-NAPHTHALENE DICARBOXYLATE	25	Gram(GM)	05-Sep-18
1523745	840-65-3	DIMETHYL 2 6-NAPHTHALENE DICARBOXYLATE	25	Gram(GM)	05-Sep-18
1523746	6900-87-4	Hypaconitine	10	Milligram(MG)	05-Sep-18
1523747	40949-94-8	POTASSIUM BIS(TRIMETHYLSILYL)AMIDE	25	Gram(GM)	05-Sep-18
1523748	5144-89-8	1 10-PHENANTHROLINE MONOHYDRATE	25	Gram(GM)	05-Sep-18
1202866	-	SCOTCHCAST ELECTRICAL RESIN 281 [PART A]	1	Gallon(GAL)	05-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1202867	-	SCOTCHCAST ELECTRICAL RESIN 281 [PART B]	1	Gallon(GAL)	05-Sep-18
1202868	-	SCOTCHCAST ELECTRICAL RESIN 281 [PART A]	1	Gallon(GAL)	05-Sep-18
1202869	-	SCOTCHCAST ELECTRICAL RESIN 281 [PART B]	1	Gallon(GAL)	05-Sep-18
1202870	-	SCOTCHCAST ELECTRICAL RESIN 281 [PART A]	1	Gallon(GAL)	05-Sep-18
1202871	-	SCOTCHCAST ELECTRICAL RESIN 281 [PART B]	1	Gallon(GAL)	05-Sep-18
1523749	37451-68-6	TETRABUTYLAMMONIUM CHLORIDE HYDRATE	25	Gram(GM)	05-Sep-18
1523935	100-44-7	BENZYL CHLORIDE	50	Gram(GM)	05-Sep-18
1523936	613-90-1	Benzoyl cyanide	25	Gram(GM)	05-Sep-18
1523937	102-82-9	TRI-N-BUTYLAMINE	100	Milliliter(ML)	05-Sep-18
1523938	1338-24-5	NAPHTHENIC ACIDS	250	Milliliter(ML)	05-Sep-18
1523939	16961-25-4	Gold(III) chloride trihydrate	25	Gram(GM)	05-Sep-18
1523940	18497-13-7	CHLOROPLATINIC ACID HEXAHYDRATE	5	Gram(GM)	05-Sep-18
1523941	18497-13-7	CHLOROPLATINIC ACID HEXAHYDRATE	5	Gram(GM)	05-Sep-18
1523942	7647-10-1	PALLADIUM(II) CHLORIDE	5	Gram(GM)	05-Sep-18
1523943	7647-10-1	PALLADIUM(II) CHLORIDE	5	Gram(GM)	05-Sep-18
1523944	17455-13-9	18-CROWN-6	25	Gram(GM)	05-Sep-18
1523945	4045-44-7	1 2 3 4 5-PENTAMETHYLCYCLOPENTADIENE	5	Gram(GM)	05-Sep-18
1523946	4045-44-7	1 2 3 4 5-PENTAMETHYLCYCLOPENTADIENE	5	Gram(GM)	05-Sep-18
1523947	18583-60-3	POTASSIUM HYDROTRIS (1-PYRAZOLYL)BORATE	5	Gram(GM)	05-Sep-18
1523948	18583-60-3	POTASSIUM HYDROTRIS (1-PYRAZOLYL)BORATE	5	Gram(GM)	05-Sep-18
1523949	17567-17-8	Potassium tri(3 5-dimethyl-1-	5	Gram(GM)	05-Sep-18
1523950	1202-34-2	2 2'-DIPYRIDYLAMINE	25	Gram(GM)	05-Sep-18
1524007	326-91-0	THENOYLTRIFLUOROACETONE	25	Gram(GM)	05-Sep-18
1524008	13759-92-7	EUROPIUM(III) CHLORIDE HEXAHYDRATE	25	Gram(GM)	05-Sep-18
1524009	3978-81-2	4-TERT-BUTYLPYRIDINE	25	Gram(GM)	05-Sep-18
1524010	2001-45-8	TETRAPHENYLPHOSPHONIUM CHLORIDE	50	Gram(GM)	06-Sep-18
1560363	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Sep-18
1560370	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Sep-18
1560373	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Sep-18
1560372	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Sep-18
1560371	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Sep-18
1560364	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Sep-18
1560365	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Sep-18
1560366	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Sep-18
1560367	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Sep-18
1560369	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Sep-18
1560368	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Sep-18
1560374	7440-59-7	HELIUM	180	Cubic Feet(CF)	06-Sep-18
1560375	7440-59-7	HELIUM	180	Cubic Feet(CF)	06-Sep-18
1560376	7727-37-9	NITROGEN COMPRESSED GAS	180	Cubic Feet(CF)	06-Sep-18
1560377	7727-37-9	NITROGEN COMPRESSED GAS	180	Cubic Feet(CF)	06-Sep-18
1560378	-	Refrigerant R22	30	Pounds(LB)	06-Sep-18
1560380	-	Refrigerant R22	30	Pounds(LB)	06-Sep-18
1560379	-	Refrigerant R22	30	Pounds(LB)	06-Sep-18
1524011	56-34-8	TETRAETHYL AMMONIUM CHLORIDE	25	Gram(GM)	06-Sep-18
1524012	5445-17-0	Methyl 2-bromopropionate	200	Gram(GM)	06-Sep-18
1524013	1663-39-4	TERT-BUTYL ACRYLATE	100	Milliliter(ML)	06-Sep-18
1524014	1663-39-4	TERT-BUTYL ACRYLATE	100	Milliliter(ML)	06-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524015	79-10-7	ACRYLIC ACID	500	Gram(GM)	06-Sep-18
1524027	10170-68-0	CHROMIUM(III)CHLORIDE TETRAHYDROFURAN	10	Gram(GM)	06-Sep-18
1524028	-	NEODYMIUM STANDARD SOLUTION	125	Milliliter(ML)	06-Sep-18
1524029	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524047	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524056	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524055	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524054	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524053	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524052	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524051	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524050	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524048	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524059	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524046	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524045	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524044	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524043	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524042	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524041	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524040	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524049	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524067	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524073	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524077	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524039	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524074	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524072	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524071	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524070	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524057	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524068	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524058	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524066	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524065	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524064	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524063	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524062	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524061	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524060	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524076	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524069	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524032	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524038	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524075	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524078	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524030	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524031	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524033	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524034	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524037	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524036	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1524035	-	TRA-BOND F113	2	Gram(GM)	06-Sep-18
1458854	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	06-Sep-18
1458855	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	06-Sep-18
1458856	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	06-Sep-18
1458857	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	06-Sep-18
1458860	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	06-Sep-18
1458859	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	06-Sep-18
1458858	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	06-Sep-18
1560381	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560394	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560386	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560385	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560383	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560382	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560387	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560395	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560384	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560393	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560392	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560391	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560390	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560389	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560388	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Sep-18
1560396	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560426	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560425	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560424	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560423	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560421	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560432	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560420	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560422	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560427	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560428	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560429	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560419	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560431	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560409	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560433	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560434	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560436	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560438	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560439	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560430	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560408	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560397	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560398	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560399	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560400	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560401	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560402	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560403	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560404	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560405	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560412	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560407	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560418	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560437	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560440	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560411	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560410	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560413	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560414	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560415	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560416	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560417	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560406	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560442	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560443	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560444	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560445	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560441	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560435	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Sep-18
1560455	-	AIR COMPRESSED	220	Cubic Feet(CF)	06-Sep-18
1560459	-	AIR COMPRESSED	220	Cubic Feet(CF)	06-Sep-18
1560462	-	AIR COMPRESSED	220	Cubic Feet(CF)	06-Sep-18
1560460	-	AIR COMPRESSED	220	Cubic Feet(CF)	06-Sep-18
1560458	-	AIR COMPRESSED	220	Cubic Feet(CF)	06-Sep-18
1560457	-	AIR COMPRESSED	220	Cubic Feet(CF)	06-Sep-18
1560456	-	AIR COMPRESSED	220	Cubic Feet(CF)	06-Sep-18
1560461	-	AIR COMPRESSED	220	Cubic Feet(CF)	06-Sep-18
1560463	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560474	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560471	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560477	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560475	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560473	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560472	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560469	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560468	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560464	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560467	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560465	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560466	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560476	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1560470	-	Argon UHP	220	Cubic Feet(CF)	06-Sep-18
1522344	-	MicroC 2000	265	Gallon(GAL)	06-Sep-18
1522345	-	MicroC 2000	265	Gallon(GAL)	06-Sep-18
1523750	-	DOW CORNING 340 SILICONE HEAT SINK	142	Gram(GM)	06-Sep-18
1523751	-	DOW CORNING 340 SILICONE HEAT SINK	142	Gram(GM)	06-Sep-18
1523752	-	DOW CORNING 340 SILICONE HEAT SINK	142	Gram(GM)	06-Sep-18
1523753	-	DOW CORNING 340 SILICONE HEAT SINK	142	Gram(GM)	06-Sep-18
1523754	68083-19-2	Silicone Resin	1	Pint(PT)	06-Sep-18
1523756	68083-19-2	Silicone Resin	1	Pint(PT)	06-Sep-18
1523755	68083-19-2	Silicone Resin	1	Pint(PT)	06-Sep-18
1523757	68083-19-2	Silicone Resin	1	Pint(PT)	06-Sep-18
1523758	-	ALUMINUM STANDARD	1001	Milliliter(ML)	06-Sep-18
1523759	-	BARIUM STANDARD	100	Milliliter(ML)	06-Sep-18
1523760	7440-70-2	CALCIUM STANDARD SOLUTION	100	Milliliter(ML)	06-Sep-18
1523761	-	CERIUM STANDARD	100	Milliliter(ML)	06-Sep-18
1523762	-	CHROMIUM STANDARD	100	Milliliter(ML)	06-Sep-18
1523763	-	COPPER STANDARD SOLUTION	100	Milliliter(ML)	06-Sep-18
1523764	-	IRON STANDARD	100	Milliliter(ML)	06-Sep-18
1523765	-	MANGANESE STANDARD	100	Milliliter(ML)	06-Sep-18
1523766	-	NICKEL STANDARD SOLUTION	100	Milliliter(ML)	06-Sep-18
1523767	-	RUBIDIUM STANDARD SOLUTION	100	Milliliter(ML)	06-Sep-18
1523768	7440-24-6	STRONTIUM STANDARD SOLUTION	100	Milliliter(ML)	06-Sep-18
1523769	-	VANADIUM STANDARD SOLUTION	100	Milliliter(ML)	06-Sep-18
1523770	-	ZINC STANDARD SOLUTION	100	Milliliter(ML)	06-Sep-18
1523771	7440-38-2	ARSENIC STANDARD SOLUTION	100	Milliliter(ML)	06-Sep-18
1523772	-	TITANIUM STANDARD	100	Milliliter(ML)	06-Sep-18
1523773	-	LEAD STANDARD SOLUTION	100	Milliliter(ML)	06-Sep-18
1523774	75-05-8	ACETONITRILE ANHYDROUS	2	Liters(L)	06-Sep-18
1523780	-	Intellipack SmartFoam A	55	Gallon(GAL)	06-Sep-18
1523951	-	BATH FLUID UNISTAT HUBER DW-THERM -90	10	Liters(L)	06-Sep-18
1523952	-	BATH FLUID UNISTAT HUBER DW-THERM -90	10	Liters(L)	06-Sep-18
1523955	-	Uraplex	125	Milliliter(ML)	06-Sep-18
1523956	109-97-7	PYRROLE	258	Gram(GM)	06-Sep-18
1523959	109-97-7	PYRROLE	258	Gram(GM)	06-Sep-18
1523957	109-97-7	PYRROLE	258	Gram(GM)	06-Sep-18
1523958	109-97-7	PYRROLE	258	Gram(GM)	06-Sep-18
1523960	6223-78-5	2 5-Dichloro-2 5-dimethylhexane	100	Gram(GM)	06-Sep-18
1523961	613-31-0	9 10-DIHYDROANTHRACENE	25	Gram(GM)	06-Sep-18
1523962	613-31-0	9 10-DIHYDROANTHRACENE	25	Gram(GM)	06-Sep-18
1523963	106-65-0	SUCCINIC ACID DIMETHYL ESTER	100	Gram(GM)	06-Sep-18
1523968	107-83-5	HEXANE MIXTURE OF ISOMERS	4	Liters(L)	06-Sep-18
1523969	107-83-5	HEXANE MIXTURE OF ISOMERS	4	Liters(L)	06-Sep-18
1524016	21324-40-3	LITHIUM HEXAFLUOROPHOSPHATE 98%	100	Milliliter(ML)	06-Sep-18
1524017	21324-40-3	LITHIUM HEXAFLUOROPHOSPHATE 98%	100	Milliliter(ML)	06-Sep-18
1524018	-	MOBIL RARUS 829	5	Gram(GM)	06-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524019	-	Apiezon Grease; Type M	25	Gram(GM)	06-Sep-18
1524020	1336-21-6	AMMONIUM HYDROXIDE OPTIMA	250	Milliliter(ML)	06-Sep-18
1524021	9052-95-3	BIO-BEADS S-X3	100	Gram(GM)	06-Sep-18
1524022	-	SILICON STANDARD SOLUTION	100	Milliliter(ML)	06-Sep-18
1524023	-	PLATINUM PAINT FOR HIGH TEMPERATURE	10	Gram(GM)	06-Sep-18
1524024	-	PLATINUM PAINT FOR HIGH TEMPERATURE	10	Gram(GM)	06-Sep-18
1524025	-	PLATINUM PAINT THINNER	30	Milliliter(ML)	06-Sep-18
1458861	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	06-Sep-18
1458866	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	06-Sep-18
1458865	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	06-Sep-18
1458864	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	06-Sep-18
1458863	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	06-Sep-18
1458862	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	06-Sep-18
1453095	68989-21-9	MOLECULAR SIEVES TYPE 3A	250	Gram(GM)	10-Sep-18
1453094	-	ANTIMONY SULFIDE OXY RED	100	Gram(GM)	10-Sep-18
1453093	1493-13-6	TRIFLUOROMETHANE SULFONIC ACID	50	Milliliter(ML)	10-Sep-18
1453092	75-52-5	NITROMETHANE	2.5	Liters(L)	10-Sep-18
1453090	-	EPOXY RESIN PR2032	7.5	Pounds(LB)	10-Sep-18
1453089	7447-41-8	LITHIUM CHLORIDE GRANULAR	5	Gram(GM)	10-Sep-18
1453088	917-54-4	METHYLLITHIUM 1.6M IN DIETHYL ETHER	100	Milliliter(ML)	10-Sep-18
1453097	15684-36-3	Nickel(II) tetrafluoroborate hexahydrate	10	Gram(GM)	10-Sep-18
1453087	109-72-8	N-BUTYLLITHIUM 1.6M IN HEXANES	100	Milliliter(ML)	10-Sep-18
1453096	32001-55-1	HYDROGEN FLUORIDE-PYRIDINE	25	Gram(GM)	10-Sep-18
1453098	88-89-1	PICRIC ACID	100	Gram(GM)	10-Sep-18
1453091	-	AEROPOXY PH3660	2	Pounds(LB)	10-Sep-18
1523775	-	HYDROCHLORIC ACID 35-37%	2.5	Liters(L)	11-Sep-18
1523776	-	HYDROCHLORIC ACID 35-37%	2.5	Liters(L)	11-Sep-18
1523777	Multi	FAST DNA SPIN KIT FOR SOIL	50	Milliliter(ML)	11-Sep-18
1523778	Multi	FAST DNA SPIN KIT FOR SOIL	50	Milliliter(ML)	11-Sep-18
1523781	13494-98-9	YTTRIUM (III) NITRATE HEXAHYDRATE	100	Gram(GM)	11-Sep-18
1523782	13494-98-9	YTTRIUM (III) NITRATE HEXAHYDRATE	100	Gram(GM)	11-Sep-18
1523783	-	DIAMOND SUSPENSION	128	Ounces(OZ)	11-Sep-18
1523784	-	DIAMOND SUSPENSION	128	Ounces(OZ)	11-Sep-18
1523785	21679-31-2	CHROMIUM (III) ACETYLACETONATE	100	Gram(GM)	11-Sep-18
1523786	21679-31-2	CHROMIUM (III) ACETYLACETONATE	100	Gram(GM)	11-Sep-18
1523787	14024-48-7	COBALT(II) ACETYLACETONATE	100	Gram(GM)	11-Sep-18
1523788	7440-06-4	PLATINUM	5	Gram(GM)	11-Sep-18
1523789	7440-06-4	PLATINUM	5	Gram(GM)	11-Sep-18
1523790	593-84-0	FastRNA Pro Soil-Direct Kit	397.6	Milliliter(ML)	11-Sep-18
1523970	7773-01-5	MANGANESE(II) CHLORIDE	50	Gram(GM)	11-Sep-18
1523971	7773-01-5	MANGANESE(II) CHLORIDE	50	Gram(GM)	11-Sep-18
1523972	1314-36-9	YTTRIUM OXIDE	50	Gram(GM)	11-Sep-18
1523973	75-09-2	DICHLOROMETHANE	4	Liters(L)	11-Sep-18
1523980	75-09-2	DICHLOROMETHANE	4	Liters(L)	11-Sep-18
1523974	75-09-2	DICHLOROMETHANE	4	Liters(L)	11-Sep-18
1523975	75-09-2	DICHLOROMETHANE	4	Liters(L)	11-Sep-18
1523978	75-09-2	DICHLOROMETHANE	4	Liters(L)	11-Sep-18
1523977	75-09-2	DICHLOROMETHANE	4	Liters(L)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1523981	75-09-2	DICHLOROMETHANE	4	Liters(L)	11-Sep-18
1523982	75-09-2	DICHLOROMETHANE	4	Liters(L)	11-Sep-18
1523983	75-09-2	DICHLOROMETHANE	4	Liters(L)	11-Sep-18
1523984	75-09-2	DICHLOROMETHANE	4	Liters(L)	11-Sep-18
1523976	75-09-2	DICHLOROMETHANE	4	Liters(L)	11-Sep-18
1523979	75-09-2	DICHLOROMETHANE	4	Liters(L)	11-Sep-18
1523985	-	HYDROBROMIC ACID OPTIMA	1	Liters(L)	11-Sep-18
1523987	-	HYDROBROMIC ACID OPTIMA	1	Liters(L)	11-Sep-18
1523986	-	HYDROBROMIC ACID OPTIMA	1	Liters(L)	11-Sep-18
1523988	-	HYDROBROMIC ACID OPTIMA	1	Liters(L)	11-Sep-18
1523989	7647-01-0	HYDROCHLORIC ACID TRACE METAL-35%	500	Milliliter(ML)	11-Sep-18
1523991	7647-01-0	HYDROCHLORIC ACID TRACE METAL-35%	500	Milliliter(ML)	11-Sep-18
1523992	7647-01-0	HYDROCHLORIC ACID TRACE METAL-35%	500	Milliliter(ML)	11-Sep-18
1523993	7647-01-0	HYDROCHLORIC ACID TRACE METAL-35%	500	Milliliter(ML)	11-Sep-18
1523990	7647-01-0	HYDROCHLORIC ACID TRACE METAL-35%	500	Milliliter(ML)	11-Sep-18
1523994	7647-01-0	HYDROCHLORIC ACID TRACE METAL-35%	500	Milliliter(ML)	11-Sep-18
1524295	10031-22-8	LEAD BROMIDE	5	Gram(GM)	11-Sep-18
1524297	10031-22-8	LEAD BROMIDE	5	Gram(GM)	11-Sep-18
1524298	10031-22-8	LEAD BROMIDE	5	Gram(GM)	11-Sep-18
1524296	10031-22-8	LEAD BROMIDE	5	Gram(GM)	11-Sep-18
1524299	10031-22-8	LEAD BROMIDE	5	Gram(GM)	11-Sep-18
1524300	-	PHOSPHOROUS STANDARD	100	Milliliter(ML)	11-Sep-18
1524301	12037-01-3	TERBIUM (III IV) OXIDE	10	Gram(GM)	11-Sep-18
1458867	-	SODIUM BISULFITE 38-42%	2464	Pounds(LB)	11-Sep-18
1458868	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	11-Sep-18
1458872	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	11-Sep-18
1458869	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	11-Sep-18
1458870	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	11-Sep-18
1458871	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	11-Sep-18
1523629	12060-08-1	SCANDIUM(III) OXIDE	5	Gram(GM)	11-Sep-18
1523632	12060-08-1	SCANDIUM(III) OXIDE	5	Gram(GM)	11-Sep-18
1523631	12060-08-1	SCANDIUM(III) OXIDE	5	Gram(GM)	11-Sep-18
1523630	12060-08-1	SCANDIUM(III) OXIDE	5	Gram(GM)	11-Sep-18
1523633	1312-81-8	LANTHANUM OXIDE	100	Gram(GM)	11-Sep-18
1523634	1306-38-3	CERIUM(IV) OXIDE	50	Gram(GM)	11-Sep-18
1523635	12037-29-5	PRAESODYMIUM(III IV) OXIDE	50	Gram(GM)	11-Sep-18
1523636	1313-97-9	Neodymium(III) oxide REacton	100	Gram(GM)	11-Sep-18
1523637	12060-58-1	SAMARIUM(III) OXIDE	100	Gram(GM)	11-Sep-18
1523638	1308-96-9	EUROPIUM(III) OXIDE	25	Gram(GM)	11-Sep-18
1523639	1308-96-9	EUROPIUM(III) OXIDE	25	Gram(GM)	11-Sep-18
1523640	12064-62-9	GADOLINIUM(III) OXIDE	100	Gram(GM)	11-Sep-18
1523641	12037-01-3	TERBIUM (III IV) OXIDE	10	Gram(GM)	11-Sep-18
1523644	12037-01-3	TERBIUM (III IV) OXIDE	10	Gram(GM)	11-Sep-18
1523643	12037-01-3	TERBIUM (III IV) OXIDE	10	Gram(GM)	11-Sep-18
1523642	12037-01-3	TERBIUM (III IV) OXIDE	10	Gram(GM)	11-Sep-18
1523645	1308-87-8	DYSPROSIUM(III) OXIDE	25	Gram(GM)	11-Sep-18
1523646	1308-87-8	DYSPROSIUM(III) OXIDE	25	Gram(GM)	11-Sep-18
1523995	7646-75-5	Dimethylphenylsilanol sodium salt 97%	5	Gram(GM)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524229	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524241	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524247	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524252	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524251	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524250	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524239	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524248	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524230	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524246	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524245	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524244	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524243	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524249	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524240	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524238	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524237	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524236	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524235	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524234	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524233	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524232	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524231	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524242	64-17-5	ETHYL ALCOHOL 200 PROOF	2	Pint(PT)	11-Sep-18
1524253	12055-62-8	HOLMIUM OXIDE	50	Gram(GM)	11-Sep-18
1524254	12061-16-4	ERBIUM(III) OXIDE	25	Gram(GM)	11-Sep-18
1524255	12061-16-4	ERBIUM(III) OXIDE	25	Gram(GM)	11-Sep-18
1524256	12036-44-1	THULIUM OXIDE	5	Gram(GM)	11-Sep-18
1524257	12036-44-1	THULIUM OXIDE	5	Gram(GM)	11-Sep-18
1524258	12036-44-1	THULIUM OXIDE	5	Gram(GM)	11-Sep-18
1524259	12036-44-1	THULIUM OXIDE	5	Gram(GM)	11-Sep-18
1524260	12036-44-1	THULIUM OXIDE	5	Gram(GM)	11-Sep-18
1524261	1314-37-0	YTTERBIUM(III) OXIDE	50	Gram(GM)	11-Sep-18
1524262	12032-20-1	LUTETIUM(III) OXIDE	5	Gram(GM)	11-Sep-18
1453099	-	T.H.E. DESICCANT INDICATING GRADE	500	Gram(GM)	11-Sep-18
1453101	75-15-0	CARBON DISULFIDE	100	Milliliter(ML)	11-Sep-18
1453102	-	SODIUM HYDROXIDE SOLUTIONS	4	Liters(L)	11-Sep-18
1524263	12032-20-1	LUTETIUM(III) OXIDE	5	Gram(GM)	11-Sep-18
1524264	12032-20-1	LUTETIUM(III) OXIDE	5	Gram(GM)	11-Sep-18
1524266	12032-20-1	LUTETIUM(III) OXIDE	5	Gram(GM)	11-Sep-18
1524265	12032-20-1	LUTETIUM(III) OXIDE	5	Gram(GM)	11-Sep-18
1453103	999-97-3	HEXAMETHYLDISILAZANE	25	Milliliter(ML)	11-Sep-18
904268	-	1-BROMO-4-FLUOROBENZENE 99.2-101PPM IN	150	Cubic Feet(CF)	11-Sep-18
904294	-	PROPYLENE CARBONATE 5% IN CARBON DIOXIDE	220	Cubic Feet(CF)	11-Sep-18
1497386	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	11-Sep-18
1524267	10031-22-8	LEAD BROMIDE	100	Gram(GM)	11-Sep-18
1524268	10031-22-8	LEAD BROMIDE	100	Gram(GM)	11-Sep-18
1524269	10031-22-8	LEAD BROMIDE	100	Gram(GM)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524270	10031-22-8	LEAD BROMIDE	100	Gram(GM)	11-Sep-18
1524271	10031-22-8	LEAD BROMIDE	100	Gram(GM)	11-Sep-18
1497389	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	11-Sep-18
904276	-	2.9% Hydrogen/Bal. Argon	220	Cubic Feet(CF)	11-Sep-18
1497394	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	11-Sep-18
1497387	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	11-Sep-18
1497390	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	11-Sep-18
1497391	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	11-Sep-18
1497392	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	11-Sep-18
1497393	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	11-Sep-18
1497395	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	11-Sep-18
1497388	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	11-Sep-18
1453112	652-31-3	2 3 4 5 6-Pentafluorobenzamide	5	Gram(GM)	11-Sep-18
1453113	652-31-3	2 3 4 5 6-Pentafluorobenzamide	5	Gram(GM)	11-Sep-18
1453117	652-31-3	2 3 4 5 6-Pentafluorobenzamide	5	Gram(GM)	11-Sep-18
1453116	652-31-3	2 3 4 5 6-Pentafluorobenzamide	5	Gram(GM)	11-Sep-18
1453114	652-31-3	2 3 4 5 6-Pentafluorobenzamide	5	Gram(GM)	11-Sep-18
1453115	652-31-3	2 3 4 5 6-Pentafluorobenzamide	5	Gram(GM)	11-Sep-18
1524272	6876-37-5	Methylammonium Bromide	10	Gram(GM)	11-Sep-18
1524274	6876-37-5	Methylammonium Bromide	10	Gram(GM)	11-Sep-18
1524273	6876-37-5	Methylammonium Bromide	10	Gram(GM)	11-Sep-18
1524276	6876-37-5	Methylammonium Bromide	10	Gram(GM)	11-Sep-18
1524275	6876-37-5	Methylammonium Bromide	10	Gram(GM)	11-Sep-18
1524277	75-09-2	DICHLOROMETHANE	2	Liters(L)	11-Sep-18
1453118	68683-18-1	SILVER NEODECANOATE 25% IN XYLENE	25	Gram(GM)	11-Sep-18
1524278	13446-03-2	MANGANESE(II) BROMIDE	100	Gram(GM)	11-Sep-18
1524279	554-95-0	TRIMESIC ACID	100	Gram(GM)	11-Sep-18
1453119	584-84-9	TOLUENE-2 4-DIISOCYANATE	250	Gram(GM)	11-Sep-18
1524280	58-85-5	BIOTIN	1	Gram(GM)	11-Sep-18
1524281	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	11-Sep-18
1524285	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	11-Sep-18
1524286	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	11-Sep-18
1524284	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	11-Sep-18
1524283	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	11-Sep-18
1524282	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	11-Sep-18
1524287	7446-20-0	ZINC SULFATE ACS	3	Kilograms(KG)	11-Sep-18
1524290	7446-20-0	ZINC SULFATE ACS	3	Kilograms(KG)	11-Sep-18
1524291	7446-20-0	ZINC SULFATE ACS	3	Kilograms(KG)	11-Sep-18
1524289	7446-20-0	ZINC SULFATE ACS	3	Kilograms(KG)	11-Sep-18
1524288	7446-20-0	ZINC SULFATE ACS	3	Kilograms(KG)	11-Sep-18
1524292	7446-20-0	ZINC SULFATE ACS	3	Kilograms(KG)	11-Sep-18
1524293	7757-83-7	SODIUM SULFITE	500	Gram(GM)	11-Sep-18
1524294	67-63-0	ISOPROPYL ALCOHOL	5	Gallon(GAL)	11-Sep-18
1524302	Multi	FAST DNA SPIN KIT FOR SOIL	50	Milliliter(ML)	11-Sep-18
1524304	Multi	FAST DNA SPIN KIT FOR SOIL	50	Milliliter(ML)	11-Sep-18
1524305	Multi	FAST DNA SPIN KIT FOR SOIL	50	Milliliter(ML)	11-Sep-18
1524303	Multi	FAST DNA SPIN KIT FOR SOIL	50	Milliliter(ML)	11-Sep-18
1524306	67-63-0	ISOPROPYL ALCOHOL	20	Liters(L)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524307	1317-61-9	IRON(II III) OXIDE	25	Gram(GM)	11-Sep-18
1524308	1309-48-4	MAGNESIUM OXIDE	25	Gram(GM)	11-Sep-18
1524309	1344-28-1	ALUMINUM OXIDE	100	Gram(GM)	11-Sep-18
1524310	1304-76-3	BISMUTH(III) OXIDE	25	Gram(GM)	11-Sep-18
1524313	67-64-1	ACETONE	4	Liters(L)	11-Sep-18
1524318	67-64-1	ACETONE	4	Liters(L)	11-Sep-18
1524317	67-64-1	ACETONE	4	Liters(L)	11-Sep-18
1524319	67-64-1	ACETONE	4	Liters(L)	11-Sep-18
1524316	67-64-1	ACETONE	4	Liters(L)	11-Sep-18
1524314	67-64-1	ACETONE	4	Liters(L)	11-Sep-18
1524315	67-64-1	ACETONE	4	Liters(L)	11-Sep-18
1524320	67-64-1	ACETONE	4	Liters(L)	11-Sep-18
1524321	14243-64-2	CHLORO(TRIPEHNYLPHOSPHINE)GOLD(I) 99.9	25	Gram(GM)	11-Sep-18
1524322	4724-47-4	N-OCTADECYLPHOSPHONIC ACID	1	Gram(GM)	11-Sep-18
1524326	4724-47-4	N-OCTADECYLPHOSPHONIC ACID	1	Gram(GM)	11-Sep-18
1524323	4724-47-4	N-OCTADECYLPHOSPHONIC ACID	1	Gram(GM)	11-Sep-18
1524324	4724-47-4	N-OCTADECYLPHOSPHONIC ACID	1	Gram(GM)	11-Sep-18
1524325	4724-47-4	N-OCTADECYLPHOSPHONIC ACID	1	Gram(GM)	11-Sep-18
1524327	69227-93-6	N-DODECYL-B-D-MALTOPYRANOSIDE	25	Gram(GM)	11-Sep-18
1453120	1308-06-1	COBALT OXIDE	100	Gram(GM)	11-Sep-18
1497396	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497403	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497397	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497409	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497408	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497407	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497406	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497404	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497402	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497401	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497400	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497399	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497398	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1497405	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	11-Sep-18
1148295	7787-69-1	CESIUM BROMIDE	1	Kilograms(KG)	11-Sep-18
1453121	7473-98-5	2-Hydroxy-2-methylpropiophenone	50	Milliliter(ML)	11-Sep-18
1453122	106797-53-9	2-Hydroxy-4'-(2-hydroxyethoxy)-2-	10	Gram(GM)	11-Sep-18
1497410	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	11-Sep-18
1497412	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	11-Sep-18
1497411	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	11-Sep-18
1453123	-	FOMBLIN 16/6	1	Kilograms(KG)	11-Sep-18
1453124	-	HIGH VACUUM GREASE	150	Gram(GM)	11-Sep-18
1453125	-	HIGH VACUUM GREASE	150	Gram(GM)	11-Sep-18
1524328	139361-84-5	HEGA-10 Anagrade	25	Gram(GM)	11-Sep-18
1524329	1643-20-5	N N-DIMETHYLDODECYLAMINE N-OXIDE	25	Gram(GM)	11-Sep-18
1497413	-	AW 32 HYDRAULIC FLUID	5	Gallon(GAL)	11-Sep-18
1524330	17567-17-8	Potassium tri(3 5-dimethyl-1-	5	Gram(GM)	11-Sep-18
1453126	1310-73-2	SODIUM HYDROXIDE SOLUTION	1	Liters(L)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524367	67-56-1	METHANOL OPTIMA	1	Liters(L)	11-Sep-18
1524372	67-56-1	METHANOL OPTIMA	1	Liters(L)	11-Sep-18
1524368	67-56-1	METHANOL OPTIMA	1	Liters(L)	11-Sep-18
1524369	67-56-1	METHANOL OPTIMA	1	Liters(L)	11-Sep-18
1524371	67-56-1	METHANOL OPTIMA	1	Liters(L)	11-Sep-18
1524370	67-56-1	METHANOL OPTIMA	1	Liters(L)	11-Sep-18
1524373	75-05-8	ACETONITRILE OPTIMA	4	Liters(L)	11-Sep-18
1524376	75-05-8	ACETONITRILE OPTIMA	4	Liters(L)	11-Sep-18
1524375	75-05-8	ACETONITRILE OPTIMA	4	Liters(L)	11-Sep-18
1524374	75-05-8	ACETONITRILE OPTIMA	4	Liters(L)	11-Sep-18
1524377	-	SULFURIC ACID SOLUTION	1	Liters(L)	11-Sep-18
1524380	-	SULFURIC ACID SOLUTION	1	Liters(L)	11-Sep-18
1524379	-	SULFURIC ACID SOLUTION	1	Liters(L)	11-Sep-18
1524381	-	SULFURIC ACID SOLUTION	1	Liters(L)	11-Sep-18
1524382	-	SULFURIC ACID SOLUTION	1	Liters(L)	11-Sep-18
1524378	-	SULFURIC ACID SOLUTION	1	Liters(L)	11-Sep-18
1453127	-	Acetone	1	Gallon(GAL)	11-Sep-18
1497414	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Sep-18
1497415	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Sep-18
1497417	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Sep-18
1497416	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Sep-18
1453128	54-42-2	5-IODO-2'-DEOXYURIDINE (IDU)	250	Gram(GM)	11-Sep-18
1453144	54-42-2	5-IODO-2'-DEOXYURIDINE (IDU)	250	Gram(GM)	11-Sep-18
1453129	7697-37-2	NITRIC ACID	2.5	Liters(L)	11-Sep-18
913070	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Sep-18
1453130	7697-37-2	NITRIC ACID	2.5	Liters(L)	11-Sep-18
1453131	7697-37-2	NITRIC ACID	2.5	Liters(L)	11-Sep-18
1453132	61-82-5	3-AMINO-1H-1 2 4-TRIAZOLE	500	Gram(GM)	11-Sep-18
1497418	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1497419	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1497424	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1497423	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1497422	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1497421	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1497425	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1497420	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1497426	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1497427	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1497428	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1497429	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1497430	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Sep-18
1453133	-	FOMBLIN PERFLUOROPOLYETHER VACUUM	8	Kilograms(KG)	11-Sep-18
1524439	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524472	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524469	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524470	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524471	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524468	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524473	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524474	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524475	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524478	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524465	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524477	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524453	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524440	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524476	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524442	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524443	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524444	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524445	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524446	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524447	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524448	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524449	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524450	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524467	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524452	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524459	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524441	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524464	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524463	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524462	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524451	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524460	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524466	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524458	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524457	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524456	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524455	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524454	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524461	7631-86-9	SNAP KP-SIL	10	Gram(GM)	11-Sep-18
1524479	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524499	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524511	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524502	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524504	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524505	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524506	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524507	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524508	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524497	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524510	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524498	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524512	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524513	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524514	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524515	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524516	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524517	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524518	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524509	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524490	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524481	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524482	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524483	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524484	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524485	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524486	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524487	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524500	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524489	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524501	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524491	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524492	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524493	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524494	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524495	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524496	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524480	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524488	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524503	7631-86-9	SNAP KP-SIL	25	Gram(GM)	11-Sep-18
1524519	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1497431	-	767 ANTI-SEIZE LUBRICANT	1	Pounds(LB)	11-Sep-18
1497432	-	767 ANTI-SEIZE LUBRICANT	1	Pounds(LB)	11-Sep-18
1524528	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524541	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524540	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524539	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524538	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524537	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524536	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524534	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524532	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524531	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524542	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524529	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524535	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524527	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524526	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524525	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524524	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524523	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524522	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524521	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524520	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524530	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524551	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524558	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524557	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524556	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524555	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524554	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524553	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524543	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524533	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524550	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524549	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524548	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524547	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524546	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524545	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524544	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1524552	7631-86-9	SNAP KP-SIL	50	Gram(GM)	11-Sep-18
1497433	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
1497444	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
1497443	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
1497442	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
1497441	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
1497440	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
1497438	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
1497437	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
1497436	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
1497435	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
1497434	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
1497445	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
1497439	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	11-Sep-18
904285	-	METHANE 3.05% HYDROGEN 3.04% BALANCE	220	Cubic Feet(CF)	11-Sep-18
1524311	-	Lenox ProTool Lube	14.5	Ounces(OZ)	11-Sep-18
1524312	-	Lenox ProTool Lube	14.5	Ounces(OZ)	11-Sep-18
1453145	652-31-3	2 3 4 5 6-Pentafluorobenzamide	25	Gram(GM)	11-Sep-18
1453148	652-31-3	2 3 4 5 6-Pentafluorobenzamide	25	Gram(GM)	11-Sep-18
1453147	652-31-3	2 3 4 5 6-Pentafluorobenzamide	25	Gram(GM)	11-Sep-18
1453146	652-31-3	2 3 4 5 6-Pentafluorobenzamide	25	Gram(GM)	11-Sep-18
1458055	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458060	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458061	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458062	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458059	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458064	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458065	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458066	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1458067	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458068	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458069	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458063	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458058	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458077	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458056	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458079	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458070	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458073	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458074	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458075	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458076	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458071	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458078	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458057	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458072	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1497446	-	O¿REILLY PREMIUM ATF TYPE F	1	Quarts(QT)	11-Sep-18
1497447	-	O¿REILLY PREMIUM ATF TYPE F	1	Quarts(QT)	11-Sep-18
1497449	-	O¿REILLY PREMIUM ATF TYPE F	1	Quarts(QT)	11-Sep-18
1497450	-	O¿REILLY PREMIUM ATF TYPE F	1	Quarts(QT)	11-Sep-18
1497451	-	O¿REILLY PREMIUM ATF TYPE F	1	Quarts(QT)	11-Sep-18
1497452	-	O¿REILLY PREMIUM ATF TYPE F	1	Quarts(QT)	11-Sep-18
1497453	-	O¿REILLY PREMIUM ATF TYPE F	1	Quarts(QT)	11-Sep-18
1497448	-	O¿REILLY PREMIUM ATF TYPE F	1	Quarts(QT)	11-Sep-18
1497454	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1458080	-	HIGH VACUUM GREASE	150	Gram(GM)	11-Sep-18
1458081	-	HIGH-TEMP RTV SILICONE GASKET MAKER	85	Gram(GM)	11-Sep-18
1458092	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458093	-	INSTANT ADHESIVE	3	Gram(GM)	11-Sep-18
1458082	-	Chip Quik Lead Free Solder Paste Series:	35	Gram(GM)	11-Sep-18
1458083	-	Chip Quik Lead Free Solder Paste Series:	35	Gram(GM)	11-Sep-18
1524559	-	KP-C18-HS	10	Gram(GM)	11-Sep-18
1497489	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497482	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497483	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497473	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497484	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497472	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497485	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497486	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497474	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497488	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497475	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497490	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497481	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497491	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497487	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497465	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497459	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497460	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497461	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497462	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497480	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497456	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497455	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497457	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497463	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497464	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497479	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497476	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497458	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497478	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497466	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497471	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497470	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497469	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497468	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497467	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1497477	-	Parts Plus Type F ATF	1	Quarts(QT)	11-Sep-18
1524560	-	KP-C18-HS	10	Gram(GM)	11-Sep-18
1458084	-	JB KWIK	2	Ounces(OZ)	11-Sep-18
1524561	-	KP-C18-HS	25	Gram(GM)	11-Sep-18
1524562	-	KP-C18-HS	25	Gram(GM)	11-Sep-18
1524563	-	KP-C18-HS	50	Gram(GM)	11-Sep-18
1524564	-	KP-C18-HS	50	Gram(GM)	11-Sep-18
1458086	-	Aerosil Hydrophobic Amorphous Fumed silica	1	Quarts(QT)	11-Sep-18
1458087	-	3M SCOTCHLITE GLASS BUBBLES	1.4	Pounds(LB)	11-Sep-18
1458873	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	11-Sep-18
1497492	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Sep-18
1497493	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Sep-18
1497494	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Sep-18
1458094	10025-87-3	PHOSPHORUS OXYCHLORIDE	4	Kilograms(KG)	11-Sep-18
1458095	-	Sodium Reference Electrode Filling Solution	60	Milliliter(ML)	11-Sep-18
1458096	-	Sodium Reference Electrode Filling Solution	60	Milliliter(ML)	11-Sep-18
1497495	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	11-Sep-18
1458097	-	BUFFER SOLUTION PH 10.00	20	Milliliter(ML)	11-Sep-18
1497497	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	11-Sep-18
1497496	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	11-Sep-18
1458098	-	BUFFER SOLUTION PH 4.01	20	Milliliter(ML)	11-Sep-18
1458099	-	BUFFER SOLUTION PH 7.00	20	Milliliter(ML)	11-Sep-18
1497498	-	HEAVY DUTY BRAKE FLUID DOT3	1	Quarts(QT)	11-Sep-18
1458100	-	ELECTRODE RINSE SOLUTION	20	Milliliter(ML)	11-Sep-18
1497499	-	HEAVY DUTY BRAKE FLUID DOT3	1	Quarts(QT)	11-Sep-18
1497500	-	Parts Plus Power Steering Fld	1	Quarts(QT)	11-Sep-18
1497501	-	3M Rubberized Undercoating Black PN08883	19.7	Ounces(OZ)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497502	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	11-Sep-18
1497503	-	Ultratane Butane Fuel	5.82	Ounces(OZ)	11-Sep-18
1458089	-	DOW CORNING F CATALYST	100	Gram(GM)	11-Sep-18
1458091	-	SE1700 2-Part Translucent 10:1 Heat Cure	1	Kilograms(KG)	11-Sep-18
1498428	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	11-Sep-18
1498431	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	11-Sep-18
1498429	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	11-Sep-18
1498432	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	11-Sep-18
1498430	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	11-Sep-18
1498434	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	11-Sep-18
1498435	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	11-Sep-18
1498433	-	Cal-Green (4190-01 4190-08)	1	Gallon(GAL)	11-Sep-18
1498436	-	CAL-BLUE PLUS	32	Ounces(OZ)	11-Sep-18
1498444	-	CAL-BLUE PLUS	32	Ounces(OZ)	11-Sep-18
1498447	-	CAL-BLUE PLUS	32	Ounces(OZ)	11-Sep-18
1498446	-	CAL-BLUE PLUS	32	Ounces(OZ)	11-Sep-18
1498440	-	CAL-BLUE PLUS	32	Ounces(OZ)	11-Sep-18
1498439	-	CAL-BLUE PLUS	32	Ounces(OZ)	11-Sep-18
1498438	-	CAL-BLUE PLUS	32	Ounces(OZ)	11-Sep-18
1498443	-	CAL-BLUE PLUS	32	Ounces(OZ)	11-Sep-18
1498442	-	CAL-BLUE PLUS	32	Ounces(OZ)	11-Sep-18
1498441	-	CAL-BLUE PLUS	32	Ounces(OZ)	11-Sep-18
1498437	-	CAL-BLUE PLUS	32	Ounces(OZ)	11-Sep-18
1498445	-	CAL-BLUE PLUS	32	Ounces(OZ)	11-Sep-18
1498448	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498455	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498449	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498450	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498451	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498452	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498453	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498454	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498456	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498457	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498458	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498459	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498460	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498461	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498462	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498463	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498464	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498466	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498467	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498465	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498538	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498539	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	11-Sep-18
1498468	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498500	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498477	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498492	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498493	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498494	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498495	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498496	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498497	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498490	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498499	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498489	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498501	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498502	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498503	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498504	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498505	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498506	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498507	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498508	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498498	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498480	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498470	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498471	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498472	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498473	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498474	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498475	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498476	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498491	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498479	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498469	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498481	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498482	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498483	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498484	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498485	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498486	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498487	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498488	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498478	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498523	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498537	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498536	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498535	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498534	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498533	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498532	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498531	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498530	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498529	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498528	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498527	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498526	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498524	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498509	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498511	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498512	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498513	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498514	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498515	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498525	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498517	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498522	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498518	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498519	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498510	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498520	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498521	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498516	-	PSX 700A Clear Coat Resin	1	Gallon(GAL)	11-Sep-18
1498540	-	PSX 700 WHITE RESIN	1	Gallon(GAL)	11-Sep-18
1498543	-	PSX 700 WHITE RESIN	1	Gallon(GAL)	11-Sep-18
1498542	-	PSX 700 WHITE RESIN	1	Gallon(GAL)	11-Sep-18
1498541	-	PSX 700 WHITE RESIN	1	Gallon(GAL)	11-Sep-18
1498312	-	Sikalastic 720 Base Part B	1	Gallon(GAL)	11-Sep-18
1498313	-	Sikalastic 720 Base Part B	1	Gallon(GAL)	11-Sep-18
1498591	-	Sikalastic 745 AL Part B	0.4	Gallon(GAL)	11-Sep-18
1498594	-	Sikalastic 745 AL Part B	0.4	Gallon(GAL)	11-Sep-18
1498593	-	Sikalastic 745 AL Part B	0.4	Gallon(GAL)	11-Sep-18
1498592	-	Sikalastic 745 AL Part B	0.4	Gallon(GAL)	11-Sep-18
1498595	-	Sikalastic 720 Base Part A	4	Gallon(GAL)	11-Sep-18
1498596	-	Sikalastic 720 Base Part A	4	Gallon(GAL)	11-Sep-18
1498598	-	Sikalastic 720 Base Part A	4	Gallon(GAL)	11-Sep-18
1498597	-	Sikalastic 720 Base Part A	4	Gallon(GAL)	11-Sep-18
1524331	7775-27-1	SODIUM PERSULFATE	500	Gram(GM)	12-Sep-18
1524332	1310-73-2	SODIUM HYDROXIDE	1	Liters(L)	12-Sep-18
1524333	7697-37-2	NITRIC ACID	500	Milliliter(ML)	12-Sep-18
1524334	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	12-Sep-18
1524335	109-99-9	TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	12-Sep-18
1524337	109-99-9	TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	12-Sep-18
1524336	109-99-9	TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	12-Sep-18
1524338	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	12-Sep-18
1524339	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	12-Sep-18
1524340	109-66-0	N-PENTANE	1	Liters(L)	12-Sep-18
1524341	109-66-0	N-PENTANE	1	Liters(L)	12-Sep-18
1524342	109-66-0	N-PENTANE	1	Liters(L)	12-Sep-18
1524343	7705-08-0	IRON(III) CHLORIDE	1	Kilograms(KG)	12-Sep-18
1524344	1308-06-1	COBALT(II III) OXIDE	25	Gram(GM)	12-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524345	6066-82-6	N-HYDROXYSUCCINIMIDE	100	Gram(GM)	12-Sep-18
1524346	538-75-0	N N'-DICYCLOHEXYLCARBODIIMIDE	25	Gram(GM)	12-Sep-18
1524347	7439-98-7	MOLYBDENUM POWDER	5	Gram(GM)	12-Sep-18
1524348	99685-96-8	FULLERENE POWDER	250	Milligram(MG)	12-Sep-18
1524349	-	PTFE RELEASE AGENT MS-122DF	14	Ounces(OZ)	12-Sep-18
1524352	-	PTFE RELEASE AGENT MS-122DF	14	Ounces(OZ)	12-Sep-18
1524351	-	PTFE RELEASE AGENT MS-122DF	14	Ounces(OZ)	12-Sep-18
1524350	-	PTFE RELEASE AGENT MS-122DF	14	Ounces(OZ)	12-Sep-18
1524353	15630-89-4	SODIUM PERCARBONATE	500	Gram(GM)	12-Sep-18
1524383	7646-69-7	SODIUM HYDRIDE DRY 95%	50	Gram(GM)	12-Sep-18
1524385	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	12-Sep-18
1524386	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	12-Sep-18
1524387	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	12-Sep-18
1524388	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	12-Sep-18
1524389	75-09-2	DriSolv Dichloromethane Anhydrous	1	Liters(L)	12-Sep-18
1524390	75-09-2	DriSolv Dichloromethane Anhydrous	1	Liters(L)	12-Sep-18
1524391	75-09-2	DriSolv Dichloromethane Anhydrous	1	Liters(L)	12-Sep-18
1524392	67-68-5	Quant-iT dsDNA Assay Kit high sensitivity	255	Milliliter(ML)	12-Sep-18
1524393	-	Neurobasal Medium	500	Milliliter(ML)	12-Sep-18
1524394	12032-20-1	LUTETIUM(III) OXIDE	5	Gram(GM)	12-Sep-18
1524395	7440-20-2	SCANDIUM POWDER	2	Gram(GM)	12-Sep-18
1524396	7440-65-5	YTTRIUM	25	Gram(GM)	12-Sep-18
1524397	7440-45-1	CERIUM CHIP 99.9	100	Gram(GM)	12-Sep-18
1524398	7440-10-0	PRASEODYMIUM	25	Gram(GM)	12-Sep-18
1524399	7440-00-8	NEODYMIUM	25	Gram(GM)	12-Sep-18
1524400	7440-19-9	SAMARIUM	50	Gram(GM)	12-Sep-18
1524401	7440-53-1	EUROPIUM	5	Gram(GM)	12-Sep-18
1524402	7440-54-2	GADOLINIUM	25	Gram(GM)	12-Sep-18
1524403	7440-27-9	TERBIUM	5	Gram(GM)	12-Sep-18
1524404	7429-91-6	DYSPROSIUM	25	Gram(GM)	12-Sep-18
1524405	7440-60-0	Holmium	10	Gram(GM)	12-Sep-18
1524406	7440-52-0	ERBIUM	25	Gram(GM)	12-Sep-18
1524407	7440-30-4	THULIUM	5	Gram(GM)	12-Sep-18
1524408	7440-64-4	YTTERBIUM	25	Gram(GM)	12-Sep-18
1524409	7439-94-3	LUTETIUM	1	Gram(GM)	12-Sep-18
1524410	1314-36-9	YITTRIUM (III) OXIDE	100	Gram(GM)	12-Sep-18
1524411	1312-81-8	LANTHANUM III OXIDE	250	Gram(GM)	12-Sep-18
1524412	1313-97-9	Neodymium(III) oxide REacton	250	Gram(GM)	12-Sep-18
1524413	12060-58-1	SAMARIUM(III) OXIDE	500	Gram(GM)	12-Sep-18
1524414	12064-62-9	GADOLINIUM(III) OXIDE	500	Gram(GM)	12-Sep-18
1524415	12037-01-3	TERBIUM(III IV) OXIDE	25	Gram(GM)	12-Sep-18
1524416	1308-87-8	DYSPROSIUM(III) OXIDE	100	Gram(GM)	12-Sep-18
1524417	12055-62-8	HOLMIUM OXIDE	25	Gram(GM)	12-Sep-18
1524418	12036-44-1	THULIUM OXIDE	1	Gram(GM)	12-Sep-18
1524419	12055-62-8	HOLMIUM OXIDE	25	Gram(GM)	12-Sep-18
1524420	1306-38-3	CERIUM (IV) OXIDE 99.9%	1	Kilograms(KG)	12-Sep-18
1524421	12037-29-5	PRASEODYMIUM(III IV) OXIDE	250	Gram(GM)	12-Sep-18
1524422	-	TRYPSIN-EDTA	500	Milliliter(ML)	12-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524423	-	TRYPSIN-EDTA	500	Milliliter(ML)	12-Sep-18
1524438	7440-43-9	CADMIUM STANDARD SOLUTION	125	Milliliter(ML)	12-Sep-18
1317656	110-99-6	DIGLYCOLIC ACID	25	Gram(GM)	12-Sep-18
1317647	1313-60-6	SODIUM PEROXIDE	500	Gram(GM)	12-Sep-18
1453100	1333-86-4	CARBON BLACK	500	Gram(GM)	12-Sep-18
1453104	101513-77-3	3-Chloro-2 4 5-trifluorobenzoic Acid	25	Gram(GM)	12-Sep-18
1453106	101513-77-3	3-Chloro-2 4 5-trifluorobenzoic Acid	25	Gram(GM)	12-Sep-18
1453105	101513-77-3	3-Chloro-2 4 5-trifluorobenzoic Acid	25	Gram(GM)	12-Sep-18
1453107	101513-77-3	3-Chloro-2 4 5-trifluorobenzoic Acid	25	Gram(GM)	12-Sep-18
1453108	652-03-9	Tetrafluorophthalic Acid	25	Gram(GM)	12-Sep-18
1453111	652-03-9	Tetrafluorophthalic Acid	25	Gram(GM)	12-Sep-18
1453110	652-03-9	Tetrafluorophthalic Acid	25	Gram(GM)	12-Sep-18
1453109	652-03-9	Tetrafluorophthalic Acid	25	Gram(GM)	12-Sep-18
904277	-	30PPM WATER BALANCE NITROGEN	152	Cubic Feet(CF)	12-Sep-18
1524003	10028-22-5	FERRIC SULFATE 50%	640	Pounds(LB)	13-Sep-18
1524005	10028-22-5	FERRIC SULFATE 50%	640	Pounds(LB)	13-Sep-18
1524004	10028-22-5	FERRIC SULFATE 50%	640	Pounds(LB)	13-Sep-18
1524006	10028-22-5	FERRIC SULFATE 50%	640	Pounds(LB)	13-Sep-18
1524354	-	CONATHANE EN-7 PART B CURATIVE	1	Quarts(QT)	13-Sep-18
1524355	-	CONATHANE® EN-4 Part A Urethane Prepolymer	1	Gallon(GAL)	13-Sep-18
1524356	-	MUCIC ACID	100	Gram(GM)	13-Sep-18
1524357	22466-49-5	SODIUM HEXAFLUROACETYLACE	5	Gram(GM)	13-Sep-18
1524358	22466-49-5	SODIUM HEXAFLUROACETYLACE	5	Gram(GM)	13-Sep-18
1524359	1118-71-4	2 2 6 6-TETRAMETHYL-3 5-HEPTANEDIONE	5	Gram(GM)	13-Sep-18
1524360	1118-71-4	2 2 6 6-TETRAMETHYL-3 5-HEPTANEDIONE	5	Gram(GM)	13-Sep-18
1524361	540-69-2	AMMONIUM FORMATE	100	Gram(GM)	13-Sep-18
1524362	-	Bromoacetic acid 2-chlorotrityl resin	25	Gram(GM)	13-Sep-18
1524363	10035-10-6	HYDROBROMIC ACID 48%	500	MicroGram(UG	13-Sep-18
1524364	-	008-FluoroSurfactant	50	Gram(GM)	13-Sep-18
1524365	920-66-1	1 1 1 3 3 3-HEXAFLUORO-2-PROPANOL	100	Gram(GM)	13-Sep-18
1524384	107-06-2	1 2-DICHLOROETHANE	1	Liters(L)	13-Sep-18
1524424	60-29-7	DIETHYL ETHER	1	Liters(L)	13-Sep-18
1524425	60-29-7	DIETHYL ETHER	1	Liters(L)	13-Sep-18
1524430	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	13-Sep-18
1524434	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	13-Sep-18
1524431	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	13-Sep-18
1524433	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	13-Sep-18
1524435	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	13-Sep-18
1524436	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	13-Sep-18
1524437	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	13-Sep-18
1524432	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	13-Sep-18
1524566	7554-65-6	4-Methyl-1H-pyrazole 97+%	5	Gram(GM)	13-Sep-18
1524567	7554-65-6	4-Methyl-1H-pyrazole 97+%	5	Gram(GM)	13-Sep-18
1524568	127-19-5	N N-DIMETHYLACETAMIDE	1	Liters(L)	13-Sep-18
1524583	-	ULTIMA GOLD LLT	2.5	Liters(L)	13-Sep-18
1524584	-	ULTIMA GOLD LLT	2.5	Liters(L)	13-Sep-18
1524585	-	ULTIMA GOLD LLT	2.5	Liters(L)	13-Sep-18
1524586	-	ULTIMA GOLD LLT	2.5	Liters(L)	13-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524655	60177-39-1	DOWEX 1X8-50	500	Gram(GM)	13-Sep-18
1524657	60177-39-1	DOWEX 1X8-50	500	Gram(GM)	13-Sep-18
1524656	60177-39-1	DOWEX 1X8-50	500	Gram(GM)	13-Sep-18
1458874	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	13-Sep-18
1458875	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	13-Sep-18
1458876	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	13-Sep-18
1458877	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	13-Sep-18
1458878	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	13-Sep-18
1458879	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	13-Sep-18
1458880	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	13-Sep-18
1497504	-	BRUSH-ON BED LINER POLYURETHANE COATING	1	Gallon(GAL)	13-Sep-18
1497505	-	DOT 4 BRAKE FLUID	32	Ounces(OZ)	13-Sep-18
1497506	-	DOT 4 BRAKE FLUID	32	Ounces(OZ)	13-Sep-18
1497507	-	SAE 10W-30	1	Quarts(QT)	13-Sep-18
1497508	-	SAE 10W-30	1	Quarts(QT)	13-Sep-18
1487021	-	WHITE SOLVENT ZONE MARKING PAINT	17	Ounces(OZ)	13-Sep-18
1487022	-	WHITE SOLVENT ZONE MARKING PAINT	17	Ounces(OZ)	13-Sep-18
1487032	-	WHITE SOLVENT ZONE MARKING PAINT	17	Ounces(OZ)	13-Sep-18
1487031	-	WHITE SOLVENT ZONE MARKING PAINT	17	Ounces(OZ)	13-Sep-18
1487030	-	WHITE SOLVENT ZONE MARKING PAINT	17	Ounces(OZ)	13-Sep-18
1487029	-	WHITE SOLVENT ZONE MARKING PAINT	17	Ounces(OZ)	13-Sep-18
1487028	-	WHITE SOLVENT ZONE MARKING PAINT	17	Ounces(OZ)	13-Sep-18
1487027	-	WHITE SOLVENT ZONE MARKING PAINT	17	Ounces(OZ)	13-Sep-18
1487026	-	WHITE SOLVENT ZONE MARKING PAINT	17	Ounces(OZ)	13-Sep-18
1487025	-	WHITE SOLVENT ZONE MARKING PAINT	17	Ounces(OZ)	13-Sep-18
1487023	-	WHITE SOLVENT ZONE MARKING PAINT	17	Ounces(OZ)	13-Sep-18
1487024	-	WHITE SOLVENT ZONE MARKING PAINT	17	Ounces(OZ)	13-Sep-18
1487009	-	CP 618 Firestop Putty Stick	295	Milliliter(ML)	13-Sep-18
1487019	-	CP 618 Firestop Putty Stick	295	Milliliter(ML)	13-Sep-18
1487013	-	CP 618 Firestop Putty Stick	295	Milliliter(ML)	13-Sep-18
1487011	-	CP 618 Firestop Putty Stick	295	Milliliter(ML)	13-Sep-18
1487010	-	CP 618 Firestop Putty Stick	295	Milliliter(ML)	13-Sep-18
1487017	-	CP 618 Firestop Putty Stick	295	Milliliter(ML)	13-Sep-18
1487012	-	CP 618 Firestop Putty Stick	295	Milliliter(ML)	13-Sep-18
1487014	-	CP 618 Firestop Putty Stick	295	Milliliter(ML)	13-Sep-18
1487015	-	CP 618 Firestop Putty Stick	295	Milliliter(ML)	13-Sep-18
1487016	-	CP 618 Firestop Putty Stick	295	Milliliter(ML)	13-Sep-18
1487018	-	CP 618 Firestop Putty Stick	295	Milliliter(ML)	13-Sep-18
1487020	-	CP 618 Firestop Putty Stick	295	Milliliter(ML)	13-Sep-18
1486777	64742-65-0	TRIM TC 184B	5	Gallon(GAL)	13-Sep-18
1486995	-	FANTASTIKE ALL PURPOSE CLEANER	32	Ounces(OZ)	13-Sep-18
1486997	-	FANTASTIKE ALL PURPOSE CLEANER	32	Ounces(OZ)	13-Sep-18
1486998	-	FANTASTIKE ALL PURPOSE CLEANER	32	Ounces(OZ)	13-Sep-18
1486996	-	FANTASTIKE ALL PURPOSE CLEANER	32	Ounces(OZ)	13-Sep-18
1486991	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	13-Sep-18
1486993	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	13-Sep-18
1486992	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	13-Sep-18
1486994	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	13-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1486999	-	FLOOR CLEANER	2	Gallon(GAL)	13-Sep-18
1487006	-	FLOOR CLEANER	2	Gallon(GAL)	13-Sep-18
1487000	-	FLOOR CLEANER	2	Gallon(GAL)	13-Sep-18
1487008	-	FLOOR CLEANER	2	Gallon(GAL)	13-Sep-18
1487007	-	FLOOR CLEANER	2	Gallon(GAL)	13-Sep-18
1487005	-	FLOOR CLEANER	2	Gallon(GAL)	13-Sep-18
1487004	-	FLOOR CLEANER	2	Gallon(GAL)	13-Sep-18
1487003	-	FLOOR CLEANER	2	Gallon(GAL)	13-Sep-18
1487001	-	FLOOR CLEANER	2	Gallon(GAL)	13-Sep-18
1487002	-	FLOOR CLEANER	2	Gallon(GAL)	13-Sep-18
1486769	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	13-Sep-18
1486776	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	13-Sep-18
1486770	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	13-Sep-18
1486771	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	13-Sep-18
1486772	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	13-Sep-18
1486773	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	13-Sep-18
1486774	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	13-Sep-18
1486775	-	STIHL PLATINUM BAR & CHAIN LUBRICANT	1	Quarts(QT)	13-Sep-18
1483830	-	LOCTITE 222MS THREADLOCKER	50	Milliliter(ML)	13-Sep-18
1486767	-	LOCTITE 401 INSTANT ADHESIVE PRISM	0.7	Ounces(OZ)	13-Sep-18
1486766	-	LOCTITE SF 712 Accelorators	7	Ounces(OZ)	13-Sep-18
1486765	-	Loctite 380	1	Ounces(OZ)	13-Sep-18
1486768	10043-11-5	BORON NITRIDE SPRAY	13	Ounces(OZ)	13-Sep-18
1523470	-	NITRITE STANDARD IN WATER	500	Milliliter(ML)	14-Sep-18
1523471	-	OXALATE STANDARD	500	Milliliter(ML)	14-Sep-18
1523472	-	OXALATE STANDARD	500	Milliliter(ML)	14-Sep-18
1523473	7732-18-5	Ammonium Standard Solution	500	Milliliter(ML)	14-Sep-18
1524366	143-33-9	SODIUM CYANIDE	100	Gram(GM)	14-Sep-18
1524427	57-88-5	CHOLESTEROL	100	Milligram(MG)	14-Sep-18
1524428	57-88-5	CHOLESTEROL	100	Milligram(MG)	14-Sep-18
1524429	109-02-4	4-METHYLMORPHOLINE	100	Milliliter(ML)	14-Sep-18
1498544	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498588	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498575	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498576	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498577	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498578	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498579	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498580	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498581	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498582	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498583	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498584	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498574	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498586	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498587	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498590	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498548	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498547	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498546	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498545	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498549	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498585	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498557	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498550	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498589	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498573	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498552	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498553	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498554	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498556	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498551	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498558	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498559	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498560	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498570	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498572	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498562	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498571	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498563	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498564	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498565	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498566	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498555	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498567	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498568	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498569	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498561	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498599	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498643	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498634	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498632	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498635	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498631	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498636	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498637	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498638	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498639	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498640	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498641	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498642	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498633	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498644	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498645	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498646	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498647	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498648	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498649	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498650	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498651	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498652	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498653	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498655	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498656	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498630	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498603	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498654	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498616	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498604	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498600	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498601	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498657	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498606	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498607	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498608	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498609	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498610	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498611	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498612	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498613	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498605	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498615	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498629	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498617	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498618	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498619	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498620	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498621	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498622	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498623	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498624	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498625	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498626	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498627	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498628	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498614	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498602	-	PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	14-Sep-18
1498658	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498687	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498679	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498680	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498681	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498682	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498683	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498684	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498677	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498686	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498676	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498688	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498690	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498692	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498693	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498694	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498695	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498685	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498668	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498659	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498660	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498661	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498662	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498663	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498664	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498665	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498678	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498667	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498698	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498669	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498670	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498671	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498672	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498673	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498674	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498675	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498666	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498727	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498718	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498719	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498720	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498721	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498722	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498723	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498724	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498696	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498726	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498715	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498728	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498729	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498730	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498731	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498732	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498733	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498734	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498725	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498707	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498689	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498699	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498700	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498701	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498702	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498703	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498704	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498717	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498706	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498716	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498708	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498709	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498710	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498711	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498712	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498713	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498714	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498697	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498705	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498691	-	PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-18
1498735	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498736	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498749	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498757	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498756	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498755	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498754	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498753	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498752	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498750	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498748	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498747	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498739	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498751	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498738	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498746	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498740	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498741	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498742	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498743	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498744	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498745	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498737	-	PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	14-Sep-18
1498764	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498774	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498766	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498767	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498768	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498769	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498770	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498771	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498772	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498773	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498783	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498776	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498777	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498778	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498779	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498780	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498781	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498782	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498765	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498775	-	HERCULES REAL TUFF TEFLON PASTE THREAD	8	Ounces(OZ)	14-Sep-18
1498784	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498806	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498801	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498802	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498803	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498816	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498804	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498805	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498800	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498807	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498812	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498813	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498814	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498808	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498797	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498817	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498818	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498809	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498815	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498788	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498785	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498799	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498787	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498819	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498810	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498811	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498789	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498791	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498792	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498793	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498794	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498795	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498796	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498798	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498790	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498786	-	LYSOL BRAND II DISINFECTANT	12.5	Ounces(OZ)	14-Sep-18
1498830	-	FORMULA 314-T	25	Pounds(LB)	14-Sep-18
1498838	-	FORMULA 314-T	25	Pounds(LB)	14-Sep-18
1498836	-	FORMULA 314-T	25	Pounds(LB)	14-Sep-18
1498835	-	FORMULA 314-T	25	Pounds(LB)	14-Sep-18
1498834	-	FORMULA 314-T	25	Pounds(LB)	14-Sep-18
1498833	-	FORMULA 314-T	25	Pounds(LB)	14-Sep-18
1498832	-	FORMULA 314-T	25	Pounds(LB)	14-Sep-18
1498837	-	FORMULA 314-T	25	Pounds(LB)	14-Sep-18
1498831	-	FORMULA 314-T	25	Pounds(LB)	14-Sep-18
1498839	8006-64-2	TURPENTINE	1	Gallon(GAL)	14-Sep-18
1498841	8006-64-2	TURPENTINE	1	Gallon(GAL)	14-Sep-18
1498840	8006-64-2	TURPENTINE	1	Gallon(GAL)	14-Sep-18
1498843	8006-64-2	TURPENTINE	1	Gallon(GAL)	14-Sep-18
1498842	8006-64-2	TURPENTINE	1	Gallon(GAL)	14-Sep-18
1481238	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481271	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481272	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481273	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481274	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481258	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481267	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481260	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481261	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481262	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481263	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481264	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481265	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481266	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481259	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481247	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481256	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481255	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481254	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481253	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481252	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481251	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481250	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481270	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481248	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481239	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481246	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481245	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481244	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481243	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481242	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481241	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481240	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481276	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481249	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481302	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481294	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481295	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481296	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481297	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481298	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481299	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481269	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481293	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481301	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481292	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481303	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481304	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481305	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481306	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481307	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481308	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481309	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481300	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481284	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481275	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481277	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481278	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481279	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481280	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481281	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481268	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481283	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481257	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481285	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481286	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481287	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481288	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481289	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481290	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481291	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1481282	-	Weiman Stainless Steel Cleaner & Polish	17	Ounces(OZ)	14-Sep-18
1498412	-	BOSS 315 RTV 100% Silicone Sealant	300	Milliliter(ML)	14-Sep-18
1498416	-	BOSS 315 RTV 100% Silicone Sealant	300	Milliliter(ML)	14-Sep-18
1498423	-	BOSS 315 RTV 100% Silicone Sealant	300	Milliliter(ML)	14-Sep-18
1498422	-	BOSS 315 RTV 100% Silicone Sealant	300	Milliliter(ML)	14-Sep-18
1498421	-	BOSS 315 RTV 100% Silicone Sealant	300	Milliliter(ML)	14-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498420	-	BOSS 315 RTV 100% Silicone Sealant	300	Milliliter(ML)	14-Sep-18
1498419	-	BOSS 315 RTV 100% Silicone Sealant	300	Milliliter(ML)	14-Sep-18
1498417	-	BOSS 315 RTV 100% Silicone Sealant	300	Milliliter(ML)	14-Sep-18
1498415	-	BOSS 315 RTV 100% Silicone Sealant	300	Milliliter(ML)	14-Sep-18
1498414	-	BOSS 315 RTV 100% Silicone Sealant	300	Milliliter(ML)	14-Sep-18
1498413	-	BOSS 315 RTV 100% Silicone Sealant	300	Milliliter(ML)	14-Sep-18
1498418	-	BOSS 315 RTV 100% Silicone Sealant	300	Milliliter(ML)	14-Sep-18
1498240	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498247	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498251	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498259	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498258	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498257	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498256	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498255	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498254	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498245	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498252	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498250	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498249	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498248	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498246	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498244	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498243	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498242	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498241	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498253	-	ZINSSR NON SKID TEXTURE ST30	1	Pounds(LB)	14-Sep-18
1498365	-	Avalon Ultra Premium Latex Enamel	5	Gallon(GAL)	14-Sep-18
1524569	7664-93-9	Sulfuric Acid 40% Pool Grade	50	Gallon(GAL)	14-Sep-18
1524570	7664-93-9	Sulfuric Acid 40% Pool Grade	50	Gallon(GAL)	14-Sep-18
1524572	7664-93-9	Sulfuric Acid 40% Pool Grade	50	Gallon(GAL)	14-Sep-18
1524571	7664-93-9	Sulfuric Acid 40% Pool Grade	50	Gallon(GAL)	14-Sep-18
1524587	7440-42-8	BORON POWDER	5	Gram(GM)	14-Sep-18
1524588	85187-10-6	SPHINGOMYELIN	25	Milligram(MG)	14-Sep-18
1524590	85187-10-6	SPHINGOMYELIN	25	Milligram(MG)	14-Sep-18
1524591	85187-10-6	SPHINGOMYELIN	25	Milligram(MG)	14-Sep-18
1524589	85187-10-6	SPHINGOMYELIN	25	Milligram(MG)	14-Sep-18
1524592	-	MOBIL RARUS 829	5	Gallon(GAL)	14-Sep-18
1524593	-	MOBIL RARUS 829	5	Gallon(GAL)	14-Sep-18
1524594	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524607	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524600	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524609	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524608	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524606	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524597	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524598	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524599	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524601	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524602	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524596	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524595	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524603	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524604	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524605	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	14-Sep-18
1524610	86508-42-1	FC-43 FLUORINERT BRAND ELECTRONIC LIQUID	0.75	Gallon(GAL)	14-Sep-18
1524612	86508-42-1	FC-43 FLUORINERT BRAND ELECTRONIC LIQUID	0.75	Gallon(GAL)	14-Sep-18
1524611	86508-42-1	FC-43 FLUORINERT BRAND ELECTRONIC LIQUID	0.75	Gallon(GAL)	14-Sep-18
1524613	86508-42-1	FC-43 FLUORINERT BRAND ELECTRONIC LIQUID	0.75	Gallon(GAL)	14-Sep-18
1524614	-	NITRITE STANDARD IN WATER	500	Milliliter(ML)	14-Sep-18
1498395	-	Avalon Ultra Premium Latex Enamel W/B	5	Gallon(GAL)	14-Sep-18
1524615	7732-18-5	Ammonium Standard Solution	500	Milliliter(ML)	14-Sep-18
1524616	7440-55-3	GALLIUM INGOT	500	Gram(GM)	14-Sep-18
1524659	7697-37-2	NITRIC ACID ULTREX	500	Milliliter(ML)	14-Sep-18
1524660	7697-37-2	NITRIC ACID ULTREX	500	Milliliter(ML)	14-Sep-18
1524661	-	TEC CLEANER	2.5	Liters(L)	14-Sep-18
1524663	-	EPOXY KIT H2OE PART A	8	Ounces(OZ)	14-Sep-18
1524664	99685-96-8	FULLERENE POWDER	250	Milligram(MG)	14-Sep-18
1524665	99685-96-8	FULLERENE POWDER	250	Milligram(MG)	14-Sep-18
1524666	-	RESIN AG MP-50	500	Gram(GM)	14-Sep-18
1524667	7782-40-3	DIAMOND	200	Gram(GM)	14-Sep-18
1524668	-	pH Adjusting ISA for Ammonia Electrode	425	Milliliter(ML)	14-Sep-18
1524669	-	pH Adjusting ISA for Ammonia Electrode	425	Milliliter(ML)	14-Sep-18
1524670	-	pH Adjusting ISA for Ammonia Electrode	425	Milliliter(ML)	14-Sep-18
1524671	-	pH Adjusting ISA for Ammonia Electrode	425	Milliliter(ML)	14-Sep-18
1524672	67874-43-5	PAMAM dendrimer ethylenediamine core	1	Gram(GM)	14-Sep-18
1524673	14866-33-2	TETRAOCTYLAMMONIUM BROMIDE	25	Gram(GM)	14-Sep-18
1524674	4101-68-2	1 10-DIBROMODECANE	100	Gram(GM)	14-Sep-18
1524675	2418-52-2	D-Threitol	250	Milligram(MG)	14-Sep-18
1524683	2418-52-2	D-Threitol	250	Milligram(MG)	14-Sep-18
1524676	2418-52-2	D-Threitol	250	Milligram(MG)	14-Sep-18
1524677	2418-52-2	D-Threitol	250	Milligram(MG)	14-Sep-18
1524678	2418-52-2	D-Threitol	250	Milligram(MG)	14-Sep-18
1524679	2418-52-2	D-Threitol	250	Milligram(MG)	14-Sep-18
1524680	2418-52-2	D-Threitol	250	Milligram(MG)	14-Sep-18
1524681	2418-52-2	D-Threitol	250	Milligram(MG)	14-Sep-18
1524682	2418-52-2	D-Threitol	250	Milligram(MG)	14-Sep-18
1524684	2418-52-2	D-Threitol	250	Milligram(MG)	14-Sep-18
1524686	2418-52-2	D-Threitol	250	Milligram(MG)	14-Sep-18
1524685	2418-52-2	D-Threitol	250	Milligram(MG)	14-Sep-18
1524687	826-81-3	2-METHYL-8-QUINOLINOL	100	Gram(GM)	14-Sep-18
1524688	-	PAMAM Dendrimer Kit generations 0-3	150	Milligram(MG)	14-Sep-18
1458881	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	14-Sep-18
1458882	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	14-Sep-18
1498426	-	Low Viscosity White Water-Based Weather	1	Gallon(GAL)	14-Sep-18
1498427	-	Low Viscosity White Water-Based Weather	1	Gallon(GAL)	14-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498820	-	PSX 700 CURE US	0.17	Gallon(GAL)	14-Sep-18
1498825	-	PSX 700 CURE US	0.17	Gallon(GAL)	14-Sep-18
1498821	-	PSX 700 CURE US	0.17	Gallon(GAL)	14-Sep-18
1498829	-	PSX 700 CURE US	0.17	Gallon(GAL)	14-Sep-18
1498828	-	PSX 700 CURE US	0.17	Gallon(GAL)	14-Sep-18
1498826	-	PSX 700 CURE US	0.17	Gallon(GAL)	14-Sep-18
1498827	-	PSX 700 CURE US	0.17	Gallon(GAL)	14-Sep-18
1498824	-	PSX 700 CURE US	0.17	Gallon(GAL)	14-Sep-18
1498823	-	PSX 700 CURE US	0.17	Gallon(GAL)	14-Sep-18
1498822	-	PSX 700 CURE US	0.17	Gallon(GAL)	14-Sep-18
1498758	-	Startex Lacquer Thinner	1	Gallon(GAL)	14-Sep-18
1498760	-	Startex Lacquer Thinner	1	Gallon(GAL)	14-Sep-18
1498761	-	Startex Lacquer Thinner	1	Gallon(GAL)	14-Sep-18
1498762	-	Startex Lacquer Thinner	1	Gallon(GAL)	14-Sep-18
1498759	-	Startex Lacquer Thinner	1	Gallon(GAL)	14-Sep-18
1498763	-	Startex Lacquer Thinner	1	Gallon(GAL)	14-Sep-18
1524000	10025-87-3	PHOSPHORUS(V) OXYCHLORIDE	5	Gram(GM)	17-Sep-18
1524001	24424-99-5	DI-TERT-BUTYL DICARBONATE	100	Gram(GM)	17-Sep-18
1524565	74-88-4	IODOMETHANE REAGENT PLUS	100	Gram(GM)	17-Sep-18
1524617	75-09-2	DICHLOROMETHANE	4	Liters(L)	17-Sep-18
1524619	75-09-2	DICHLOROMETHANE	4	Liters(L)	17-Sep-18
1524624	75-09-2	DICHLOROMETHANE	4	Liters(L)	17-Sep-18
1524623	75-09-2	DICHLOROMETHANE	4	Liters(L)	17-Sep-18
1524622	75-09-2	DICHLOROMETHANE	4	Liters(L)	17-Sep-18
1524621	75-09-2	DICHLOROMETHANE	4	Liters(L)	17-Sep-18
1524620	75-09-2	DICHLOROMETHANE	4	Liters(L)	17-Sep-18
1524618	75-09-2	DICHLOROMETHANE	4	Liters(L)	17-Sep-18
1524625	7647-01-0	HYDROGEN CHLORIDE (HYDROCHLORIC ACID	18.23	Gram(GM)	17-Sep-18
1524627	7647-01-0	HYDROGEN CHLORIDE (HYDROCHLORIC ACID	18.23	Gram(GM)	17-Sep-18
1524626	7647-01-0	HYDROGEN CHLORIDE (HYDROCHLORIC ACID	18.23	Gram(GM)	17-Sep-18
1524628	877-24-7	BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	17-Sep-18
1524629	877-24-7	BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	17-Sep-18
1524630	877-24-7	BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	17-Sep-18
1524631	877-24-7	BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	17-Sep-18
1524632	877-24-7	BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	17-Sep-18
1524633	877-24-7	BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	17-Sep-18
1524634	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	17-Sep-18
1524636	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	17-Sep-18
1524637	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	17-Sep-18
1524635	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	17-Sep-18
1524638	64-17-5	ETHANOL 200 PROOF	4	Liters(L)	17-Sep-18
1524639	64-17-5	ETHANOL 200 PROOF	4	Liters(L)	17-Sep-18
1524640	64-17-5	ETHANOL 200 PROOF	4	Liters(L)	17-Sep-18
1524641	64-17-5	ETHANOL 200 PROOF	4	Liters(L)	17-Sep-18
1524642	64-17-5	ETHANOL (ETHYL ALCOHOL)	4	Liters(L)	17-Sep-18
1524643	67-56-1	METHANOL (METHYL ALCOHOL)	4	Liters(L)	17-Sep-18
1524644	67-56-1	METHANOL (METHYL ALCOHOL)	4	Liters(L)	17-Sep-18
1524645	67-56-1	METHANOL (METHYL ALCOHOL)	4	Liters(L)	17-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524646	67-56-1	METHANOL (METHYL ALCOHOL)	4	Liters(L)	17-Sep-18
1524647	67-63-0	2-PROPANOL	4	Liters(L)	17-Sep-18
1524650	67-63-0	2-PROPANOL	4	Liters(L)	17-Sep-18
1524648	67-63-0	2-PROPANOL	4	Liters(L)	17-Sep-18
1524649	67-63-0	2-PROPANOL	4	Liters(L)	17-Sep-18
1524651	7757-82-6	SODIUM SULFATE ANHYDROUS	2.5	Kilograms(KG)	17-Sep-18
1524652	52-90-4	L-CYSTEINE	50	Gram(GM)	17-Sep-18
1524653	52-90-4	L-CYSTEINE	50	Gram(GM)	17-Sep-18
1524654	16774-21-3	AMMONIUM CERIUM(IV)NITRATE (CERIC	500	Gram(GM)	17-Sep-18
1524689	107-06-2	1 2-DICHLOROETHANE (ETHYLENE DICHLORIDE	1	Liters(L)	17-Sep-18
1524691	75-09-2	DICHLOROMETHANE	1	Liters(L)	17-Sep-18
1524692	110-82-7	CYCLOHEXANE	1	Liters(L)	17-Sep-18
1524694	110-82-7	CYCLOHEXANE	1	Liters(L)	17-Sep-18
1524693	110-82-7	CYCLOHEXANE	1	Liters(L)	17-Sep-18
1524695	7446-70-0	SiliaBond Aluminum Chloride Functionalized	50	Gram(GM)	17-Sep-18
1524696	79-09-4	PROPIONIC ACID	500	Milliliter(ML)	17-Sep-18
1524697	79-09-4	PROPIONIC ACID	500	Milliliter(ML)	17-Sep-18
1524698	-	FLUSHING FLUID	1	Gallon(GAL)	17-Sep-18
1524699	-	DNEASY TISSUE KIT	250	Milliliter(ML)	17-Sep-18
1524700	-	QIAQUICK PCR PURIFICATION KIT	50	Milliliter(ML)	17-Sep-18
1524701	1665-00-5	DICHLOROMETHANE-D2	25	Gram(GM)	17-Sep-18
1524702	1665-00-5	DICHLOROMETHANE-D2	25	Gram(GM)	17-Sep-18
1524703	4410-99-5	Phenylethyl mercaptan	25	Gram(GM)	17-Sep-18
1524704	62-31-7	DOPAMINE HYDROCHLORIDE	25	Gram(GM)	17-Sep-18
1524705	7632-00-0	SODIUM NITRITE	100	Gram(GM)	17-Sep-18
1524706	-	Clear Resin	1	Liters(L)	17-Sep-18
1524707	-	Clear Resin	1	Liters(L)	17-Sep-18
1524708	-	Black Resin	1	Liters(L)	17-Sep-18
1524709	-	Black Resin	1	Liters(L)	17-Sep-18
1524710	-	Rigid Resin	1	Liters(L)	17-Sep-18
1524711	-	Rigid Resin	1	Liters(L)	17-Sep-18
1524712	-	Grey Pro Resin	1	Liters(L)	17-Sep-18
1524713	-	Grey Pro Resin	1	Liters(L)	17-Sep-18
1524727	1344-28-1	ALUMINA ACTIVATED	5	Pounds(LB)	17-Sep-18
1524728	64-19-7	ACETIC ACID GLACIAL	500	Milliliter(ML)	17-Sep-18
1524729	25036-25-3	EPOXY RESIN	0.5	Pint(PT)	17-Sep-18
1524730	999-97-3	HEXAMETHYLDISILAZANE	50	Milliliter(ML)	17-Sep-18
1524731	7681-49-4	FLUORIDE STANDARD SOLUTION	500	Milliliter(ML)	17-Sep-18
1524732	7681-49-4	FLUORIDE STANDARD SOLUTION	500	Milliliter(ML)	17-Sep-18
1524733	7647-14-5	CHLORIDE STANDARD SOLUTION	500	Milliliter(ML)	17-Sep-18
1524734	7647-14-5	CHLORIDE STANDARD SOLUTION	500	Milliliter(ML)	17-Sep-18
1524735	-	NITRITE STANDARD SOLUTION	500	Milliliter(ML)	17-Sep-18
1524736	-	NITRITE STANDARD SOLUTION	500	Milliliter(ML)	17-Sep-18
1524737	7757-79-1	NITRATE STANDARD SOLUTION	500	Milliliter(ML)	17-Sep-18
1524738	7757-79-1	NITRATE STANDARD SOLUTION	500	Milliliter(ML)	17-Sep-18
1524739	7757-82-6	SULFATE STANDARD SOLUTION	500	Milliliter(ML)	17-Sep-18
1524740	7757-82-6	SULFATE STANDARD SOLUTION	500	Milliliter(ML)	17-Sep-18
1524741	-	OXALATE STANDARD	500	Milliliter(ML)	17-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524742	-	OXALATE STANDARD	500	Milliliter(ML)	17-Sep-18
1524743	7732-18-5	Ammonium Standard Solution	500	Milliliter(ML)	17-Sep-18
1524744	7732-18-5	Ammonium Standard Solution	500	Milliliter(ML)	17-Sep-18
1524745	109-99-9	TETRAHYDROFURAN	1	Liters(L)	17-Sep-18
1524746	67-63-0	ISOPROPYL ALCOHOL	500	Milliliter(ML)	17-Sep-18
1524747	67-63-0	ISOPROPYL ALCOHOL	500	Milliliter(ML)	17-Sep-18
1524748	603-35-0	TRIPHENYLPHOSPHINE	500	Gram(GM)	17-Sep-18
1524749	6066-82-6	N-HYDROXYSUCCINIMIDE	100	Gram(GM)	17-Sep-18
1524750	141-86-6	2 6-DIAMINOPYRIDINE	100	Gram(GM)	17-Sep-18
1524751	10357-84-3	2 6-DIHYDROXYPYRIDINE HYDROCHLORIDE	25	Gram(GM)	17-Sep-18
1524752	10357-84-3	2 6-DIHYDROXYPYRIDINE HYDROCHLORIDE	25	Gram(GM)	17-Sep-18
1524753	499-83-2	2 6-PYRIDINE-DICARBOXYLIC ACID	100	Gram(GM)	17-Sep-18
1524754	74-95-3	METHYLENE BROMIDE (DIBROMOMETHANE)	500	Milliliter(ML)	17-Sep-18
1510399	6876-37-5	Methylammonium Bromide	100	Gram(GM)	18-Sep-18
1510400	53916-94-2	Phenethylammonium bromide	100	Gram(GM)	18-Sep-18
1510401	15567-09-6	n-Butylammonium bromide	100	Gram(GM)	18-Sep-18
1510402	146958-06-7	Formamidinium Bromide	50	Gram(GM)	18-Sep-18
1510403	67-68-5	Qubit dsDNA HS Assay Kit	500	Milliliter(ML)	18-Sep-18
1510404	13139-17-8	Z-OSu	100	Gram(GM)	18-Sep-18
1498898	-	SULLAIR SULLUBE	5	Gallon(GAL)	18-Sep-18
1498937	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	18-Sep-18
1498939	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	18-Sep-18
1498940	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	18-Sep-18
1498941	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	18-Sep-18
1498942	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	18-Sep-18
1498943	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	18-Sep-18
1498944	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	18-Sep-18
1498938	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	18-Sep-18
1510405	14396-65-7	1 4-Dibromo-2 3-butanediol	5	Gram(GM)	18-Sep-18
1510406	14396-65-7	1 4-Dibromo-2 3-butanediol	5	Gram(GM)	18-Sep-18
1510407	138-14-7	DEFEROXAMINE	1	Gram(GM)	18-Sep-18
1510408	34787-28-5	Ferrichrome Iron-free from Ustilago sphaerogena	5	Milligram(MG)	18-Sep-18
1510409	7429-90-5	ALUMINUM SHOT	1	Kilograms(KG)	18-Sep-18
1510410	7429-90-5	ALUMINUM SHOT	1	Kilograms(KG)	18-Sep-18
1510411	7429-90-5	ALUMINUM SHOT	1	Kilograms(KG)	18-Sep-18
1510412	7429-90-5	ALUMINUM SHOT	1	Kilograms(KG)	18-Sep-18
1510413	7440-36-0	ANTIMONY PIECES	500	Gram(GM)	18-Sep-18
1498925	-	DENATURED ALCOHOL	1	Gallon(GAL)	18-Sep-18
1498926	-	DENATURED ALCOHOL	1	Gallon(GAL)	18-Sep-18
1498927	-	DENATURED ALCOHOL	1	Gallon(GAL)	18-Sep-18
1498932	-	DENATURED ALCOHOL	1	Gallon(GAL)	18-Sep-18
1498934	-	DENATURED ALCOHOL	1	Gallon(GAL)	18-Sep-18
1498933	-	DENATURED ALCOHOL	1	Gallon(GAL)	18-Sep-18
1498928	-	DENATURED ALCOHOL	1	Gallon(GAL)	18-Sep-18
1498931	-	DENATURED ALCOHOL	1	Gallon(GAL)	18-Sep-18
1498935	-	DENATURED ALCOHOL	1	Gallon(GAL)	18-Sep-18
1498930	-	DENATURED ALCOHOL	1	Gallon(GAL)	18-Sep-18
1498929	-	DENATURED ALCOHOL	1	Gallon(GAL)	18-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498936	-	DENATURED ALCOHOL	1	Gallon(GAL)	18-Sep-18
1510414	7440-31-5	TIN SHOT	500	Gram(GM)	18-Sep-18
1524574	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Sep-18
1524579	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Sep-18
1524575	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Sep-18
1524576	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Sep-18
1524578	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Sep-18
1524577	7697-37-2	NITRIC ACID	2.5	Liters(L)	18-Sep-18
1524714	67-56-1	METHANOL	1	Liters(L)	18-Sep-18
1524721	67-56-1	METHANOL	1	Liters(L)	18-Sep-18
1524720	67-56-1	METHANOL	1	Liters(L)	18-Sep-18
1524715	67-56-1	METHANOL	1	Liters(L)	18-Sep-18
1524716	67-56-1	METHANOL	1	Liters(L)	18-Sep-18
1524717	67-56-1	METHANOL	1	Liters(L)	18-Sep-18
1524719	67-56-1	METHANOL	1	Liters(L)	18-Sep-18
1524718	67-56-1	METHANOL	1	Liters(L)	18-Sep-18
1524724	9036-19-5	TRITON (R) X-100	1	Liters(L)	18-Sep-18
1524725	63148-57-2	METHYL HYDROGEN POLYSILOXANE	1	Pint(PT)	18-Sep-18
1524726	-	DIESEL PARTICULATE MATTER	200	Milligram(MG)	18-Sep-18
1524755	-	STYCAST 1266 PART A	9	Ounces(OZ)	18-Sep-18
1524756	-	STYCAST 1266 PART A	9	Ounces(OZ)	18-Sep-18
1524757	-	STYCAST 1266 PART B	7	Ounces(OZ)	18-Sep-18
1524758	-	STYCAST 1266 PART B	7	Ounces(OZ)	18-Sep-18
1524759	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524768	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524761	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524760	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524762	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524763	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524764	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524766	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524767	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524771	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524770	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524769	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524765	7697-37-2	NITRIC ACID 69-71%	2.5	Liters(L)	18-Sep-18
1524772	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524785	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524779	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524789	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524788	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524787	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524786	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524775	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524783	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524782	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524780	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524778	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1524777	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524773	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524776	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524784	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524774	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
1524781	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	18-Sep-18
15254573	6731-36-8	Luperox 231 1 1-Bis(tert-butylperoxy)-3 3 5-	500	Milliliter(ML)	18-Sep-18
1458883	-	SODIUM BISULFITE 38-42%	2464	Pounds(LB)	18-Sep-18
1560672	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	19-Sep-18
1560595	-	Nitrogen UHP	220	Cubic Feet(CF)	19-Sep-18
1560597	-	Nitrogen UHP	220	Cubic Feet(CF)	19-Sep-18
1560478	-	NITROGEN DIOXIDE 10PPM BALANCE AIR	34	Liters(L)	19-Sep-18
1560480	-	NITROGEN DIOXIDE 10PPM BALANCE AIR	34	Liters(L)	19-Sep-18
1560479	-	NITROGEN DIOXIDE 10PPM BALANCE AIR	34	Liters(L)	19-Sep-18
1560481	-	HYDROGEN SULFIDE 20PPM IN NITROGEN	34	Liters(L)	19-Sep-18
1560482	-	HYDROGEN SULFIDE 20PPM IN NITROGEN	34	Liters(L)	19-Sep-18
1560484	-	HYDROGEN SULFIDE 20PPM IN NITROGEN	34	Liters(L)	19-Sep-18
1560483	-	HYDROGEN SULFIDE 20PPM IN NITROGEN	34	Liters(L)	19-Sep-18
1560619	-	Oxygen UHP	220	Cubic Feet(CF)	19-Sep-18
1560603	-	AIR COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560674	-	OXYGEN IN NITROGEN	2	Pounds(LB)	19-Sep-18
1560675	-	CARBON MONOXIDE IN AIR	2	Pounds(LB)	19-Sep-18
1560618	-	Oxygen UHP	220	Cubic Feet(CF)	19-Sep-18
1560617	-	Oxygen UHP	220	Cubic Feet(CF)	19-Sep-18
1560485	630-08-0	CARBON MONOXIDE	2	Pounds(LB)	19-Sep-18
1560486	74-82-8	METHANE	1	Pounds(LB)	19-Sep-18
1560487	10024-97-2	nitrous oxide	1	Pounds(LB)	19-Sep-18
1510471	7488-55-3	TIN(II) SULFATE	1	Kilograms(KG)	19-Sep-18
1510472	7487-88-9	MAGNESIUM SULFATE ANHYDROUS	2	Kilograms(KG)	19-Sep-18
1510473	109-99-9	TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	19-Sep-18
1510478	109-99-9	TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	19-Sep-18
1510474	109-99-9	TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	19-Sep-18
1510475	109-99-9	TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	19-Sep-18
1510476	109-99-9	TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	19-Sep-18
1510477	109-99-9	TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	19-Sep-18
1510479	9011-14-7	Transparent Thermoplastic Powder	5	Pounds(LB)	19-Sep-18
1510480	7631-86-9	SILICA GEL GR 60 70 230	5	Kilograms(KG)	19-Sep-18
1510481	141-78-6	ETHYL ACETATE	4	Liters(L)	19-Sep-18
1510482	14243-65-3	BROMO(TRIPHENYLPHOSPHINE)GOLD(I)	25	Gram(GM)	19-Sep-18
1510483	75-15-0	CARBON DISULFIDE	250	Milliliter(ML)	19-Sep-18
1510484	110-82-7	CYCLOHEXANE	500	Milliliter(ML)	19-Sep-18
1510485	67-64-1	ACETONE REAGENT ACS	1	Liters(L)	19-Sep-18
1510486	7782-40-3	DIAMOND DUST	200	Gram(GM)	19-Sep-18
1510487	-	EQO-PURE 452	55	Gallon(GAL)	19-Sep-18
1510488	75-09-2	DICHLOROMETHANE	1	Liters(L)	19-Sep-18
1510489	75-09-2	DICHLOROMETHANE	1	Liters(L)	19-Sep-18
1510490	-	RUBBER CEMENT	4	Ounces(OZ)	19-Sep-18
1510491	-	SANFORD EXPO CLEANER FOR DRY ERASE	8	Ounces(OZ)	19-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1510492	-	SANFORD EXPO CLEANER FOR DRY ERASE	8	Ounces(OZ)	19-Sep-18
1510493	-	SANFORD EXPO CLEANER FOR DRY ERASE	8	Ounces(OZ)	19-Sep-18
1510494	67-63-0	ISOPROPYL ALCOHOL	1	Liters(L)	19-Sep-18
1510496	67-63-0	ISOPROPYL ALCOHOL	1	Liters(L)	19-Sep-18
1510495	67-63-0	ISOPROPYL ALCOHOL	1	Liters(L)	19-Sep-18
1510502	67-63-0	ISOPROPYL ALCOHOL	1	Liters(L)	19-Sep-18
1510501	67-63-0	ISOPROPYL ALCOHOL	1	Liters(L)	19-Sep-18
1510500	67-63-0	ISOPROPYL ALCOHOL	1	Liters(L)	19-Sep-18
1510499	67-63-0	ISOPROPYL ALCOHOL	1	Liters(L)	19-Sep-18
1510498	67-63-0	ISOPROPYL ALCOHOL	1	Liters(L)	19-Sep-18
1510497	67-63-0	ISOPROPYL ALCOHOL	1	Liters(L)	19-Sep-18
1510503	67-63-0	ISOPROPYL ALCOHOL	1	Liters(L)	19-Sep-18
1510504	67-64-1	ACETONE REAGENT ACS	6	Liters(L)	19-Sep-18
1510505	67-64-1	ACETONE REAGENT ACS	6	Liters(L)	19-Sep-18
1510509	67-64-1	ACETONE REAGENT ACS	6	Liters(L)	19-Sep-18
1510508	67-64-1	ACETONE REAGENT ACS	6	Liters(L)	19-Sep-18
1510507	67-64-1	ACETONE REAGENT ACS	6	Liters(L)	19-Sep-18
1510506	67-64-1	ACETONE REAGENT ACS	6	Liters(L)	19-Sep-18
1510510	87-69-4	TARTARIC ACID	500	Gram(GM)	19-Sep-18
1510511	-	CITRANOX	1	Gallon(GAL)	19-Sep-18
1524580	50-00-0	FORMALDEHYDE SOLUTION 37%	500	Milliliter(ML)	19-Sep-18
1458884	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	19-Sep-18
1458885	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	19-Sep-18
1458886	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	19-Sep-18
1458887	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	19-Sep-18
1458888	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	19-Sep-18
1498973	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499001	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498991	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498993	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498995	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498996	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498997	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498998	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498990	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499000	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498985	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499002	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499003	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499004	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499005	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499006	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498999	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498980	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499007	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498994	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498974	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498975	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498976	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498977	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498987	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498979	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498989	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498981	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498982	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498983	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498984	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498986	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498988	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498978	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499017	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499008	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1498992	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499020	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499018	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499016	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499015	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499014	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499013	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499012	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499011	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499010	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499009	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1499019	-	C6: Portland Cement Based Concrete Products	60	Pint(PT)	19-Sep-18
1510415	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510422	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510459	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510460	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510461	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510462	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510463	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510464	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510416	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510418	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510458	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510421	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510450	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510420	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510457	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510456	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510455	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510454	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510453	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510423	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510451	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510419	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1510449	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510448	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510447	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510446	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510445	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510452	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510436	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510424	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510441	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510417	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510443	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510444	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510440	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510437	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510439	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510435	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510434	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510433	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510432	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510431	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510430	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510438	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510425	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510428	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510427	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510429	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510426	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510442	-	AB9195 FLEXIBLE ROOM TEMP CURE EPOXY	2.5	Gram(GM)	19-Sep-18
1510465	9003-11-6	PLURONIC F68	100	Milliliter(ML)	19-Sep-18
1510466	-	AG MP-1M RESIN	500	Gram(GM)	19-Sep-18
1510467	-	AG MP-1M RESIN	500	Gram(GM)	19-Sep-18
1510468	107-22-2	GLYOXAL 40% AQUEOUS SOLUTION	4	Kilograms(KG)	19-Sep-18
1510469	7803-49-8	HYDROXYLAMINE	4	Liters(L)	19-Sep-18
1510470	7803-49-8	HYDROXYLAMINE	4	Liters(L)	19-Sep-18
1510512	7647-01-0	HYDROCHLORIC ACID TRACE METAL-35%	500	Milliliter(ML)	19-Sep-18
1510513	7647-01-0	HYDROCHLORIC ACID TRACE METAL-35%	500	Milliliter(ML)	19-Sep-18
1510514	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	19-Sep-18
1510515	-	PERCHLORATE	500	Milliliter(ML)	19-Sep-18
1510543	-	MBM-Ti 40-50	100	Gram(GM)	19-Sep-18
1510544	-	MBM-Ti 40-50	100	Gram(GM)	19-Sep-18
1510545	-	MBM-Ti 54-80	100	Gram(GM)	19-Sep-18
1510546	-	MBM-Ti 54-80	100	Gram(GM)	19-Sep-18
1510547	-	STAINLESS STEEL POWDER	5	Kilograms(KG)	19-Sep-18
1510553	-	STAINLESS STEEL POWDER	5	Kilograms(KG)	19-Sep-18
1510548	-	STAINLESS STEEL POWDER	5	Kilograms(KG)	19-Sep-18
1510549	-	STAINLESS STEEL POWDER	5	Kilograms(KG)	19-Sep-18
1510550	-	STAINLESS STEEL POWDER	5	Kilograms(KG)	19-Sep-18
1510551	-	STAINLESS STEEL POWDER	5	Kilograms(KG)	19-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1510552	-	STAINLESS STEEL POWDER	5	Kilograms(KG)	19-Sep-18
1510554	-	STAINLESS STEEL POWDER	5	Kilograms(KG)	19-Sep-18
1510555	9003-07-0	Polypropylene Powder	20	Kilograms(KG)	19-Sep-18
1510556	67-56-1	METHANOL	1	Liters(L)	19-Sep-18
1510560	67-56-1	METHANOL	1	Liters(L)	19-Sep-18
1510557	67-56-1	METHANOL	1	Liters(L)	19-Sep-18
1510558	67-56-1	METHANOL	1	Liters(L)	19-Sep-18
1510559	67-56-1	METHANOL	1	Liters(L)	19-Sep-18
1510561	67-56-1	METHANOL	1	Liters(L)	19-Sep-18
1510562	647426-50-	WELCH DUOSEAL HIGH VACUUM PUMP OIL	1	Gallon(GAL)	19-Sep-18
1510565	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510575	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510604	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510592	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510593	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510594	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510595	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510596	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510597	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510599	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510573	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510601	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510591	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510603	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510598	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510605	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510606	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510607	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510608	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510609	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510610	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510611	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510612	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510613	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510614	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510602	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510577	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510570	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510569	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510568	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510567	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510566	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510600	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510590	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510571	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510572	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510576	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510578	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1510583	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510589	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510588	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510587	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510586	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510585	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510574	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510584	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510579	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510582	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510581	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510580	-	AB 9110 LV	2.5	Gram(GM)	19-Sep-18
1510615	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510646	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510663	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510662	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510648	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510659	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510664	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510649	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510650	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510651	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510652	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510653	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510654	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510655	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510656	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510658	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510660	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510661	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510657	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510628	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510640	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510641	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510642	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510643	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510623	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510639	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510647	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510644	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510627	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510622	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510626	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510625	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510624	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510629	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510645	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510632	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1510631	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510638	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510633	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510634	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510635	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510621	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510620	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510619	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510618	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510617	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510616	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510636	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510637	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510630	-	ANGSTROMBOND AB9112 HARDENER	2.5	Gallon(GAL)	19-Sep-18
1510687	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510717	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510708	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510709	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510710	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510711	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510712	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510713	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510714	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510716	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510707	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510718	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510715	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510706	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510688	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510734	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510723	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510732	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510731	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510730	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510729	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510736	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510727	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510735	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510726	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510725	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510724	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510720	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510721	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510722	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510719	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510728	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510697	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510705	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1510704	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510703	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510702	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510701	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510700	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510699	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510733	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510698	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510692	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510689	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510690	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510695	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510694	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510693	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510696	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510691	88-89-1	PICRIC ACID	500	Gram(GM)	19-Sep-18
1510759	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510767	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510766	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510763	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510764	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510782	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510781	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510762	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510765	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510777	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510760	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510775	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510774	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510773	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510772	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510776	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510761	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510780	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510771	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510778	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510770	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510769	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510779	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1510768	7722-84-1	HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	19-Sep-18
1458889	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	19-Sep-18
1458890	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	19-Sep-18
1458891	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	19-Sep-18
1458893	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	19-Sep-18
1458894	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	19-Sep-18
1458892	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	19-Sep-18
1458895	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	19-Sep-18
1560488	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Cubic Feet(CF)	19-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560489	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Cubic Feet(CF)	19-Sep-18
1560490	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560505	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560509	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560508	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560510	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560506	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560504	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560503	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560502	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560501	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560507	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560521	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560530	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560529	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560528	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560527	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560526	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560525	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560524	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560515	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560522	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560511	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560520	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560519	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560518	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560517	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560512	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560516	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560500	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560513	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560523	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560492	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560499	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560491	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560493	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560494	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560495	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560496	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560497	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560498	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560514	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Sep-18
1560531	-	Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	19-Sep-18
1560535	-	Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	19-Sep-18
1560536	-	Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	19-Sep-18
1560534	-	Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	19-Sep-18
1560533	-	Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	19-Sep-18
1560532	-	Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	19-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560537	-	Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	19-Sep-18
1560538	-	AIR COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560539	-	AIR COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560540	-	AIR COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560541	-	AIR COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560542	-	AIR COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560543	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560549	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560544	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560546	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560548	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560550	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560551	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560552	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560553	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560554	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560555	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560556	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560557	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560547	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560545	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	19-Sep-18
1560558	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560583	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560584	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560585	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560586	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560587	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560572	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560569	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560573	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560559	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560560	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560561	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560562	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560563	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560564	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560570	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560581	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560565	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560566	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560567	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560568	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560571	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560582	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560580	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560579	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560578	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560577	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560576	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560575	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560574	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Sep-18
1560588	-	Nitrogen UHP	220	Cubic Feet(CF)	19-Sep-18
1560594	-	Nitrogen UHP	220	Cubic Feet(CF)	19-Sep-18
1560592	-	Nitrogen UHP	220	Cubic Feet(CF)	19-Sep-18
1560593	-	Nitrogen UHP	220	Cubic Feet(CF)	19-Sep-18
1560590	-	Nitrogen UHP	220	Cubic Feet(CF)	19-Sep-18
1560589	-	Nitrogen UHP	220	Cubic Feet(CF)	19-Sep-18
1560591	-	Nitrogen UHP	220	Cubic Feet(CF)	19-Sep-18
1560596	-	Nitrogen UHP	220	Cubic Feet(CF)	19-Sep-18
1560598	-	Nitrogen UHP	220	Cubic Feet(CF)	19-Sep-18
1560599	7440-59-7	HELIUM	100	Cubic Feet(CF)	19-Sep-18
1560600	7440-59-7	HELIUM	100	Cubic Feet(CF)	19-Sep-18
1560601	7440-59-7	HELIUM	100	Cubic Feet(CF)	19-Sep-18
1560602	7440-59-7	HELIUM	100	Cubic Feet(CF)	19-Sep-18
1004941	-	SPRAY PAINT	12	Ounces(OZ)	19-Sep-18
1004943	-	SPRAY PAINT	12	Ounces(OZ)	19-Sep-18
1004944	-	SPRAY PAINT	12	Ounces(OZ)	19-Sep-18
1004945	-	SPRAY PAINT	12	Ounces(OZ)	19-Sep-18
1004942	-	SPRAY PAINT	12	Ounces(OZ)	19-Sep-18
1004939	-	ARMOR ALL CLEANER	1.75	Pint(PT)	19-Sep-18
1004940	-	ARMOR ALL CLEANER	1.75	Pint(PT)	19-Sep-18
1004938	-	D LEAD ALL PURPOSE CLEANER	1	Quarts(QT)	19-Sep-18
1004935	-	ROCKITE CEMENT	10	Pounds(LB)	19-Sep-18
1004934	-	ULTRA GRADE 19 OIL	1	Liters(L)	19-Sep-18
1004933	-	RAPID TAP	4	Ounces(OZ)	19-Sep-18
1004917	-	dynaflex 230	10.1	Ounces(OZ)	19-Sep-18
1004929	-	Citrus Cleaner - Degreaser	32	Ounces(OZ)	19-Sep-18
1004928	-	DOW CORNING HIGH VACUUM GREASE	2	Ounces(OZ)	19-Sep-18
1004927	-	ALUMICUT	16	Ounces(OZ)	19-Sep-18
1004926	-	Citrus Cleaner - Degreaser	128	Ounces(OZ)	19-Sep-18
1004925	-	TURBO PUMP OIL	8	Ounces(OZ)	19-Sep-18
1004924	-	GLASS AND MULTI-SURFACE CLEANER	32	Ounces(OZ)	19-Sep-18
1004923	-	FANTASTIK SPRAY CLEANER	32	Ounces(OZ)	19-Sep-18
1004914	-	FANTASTIK SPRAY CLEAN	32	Ounces(OZ)	19-Sep-18
1004915	-	FANTASTIK SPRAY CLEAN	32	Ounces(OZ)	19-Sep-18
1004910	-	SILICON PASTE P4	4	Ounces(OZ)	19-Sep-18
1560604	-	AIR ZERO	220	Cubic Feet(CF)	20-Sep-18
1560605	74-82-8	METHANE	220	Cubic Feet(CF)	20-Sep-18
1560606	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560610	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560609	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560611	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560612	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560613	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560614	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560615	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560616	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560607	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560608	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560620	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560621	7440-63-3	XENON	100	Liters(L)	20-Sep-18
1560653	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560656	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560654	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560655	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560665	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560661	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560662	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560663	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560658	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560664	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560666	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560660	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560659	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560670	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560671	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560669	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1560668	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Sep-18
1004920	-	GLANCE MULTI-SURFACE CLEANER	32	Ounces(OZ)	20-Sep-18
1004921	-	GLANCE MULTI-SURFACE CLEANER	32	Ounces(OZ)	20-Sep-18
1004922	-	GLANCE MULTI-SURFACE CLEANER	32	Ounces(OZ)	20-Sep-18
1004916	-	PCI INDUSTRIES MASTER PLUMBER MULTI	4	Ounces(OZ)	20-Sep-18
1004909	-	PVC CEMENT	4	Ounces(OZ)	20-Sep-18
1560678	630-08-0	CARBON MONOXIDE	40	Cubic Feet(CF)	20-Sep-18
1560679	74-82-8	METHANE	20	Cubic Feet(CF)	20-Sep-18
1560680	10024-97-2	NITROUS OXIDE	200	Cubic Feet(CF)	20-Sep-18
1560681	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560703	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560684	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560686	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560702	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560683	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560685	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560694	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560691	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560692	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560688	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560687	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560693	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560695	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560696	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560682	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560697	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560689	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560698	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560699	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560700	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560701	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560690	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560704	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	20-Sep-18
1560706	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	20-Sep-18
1560705	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	20-Sep-18
1560708	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	20-Sep-18
1560707	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	20-Sep-18
1560709	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560729	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560712	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560730	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560726	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560728	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560727	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560731	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560735	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560720	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560732	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560721	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560722	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560723	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560724	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560710	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560733	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560714	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560734	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560711	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560736	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560719	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560718	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560725	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560717	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560716	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560715	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560713	-	Argon UHP	220	Cubic Feet(CF)	20-Sep-18
1560758	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560768	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560760	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560770	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560759	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560761	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560762	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560763	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560764	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560765	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560766	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560769	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560771	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560772	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560773	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560767	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560737	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560750	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560744	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560743	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560742	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560741	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560740	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560739	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560738	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560746	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560747	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560749	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560751	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560745	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560748	-	Oxygen UHP	220	Cubic Feet(CF)	20-Sep-18
1560752	-	AIR COMPRESSED	220	Cubic Feet(CF)	20-Sep-18
1560774	74-98-6	PROPANE	5	Gallon(GAL)	20-Sep-18
1560775	74-98-6	PROPANE	5	Gallon(GAL)	20-Sep-18
1560776	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18
1560780	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18
1560794	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560788	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18
1560778	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18
1560807	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560790	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560803	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560802	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560795	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560787	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18
1560793	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560792	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560791	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560805	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560806	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560808	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560804	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560782	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18
1560777	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18
1560797	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560779	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18
1560789	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560781	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560786	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18
1560783	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18
1560798	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560799	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560800	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560801	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560784	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18
1560785	74-98-6	PROPANE	10	Cubic Feet(CF)	20-Sep-18
1560796	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Sep-18
1560809	-	Hydrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560818	-	Hydrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560817	-	Hydrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560816	-	Hydrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560813	-	Hydrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560812	-	Hydrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560811	-	Hydrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560810	-	Hydrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560814	-	Hydrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560815	-	Hydrogen UHP	220	Cubic Feet(CF)	20-Sep-18
1560819	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560823	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560843	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560842	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560841	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560840	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560839	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560824	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560825	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560827	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560822	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560821	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560820	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560849	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560826	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560833	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560848	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560847	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560838	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560837	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560836	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560845	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560834	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560844	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560832	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560831	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560830	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560829	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560828	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560846	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560835	-	94% Argon and 6% Hydrogen	220	Cubic Feet(CF)	20-Sep-18
1560624	74-86-2	ACETYLENE STABILIZED	10	Pounds(LB)	20-Sep-18
1560626	74-86-2	ACETYLENE STABILIZED	10	Pounds(LB)	20-Sep-18
1560627	74-86-2	ACETYLENE STABILIZED	10	Pounds(LB)	20-Sep-18
1560628	74-86-2	ACETYLENE STABILIZED	10	Pounds(LB)	20-Sep-18
1560629	74-86-2	ACETYLENE STABILIZED	10	Pounds(LB)	20-Sep-18
1560630	74-86-2	ACETYLENE STABILIZED	10	Pounds(LB)	20-Sep-18
1560631	74-86-2	ACETYLENE STABILIZED	10	Pounds(LB)	20-Sep-18
1560625	74-86-2	ACETYLENE STABILIZED	10	Pounds(LB)	20-Sep-18
1560632	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	20-Sep-18
1560633	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	20-Sep-18
1560634	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	20-Sep-18
1560635	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560638	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560637	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560645	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560651	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560650	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560649	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560648	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560636	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560646	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560652	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560644	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560643	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560642	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560641	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560640	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560639	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1560647	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Sep-18
1004911	-	PVC CEMENT CLEAR	4	Ounces(OZ)	20-Sep-18
1004967	-	DOW CORNING 732 RTV SILICONE SEALANT	3	Ounces(OZ)	20-Sep-18
1004968	-	DOW CORNING 732 RTV SILICONE SEALANT	3	Ounces(OZ)	20-Sep-18
1004965	-	Apiezon grease L	50	Gram(GM)	20-Sep-18
1004966	-	Apiezon grease L	50	Gram(GM)	20-Sep-18
1004961	-	DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	20-Sep-18
1004962	-	DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	20-Sep-18
1004964	-	DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	20-Sep-18
1004963	-	DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	20-Sep-18
1004954	-	MULTI PURPOSE GREASE	14.5	Ounces(OZ)	20-Sep-18
1004953	-	PRECISION CLEAN	28	Ounces(OZ)	20-Sep-18
1004950	-	ZONE MARKING PAINT	1	Gallon(GAL)	20-Sep-18
1004949	-	ZONE MARKING PAINT	1	Gallon(GAL)	20-Sep-18
1004948	-	SPRAY PAINT	12	Ounces(OZ)	20-Sep-18
1004947	-	3M FIRE BLOCK SEALANT FB 136	12	Ounces(OZ)	20-Sep-18
1004946	-	SEALING COMPOUND	1	Kilograms(KG)	20-Sep-18
1510563	7440-21-3	SILICON	1	Pint(PT)	20-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1510564	7440-21-3	SILICON	1	Pint(PT)	20-Sep-18
1510665	-	LAYOUT FLUID	8	Ounces(OZ)	20-Sep-18
1510666	-	DYKEM STEEL BLUE (LIQUID)	8	Ounces(OZ)	20-Sep-18
1498844	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498864	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498860	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498873	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498872	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498871	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498870	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498869	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498868	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498867	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498866	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498865	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498850	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498861	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498876	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498859	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498858	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498857	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498856	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498855	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498854	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498853	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498852	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498862	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498863	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498886	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498897	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498896	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498895	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498894	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498893	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498892	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498891	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498890	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498889	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498874	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498887	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498875	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498885	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498884	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498883	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498882	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498881	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498880	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498879	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1498878	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498877	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498849	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498888	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498848	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498847	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498846	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498845	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1498851	497-19-8	Soda Ash 58% Dense	50	Pounds(LB)	20-Sep-18
1266094	-	732 RTV ADHESIVE/SEALANT SILASTIC	90	Milliliter(ML)	20-Sep-18
1266083	-	PHOSPHOROUS	50	Gram(GM)	20-Sep-18
1266084	-	Torr Seal Hardener Part A	82	Gram(GM)	20-Sep-18
1266085	-	Torr Seal Hardener Part B	36	Gram(GM)	20-Sep-18
1266099	7440-21-3	732 RTV SILICONE MULTI-PURPOSE SEALANT	90	Milliliter(ML)	20-Sep-18
1266100	7440-21-3	732 RTV SILICONE MULTI-PURPOSE SEALANT	90	Milliliter(ML)	20-Sep-18
1266101	7440-21-3	732 RTV SILICONE MULTI-PURPOSE SEALANT	90	Milliliter(ML)	20-Sep-18
1266102	7440-21-3	732 RTV SILICONE MULTI-PURPOSE SEALANT	90	Milliliter(ML)	20-Sep-18
1266103	-	GAP FILLER	1	Ounces(OZ)	20-Sep-18
1266090	-	Torr Seal Hardener Part A	82	Gram(GM)	20-Sep-18
1266091	-	Torr Seal Hardener Part B	36	Gram(GM)	20-Sep-18
1266092	-	HI STRENGTH 90 SPRAY	17.6	Ounces(OZ)	20-Sep-18
1266093	7440-21-3	732 RTV SILICONE MULTI-PURPOSE SEALANT	90	Milliliter(ML)	20-Sep-18
1455609	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455610	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455616	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455611	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455612	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455613	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455615	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455617	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455618	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455614	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455619	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455620	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455621	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455622	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455623	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455624	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455625	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455608	-	FLUX PASTE	10	Gram(GM)	21-Sep-18
1455607	-	SOLDER PASTE	15	Gram(GM)	21-Sep-18
1455593	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455599	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455598	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455597	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455600	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455601	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455594	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1455596	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455595	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	21-Sep-18
1455589	-	OBJET VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	21-Sep-18
1455592	-	OBJET VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	21-Sep-18
1455590	-	OBJET VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	21-Sep-18
1455591	-	OBJET VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	21-Sep-18
1455585	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455586	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455587	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455588	-	OBJET SUPPORT SUP705	3.6	Kilograms(KG)	21-Sep-18
1455675	-	ELECTRONIC LIQUID (FLUORINERT)	44	Pounds(LB)	21-Sep-18
1455676	-	ELECTRONIC LIQUID (FLUORINERT)	44	Pounds(LB)	21-Sep-18
1455662	-	STYCAST 2850FT BLACK	3	Pounds(LB)	21-Sep-18
1455664	-	STYCAST 2850FT BLACK	3	Pounds(LB)	21-Sep-18
1455665	-	STYCAST 2850FT BLACK	3	Pounds(LB)	21-Sep-18
1455666	-	STYCAST 2850FT BLACK	3	Pounds(LB)	21-Sep-18
1455667	-	STYCAST 2850FT BLACK	3	Pounds(LB)	21-Sep-18
1455668	-	STYCAST 2850FT BLACK	3	Pounds(LB)	21-Sep-18
1455669	-	STYCAST 2850FT BLACK	3	Pounds(LB)	21-Sep-18
1455670	-	STYCAST 2850FT BLACK	3	Pounds(LB)	21-Sep-18
1455663	-	STYCAST 2850FT BLACK	3	Pounds(LB)	21-Sep-18
1455661	-	340 SILICONE HEAT SINK COMPOUND	5	Ounces(OZ)	21-Sep-18
1455660	-	SILICONE RELEASE SPRAY	12	Ounces(OZ)	21-Sep-18
1455655	-	GREASELESS LUBRICANT	11	Ounces(OZ)	21-Sep-18
1455657	-	GREASELESS LUBRICANT	11	Ounces(OZ)	21-Sep-18
1455656	-	GREASELESS LUBRICANT	11	Ounces(OZ)	21-Sep-18
1455658	-	GREASELESS LUBRICANT	11	Ounces(OZ)	21-Sep-18
1455651	-	SPRAYON DRY GRAPHITE LUBE	10	Ounces(OZ)	21-Sep-18
1455654	-	SPRAYON DRY GRAPHITE LUBE	10	Ounces(OZ)	21-Sep-18
1455653	-	SPRAYON DRY GRAPHITE LUBE	10	Ounces(OZ)	21-Sep-18
1455652	-	SPRAYON DRY GRAPHITE LUBE	10	Ounces(OZ)	21-Sep-18
1455648	-	HAMMERITE RUST CAP	12	Ounces(OZ)	21-Sep-18
1455647	-	STAINLESS STEEL	11	Ounces(OZ)	21-Sep-18
1455646	-	SANDABLE PRIMER	12	Ounces(OZ)	21-Sep-18
1455635	-	ABS BLACK CEMENT	8	Ounces(OZ)	21-Sep-18
1455637	-	ODORLESS PAINT THINNER	32	Ounces(OZ)	21-Sep-18
1455636	-	TIRE INFLATOR	14	Ounces(OZ)	21-Sep-18
1455634	-	SKD-S2 SPOTCHECK DEVELOPER	330	Gram(GM)	21-Sep-18
1455642	-	SPRAY ENAMEL IVORY	12	Ounces(OZ)	21-Sep-18
1455640	-	KRYLON INTERIOR ENAMEL (METALLIC)	12	Ounces(OZ)	21-Sep-18
1455641	-	KRYLON INTERIOR ENAMEL (METALLIC)	12	Ounces(OZ)	21-Sep-18
1455644	-	KRYLON INTERIOR ENAMEL (METALLIC)	12	Ounces(OZ)	21-Sep-18
1455639	-	FLAT BLACK INTERIOR/EXTERIOR	12	Ounces(OZ)	21-Sep-18
1455643	-	KRYLON INTERIOR/EXTERIOR ENAMEL	12	Ounces(OZ)	21-Sep-18
1455645	-	SATIN BLACK	12	Ounces(OZ)	21-Sep-18
1455632	-	SATIN BLACK	12	Ounces(OZ)	21-Sep-18
1455631	Multi	FINE-L-KOTE	340	Gram(GM)	21-Sep-18
1455649	Multi	FINE-L-KOTE	340	Gram(GM)	21-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1455650	Multi	FINE-L-KOTE	340	Gram(GM)	21-Sep-18
1455630	-	SHORT CUTS	3	Ounces(OZ)	21-Sep-18
1455638	-	SHORT CUTS	3	Ounces(OZ)	21-Sep-18
1455628	-	CATALYST 24LV	8	Ounces(OZ)	21-Sep-18
1455629	-	CATALYST 24LV	8	Ounces(OZ)	21-Sep-18
1455626	-	STYCAST 2850FT BLACK	1.36	Kilograms(KG)	21-Sep-18
1455627	-	STYCAST 2850FT BLACK	1.36	Kilograms(KG)	21-Sep-18
1498899	-	WEST R-630 SULFITE	573	Kilograms(KG)	21-Sep-18
1498906	-	WEST R-630 SULFITE	573	Kilograms(KG)	21-Sep-18
1498905	-	WEST R-630 SULFITE	573	Kilograms(KG)	21-Sep-18
1498904	-	WEST R-630 SULFITE	573	Kilograms(KG)	21-Sep-18
1498903	-	WEST R-630 SULFITE	573	Kilograms(KG)	21-Sep-18
1498902	-	WEST R-630 SULFITE	573	Kilograms(KG)	21-Sep-18
1498900	-	WEST R-630 SULFITE	573	Kilograms(KG)	21-Sep-18
1498907	-	WEST R-630 SULFITE	573	Kilograms(KG)	21-Sep-18
1498908	-	WEST R-630 SULFITE	573	Kilograms(KG)	21-Sep-18
1498901	-	WEST R-630 SULFITE	573	Kilograms(KG)	21-Sep-18
1498910	-	WEST R-630 SULFITE	573	Kilograms(KG)	21-Sep-18
1498909	-	WEST R-630 SULFITE	573	Kilograms(KG)	21-Sep-18
1498945	-	PSX 700 CURE US	0.2	Gallon(GAL)	21-Sep-18
1498949	-	PSX 700 CURE US	0.2	Gallon(GAL)	21-Sep-18
1498948	-	PSX 700 CURE US	0.2	Gallon(GAL)	21-Sep-18
1498947	-	PSX 700 CURE US	0.2	Gallon(GAL)	21-Sep-18
1498946	-	PSX 700 CURE US	0.2	Gallon(GAL)	21-Sep-18
1498951	-	PSX 700 CURE US	0.2	Gallon(GAL)	21-Sep-18
1498952	-	PSX 700 CURE US	0.2	Gallon(GAL)	21-Sep-18
1498950	-	PSX 700 CURE US	0.2	Gallon(GAL)	21-Sep-18
1420587	-	CONATHANE EN-4 PART A URETHANE	9	Pounds(LB)	21-Sep-18
1420588	-	CONATHANE EN-7 PART B CURATIVE	1.7	Pounds(LB)	21-Sep-18
1510669	-	BLUE LAYOUT FLUID	12	Ounces(OZ)	24-Sep-18
1510670	-	Kool Mist Formula 78	5	Gallon(GAL)	24-Sep-18
1510671	68076-36-8	N-Boc-1 4-butanediamine	25	Gram(GM)	24-Sep-18
1510672	68076-36-8	N-Boc-1 4-butanediamine	25	Gram(GM)	24-Sep-18
1510673	7440-42-8	BORON POWDER	50	Gram(GM)	24-Sep-18
1510675	7440-42-8	BORON POWDER	50	Gram(GM)	24-Sep-18
1510674	7440-42-8	BORON POWDER	50	Gram(GM)	24-Sep-18
1510676	122-57-6	Benzylideneacetone 98+%	250	Gram(GM)	24-Sep-18
1510737	109-66-0	PENTANE	4	Liters(L)	24-Sep-18
1510739	109-66-0	PENTANE	4	Liters(L)	24-Sep-18
1510738	109-66-0	PENTANE	4	Liters(L)	24-Sep-18
1510740	109-66-0	PENTANE	4	Liters(L)	24-Sep-18
1510741	-	MOLY-DEE TAPPING FLUID	16	Ounces(OZ)	24-Sep-18
1510742	-	MOLY-DEE TAPPING FLUID	16	Ounces(OZ)	24-Sep-18
1510743	1693-74-9	TETRAHYDROFURAN-D8	10	Milliliter(ML)	24-Sep-18
1510744	76-83-5	Triphenylmethyl Chloride 98%	100	Gram(GM)	24-Sep-18
1510745	23978-09-8	KRYPTOFIX 222	1	Gram(GM)	24-Sep-18
1510746	2037-26-5	TOLUENE-D8	10	Milliliter(ML)	24-Sep-18
1510747	930-30-3	2-CYCLOPENTENONE	25	Gram(GM)	24-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1510748	7558-79-4	SODIUM PHOSPHATE DIBASIC	500	Gram(GM)	24-Sep-18
1510749	9004-74-4	POLY(ETHYLENE GLYCOL) METHYL ETHER	200	Gram(GM)	24-Sep-18
1510831	-	Clear Resin	1	Liters(L)	24-Sep-18
1510836	-	Clear Resin	1	Liters(L)	24-Sep-18
1510843	-	Clear Resin	1	Liters(L)	24-Sep-18
1510842	-	Clear Resin	1	Liters(L)	24-Sep-18
1510841	-	Clear Resin	1	Liters(L)	24-Sep-18
1510840	-	Clear Resin	1	Liters(L)	24-Sep-18
1510839	-	Clear Resin	1	Liters(L)	24-Sep-18
1510837	-	Clear Resin	1	Liters(L)	24-Sep-18
1510846	-	Clear Resin	1	Liters(L)	24-Sep-18
1510835	-	Clear Resin	1	Liters(L)	24-Sep-18
1510834	-	Clear Resin	1	Liters(L)	24-Sep-18
1510833	-	Clear Resin	1	Liters(L)	24-Sep-18
1510832	-	Clear Resin	1	Liters(L)	24-Sep-18
1510838	-	Clear Resin	1	Liters(L)	24-Sep-18
1510850	-	Clear Resin	1	Liters(L)	24-Sep-18
1510849	-	Clear Resin	1	Liters(L)	24-Sep-18
1510847	-	Clear Resin	1	Liters(L)	24-Sep-18
1510848	-	Clear Resin	1	Liters(L)	24-Sep-18
1510844	-	Clear Resin	1	Liters(L)	24-Sep-18
1510845	-	Clear Resin	1	Liters(L)	24-Sep-18
1510851	-	Grey Pro Resin	1	Liters(L)	24-Sep-18
1510852	-	Grey Pro Resin	1	Liters(L)	24-Sep-18
1510853	-	Black Resin	1	Liters(L)	24-Sep-18
1510854	-	Black Resin	1	Liters(L)	24-Sep-18
1458896	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	24-Sep-18
1458900	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	24-Sep-18
1458899	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	24-Sep-18
1458898	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	24-Sep-18
1458897	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	24-Sep-18
1510677	-	STANDARD INSTRUMENT CHECK ICP MS	125	Milliliter(ML)	24-Sep-18
1510678	-	Platinum nominally 60% on high surface area	5	Gram(GM)	24-Sep-18
1510679	-	Platinum nominally 60% on high surface area	5	Gram(GM)	24-Sep-18
1510681	75-09-2	DICHLOROMETHANE	4	Liters(L)	24-Sep-18
1510683	75-09-2	DICHLOROMETHANE	4	Liters(L)	24-Sep-18
1510684	75-09-2	DICHLOROMETHANE	4	Liters(L)	24-Sep-18
1510682	75-09-2	DICHLOROMETHANE	4	Liters(L)	24-Sep-18
1510685	-	5-MINUTE EPOXY	25	Milliliter(ML)	24-Sep-18
1510686	110-82-7	CYCLOHEXANE	1	Liters(L)	24-Sep-18
1510750	141-78-6	ETHYL ACETATE	4	Liters(L)	24-Sep-18
1510783	7782-40-3	Diamond Powder	10	Milligram(MG)	24-Sep-18
1510785	7782-40-3	Diamond Powder	10	Milligram(MG)	24-Sep-18
1510784	7782-40-3	Diamond Powder	10	Milligram(MG)	24-Sep-18
1510786	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510797	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510798	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510806	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1510796	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510800	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510790	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510801	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510802	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510803	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510804	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510799	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510807	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510805	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510808	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510809	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510789	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510795	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510794	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510793	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510792	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510791	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510787	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510788	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	24-Sep-18
1510810	7697-37-2	NITRIC ACID FUMING	400	Milliliter(ML)	24-Sep-18
1510811	-	Stainlesscut Aerosol Cutting Fluid	11	Ounces(OZ)	24-Sep-18
1510813	-	Stainlesscut Aerosol Cutting Fluid	11	Ounces(OZ)	24-Sep-18
1510821	-	Stainlesscut Aerosol Cutting Fluid	11	Ounces(OZ)	24-Sep-18
1510820	-	Stainlesscut Aerosol Cutting Fluid	11	Ounces(OZ)	24-Sep-18
1510819	-	Stainlesscut Aerosol Cutting Fluid	11	Ounces(OZ)	24-Sep-18
1510818	-	Stainlesscut Aerosol Cutting Fluid	11	Ounces(OZ)	24-Sep-18
1510817	-	Stainlesscut Aerosol Cutting Fluid	11	Ounces(OZ)	24-Sep-18
1510816	-	Stainlesscut Aerosol Cutting Fluid	11	Ounces(OZ)	24-Sep-18
1510814	-	Stainlesscut Aerosol Cutting Fluid	11	Ounces(OZ)	24-Sep-18
1510812	-	Stainlesscut Aerosol Cutting Fluid	11	Ounces(OZ)	24-Sep-18
1510822	-	Stainlesscut Aerosol Cutting Fluid	11	Ounces(OZ)	24-Sep-18
1510815	-	Stainlesscut Aerosol Cutting Fluid	11	Ounces(OZ)	24-Sep-18
1510680	7440-22-4	Silver Epoxy Paste Type II	1	Ounces(OZ)	24-Sep-18
1510751	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	24-Sep-18
1510752	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	24-Sep-18
1510754	-	CRYSTALBOND 555	50	Milliliter(ML)	24-Sep-18
1510755	-	CRYSTALBOND 555	50	Milliliter(ML)	24-Sep-18
1510756	9000-59-3	Crystalbond 590 Mounting Adhesive	2	Ounces(OZ)	24-Sep-18
1510757	24937-78-8	Wafer-Mount 562 Thermoplastic Film Adhesive	200	Milligram(MG)	24-Sep-18
1510758	-	Wafer-Mount 559 Semi-Rigid Plastic Film	200	Milligram(MG)	24-Sep-18
1510823	17874-79-2	5-(Methoxycarbonyl)-2-pyridinecarboxylic acid	25	Gram(GM)	24-Sep-18
1510824	10138-41-7	ERBIUM(III) CHLORIDE ANHYDROUS	50	Gram(GM)	24-Sep-18
1572809	-	R630	55	Gallon(GAL)	25-Sep-18
1572847	-	R630	55	Gallon(GAL)	25-Sep-18
1572848	-	R630	55	Gallon(GAL)	25-Sep-18
1572835	-	R630	55	Gallon(GAL)	25-Sep-18
1572845	-	R630	55	Gallon(GAL)	25-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1572837	-	R630	55	Gallon(GAL)	25-Sep-18
1572838	-	R630	55	Gallon(GAL)	25-Sep-18
1572839	-	R630	55	Gallon(GAL)	25-Sep-18
1572840	-	R630	55	Gallon(GAL)	25-Sep-18
1572841	-	R630	55	Gallon(GAL)	25-Sep-18
1572842	-	R630	55	Gallon(GAL)	25-Sep-18
1572843	-	R630	55	Gallon(GAL)	25-Sep-18
1572810	-	R630	55	Gallon(GAL)	25-Sep-18
1572846	-	R630	55	Gallon(GAL)	25-Sep-18
1572834	-	R630	55	Gallon(GAL)	25-Sep-18
1572849	-	R630	55	Gallon(GAL)	25-Sep-18
1572850	-	R630	55	Gallon(GAL)	25-Sep-18
1572851	-	R630	55	Gallon(GAL)	25-Sep-18
1572852	-	R630	55	Gallon(GAL)	25-Sep-18
1572853	-	R630	55	Gallon(GAL)	25-Sep-18
1572854	-	R630	55	Gallon(GAL)	25-Sep-18
1572855	-	R630	55	Gallon(GAL)	25-Sep-18
1572856	-	R630	55	Gallon(GAL)	25-Sep-18
1572857	-	R630	55	Gallon(GAL)	25-Sep-18
1572858	-	R630	55	Gallon(GAL)	25-Sep-18
1572844	-	R630	55	Gallon(GAL)	25-Sep-18
1572821	-	R630	55	Gallon(GAL)	25-Sep-18
1572811	-	R630	55	Gallon(GAL)	25-Sep-18
1572812	-	R630	55	Gallon(GAL)	25-Sep-18
1572813	-	R630	55	Gallon(GAL)	25-Sep-18
1572814	-	R630	55	Gallon(GAL)	25-Sep-18
1572815	-	R630	55	Gallon(GAL)	25-Sep-18
1572816	-	R630	55	Gallon(GAL)	25-Sep-18
1572817	-	R630	55	Gallon(GAL)	25-Sep-18
1572818	-	R630	55	Gallon(GAL)	25-Sep-18
1572836	-	R630	55	Gallon(GAL)	25-Sep-18
1572820	-	R630	55	Gallon(GAL)	25-Sep-18
1572833	-	R630	55	Gallon(GAL)	25-Sep-18
1572822	-	R630	55	Gallon(GAL)	25-Sep-18
1572823	-	R630	55	Gallon(GAL)	25-Sep-18
1572824	-	R630	55	Gallon(GAL)	25-Sep-18
1572825	-	R630	55	Gallon(GAL)	25-Sep-18
1572826	-	R630	55	Gallon(GAL)	25-Sep-18
1572827	-	R630	55	Gallon(GAL)	25-Sep-18
1572828	-	R630	55	Gallon(GAL)	25-Sep-18
1572829	-	R630	55	Gallon(GAL)	25-Sep-18
1572830	-	R630	55	Gallon(GAL)	25-Sep-18
1572831	-	R630	55	Gallon(GAL)	25-Sep-18
1572832	-	R630	55	Gallon(GAL)	25-Sep-18
1572819	-	R630	55	Gallon(GAL)	25-Sep-18
1572859	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572873	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572870	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1572882	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572881	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572880	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572879	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572878	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572877	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572876	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572874	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572884	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572871	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572885	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572869	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572868	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572867	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572866	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572865	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572864	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572863	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572862	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572872	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572860	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572886	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572875	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572887	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572888	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572883	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1572861	-	BROMICIDE	5	Gallon(GAL)	25-Sep-18
1423181	-	THERMAL MASTIC HEAT TRANSFER COMPOUND	16	Ounces(OZ)	25-Sep-18
1289128	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1289129	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1289131	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1289136	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1289132	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1289133	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1289139	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1289140	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1289141	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1289138	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1289135	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1289137	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1289134	55-56-1	CHLORHEXIDINE	1	Ounces(OZ)	25-Sep-18
1523779	-	Intellipack SmartFoam A	55	Gallon(GAL)	25-Sep-18
1510516	10024-93-8	NEODYMIUM (III) CHLORIDE	100	Gram(GM)	26-Sep-18
1510517	598-30-1	SEC-BUTYLLITHIUM	100	Milliliter(ML)	26-Sep-18
1510518	598-30-1	SEC-BUTYLLITHIUM	100	Milliliter(ML)	26-Sep-18
1510753	1305-78-8	CALCIUM OXIDE	500	Gram(GM)	26-Sep-18
1510825	75-09-2	DICHLOROMETHANE	2.5	Liters(L)	26-Sep-18
1510826	-	STL Thread Lubricant	3	Ounces(OZ)	26-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1510828	-	STL Thread Lubricant	3	Ounces(OZ)	26-Sep-18
1510827	-	STL Thread Lubricant	3	Ounces(OZ)	26-Sep-18
1510829	00682-01-9	TETRA-N-PROPYL-SILICATE	1	Pint(PT)	26-Sep-18
1510830	1314-37-0	YTTERBIUM(III) OXIDE	100	Gram(GM)	26-Sep-18
1510903	-	5-MINUTE EPOXY	25	Milliliter(ML)	26-Sep-18
1510905	-	5-MINUTE EPOXY	25	Milliliter(ML)	26-Sep-18
1510904	-	5-MINUTE EPOXY	25	Milliliter(ML)	26-Sep-18
1572889	-	LF1000	1	Ounces(OZ)	26-Sep-18
1572892	-	LF1000	1	Ounces(OZ)	26-Sep-18
1572893	-	LF1000	1	Ounces(OZ)	26-Sep-18
1572890	-	LF1000	1	Ounces(OZ)	26-Sep-18
1572891	-	LF1000	1	Ounces(OZ)	26-Sep-18
1572894	-	LF1000	1	Ounces(OZ)	26-Sep-18
1320461	1344-59-8	URANIUM(V VI) OXIDE (U3O8)	12.5	Gram(GM)	26-Sep-18
1510519	1310-73-2	SODIUM HYDROXIDE	4	Liters(L)	26-Sep-18
1510526	1310-73-2	SODIUM HYDROXIDE	4	Liters(L)	26-Sep-18
1510524	1310-73-2	SODIUM HYDROXIDE	4	Liters(L)	26-Sep-18
1510525	1310-73-2	SODIUM HYDROXIDE	4	Liters(L)	26-Sep-18
1510520	1310-73-2	SODIUM HYDROXIDE	4	Liters(L)	26-Sep-18
1510521	1310-73-2	SODIUM HYDROXIDE	4	Liters(L)	26-Sep-18
1510522	1310-73-2	SODIUM HYDROXIDE	4	Liters(L)	26-Sep-18
1510523	1310-73-2	SODIUM HYDROXIDE	4	Liters(L)	26-Sep-18
1510855	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510858	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510864	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510868	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510867	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510866	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510865	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510870	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510863	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510862	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510861	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510859	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510857	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510856	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510872	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510871	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510860	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510874	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510875	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510876	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510877	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510878	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510873	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510869	64-17-5	ETHYL ALCOHOL	1	Pint(PT)	26-Sep-18
1510879	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	26-Sep-18
1510884	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	26-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1510890	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	26-Sep-18
1510889	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	26-Sep-18
1510888	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	26-Sep-18
1510887	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	26-Sep-18
1510885	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	26-Sep-18
1510883	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	26-Sep-18
1510882	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	26-Sep-18
1510881	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	26-Sep-18
1510880	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	26-Sep-18
1510886	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	26-Sep-18
1510906	7697-37-2	NITRIC ACID FUMING	400	Milliliter(ML)	26-Sep-18
1510911	7697-37-2	NITRIC ACID FUMING	400	Milliliter(ML)	26-Sep-18
1510909	7697-37-2	NITRIC ACID FUMING	400	Milliliter(ML)	26-Sep-18
1510910	7697-37-2	NITRIC ACID FUMING	400	Milliliter(ML)	26-Sep-18
1510908	7697-37-2	NITRIC ACID FUMING	400	Milliliter(ML)	26-Sep-18
1510907	7697-37-2	NITRIC ACID FUMING	400	Milliliter(ML)	26-Sep-18
1510912	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	2.5	Kilograms(KG)	26-Sep-18
1510913	10043-52-4	CALCIUM CHLORIDE ANHYDROUS	2.5	Kilograms(KG)	26-Sep-18
1510914	-	BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	26-Sep-18
1510916	-	BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	26-Sep-18
1510917	-	BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	26-Sep-18
1510918	-	BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	26-Sep-18
1510919	-	BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	26-Sep-18
1510915	-	BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	26-Sep-18
1510920	10025-77-1	IRON(III) CHLORIDE HEXAHYDRATE	2.5	Kilograms(KG)	26-Sep-18
1510921	10025-77-1	IRON(III) CHLORIDE HEXAHYDRATE	2.5	Kilograms(KG)	26-Sep-18
1510922	-	SINGLET Single-Use pH Buffer Kit pH 4.01 & 7.00	20	Milliliter(ML)	26-Sep-18
1510923	-	Ensolv	1	Gallon(GAL)	26-Sep-18
1510924	7440-21-3	SILICON	1	Pint(PT)	26-Sep-18
1510926	7440-21-3	SILICON	1	Pint(PT)	26-Sep-18
1510925	7440-21-3	SILICON	1	Pint(PT)	26-Sep-18
1510927	-	COLLODION FLEXIBLE	500	Milliliter(ML)	26-Sep-18
1510928	7773-01-5	MANGANESE(II) CHLORIDE	5	Gram(GM)	26-Sep-18
1510929	10049-05-5	CHROMOUS CHLORIDE	5	Gram(GM)	26-Sep-18
1510930	7646-79-9	COBALT(II) CHLORIDE	25	Gram(GM)	26-Sep-18
1458901	-	PermaTreat PC-510T	511	Pounds(LB)	26-Sep-18
1458902	-	NALCO 8735	639	Pounds(LB)	26-Sep-18
1458903	-	NALCO 1720 OXYGEN SCAVENGER SOLUTION	528	Pounds(LB)	26-Sep-18
1499023	-	CONCRETE MIX	60	Pounds(LB)	26-Sep-18
1499030	-	CONCRETE MIX	60	Pounds(LB)	26-Sep-18
1499024	-	CONCRETE MIX	60	Pounds(LB)	26-Sep-18
1499025	-	CONCRETE MIX	60	Pounds(LB)	26-Sep-18
1499026	-	CONCRETE MIX	60	Pounds(LB)	26-Sep-18
1499027	-	CONCRETE MIX	60	Pounds(LB)	26-Sep-18
1499028	-	CONCRETE MIX	60	Pounds(LB)	26-Sep-18
1499029	-	CONCRETE MIX	60	Pounds(LB)	26-Sep-18
1499031	-	CONCRETE MIX	60	Pounds(LB)	26-Sep-18
1499032	-	CONCRETE MIX	60	Pounds(LB)	26-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1510527	-	CUSTOM ION STANDARD PHOSPHATE-P	500	Milliliter(ML)	27-Sep-18
1510528	-	CUSTOM ION STANDARD PHOSPHATE-P	500	Milliliter(ML)	27-Sep-18
1510529	64-18-6	FORMIC ACID	50	Milliliter(ML)	27-Sep-18
1510530	12093-10-6	FERROCENECARBOXALDEHYDE	25	Gram(GM)	27-Sep-18
1510531	68951-96-2	VINYL TERMINATED DIMETHYL-	100	Gram(GM)	27-Sep-18
1510532	68951-96-2	VINYL TERMINATED DIMETHYL-	100	Gram(GM)	27-Sep-18
1510975	-	DPD COMPOUND FOR FREE AND TOTAL	1	Liters(L)	27-Sep-18
1510976	-	DPD COMPOUND FOR FREE AND TOTAL	1	Liters(L)	27-Sep-18
1510979	-	DPD COMPOUND FOR FREE AND TOTAL	1	Liters(L)	27-Sep-18
1510980	-	DPD COMPOUND FOR FREE AND TOTAL	1	Liters(L)	27-Sep-18
1510977	-	DPD COMPOUND FOR FREE AND TOTAL	1	Liters(L)	27-Sep-18
1510978	-	DPD COMPOUND FOR FREE AND TOTAL	1	Liters(L)	27-Sep-18
1510981	-	Ammonia TNTplus HR	500	Milliliter(ML)	27-Sep-18
1510989	-	Ammonia TNTplus HR	500	Milliliter(ML)	27-Sep-18
1510984	-	Ammonia TNTplus HR	500	Milliliter(ML)	27-Sep-18
1510985	-	Ammonia TNTplus HR	500	Milliliter(ML)	27-Sep-18
1510986	-	Ammonia TNTplus HR	500	Milliliter(ML)	27-Sep-18
1510988	-	Ammonia TNTplus HR	500	Milliliter(ML)	27-Sep-18
1510990	-	Ammonia TNTplus HR	500	Milliliter(ML)	27-Sep-18
1510983	-	Ammonia TNTplus HR	500	Milliliter(ML)	27-Sep-18
1510982	-	Ammonia TNTplus HR	500	Milliliter(ML)	27-Sep-18
1510987	-	Ammonia TNTplus HR	500	Milliliter(ML)	27-Sep-18
1510991	-	Ammonia TNTplus HR	500	Milliliter(ML)	27-Sep-18
1510992	-	Ammonia TNTplus HR	500	Milliliter(ML)	27-Sep-18
1510993	-	Nitrogen-Ammonia Reagent Set	500	Milliliter(ML)	27-Sep-18
1510996	-	Nitrogen-Ammonia Reagent Set	500	Milliliter(ML)	27-Sep-18
1511000	-	Nitrogen-Ammonia Reagent Set	500	Milliliter(ML)	27-Sep-18
1510999	-	Nitrogen-Ammonia Reagent Set	500	Milliliter(ML)	27-Sep-18
1511001	-	Nitrogen-Ammonia Reagent Set	500	Milliliter(ML)	27-Sep-18
1510997	-	Nitrogen-Ammonia Reagent Set	500	Milliliter(ML)	27-Sep-18
1510995	-	Nitrogen-Ammonia Reagent Set	500	Milliliter(ML)	27-Sep-18
1510994	-	Nitrogen-Ammonia Reagent Set	500	Milliliter(ML)	27-Sep-18
1511002	-	Nitrogen-Ammonia Reagent Set	500	Milliliter(ML)	27-Sep-18
1510998	-	Nitrogen-Ammonia Reagent Set	500	Milliliter(ML)	27-Sep-18
1511003	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	27-Sep-18
1511004	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	27-Sep-18
1511008	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	27-Sep-18
1511005	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	27-Sep-18
1511006	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	27-Sep-18
1511007	-	TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	27-Sep-18
1511009	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	27-Sep-18
1511012	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	27-Sep-18
1511011	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	27-Sep-18
1511010	-	TOTAL CHLORINE INDICATOR	473	Milliliter(ML)	27-Sep-18
1511013	-	STANDARD SOLUTION AMTAX	273	Milliliter(ML)	27-Sep-18
1511014	-	STANDARD SOLUTION AMTAX	273	Milliliter(ML)	27-Sep-18
1511015	-	STANDARD SOLUTION AMTAX	273	Milliliter(ML)	27-Sep-18
1511016	-	STANDARD SOLUTION AMTAX	273	Milliliter(ML)	27-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511017	-	INDICATOR SOLUTION AMTAX 0 2-12 mg/L	1	Liters(L)	27-Sep-18
1511018	-	INDICATOR SOLUTION AMTAX 0 2-12 mg/L	1	Liters(L)	27-Sep-18
1511019	-	INDICATOR SOLUTION AMTAX 0 2-12 mg/L	1	Liters(L)	27-Sep-18
1511020	-	INDICATOR SOLUTION AMTAX 0 2-12 mg/L	1	Liters(L)	27-Sep-18
1524581	7647-01-0	HYDROCHLORIC ACID 6N	1	Liters(L)	27-Sep-18
1524582	7722-84-1	HYDROGEN PEROXIDE	500	Milliliter(ML)	27-Sep-18
1524790	7697-37-2	NITRIC ACID FUMING	400	Milliliter(ML)	27-Sep-18
1524791	7697-37-2	NITRIC ACID FUMING	400	Milliliter(ML)	27-Sep-18
1481449	-	CONCRETE MIX	50	Pounds(LB)	28-Sep-18
1497509	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	28-Sep-18
1497512	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	28-Sep-18
1497510	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	28-Sep-18
1497511	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	28-Sep-18
1510536	75-24-1	TRIMETHYLALUMINUM	25	Gram(GM)	28-Sep-18
1510541	74-88-4	IODOMETHANE	100	Gram(GM)	28-Sep-18
1510542	74-88-4	IODOMETHANE	100	Gram(GM)	28-Sep-18
1510931	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510935	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510943	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510942	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510941	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510940	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510939	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510938	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510936	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510934	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510933	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510932	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510937	2418-52-2	D-Threitol	250	Milligram(MG)	28-Sep-18
1510944	6192-52-5	P-TOLUENESULFONIC ACID MONOHYDRATE	100	Gram(GM)	28-Sep-18
1511047	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511051	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511063	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511076	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511075	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511074	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511073	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511072	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511071	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511070	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511069	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511068	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511067	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511066	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511048	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511064	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511079	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511062	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511061	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511060	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511059	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511058	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511057	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511056	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511055	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511054	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511053	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511052	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511050	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511065	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511091	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511049	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511106	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511105	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511104	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511103	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511102	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511100	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511098	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511097	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511096	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511095	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511094	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511077	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511092	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511078	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511090	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511089	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511088	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511087	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511086	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511085	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511084	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511083	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511082	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511081	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511080	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511099	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511093	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1511101	7697-37-2	NITRIC ACID	2.5	Liters(L)	28-Sep-18
1524792	-	BUFFER PH 7 (YELLOW BUFFER)	500	Milliliter(ML)	28-Sep-18
1524793	-	BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	28-Sep-18
1524794	109-99-9	TETRAHYDROFURAN	2500	Milliliter(ML)	28-Sep-18
1474785	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	28-Sep-18
1474794	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	28-Sep-18
1474793	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	28-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1474786	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	28-Sep-18
1474787	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	28-Sep-18
1474788	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	28-Sep-18
1474789	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	28-Sep-18
1474796	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	28-Sep-18
1474792	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	28-Sep-18
1474795	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	28-Sep-18
1474791	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	28-Sep-18
1474790	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	28-Sep-18
1481454	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481450	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481451	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481453	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481452	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481580	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481578	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481582	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481577	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481584	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481573	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481585	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481586	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481587	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481588	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481589	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481590	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481591	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481592	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481550	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481583	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481563	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481551	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481535	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481552	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481553	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481554	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481555	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481556	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481557	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481558	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481559	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481560	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481575	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481562	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481576	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481564	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481565	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481566	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481567	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481568	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481569	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481570	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481571	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481572	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481581	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481574	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481549	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481561	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481538	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481579	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481531	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481534	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481530	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481532	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481533	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481527	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481529	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481548	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481537	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481536	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481539	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481540	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481541	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481542	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481543	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481544	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481545	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481546	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481547	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1481528	-	CONCRETE MIX	60	Pounds(LB)	28-Sep-18
1560850	-	Argon UHP	220	Cubic Feet(CF)	01-Oct-18
1560851	-	Argon UHP	220	Cubic Feet(CF)	01-Oct-18
1560852	-	Argon UHP	220	Cubic Feet(CF)	01-Oct-18
1560853	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1560854	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560860	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560866	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560865	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560864	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560863	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560862	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560859	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560855	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560856	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560857	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560858	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560861	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560867	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	01-Oct-18
1560868	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	01-Oct-18
1560869	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	01-Oct-18
1560871	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	01-Oct-18
1560870	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	01-Oct-18
1560872	-	Carbon Dioxide 50%/Bal. Helium	103	Liters(L)	01-Oct-18
1560874	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560876	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560877	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560878	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560875	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560879	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560881	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560882	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560883	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560884	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560885	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560886	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560887	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560889	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560888	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560880	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560890	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560893	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560891	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560892	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560897	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560899	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560896	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560894	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560898	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560900	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560901	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560902	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560903	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560895	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560904	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1560905	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560928	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560921	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560933	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560932	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560931	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560930	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560929	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560912	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560919	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560918	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560917	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560916	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560915	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560920	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560913	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560908	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560911	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560910	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560909	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560927	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560907	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560923	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560914	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560924	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560922	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560925	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560926	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560906	-	Nitrogen UHP	220	Cubic Feet(CF)	01-Oct-18
1560934	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560942	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560943	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560941	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560940	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560946	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560947	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560935	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560936	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560937	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560938	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560945	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560944	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560956	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560939	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560957	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560948	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560955	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560954	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560953	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560951	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560950	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560949	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560952	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560958	7440-59-7	Helium UHP	220	Cubic Feet(CF)	01-Oct-18
1560959	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560960	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560964	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560997	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1560998	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560999	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560963	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560961	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560991	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560996	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560962	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560974	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560966	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560967	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560968	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560969	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560970	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560971	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560993	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560973	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560983	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560975	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560976	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560977	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560978	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560979	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560980	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560972	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560989	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560995	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560984	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560985	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560965	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560986	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560987	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560988	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560982	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560994	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560992	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560981	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1560990	7440-59-7	HELIUM	220	Cubic Feet(CF)	01-Oct-18
1561013	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	01-Oct-18
1561014	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	01-Oct-18
1561000	-	Argon UHP	220	Cubic Feet(CF)	01-Oct-18
1561012	-	Argon UHP	220	Cubic Feet(CF)	01-Oct-18
1561011	-	Argon UHP	220	Cubic Feet(CF)	01-Oct-18
1561015	-	AIR COMPRESSED	220	Cubic Feet(CF)	01-Oct-18
1561022	-	AIR COMPRESSED	220	Cubic Feet(CF)	01-Oct-18
1561016	-	AIR COMPRESSED	220	Cubic Feet(CF)	01-Oct-18
1561017	-	AIR COMPRESSED	220	Cubic Feet(CF)	01-Oct-18
1561018	-	AIR COMPRESSED	220	Cubic Feet(CF)	01-Oct-18
1561019	-	AIR COMPRESSED	220	Cubic Feet(CF)	01-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561020	-	AIR COMPRESSED	220	Cubic Feet(CF)	01-Oct-18
1561021	-	AIR COMPRESSED	220	Cubic Feet(CF)	01-Oct-18
1202751	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1054742	-	HYSOL 9394 EPOXY PART B	8	Ounces(OZ)	01-Oct-18
1202771	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202770	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202777	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202772	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202773	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202774	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202776	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202762	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202778	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202775	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202761	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202752	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202753	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202754	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202755	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202756	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202757	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202758	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202764	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202760	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202769	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202789	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202763	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202779	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202765	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202766	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202767	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202768	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202759	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202788	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202787	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202780	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202790	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202786	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202785	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202784	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202783	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202782	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1202781	-	URETHANE ADHESIVE	40	Liters(L)	01-Oct-18
1561023	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1561024	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1561025	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1561026	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	01-Oct-18
1561027	-	5% HYDROGEN/BAL. NITROGEN	220	Cubic Feet(CF)	01-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561028	-	5% HYDROGEN/BAL. NITROGEN	220	Cubic Feet(CF)	01-Oct-18
1561030	-	5% HYDROGEN/BAL. NITROGEN	220	Cubic Feet(CF)	01-Oct-18
1561031	-	5% HYDROGEN/BAL. NITROGEN	220	Cubic Feet(CF)	01-Oct-18
1561029	-	5% HYDROGEN/BAL. NITROGEN	220	Cubic Feet(CF)	01-Oct-18
1561032	74-98-6	PROPANE	50	Pounds(LB)	01-Oct-18
1054741	-	HYSOL 9394 EPOXY PART A	1	Quarts(QT)	01-Oct-18
1561035	74-98-6	PROPANE	50	Pounds(LB)	01-Oct-18
1561041	74-98-6	PROPANE	50	Pounds(LB)	01-Oct-18
1561040	74-98-6	PROPANE	50	Pounds(LB)	01-Oct-18
1561039	74-98-6	PROPANE	50	Pounds(LB)	01-Oct-18
1561038	74-98-6	PROPANE	50	Pounds(LB)	01-Oct-18
1561036	74-98-6	PROPANE	50	Pounds(LB)	01-Oct-18
1561034	74-98-6	PROPANE	50	Pounds(LB)	01-Oct-18
1561033	74-98-6	PROPANE	50	Pounds(LB)	01-Oct-18
1561037	74-98-6	PROPANE	50	Pounds(LB)	01-Oct-18
1561043	74-98-6	PROPANE	50	Pounds(LB)	01-Oct-18
1561042	74-98-6	PROPANE	50	Pounds(LB)	01-Oct-18
1561044	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	01-Oct-18
1561049	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	01-Oct-18
1561045	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	01-Oct-18
1561046	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	01-Oct-18
1561047	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	01-Oct-18
1561048	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	01-Oct-18
1561050	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561059	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561052	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561053	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561054	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561055	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561058	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561057	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561051	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561061	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561062	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561063	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561064	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561056	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561060	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	01-Oct-18
1561065	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561082	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561076	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561077	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561079	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561075	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561081	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561070	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561078	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561080	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561074	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561073	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561071	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561069	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561068	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561067	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561066	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561084	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561072	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561091	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561083	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561089	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561088	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561087	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561090	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561086	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561085	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	01-Oct-18
1561092	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Liters(L)	01-Oct-18
1561093	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Liters(L)	01-Oct-18
1561094	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Liters(L)	01-Oct-18
1561096	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Liters(L)	01-Oct-18
1561095	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Liters(L)	01-Oct-18
1202791	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458919	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458992	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458993	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458994	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458995	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458996	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458997	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458991	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458998	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458984	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458951	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458975	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458990	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458989	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458988	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458987	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458985	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458983	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458982	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458981	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458980	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458979	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458978	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458977	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458986	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1458939	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458923	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458936	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458925	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458926	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458927	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458948	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458947	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458946	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458945	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458944	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458943	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458942	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458949	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458940	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458922	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458938	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458928	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458929	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458976	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458974	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458930	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458953	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458931	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458932	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458933	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458934	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458935	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458937	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458941	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458966	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458920	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458973	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458972	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458971	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458970	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458969	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458924	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458967	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458950	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458965	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458964	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458963	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458952	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458961	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458960	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458959	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458958	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1458921	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458957	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458956	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458955	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458954	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458962	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1458968	-	HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	01-Oct-18
1453149	109-99-9	TETRAHYDROFURAN (STABILIZED)	1	Liters(L)	01-Oct-18
1453151	109-99-9	TETRAHYDROFURAN (STABILIZED)	1	Liters(L)	01-Oct-18
1453152	109-99-9	TETRAHYDROFURAN (STABILIZED)	1	Liters(L)	01-Oct-18
1453150	109-99-9	TETRAHYDROFURAN (STABILIZED)	1	Liters(L)	01-Oct-18
1560755	-	AIR COMPRESSED	220	Cubic Feet(CF)	02-Oct-18
1560757	-	AIR COMPRESSED	220	Cubic Feet(CF)	02-Oct-18
1560756	-	AIR COMPRESSED	220	Cubic Feet(CF)	02-Oct-18
1560754	-	AIR COMPRESSED	220	Cubic Feet(CF)	02-Oct-18
1560753	-	AIR COMPRESSED	220	Cubic Feet(CF)	02-Oct-18
1510540	-	General Purpose Viscosity Standards-N10200	500	Milliliter(ML)	02-Oct-18
1510946	-	PH ELECTRODE STORAGE SOLUTION	475	Milliliter(ML)	02-Oct-18
1510947	10361-91-8	YTTERBIUM(III) CHLORIDE ANHYDROUS	5	Gram(GM)	02-Oct-18
1524797	109-72-8	N-BUTYLLITHIUM 1.6M IN HEXANES	100	Milliliter(ML)	02-Oct-18
1524798	109-72-8	N-BUTYLLITHIUM 1.6M IN HEXANES	100	Milliliter(ML)	02-Oct-18
1510537	7440-44-0	CARBON ACTIVATED	500	Gram(GM)	02-Oct-18
1510538	109-97-7	PYRROLE 98%	250	Gram(GM)	02-Oct-18
1572895	-	Terminator HSD Concrete Cleaner	10	Ounces(OZ)	03-Oct-18
1266121	-	PERMABOND 910	1	Ounces(OZ)	03-Oct-18
1266112	-	PERMABOND 910	1	Ounces(OZ)	03-Oct-18
1561097	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Liters(L)	03-Oct-18
1561098	-	FLUORINE 5% IN NEON	220	Cubic Feet(CF)	03-Oct-18
1561099	-	FLUORINE 5% IN NEON	220	Cubic Feet(CF)	03-Oct-18
1561001	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	03-Oct-18
1561005	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	03-Oct-18
1561002	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	03-Oct-18
1561003	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	03-Oct-18
1561004	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	03-Oct-18
1561006	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	03-Oct-18
1561007	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	03-Oct-18
1561009	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	03-Oct-18
1561010	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	03-Oct-18
1561008	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	03-Oct-18
1510539	8042-47-5	Light Mineral Oil	100	Milliliter(ML)	04-Oct-18
1511119	7550-45-0	TITANIUM TETRACHLORIDE	200	Gram(GM)	04-Oct-18
1524795	74-89-5	METHYLAMINE SOLUTION 40%	250	Milliliter(ML)	04-Oct-18
1524796	7553-56-2	IODINE	250	Gram(GM)	04-Oct-18
1458904	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	04-Oct-18
1458906	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	04-Oct-18
1458905	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3300	Pounds(LB)	04-Oct-18
1458907	-	SODIUM BISULFITE 38-42%	2464	Pounds(LB)	04-Oct-18
1458908	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	04-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1458909	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	04-Oct-18
1458910	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	04-Oct-18
1458911	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	04-Oct-18
1458913	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	04-Oct-18
1458912	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	04-Oct-18
1423184	-	INDUSTRIAL POLYURETHANE CAULK SEALANT	250	Milliliter(ML)	04-Oct-18
1510534	-	Durable Resin	1	Liters(L)	04-Oct-18
1510535	-	Durable Resin	1	Liters(L)	04-Oct-18
1510945	-	H-Gly-2-Cl-trityl Resin	100	Gram(GM)	04-Oct-18
1510948	143-62-4	Digitoxigenin	10	Milligram(MG)	04-Oct-18
1510949	143-62-4	Digitoxigenin	10	Milligram(MG)	04-Oct-18
1510950	-	PELCO High Performance Ceramic Adhesive	1	Pint(PT)	04-Oct-18
1510951	-	Thermo200 Treated Water Solution with Nalco	4	Liters(L)	04-Oct-18
1511120	16940-66-2	SODIUM BOROHYDRIDE	25	Gram(GM)	04-Oct-18
1458914	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	04-Oct-18
1458918	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	04-Oct-18
1458917	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	04-Oct-18
1458916	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	04-Oct-18
1458915	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	04-Oct-18
1497513	-	SAE 5W-30 MOTOR OIL	1	Quarts(QT)	05-Oct-18
1497516	-	SAE 5W-30 MOTOR OIL	1	Quarts(QT)	05-Oct-18
1497514	-	SAE 5W-30 MOTOR OIL	1	Quarts(QT)	05-Oct-18
1497515	-	SAE 5W-30 MOTOR OIL	1	Quarts(QT)	05-Oct-18
1497546	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497547	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497548	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497549	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497550	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497551	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497517	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497538	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497539	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497536	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497518	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497545	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497544	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497543	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497542	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497540	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497537	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497535	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497534	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497533	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497532	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497524	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497520	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497541	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497531	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497521	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497519	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497523	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497525	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497526	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497527	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497528	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497529	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497530	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497522	-	WINDSHIELD WASHER FLUID	1	Gallon(GAL)	05-Oct-18
1497552	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	05-Oct-18
1497554	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	05-Oct-18
1497553	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	05-Oct-18
1510952	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510968	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510967	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510966	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510965	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510964	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510963	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510962	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510961	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510959	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510969	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510954	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510960	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510953	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510956	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510955	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510957	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510958	-	Aerosol Duster	11	Ounces(OZ)	09-Oct-18
1510970	308068-56-6	Carbon nanotube multi-walled	1	Gram(GM)	09-Oct-18
1510971	4582-21-2	trans-3 6-Endomethylene-1 2 3 6-	25	Gram(GM)	09-Oct-18
1510972	109-76-2	1 3-DIAMINOPROPANE	500	Gram(GM)	09-Oct-18
1510973	123-91-1	1 4-DIOXANE	2	Liters(L)	09-Oct-18
1510974	123-91-1	1 4-DIOXANE	2	Liters(L)	09-Oct-18
1511021	-	FULLCURE 705	3.6	Kilograms(KG)	09-Oct-18
1511023	-	FULLCURE 705	3.6	Kilograms(KG)	09-Oct-18
1511022	-	FULLCURE 705	3.6	Kilograms(KG)	09-Oct-18
1511121	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	09-Oct-18
1511122	7447-40-7	POTASSIUM CHLORIDE	500	Gram(GM)	09-Oct-18
1511123	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	09-Oct-18
1511124	75-05-8	ACETONITRILE CERTIFIED ACS	4	Liters(L)	09-Oct-18
1511126	75-05-8	ACETONITRILE CERTIFIED ACS	4	Liters(L)	09-Oct-18
1511127	75-05-8	ACETONITRILE CERTIFIED ACS	4	Liters(L)	09-Oct-18
1511125	75-05-8	ACETONITRILE CERTIFIED ACS	4	Liters(L)	09-Oct-18
1511128	123-54-6	ACETYLACETONE	1	Liters(L)	09-Oct-18
1511129	123-54-6	ACETYLACETONE	1	Liters(L)	09-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511191	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511256	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511228	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511258	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511216	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511217	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511218	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511219	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511221	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511223	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511224	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511225	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511214	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511227	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511213	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511229	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511230	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511231	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511232	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511233	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511234	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511235	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511236	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511237	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511238	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511226	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511202	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511220	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511192	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511193	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511194	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511195	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511196	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511197	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511198	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511199	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511215	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511201	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511241	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511203	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511204	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511205	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511206	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511207	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511208	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511209	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511210	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511211	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511212	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511200	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511279	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511268	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511269	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511270	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511271	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511272	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511273	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511274	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511275	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511276	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511239	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511278	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511265	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511280	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511281	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511282	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511283	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511284	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511285	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511286	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511287	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511288	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511289	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511277	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511253	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511290	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511242	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511243	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511244	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511245	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511246	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511247	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511248	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511249	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511250	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511267	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511252	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511266	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511254	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511255	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511257	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511259	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511260	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511261	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511262	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511263	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511264	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511240	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511251	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1511222	-	Loctite TRA-BOND F114	2.2	Gram(GM)	09-Oct-18
1561204	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Oct-18
1561205	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Oct-18
1561206	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Oct-18
1561207	124-38-9	CARBON DIOXIDE GAS	220	Cubic Feet(CF)	09-Oct-18
1561208	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Liters(L)	09-Oct-18
1561209	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Liters(L)	09-Oct-18
1561210	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Liters(L)	09-Oct-18
1561100	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561106	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561105	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561104	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561103	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561102	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561101	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561113	74-98-6	PROPANE	25	Pounds(LB)	09-Oct-18
1561112	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561111	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561110	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561108	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561107	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561109	74-98-6	PROPANE	50	Pounds(LB)	09-Oct-18
1561114	-	CARBON MONOXIDE 50PPM IN HYDROGEN	68.6	Cubic Feet(CF)	09-Oct-18
1561115	-	OXYGEN IN NITROGEN	144.5	Cubic Feet(CF)	09-Oct-18
1561116	-	ARGON 25% IN OXYGEN	220	Cubic Feet(CF)	09-Oct-18
1561117	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561131	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561120	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561121	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561122	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561123	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561124	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561126	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561128	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561119	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561130	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561125	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561132	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561133	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561134	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561135	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561136	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561137	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561138	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561139	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561140	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561141	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561142	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561143	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561129	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561127	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561118	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	09-Oct-18
1561144	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561155	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561145	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561146	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561147	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561148	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561149	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561150	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561151	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561152	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561154	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561156	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561157	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561158	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561162	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561159	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561160	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561161	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561165	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561164	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561163	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561153	-	Nitrogen UHP	220	Cubic Feet(CF)	09-Oct-18
1561166	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561183	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561176	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561167	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561169	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561168	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561170	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561172	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561173	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561185	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561175	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561186	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561177	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561178	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561179	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561180	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561181	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561182	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561184	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561174	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561171	-	Argon UHP	220	Cubic Feet(CF)	09-Oct-18
1561187	-	25% ARGON 75% CARBON DIOXIDE	220	Cubic Feet(CF)	09-Oct-18
1561188	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	09-Oct-18
1561189	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	09-Oct-18
1561190	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	09-Oct-18
1561191	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	09-Oct-18
1561192	7782-44-7	OXYGEN COMPRESSED GAS	40	Cubic Feet(CF)	09-Oct-18
1561195	7782-44-7	OXYGEN COMPRESSED GAS	40	Cubic Feet(CF)	09-Oct-18
1561193	7782-44-7	OXYGEN COMPRESSED GAS	40	Cubic Feet(CF)	09-Oct-18
1561194	7782-44-7	OXYGEN COMPRESSED GAS	40	Cubic Feet(CF)	09-Oct-18
1561196	124-38-9	CARBON DIOXIDE GAS	220	Cubic	09-Oct-18
1561198	124-38-9	CARBON DIOXIDE GAS	220	Cubic	09-Oct-18
1561199	124-38-9	CARBON DIOXIDE GAS	220	Cubic	09-Oct-18
1561200	124-38-9	CARBON DIOXIDE GAS	220	Cubic	09-Oct-18
1561201	124-38-9	CARBON DIOXIDE GAS	220	Cubic	09-Oct-18
1561202	124-38-9	CARBON DIOXIDE GAS	220	Cubic	09-Oct-18
1561203	124-38-9	CARBON DIOXIDE GAS	220	Cubic	09-Oct-18
1561197	124-38-9	CARBON DIOXIDE GAS	220	Cubic	09-Oct-18
1561211	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561213	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561212	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561214	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561221	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561215	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561222	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561220	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561219	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561218	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561217	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561216	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561223	-	AIR COMPRESSED	220	Cubic Feet(CF)	09-Oct-18
1561224	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	09-Oct-18
1561225	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	09-Oct-18
1561230	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	09-Oct-18
1561232	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	09-Oct-18
1561233	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	09-Oct-18
1561231	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	09-Oct-18
1561229	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	09-Oct-18
1561228	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	09-Oct-18
1561226	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	09-Oct-18
1561227	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	09-Oct-18
1572896	-	PYROIL CARB AND CHOKE CLEANER	13	Ounces(OZ)	09-Oct-18
1572902	-	PYROIL CARB AND CHOKE CLEANER	13	Ounces(OZ)	09-Oct-18
1572897	-	PYROIL CARB AND CHOKE CLEANER	13	Ounces(OZ)	09-Oct-18
1572898	-	PYROIL CARB AND CHOKE CLEANER	13	Ounces(OZ)	09-Oct-18
1572899	-	PYROIL CARB AND CHOKE CLEANER	13	Ounces(OZ)	09-Oct-18
1572905	-	PYROIL CARB AND CHOKE CLEANER	13	Ounces(OZ)	09-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1572903	-	PYROIL CARB AND CHOKE CLEANER	13	Ounces(OZ)	09-Oct-18
1572904	-	PYROIL CARB AND CHOKE CLEANER	13	Ounces(OZ)	09-Oct-18
1572900	-	PYROIL CARB AND CHOKE CLEANER	13	Ounces(OZ)	09-Oct-18
1572901	-	PYROIL CARB AND CHOKE CLEANER	13	Ounces(OZ)	09-Oct-18
1572906	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	09-Oct-18
1572907	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	09-Oct-18
1572908	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	09-Oct-18
1572909	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	09-Oct-18
1572910	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Oct-18
1572911	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Oct-18
1572912	-	THREAD SEALANT W/PTFE	1	Ounces(OZ)	09-Oct-18
1572913	-	THREAD SEALANT W/PTFE	1	Ounces(OZ)	09-Oct-18
1572914	-	PERMATEX ANTI-SEIZE LUBRICANT	4	Ounces(OZ)	09-Oct-18
1510891	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	10-Oct-18
1510894	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	10-Oct-18
1510893	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	10-Oct-18
1510895	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	10-Oct-18
1510896	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	10-Oct-18
1510897	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	10-Oct-18
1510899	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	10-Oct-18
1510900	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	10-Oct-18
1510901	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	10-Oct-18
1510902	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	10-Oct-18
1510898	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	10-Oct-18
1510892	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	10-Oct-18
1511024	-	Zirconia Grinding Media	20	Kilograms(KG)	10-Oct-18
1481455	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481500	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481501	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481503	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481505	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481507	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481499	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481491	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481506	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481498	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481497	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481496	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481495	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481494	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481508	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481492	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481517	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481493	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481516	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481524	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481523	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481522	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481521	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481520	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481519	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481515	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481481	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481509	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481490	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481514	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481513	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481512	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481511	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481510	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481518	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481462	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481470	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481469	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481468	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481467	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481466	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481465	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481483	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481463	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481473	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481461	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481460	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481459	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481458	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481457	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481456	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481464	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481480	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481488	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481487	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481486	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481485	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481484	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481525	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481471	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481504	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481472	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481479	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481478	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481477	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481476	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481475	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481474	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481489	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481482	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1481502	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1481526	-	CONCRETE MIX	50	Pounds(LB)	10-Oct-18
1561234	76-16-4	HEXAFLUOROETHANE	220	Cubic Feet(CF)	10-Oct-18
1561235	-	Sulfer Hexafluoride	220	Cubic Feet(CF)	10-Oct-18
1511109	64-17-5	ETHANOL 200 PROOF	4	Liters(L)	10-Oct-18
1511110	64-17-5	ETHANOL 200 PROOF	4	Liters(L)	10-Oct-18
1511112	64-17-5	ETHANOL 200 PROOF	4	Liters(L)	10-Oct-18
1511111	64-17-5	ETHANOL 200 PROOF	4	Liters(L)	10-Oct-18
1511113	7722-84-1	HYDROGEN PEROXIDE	500	Milliliter(ML)	10-Oct-18
1511114	-	GELCODE BLUE SAFE PROTEIN STAIN	1	Liters(L)	10-Oct-18
1511115	2418-52-2	D-Threitol	250	Milligram(MG)	10-Oct-18
1511116	2418-52-2	D-Threitol	250	Milligram(MG)	10-Oct-18
1511117	622-97-9	P-METHYLSTYRENE	500	Milliliter(ML)	10-Oct-18
1511118	16219-75-3	5-Ethylidene-2-norbornene	500	Milliliter(ML)	10-Oct-18
1511130	75-05-8	ACETONITRILE ANHYDROUS	100	Milliliter(ML)	10-Oct-18
1511131	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	10-Oct-18
1511132	108-88-3	TOLUENE ANHYDROUS	1	Liters(L)	10-Oct-18
1511294	6456-74-2	tert-Butyl glycinate	100	Gram(GM)	10-Oct-18
1511295	-	Cal-590 AM	500	MicroGram(UG	10-Oct-18
1511296	-	Neurobasal Medium	500	Milliliter(ML)	10-Oct-18
1511297	-	Neurobasal Medium	500	Milliliter(ML)	10-Oct-18
1511298	-	Neurobasal Medium	500	Milliliter(ML)	10-Oct-18
1511299	-	Neurobasal Medium	500	Milliliter(ML)	10-Oct-18
1511300	-	DMEM	500	Milliliter(ML)	10-Oct-18
1511303	-	DMEM	500	Milliliter(ML)	10-Oct-18
1511308	-	DMEM	500	Milliliter(ML)	10-Oct-18
1511307	-	DMEM	500	Milliliter(ML)	10-Oct-18
1511309	-	DMEM	500	Milliliter(ML)	10-Oct-18
1511306	-	DMEM	500	Milliliter(ML)	10-Oct-18
1511304	-	DMEM	500	Milliliter(ML)	10-Oct-18
1511302	-	DMEM	500	Milliliter(ML)	10-Oct-18
1511301	-	DMEM	500	Milliliter(ML)	10-Oct-18
1511305	-	DMEM	500	Milliliter(ML)	10-Oct-18
1511310	1665-00-5	DICHLOROMETHANE-D2	7.5	Milliliter(ML)	10-Oct-18
1511314	1665-00-5	DICHLOROMETHANE-D2	7.5	Milliliter(ML)	10-Oct-18
1511313	1665-00-5	DICHLOROMETHANE-D2	7.5	Milliliter(ML)	10-Oct-18
1511311	1665-00-5	DICHLOROMETHANE-D2	7.5	Milliliter(ML)	10-Oct-18
1511312	1665-00-5	DICHLOROMETHANE-D2	7.5	Milliliter(ML)	10-Oct-18
1511315	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	7.5	Milliliter(ML)	10-Oct-18
1511319	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	7.5	Milliliter(ML)	10-Oct-18
1511318	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	7.5	Milliliter(ML)	10-Oct-18
1511316	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	7.5	Milliliter(ML)	10-Oct-18
1511317	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	7.5	Milliliter(ML)	10-Oct-18
1511320	13470-38-7	Yttrium(III) iodide	1	Gram(GM)	10-Oct-18
1511321	21129-09-9	1 2-Tetradecanediol ¿90.0%	100	Gram(GM)	10-Oct-18
1511322	335159-18-7	Iron(II) perchlorate hydrate	100	Gram(GM)	10-Oct-18
1511323	50-00-0	FORMALDEHYDE	1	Liters(L)	10-Oct-18
1511324	124-40-3	Dimethylamine	1	Liters(L)	10-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511325	872-50-4	1-METHYL-2-PYRROLIDINONE	1	Liters(L)	10-Oct-18
1511328	872-50-4	1-METHYL-2-PYRROLIDINONE	1	Liters(L)	10-Oct-18
1511329	872-50-4	1-METHYL-2-PYRROLIDINONE	1	Liters(L)	10-Oct-18
1511327	872-50-4	1-METHYL-2-PYRROLIDINONE	1	Liters(L)	10-Oct-18
1511326	872-50-4	1-METHYL-2-PYRROLIDINONE	1	Liters(L)	10-Oct-18
1511330	8042-47-5	MINERAL OIL	1	Liters(L)	10-Oct-18
1511331	8042-47-5	MINERAL OIL	1	Liters(L)	10-Oct-18
1511332	288-13-1	PYRAZOLE 98%	100	Gram(GM)	10-Oct-18
1511333	288-13-1	PYRAZOLE 98%	100	Gram(GM)	10-Oct-18
1511334	288-13-1	PYRAZOLE 98%	100	Gram(GM)	10-Oct-18
1511335	100-83-4	3-Hydroxybenzaldehyde	100	Gram(GM)	10-Oct-18
1511336	7732-18-5	Fluorescent nanodiamond	5	Milliliter(ML)	10-Oct-18
1511337	7732-18-5	Fluorescent nanodiamond	5	Milliliter(ML)	10-Oct-18
1511338	7732-18-5	Fluorescent nanodiamond	5	Milliliter(ML)	10-Oct-18
1511339	64-17-5	ETHYL ALCOHOL	4	Liters(L)	10-Oct-18
1511340	64-17-5	ETHYL ALCOHOL	4	Liters(L)	10-Oct-18
1511341	64-17-5	ETHYL ALCOHOL	4	Liters(L)	10-Oct-18
1511342	64-17-5	ETHYL ALCOHOL	4	Liters(L)	10-Oct-18
1511343	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	10-Oct-18
1511346	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	10-Oct-18
1511344	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	10-Oct-18
1511345	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	10-Oct-18
1511407	7697-37-2	NITRIC ACID	2.5	Liters(L)	10-Oct-18
1511408	7697-37-2	NITRIC ACID	2.5	Liters(L)	10-Oct-18
1511409	7697-37-2	NITRIC ACID	2.5	Liters(L)	10-Oct-18
1511410	7697-37-2	NITRIC ACID	2.5	Liters(L)	10-Oct-18
1511411	7697-37-2	NITRIC ACID	2.5	Liters(L)	10-Oct-18
1511412	7697-37-2	NITRIC ACID	2.5	Liters(L)	10-Oct-18
1511413	7697-37-2	NITRIC ACID	2.5	Liters(L)	10-Oct-18
1511414	7697-37-2	NITRIC ACID	2.5	Liters(L)	10-Oct-18
1511416	7697-37-2	NITRIC ACID	2.5	Liters(L)	10-Oct-18
1511415	7697-37-2	NITRIC ACID	2.5	Liters(L)	10-Oct-18
1511418	7697-37-2	NITRIC ACID	2.5	Liters(L)	10-Oct-18
1511417	7697-37-2	NITRIC ACID	2.5	Liters(L)	10-Oct-18
1511419	1310-73-2	Sodium Hydroxide 25%	55	Gallon(GAL)	10-Oct-18
1511420	-	DP EPOXY	43	Milliliter(ML)	10-Oct-18
1511427	-	DP EPOXY	43	Milliliter(ML)	10-Oct-18
1511421	-	DP EPOXY	43	Milliliter(ML)	10-Oct-18
1511422	-	DP EPOXY	43	Milliliter(ML)	10-Oct-18
1511423	-	DP EPOXY	43	Milliliter(ML)	10-Oct-18
1511424	-	DP EPOXY	43	Milliliter(ML)	10-Oct-18
1511426	-	DP EPOXY	43	Milliliter(ML)	10-Oct-18
1511428	-	DP EPOXY	43	Milliliter(ML)	10-Oct-18
1511429	-	DP EPOXY	43	Milliliter(ML)	10-Oct-18
1511430	-	DP EPOXY	43	Milliliter(ML)	10-Oct-18
1511431	-	DP EPOXY	43	Milliliter(ML)	10-Oct-18
1511425	-	DP EPOXY	43	Milliliter(ML)	10-Oct-18
1511432	-	DPD COMPOUND FOR FREE AND TOTAL	24	Milliliter(ML)	10-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511433	-	DPD COMPOUND FOR FREE AND TOTAL	24	Milliliter(ML)	10-Oct-18
1511434	50-01-1	GUANIDINE HYDROCHLORIDE	1	Kilograms(KG)	10-Oct-18
1540495	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	10-Oct-18
1540496	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	10-Oct-18
1540498	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	10-Oct-18
1540497	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	10-Oct-18
1422360	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422373	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422372	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422374	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422361	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422362	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422363	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422364	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422365	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422367	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422368	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422369	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422370	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422375	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422371	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1422366	-	Swiffer Wet Jet Floor Cleaner	1.25	Liters(L)	10-Oct-18
1511133	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511144	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511148	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511147	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511141	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511145	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511143	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511142	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511134	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511136	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511140	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511139	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511138	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511137	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511146	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511135	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	10-Oct-18
1511149	7087-68-5	N N-DIISOPROPYLETHYLAMINE	100	Milliliter(ML)	10-Oct-18
1511150	67-63-0	2-PROPANOL	500	Milliliter(ML)	10-Oct-18
1511151	-	RTV12C SILICONE CATATLYST	1	Pint(PT)	10-Oct-18
1511152	-	RTV12C SILICONE CATATLYST	1	Pint(PT)	10-Oct-18
1511153	-	RTV12C SILICONE CATATLYST	1	Pint(PT)	10-Oct-18
1511154	1009033-87-7	4-(Pyridin-4-yl)phenylboronic acid pinacol ester	5	Gram(GM)	10-Oct-18
1511155	1009033-87-7	4-(Pyridin-4-yl)phenylboronic acid pinacol ester	5	Gram(GM)	10-Oct-18
1511156	1009033-87-7	4-(Pyridin-4-yl)phenylboronic acid pinacol ester	5	Gram(GM)	10-Oct-18
1511157	1009033-87-7	4-(Pyridin-4-yl)phenylboronic acid pinacol ester	5	Gram(GM)	10-Oct-18
1511158	7664-38-2	PHOSPHORIC ACID	500	Gram(GM)	10-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511159	13292-46-1	RIFAMPICIN	100	Milligram(MG)	10-Oct-18
1511160	13292-46-1	RIFAMPICIN	100	Milligram(MG)	10-Oct-18
1511161	4526-07-2	1 4-BIS(TRIMETHYLSILYL)-1 3-BUTADIYNE	5	Gram(GM)	10-Oct-18
1511162	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	10-Oct-18
1511163	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	10-Oct-18
1511173	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	10-Oct-18
1511165	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	10-Oct-18
1511166	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	10-Oct-18
1511167	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	10-Oct-18
1511168	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	10-Oct-18
1511169	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	10-Oct-18
1511170	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	10-Oct-18
1511171	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	10-Oct-18
1511172	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	10-Oct-18
1511164	64-17-5	ETHYL ALCOHOL	500	Milliliter(ML)	10-Oct-18
1511174	-	TRACEABLE CONDUCTIVITY STANDARD	473	Milliliter(ML)	10-Oct-18
1511175	-	TRACEABLE CONDUCTIVITY STANDARD	473	Milliliter(ML)	10-Oct-18
1511176	-	TRACEABLE CONDUCTIVITY CALIBRATION	473	Milliliter(ML)	10-Oct-18
1511177	-	TRACEABLE CONDUCTIVITY CALIBRATION	473	Milliliter(ML)	10-Oct-18
1511178	7757-82-6	SODIUM SULFATE	500	Gram(GM)	10-Oct-18
1511179	7447-40-7	POTASSIUM CHLORIDE	500	Gram(GM)	10-Oct-18
1511180	7647-14-5	SODIUM CHLORIDE CRYSTAL	500	Gram(GM)	10-Oct-18
1511181	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	10-Oct-18
1511182	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	10-Oct-18
1511183	-	CLOROX	1	Gallon(GAL)	10-Oct-18
1511184	64-17-5	Ethyl alcohol absolute 200 proof 99.50%	2	Liters(L)	10-Oct-18
1511185	64-17-5	Ethyl alcohol absolute 200 proof 99.50%	2	Liters(L)	10-Oct-18
1511186	-	OCTAMETHYLTRISILOXANE	100	Milliliter(ML)	10-Oct-18
1511187	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	10-Oct-18
1511347	-	SILICONE RUBBER SEALANT	2.8	Ounces(OZ)	10-Oct-18
1511348	-	GREENLUBE DIAMOND EXTENDER	128	Ounces(OZ)	10-Oct-18
1511349	-	Diamond Compound	18	Gram(GM)	10-Oct-18
1511351	-	Diamond Compound	18	Gram(GM)	10-Oct-18
1511354	-	Diamond Compound	18	Gram(GM)	10-Oct-18
1511352	-	Diamond Compound	18	Gram(GM)	10-Oct-18
1511350	-	Diamond Compound	18	Gram(GM)	10-Oct-18
1511353	-	Diamond Compound	18	Gram(GM)	10-Oct-18
1481221	-	CONCRETE MIX	60	Pounds(LB)	10-Oct-18
1481224	-	CONCRETE MIX	60	Pounds(LB)	10-Oct-18
1481223	-	CONCRETE MIX	60	Pounds(LB)	10-Oct-18
1481222	-	CONCRETE MIX	60	Pounds(LB)	10-Oct-18
141185	-	CONCRETE MIX	60	Pounds(LB)	10-Oct-18
1511355	-	CONFORMAL COATING	1	Liters(L)	10-Oct-18
1511356	26628-22-8	Image-iT FX Signal Enhancer	20	Milliliter(ML)	10-Oct-18
1511357	26628-22-8	Image-iT FX Signal Enhancer	20	Milliliter(ML)	10-Oct-18
1511360	26628-22-8	Image-iT FX Signal Enhancer	20	Milliliter(ML)	10-Oct-18
1511359	26628-22-8	Image-iT FX Signal Enhancer	20	Milliliter(ML)	10-Oct-18
1511358	26628-22-8	Image-iT FX Signal Enhancer	20	Milliliter(ML)	10-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511511361	5965-83-3	5-SULFOSALICYLIC ACID DIHYDRATE 98%	100	Gram(GM)	10-Oct-18
1511362	100-41-4	ETHYLBENZENE	1	Liters(L)	10-Oct-18
1511363	-	5-NONANONE	25	Gram(GM)	10-Oct-18
1511364	-	5-NONANONE	25	Gram(GM)	10-Oct-18
1511365	1071-76-7	ZIRCONIUM(IV) BUTOXIDE	100	Milliliter(ML)	10-Oct-18
1511366	71-36-3	1-BUTANOL	1	Liters(L)	10-Oct-18
1511367	64-18-6	FORMIC ACID	100	Milliliter(ML)	10-Oct-18
1511368	-	PrestoBlue CellViabilityReagent	100	Milliliter(ML)	10-Oct-18
1540499	7732-18-5	Hydrochloric Acid 30-31%	2600	Pounds(LB)	10-Oct-18
1540500	7732-18-5	Hydrochloric Acid 30-31%	2600	Pounds(LB)	10-Oct-18
1540501	7786-30-3	MAGNESIUM CHLORIDE	3300	Pounds(LB)	10-Oct-18
1540502	7786-30-3	MAGNESIUM CHLORIDE	3300	Pounds(LB)	10-Oct-18
1540503	7786-30-3	MAGNESIUM CHLORIDE	3300	Pounds(LB)	10-Oct-18
1540504	7786-30-3	MAGNESIUM CHLORIDE	3300	Pounds(LB)	10-Oct-18
1540505	7786-30-3	MAGNESIUM CHLORIDE	3300	Pounds(LB)	10-Oct-18
1387951	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387959	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387969	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387967	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387966	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387965	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387964	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387963	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387962	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387960	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387970	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387958	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387957	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387956	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387955	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387954	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387953	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387952	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387961	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387968	-	INDUSTREX DEVELOPER AND REPLINISH	20	Liters(L)	11-Oct-18
1387971	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387974	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387973	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387975	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387976	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387977	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387978	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387979	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387980	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387981	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387991	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387983	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387984	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1387985	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387986	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387987	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387988	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387989	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387972	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387990	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1387982	-	INDUSTREX FIXER AND REPLENISHER	20	Liters(L)	11-Oct-18
1487171	-	Loctite 380	1	Ounces(OZ)	11-Oct-18
1487172	-	Loctite 380	1	Ounces(OZ)	11-Oct-18
1487167	-	Steel Reinforced Epoxy Resin	28.4	Gram(GM)	11-Oct-18
1487168	-	Steel Reinforced Epoxy Resin	28.4	Gram(GM)	11-Oct-18
1487169	-	Steel Reinforced Epoxy Resin	28.4	Gram(GM)	11-Oct-18
1487170	-	Steel Reinforced Epoxy Resin	28.4	Gram(GM)	11-Oct-18
1487063	-	Steel Reinforced Epoxy Resin	2	Ounces(OZ)	11-Oct-18
1487066	-	Steel Reinforced Epoxy Resin	2	Ounces(OZ)	11-Oct-18
1487065	-	Steel Reinforced Epoxy Resin	2	Ounces(OZ)	11-Oct-18
1487064	-	Steel Reinforced Epoxy Resin	2	Ounces(OZ)	11-Oct-18
1487069	-	VACTRA OIL NO. 2	5	Gallon(GAL)	11-Oct-18
1487070	-	VACTRA OIL NO. 2	5	Gallon(GAL)	11-Oct-18
1487067	-	BLASOCUT 2000	5	Gallon(GAL)	11-Oct-18
1487068	-	BLASOCUT 2000	5	Gallon(GAL)	11-Oct-18
1487051	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	11-Oct-18
1487053	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	11-Oct-18
1487059	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	11-Oct-18
1487052	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	11-Oct-18
1487060	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	11-Oct-18
1487057	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	11-Oct-18
1487054	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	11-Oct-18
1487058	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	11-Oct-18
1487061	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	11-Oct-18
1487062	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	11-Oct-18
1487056	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	11-Oct-18
1487055	-	DEVCON 5-MINUTE EPOXY (resin bisphenyl and	2	Ounces(OZ)	11-Oct-18
1487095	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487118	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487104	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487108	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487112	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487116	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487115	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487114	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487113	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487117	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487111	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487109	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487107	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487106	-	FS-One Max	10	Ounces(OZ)	11-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1487105	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487103	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487101	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487100	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487099	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487098	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487097	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487096	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487110	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487102	-	FS-One Max	10	Ounces(OZ)	11-Oct-18
1487083	-	SPRAYON Brake & Parts Cleaner	20	Ounces(OZ)	11-Oct-18
1487093	-	SPRAYON Brake & Parts Cleaner	20	Ounces(OZ)	11-Oct-18
1487092	-	SPRAYON Brake & Parts Cleaner	20	Ounces(OZ)	11-Oct-18
1487091	-	SPRAYON Brake & Parts Cleaner	20	Ounces(OZ)	11-Oct-18
1487090	-	SPRAYON Brake & Parts Cleaner	20	Ounces(OZ)	11-Oct-18
1487089	-	SPRAYON Brake & Parts Cleaner	20	Ounces(OZ)	11-Oct-18
1487088	-	SPRAYON Brake & Parts Cleaner	20	Ounces(OZ)	11-Oct-18
1487087	-	SPRAYON Brake & Parts Cleaner	20	Ounces(OZ)	11-Oct-18
1487086	-	SPRAYON Brake & Parts Cleaner	20	Ounces(OZ)	11-Oct-18
1487085	-	SPRAYON Brake & Parts Cleaner	20	Ounces(OZ)	11-Oct-18
1487094	-	SPRAYON Brake & Parts Cleaner	20	Ounces(OZ)	11-Oct-18
1487084	-	SPRAYON Brake & Parts Cleaner	20	Ounces(OZ)	11-Oct-18
1487071	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487074	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487081	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487080	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487079	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487078	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487077	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487076	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487075	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487073	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487082	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487072	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1486927	-	UB Drilling & Tapping Fluid	16	Ounces(OZ)	11-Oct-18
1486928	-	UB Drilling & Tapping Fluid	16	Ounces(OZ)	11-Oct-18
1486929	-	UB Drilling & Tapping Fluid	16	Ounces(OZ)	11-Oct-18
1486930	-	UB Drilling & Tapping Fluid	16	Ounces(OZ)	11-Oct-18
1486931	-	UB Drilling & Tapping Fluid	16	Ounces(OZ)	11-Oct-18
1486932	-	UB Drilling & Tapping Fluid	16	Ounces(OZ)	11-Oct-18
1486933	-	UB Drilling & Tapping Fluid	16	Ounces(OZ)	11-Oct-18
1486934	-	UB Drilling & Tapping Fluid	16	Ounces(OZ)	11-Oct-18
1487045	-	Red Devil TSP-90 Heavy Duty Cleaner	4.5	Pint(PT)	11-Oct-18
1487047	-	Red Devil TSP-90 Heavy Duty Cleaner	4.5	Pint(PT)	11-Oct-18
1487048	-	Red Devil TSP-90 Heavy Duty Cleaner	4.5	Pint(PT)	11-Oct-18
1487050	-	Red Devil TSP-90 Heavy Duty Cleaner	4.5	Pint(PT)	11-Oct-18
1487046	-	Red Devil TSP-90 Heavy Duty Cleaner	4.5	Pint(PT)	11-Oct-18
1487049	-	Red Devil TSP-90 Heavy Duty Cleaner	4.5	Pint(PT)	11-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1487033	-	MOLY DRY FILM LUBRICANT	16	Ounces(OZ)	11-Oct-18
1487040	-	MOLY DRY FILM LUBRICANT	16	Ounces(OZ)	11-Oct-18
1487034	-	MOLY DRY FILM LUBRICANT	16	Ounces(OZ)	11-Oct-18
1487035	-	MOLY DRY FILM LUBRICANT	16	Ounces(OZ)	11-Oct-18
1487036	-	MOLY DRY FILM LUBRICANT	16	Ounces(OZ)	11-Oct-18
1487037	-	MOLY DRY FILM LUBRICANT	16	Ounces(OZ)	11-Oct-18
1487039	-	MOLY DRY FILM LUBRICANT	16	Ounces(OZ)	11-Oct-18
1487044	-	MOLY DRY FILM LUBRICANT	16	Ounces(OZ)	11-Oct-18
1487041	-	MOLY DRY FILM LUBRICANT	16	Ounces(OZ)	11-Oct-18
1487042	-	MOLY DRY FILM LUBRICANT	16	Ounces(OZ)	11-Oct-18
1487043	-	MOLY DRY FILM LUBRICANT	16	Ounces(OZ)	11-Oct-18
1487038	-	MOLY DRY FILM LUBRICANT	16	Ounces(OZ)	11-Oct-18
1487200	-	fantastik General Purpose Cleaner Disinfectant	32	Ounces(OZ)	11-Oct-18
1487203	-	fantastik General Purpose Cleaner Disinfectant	32	Ounces(OZ)	11-Oct-18
1487201	-	fantastik General Purpose Cleaner Disinfectant	32	Ounces(OZ)	11-Oct-18
1487206	-	fantastik General Purpose Cleaner Disinfectant	32	Ounces(OZ)	11-Oct-18
1487205	-	fantastik General Purpose Cleaner Disinfectant	32	Ounces(OZ)	11-Oct-18
1487207	-	fantastik General Purpose Cleaner Disinfectant	32	Ounces(OZ)	11-Oct-18
1487208	-	fantastik General Purpose Cleaner Disinfectant	32	Ounces(OZ)	11-Oct-18
1487209	-	fantastik General Purpose Cleaner Disinfectant	32	Ounces(OZ)	11-Oct-18
1487211	-	fantastik General Purpose Cleaner Disinfectant	32	Ounces(OZ)	11-Oct-18
1487202	-	fantastik General Purpose Cleaner Disinfectant	32	Ounces(OZ)	11-Oct-18
1487210	-	fantastik General Purpose Cleaner Disinfectant	32	Ounces(OZ)	11-Oct-18
1487204	-	fantastik General Purpose Cleaner Disinfectant	32	Ounces(OZ)	11-Oct-18
1487197	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487199	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487198	-	WD-40 AEROSOL	11	Ounces(OZ)	11-Oct-18
1487196	-	STAY SILV FLUX	1	Pounds(LB)	11-Oct-18
1487212	-	LIQUID NAILS PANEL AND CONSTRUCTION	10	Ounces(OZ)	11-Oct-18
1487214	-	LIQUID NAILS PANEL AND CONSTRUCTION	10	Ounces(OZ)	11-Oct-18
1487213	-	LIQUID NAILS PANEL AND CONSTRUCTION	10	Ounces(OZ)	11-Oct-18
1487143	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487162	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487150	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487151	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487152	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487148	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487147	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487146	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487145	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487144	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487166	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487149	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487163	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487165	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487158	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487153	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487154	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1487155	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487164	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487157	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487161	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487159	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487160	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487156	-	Krylon Industrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1486935	64742-65-0	TRIM TC 184B	5	Gallon(GAL)	11-Oct-18
1487194	-	WD-40	1	Gallon(GAL)	11-Oct-18
1487195	-	WD-40	1	Gallon(GAL)	11-Oct-18
1487185	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487190	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487187	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487188	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487186	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487189	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487191	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487192	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487193	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487174	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487175	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487176	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487177	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487178	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487179	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487180	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487181	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487182	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487183	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487184	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1487173	-	KRYLON INdustrial Quik-Mark Solvent-Based	17	Ounces(OZ)	11-Oct-18
1561334	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561335	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561343	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561347	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561346	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561345	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561344	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561342	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561341	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561340	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561348	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561338	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561336	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561339	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561337	7440-59-7	HELIUM	220	Cubic Feet(CF)	11-Oct-18
1561349	1333-74-0	HYDROGEN	220	Cubic Feet(CF)	11-Oct-18
1561350	1333-74-0	HYDROGEN	220	Cubic Feet(CF)	11-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561351	1333-74-0	HYDROGEN	220	Cubic Feet(CF)	11-Oct-18
1561352	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561365	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561374	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561373	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561372	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561371	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561370	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561369	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561368	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561366	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561360	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561364	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561363	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561367	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561361	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561353	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561359	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561358	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561357	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561356	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561355	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561354	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561362	7440-59-7	Helium UHP	220	Cubic Feet(CF)	11-Oct-18
1561256	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561264	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561265	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561270	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561269	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561268	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561266	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561257	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561262	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561258	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561261	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561260	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561259	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561267	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561263	-	Argon UHP	220	Cubic Feet(CF)	11-Oct-18
1561271	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561282	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561285	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561283	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561281	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561280	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561279	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561277	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561276	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561275	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561274	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561273	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561272	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561284	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1561278	-	Hydrogen UHP	220	Cubic Feet(CF)	11-Oct-18
1511188	144-62-7	OXALIC ACID	250	Gram(GM)	12-Oct-18
1511189	220622-96-8	Glycolic acid ethoxylate lauryl ether	100	Milliliter(ML)	12-Oct-18
1511190	10043-01-3	ALUMINUM SULFATE	25	Gram(GM)	12-Oct-18
1511369	-	Blasocut BC 940	5	Gallon(GAL)	12-Oct-18
1511370	-	Blasocut BC 940	5	Gallon(GAL)	12-Oct-18
1511371	-	Bis-Boc-thiopseudourea polymer-bound	5	Gram(GM)	12-Oct-18
1511372	26780-50-7	POLY(DL-LACTIDE-CO-GLYCOLIDE)	5	Gram(GM)	12-Oct-18
1511373	26780-50-7	POLY(DL-LACTIDE-CO-GLYCOLIDE)	5	Gram(GM)	12-Oct-18
1511374	-	DRABKIN'S STABLE DRY MIXTURE	60	Milliliter(ML)	12-Oct-18
1511375	-	(-)-Lupinine	250	Milligram(MG)	12-Oct-18
1511376	13746-66-2	POTASSIUM FERRICYANIDE	5	Gram(GM)	12-Oct-18
1511377	110-82-7	CYCLOHEXANE ANHYDROUS 99.5%	1	Liters(L)	12-Oct-18
1511378	110-82-7	CYCLOHEXANE ANHYDROUS 99.5%	1	Liters(L)	12-Oct-18
1511379	78-67-1	2 2-AZOBIS(2-METHYLPROPIONITRILE) 98%	25	Gram(GM)	12-Oct-18
1511380	7697-37-2	NITRIC ACID	2.5	Liters(L)	12-Oct-18
1511381	7697-37-2	NITRIC ACID	2.5	Liters(L)	12-Oct-18
1511382	-	ALL-IN-ONE STANDARD PH BUFFER	475	Milliliter(ML)	12-Oct-18
1511435	299-28-5	CALCIUM GLUCONATE GEL	25	Gram(GM)	12-Oct-18
1511436	299-28-5	CALCIUM GLUCONATE GEL	25	Gram(GM)	12-Oct-18
1511438	299-28-5	CALCIUM GLUCONATE GEL	25	Gram(GM)	12-Oct-18
1511439	299-28-5	CALCIUM GLUCONATE GEL	25	Gram(GM)	12-Oct-18
1511437	299-28-5	CALCIUM GLUCONATE GEL	25	Gram(GM)	12-Oct-18
1511440	299-28-5	CALCIUM GLUCONATE GEL	25	Gram(GM)	12-Oct-18
1511479	-	TOSOH-ZIRCONIA	1	Kilograms(KG)	12-Oct-18
1511486	-	TOSOH-ZIRCONIA	1	Kilograms(KG)	12-Oct-18
1511483	-	TOSOH-ZIRCONIA	1	Kilograms(KG)	12-Oct-18
1511487	-	TOSOH-ZIRCONIA	1	Kilograms(KG)	12-Oct-18
1511485	-	TOSOH-ZIRCONIA	1	Kilograms(KG)	12-Oct-18
1511484	-	TOSOH-ZIRCONIA	1	Kilograms(KG)	12-Oct-18
1511482	-	TOSOH-ZIRCONIA	1	Kilograms(KG)	12-Oct-18
1511480	-	TOSOH-ZIRCONIA	1	Kilograms(KG)	12-Oct-18
1511481	-	TOSOH-ZIRCONIA	1	Kilograms(KG)	12-Oct-18
1511488	-	TOSOH-ZIRCONIA	1	Kilograms(KG)	12-Oct-18
1511489	54010-75-2	ZINC TRIFLUOROMETHANE SULFONATE	10	Gram(GM)	12-Oct-18
1511490	-	POLYANILINE (EMERALDINE SALT)	25	Gram(GM)	12-Oct-18
1511491	465-21-4	Bufalin	10	Milligram(MG)	12-Oct-18
1511492	7689-03-4	CAMPTOTHECIN	100	Milligram(MG)	12-Oct-18
1511493	483-04-5	Ajmalicine	50	Milligram(MG)	12-Oct-18
1511494	4429-63-4	Tabersonine	10	Milligram(MG)	12-Oct-18
1511495	9002-89-5	POLYVINYL ALCOHOL	25	Gram(GM)	12-Oct-18
1511496	9003-17-2	POLYBUTADIENE RUBBER	250	Milliliter(ML)	12-Oct-18
1511497	9003-17-2	POLYBUTADIENE RUBBER	100	Milliliter(ML)	12-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511498	9002-88-4	LOW DENSITY POLYETHYLENE POWDER	250	Gram(GM)	12-Oct-18
1511499	111-84-2	NONANE	1000	Milligram(MG)	12-Oct-18
1511500	111-84-2	NONANE	1000	Milligram(MG)	12-Oct-18
1511501	65-85-0	BENZOIC ACID	500	Gram(GM)	12-Oct-18
1511502	74-11-3	4-Chlorobenzoic acid	50	Gram(GM)	12-Oct-18
1511503	7757-82-6	SODIUM SULFATE	2.5	Kilograms(KG)	12-Oct-18
1511504	151-21-3	SODIUM DODECYL SULFATE (SOIDUM LAURYL	25	Gram(GM)	12-Oct-18
1511505	67-56-1	METHANOL REAGENT ACS	4	Liters(L)	12-Oct-18
1511508	67-56-1	METHANOL REAGENT ACS	4	Liters(L)	12-Oct-18
1511506	67-56-1	METHANOL REAGENT ACS	4	Liters(L)	12-Oct-18
1511507	67-56-1	METHANOL REAGENT ACS	4	Liters(L)	12-Oct-18
1511509	75-05-8	ACETONITRILE CERTIFIED ACS	4	Liters(L)	12-Oct-18
1511510	930-30-3	2-CYCLOPENTENONE	100	Gram(GM)	12-Oct-18
1511511	16219-75-3	5-Ethylidene-2-norbornene	25	Milliliter(ML)	12-Oct-18
1511512	64742-49-0	FLUX OFF NO CLEAN	12	Ounces(OZ)	12-Oct-18
1511516	64742-49-0	FLUX OFF NO CLEAN	12	Ounces(OZ)	12-Oct-18
1511514	64742-49-0	FLUX OFF NO CLEAN	12	Ounces(OZ)	12-Oct-18
1511513	64742-49-0	FLUX OFF NO CLEAN	12	Ounces(OZ)	12-Oct-18
1511515	64742-49-0	FLUX OFF NO CLEAN	12	Ounces(OZ)	12-Oct-18
1511518	64742-49-0	FLUX OFF NO CLEAN	12	Ounces(OZ)	12-Oct-18
1511517	64742-49-0	FLUX OFF NO CLEAN	12	Ounces(OZ)	12-Oct-18
1511523	64742-49-0	FLUX OFF NO CLEAN	12	Ounces(OZ)	12-Oct-18
1511522	64742-49-0	FLUX OFF NO CLEAN	12	Ounces(OZ)	12-Oct-18
1511521	64742-49-0	FLUX OFF NO CLEAN	12	Ounces(OZ)	12-Oct-18
1511519	64742-49-0	FLUX OFF NO CLEAN	12	Ounces(OZ)	12-Oct-18
1511520	64742-49-0	FLUX OFF NO CLEAN	12	Ounces(OZ)	12-Oct-18
1511524	7647-14-5	SODIUM CHLORIDE	75	Gram(GM)	12-Oct-18
1511525	12069-32-8	BORON CARBIDE	250	Gram(GM)	12-Oct-18
1511526	12069-32-8	BORON CARBIDE	100	Gram(GM)	12-Oct-18
1511527	1338-41-6	SORBITAN MONOSTEARATE	250	Gram(GM)	12-Oct-18
1511528	9005-64-5	TWEEN 20	100	Milliliter(ML)	12-Oct-18
1511529	7440-42-8	BORON POWDER	50	Gram(GM)	12-Oct-18
1511530	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	12-Oct-18
1511531	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	12-Oct-18
1511532	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	12-Oct-18
1511533	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	1	Kilograms(KG)	12-Oct-18
1511534	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	1	Kilograms(KG)	12-Oct-18
1511535	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	12-Oct-18
1511537	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	12-Oct-18
1511538	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	12-Oct-18
1511536	68-12-2	N N-DIMETHYLFORMAMIDE	1	Liters(L)	12-Oct-18
1511539	60-29-7	DIETHYL ETHER	1	Liters(L)	12-Oct-18
1511540	60-29-7	DIETHYL ETHER	1	Liters(L)	12-Oct-18
1511541	-	ARMAKLEEN Rust Remover	5	Gallon(GAL)	12-Oct-18
1511107	64742-47-8	Clarifloc C-6265	55	Gallon(GAL)	12-Oct-18
1511108	64742-47-8	Clarifloc C-6265	55	Gallon(GAL)	12-Oct-18
1511383	75-05-8	ACETONITRILE HPLC	4	Liters(L)	12-Oct-18
1511384	75-05-8	ACETONITRILE HPLC	4	Liters(L)	12-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511385	75-05-8	ACETONITRILE HPLC	4	Liters(L)	12-Oct-18
1511386	75-05-8	ACETONITRILE HPLC	4	Liters(L)	12-Oct-18
1511387	6876-37-5	Methylammonium Bromide	25	Gram(GM)	12-Oct-18
1511389	6876-37-5	Methylammonium Bromide	25	Gram(GM)	12-Oct-18
1511390	6876-37-5	Methylammonium Bromide	25	Gram(GM)	12-Oct-18
1511388	6876-37-5	Methylammonium Bromide	25	Gram(GM)	12-Oct-18
1511391	7440-50-8	COPPER TURNINGS	1	Kilograms(KG)	12-Oct-18
1511392	7789-38-0	SODIUM BROMATE	250	Gram(GM)	12-Oct-18
1511393	4170-30-3	CROTONALDEHYDE	250	Milliliter(ML)	12-Oct-18
1511441	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511449	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511442	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511443	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511444	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511445	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511446	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511448	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511450	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511451	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511459	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511453	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511454	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511455	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511456	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511457	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511460	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511458	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511452	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511447	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	12-Oct-18
1511543	7440-42-8	BORON POWDER	50	Gram(GM)	12-Oct-18
1511544	7440-42-8	BORON POWDER	50	Gram(GM)	12-Oct-18
1511545	7782-49-2	SELENIUM POWDER	50	Gram(GM)	12-Oct-18
1511546	7782-49-2	SELENIUM POWDER	50	Gram(GM)	12-Oct-18
1511547	12070-12-1	TUNGSTEN CARBIDE	100	Gram(GM)	12-Oct-18
1511548	25658-42-8	ZIRCONIUM NITRIDE	25	Gram(GM)	12-Oct-18
1511549	-	DOUBLE BUBBLE EPOXY	350	Gram(GM)	12-Oct-18
1511550	12232-99-4	SODIUM BISMUTHATE	100	Gram(GM)	12-Oct-18
1511551	-	M-BOND 200 ADHESIVE KIT	10	Gram(GM)	12-Oct-18
1511552	-	M-BOND 200 ADHESIVE KIT	10	Gram(GM)	12-Oct-18
1511554	-	M-BOND 200 ADHESIVE KIT	10	Gram(GM)	12-Oct-18
1511553	-	M-BOND 200 ADHESIVE KIT	10	Gram(GM)	12-Oct-18
1511555	-	M-BOND 200 CATALYST	30	Milliliter(ML)	12-Oct-18
1511556	-	M-BOND 200 CATALYST	30	Milliliter(ML)	12-Oct-18
1511558	-	M-BOND 200 CATALYST	30	Milliliter(ML)	12-Oct-18
1511557	-	M-BOND 200 CATALYST	30	Milliliter(ML)	12-Oct-18
1511559	-	M-bond 200 adhesive	1	Ounces(OZ)	12-Oct-18
1511560	-	M-bond 200 adhesive	1	Ounces(OZ)	12-Oct-18
1511561	-	M-bond 200 adhesive	1	Ounces(OZ)	12-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511562	-	M-bond 200 adhesive	1	Ounces(OZ)	12-Oct-18
1511563	-	M-BOND 200 KIT	1	Ounces(OZ)	12-Oct-18
1511564	-	M-BOND 200 KIT	1	Ounces(OZ)	12-Oct-18
1511566	-	M-BOND 200 KIT	1	Ounces(OZ)	12-Oct-18
1511565	-	M-BOND 200 KIT	1	Ounces(OZ)	12-Oct-18
1511567	100-39-0	BENZYL BROMIDE	100	Gram(GM)	12-Oct-18
1511568	-	KESTER SOLDERING FLUID	500	Gram(GM)	12-Oct-18
1511569	-	4-15% Mini-PROTEAN TGX Gel	15	Microliter	12-Oct-18
1511570	-	4-15% Mini-PROTEAN TGX Gel	15	Microliter	12-Oct-18
1511571	-	TRACEABLE CONDUCTIVITY CALIBRATION	143	Milliliter(ML)	12-Oct-18
1511572	-	TRACEABLE CONDUCTIVITY CALIBRATION	143	Milliliter(ML)	12-Oct-18
1497555	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1511573	-	BUFFER PH 7.00	500	Milliliter(ML)	12-Oct-18
1511574	16961-25-4	Gold(III) chloride trihydrate	1	Gram(GM)	12-Oct-18
1511575	16961-25-4	Gold(III) chloride trihydrate	1	Gram(GM)	12-Oct-18
1511576	16961-25-4	Gold(III) chloride trihydrate	1	Gram(GM)	12-Oct-18
1511577	16961-25-4	Gold(III) chloride trihydrate	1	Gram(GM)	12-Oct-18
1497557	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497561	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497556	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497559	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497560	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497558	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1511578	61857-39-4	Poly-L-histidine hydrochloride	500	Milligram(MG)	12-Oct-18
1511579	-	Potassium Chloride Conductivity Standard	500	Milliliter(ML)	12-Oct-18
1511580	-	Potassium Chloride Conductivity Standard	500	Milliliter(ML)	12-Oct-18
1497562	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	12-Oct-18
1497565	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	12-Oct-18
1497566	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	12-Oct-18
1497564	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	12-Oct-18
1497567	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	12-Oct-18
1497563	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	12-Oct-18
1497568	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	12-Oct-18
1497570	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	12-Oct-18
1497571	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	12-Oct-18
1497569	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	12-Oct-18
1497572	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	12-Oct-18
1497574	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	12-Oct-18
1497573	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	12-Oct-18
1497575	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497583	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497576	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497577	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497578	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497584	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497579	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497585	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497586	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497582	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497580	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497581	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497587	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497588	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	12-Oct-18
1497589	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	12-Oct-18
1497590	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	12-Oct-18
1497591	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	12-Oct-18
1497592	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	12-Oct-18
1497595	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	12-Oct-18
1497596	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	12-Oct-18
1497597	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	12-Oct-18
1497593	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	12-Oct-18
1497594	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	12-Oct-18
1497598	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	12-Oct-18
1497599	-	Dielectric Grease Compound	3.3	Ounces(OZ)	12-Oct-18
1497601	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	12-Oct-18
1497600	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	12-Oct-18
1497602	-	Ultratane Butane Fuel	5.82	Ounces(OZ)	12-Oct-18
1497603	-	Battery Cleaner with Acid Indicator	11	Ounces(OZ)	12-Oct-18
1497604	-	Battery Terminal Protector (aerosol)	7.5	Ounces(OZ)	12-Oct-18
1497605	-	Super White Multi-Purpose Lithium Grease	14	Ounces(OZ)	12-Oct-18
1497606	-	HI TEMPERATURE DISC BRAKE BEARING GREASE	14	Ounces(OZ)	12-Oct-18
1497607	-	ULTRA GREY SILICONE GASKET MAKER	3.5	Ounces(OZ)	12-Oct-18
1497608	-	767 ANTI-SEIZE LUBRICANT	16	Ounces(OZ)	12-Oct-18
1497609	-	ANTI-SEIZE LUBRICANT	4	Ounces(OZ)	12-Oct-18
1497610	-	Parts Plus Type F ATF	1	Quarts(QT)	12-Oct-18
1497612	-	Parts Plus Type F ATF	1	Quarts(QT)	12-Oct-18
1497619	-	Parts Plus Type F ATF	1	Quarts(QT)	12-Oct-18
1497614	-	Parts Plus Type F ATF	1	Quarts(QT)	12-Oct-18
1497620	-	Parts Plus Type F ATF	1	Quarts(QT)	12-Oct-18
1497618	-	Parts Plus Type F ATF	1	Quarts(QT)	12-Oct-18
1497617	-	Parts Plus Type F ATF	1	Quarts(QT)	12-Oct-18
1497616	-	Parts Plus Type F ATF	1	Quarts(QT)	12-Oct-18
1497615	-	Parts Plus Type F ATF	1	Quarts(QT)	12-Oct-18
1497613	-	Parts Plus Type F ATF	1	Quarts(QT)	12-Oct-18
1497611	-	Parts Plus Type F ATF	1	Quarts(QT)	12-Oct-18
1497621	-	Parts Plus Type F ATF	1	Quarts(QT)	12-Oct-18
1497622	-	3M Rubberized Undercoating Black PN08883	19.7	Ounces(OZ)	12-Oct-18
1497623	-	3M Rubberized Undercoating Black PN08883	19.7	Ounces(OZ)	12-Oct-18
1497624	-	3M Rubberized Undercoating Black PN08883	19.7	Ounces(OZ)	12-Oct-18
1497625	-	3M Rubberized Undercoating Black PN08883	19.7	Ounces(OZ)	12-Oct-18
1497626	-	3M Rubberized Undercoating Black PN08883	19.7	Ounces(OZ)	12-Oct-18
1497627	-	3M Rubberized Undercoating Black PN08883	19.7	Ounces(OZ)	12-Oct-18
1497628	-	MOBIL 1 5W-50	1	Quarts(QT)	12-Oct-18
1497629	-	MOBIL 1 5W-50	1	Quarts(QT)	12-Oct-18
1497630	-	MOBIL 1 5W-50	1	Quarts(QT)	12-Oct-18
1497631	-	Parts Plus Power Steering Fld	1	Quarts(QT)	12-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497632	-	Parts Plus Power Steering Fld	1	Quarts(QT)	12-Oct-18
1497633	-	Parts Plus Power Steering Fld	1	Quarts(QT)	12-Oct-18
1497634	-	Parts Plus Power Steering Fld	1	Quarts(QT)	12-Oct-18
1497635	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	12-Oct-18
1497636	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	12-Oct-18
1497642	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	12-Oct-18
1497641	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	12-Oct-18
1497640	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	12-Oct-18
1497639	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	12-Oct-18
1497637	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	12-Oct-18
1497638	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	12-Oct-18
1497643	-	LOCTITE 271	10	Milliliter(ML)	12-Oct-18
1497645	-	LOCTITE 271	10	Milliliter(ML)	12-Oct-18
1497646	-	LOCTITE 271	10	Milliliter(ML)	12-Oct-18
1497647	-	LOCTITE 271	10	Milliliter(ML)	12-Oct-18
1497644	-	LOCTITE 271	10	Milliliter(ML)	12-Oct-18
1498913	-	Frosted Glass Specialty Coating	11	Ounces(OZ)	12-Oct-18
1498921	-	Frosted Glass Specialty Coating	11	Ounces(OZ)	12-Oct-18
1498920	-	Frosted Glass Specialty Coating	11	Ounces(OZ)	12-Oct-18
1498919	-	Frosted Glass Specialty Coating	11	Ounces(OZ)	12-Oct-18
1498918	-	Frosted Glass Specialty Coating	11	Ounces(OZ)	12-Oct-18
1498917	-	Frosted Glass Specialty Coating	11	Ounces(OZ)	12-Oct-18
1498916	-	Frosted Glass Specialty Coating	11	Ounces(OZ)	12-Oct-18
1498915	-	Frosted Glass Specialty Coating	11	Ounces(OZ)	12-Oct-18
1498914	-	Frosted Glass Specialty Coating	11	Ounces(OZ)	12-Oct-18
1498923	-	Frosted Glass Specialty Coating	11	Ounces(OZ)	12-Oct-18
1498922	-	Frosted Glass Specialty Coating	11	Ounces(OZ)	12-Oct-18
1498924	-	Frosted Glass Specialty Coating	11	Ounces(OZ)	12-Oct-18
1433058	-	Tru-Blue Thread Sealant	0.25	Pint(PT)	15-Oct-18
1433059	-	Tru-Blue Thread Sealant	0.25	Pint(PT)	15-Oct-18
1433062	-	Stay-Brite Rosin Core Bridgit 85/15	1	Pounds(LB)	15-Oct-18
1433063	-	Stay-Brite Rosin Core Bridgit 85/15	1	Pounds(LB)	15-Oct-18
1433064	-	Stay-Brite Rosin Core Bridgit 85/15	1	Pounds(LB)	15-Oct-18
1433066	-	Stay-Brite Rosin Core Bridgit 85/15	1	Pounds(LB)	15-Oct-18
1433065	-	Stay-Brite Rosin Core Bridgit 85/15	1	Pounds(LB)	15-Oct-18
1433067	-	Megaloc	0.5	Pint(PT)	15-Oct-18
1432973	-	SNOOP LEAK DETECT	8	Ounces(OZ)	15-Oct-18
1433081	-	silvabrite 100	1	Pounds(LB)	15-Oct-18
1433082	-	NOKORODE REGULAR PASTE FLUX (LEAD-FREE)	1	Pounds(LB)	15-Oct-18
1433083	-	Staput plumbers putty	14	Ounces(OZ)	15-Oct-18
1433084	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	15-Oct-18
1433087	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	15-Oct-18
1433088	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	15-Oct-18
1433086	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	15-Oct-18
1433085	-	Hercules Plumber's Caulk White	6	Ounces(OZ)	15-Oct-18
1433089	-	silvabrite 100	1	Pounds(LB)	15-Oct-18
1433090	-	silvabrite 100	1	Pounds(LB)	15-Oct-18
1433091	-	silvabrite 100	1	Pounds(LB)	15-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1433092	-	silvabrite 100	1	Pounds(LB)	15-Oct-18
1433093	-	Blue Monster PTFE Pipe Thread Sealant	16	Ounces(OZ)	15-Oct-18
1423185	-	PIPE THREAD SEALANT	125	Gram(GM)	15-Oct-18
1423186	-	PIPE THREAD SEALANT	125	Gram(GM)	15-Oct-18
1423187	-	PIPE THREAD SEALANT	125	Gram(GM)	15-Oct-18
1423188	-	PIPE THREAD SEALANT	125	Gram(GM)	15-Oct-18
1433060	-	DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	15-Oct-18
1433070	-	SNOOP LEAK DETECT	1	Gallon(GAL)	15-Oct-18
1433071	-	SNOOP LEAK DETECT	1	Gallon(GAL)	15-Oct-18
1433072	-	SNOOP LEAK DETECT	1	Gallon(GAL)	15-Oct-18
1511394	811-97-2	DUSTER ES1017	10	Ounces(OZ)	15-Oct-18
1511403	811-97-2	DUSTER ES1017	10	Ounces(OZ)	15-Oct-18
1511404	811-97-2	DUSTER ES1017	10	Ounces(OZ)	15-Oct-18
1511402	811-97-2	DUSTER ES1017	10	Ounces(OZ)	15-Oct-18
1511401	811-97-2	DUSTER ES1017	10	Ounces(OZ)	15-Oct-18
1511400	811-97-2	DUSTER ES1017	10	Ounces(OZ)	15-Oct-18
1511399	811-97-2	DUSTER ES1017	10	Ounces(OZ)	15-Oct-18
1511397	811-97-2	DUSTER ES1017	10	Ounces(OZ)	15-Oct-18
1511396	811-97-2	DUSTER ES1017	10	Ounces(OZ)	15-Oct-18
1511395	811-97-2	DUSTER ES1017	10	Ounces(OZ)	15-Oct-18
1511405	811-97-2	DUSTER ES1017	10	Ounces(OZ)	15-Oct-18
1511398	811-97-2	DUSTER ES1017	10	Ounces(OZ)	15-Oct-18
1511406	-	Lipopolysaccharides from Salmonella enterica	10	Milligram(MG)	15-Oct-18
1511461	-	Pure Water pH Buffers and pHISA Adjustor	60	Milliliter(ML)	15-Oct-18
1511581	-	High-Temperature Casting Compound Zirconium	4	Pint(PT)	15-Oct-18
1511582	-	High-Temperature Casting Compound Zirconium	4	Pint(PT)	15-Oct-18
1511583	-	3M EPOXY DP100 A&B CLEAR	1.6	Ounces(OZ)	15-Oct-18
1511584	28064-14-4	High-Temperature Epoxy Sealant for Electronics	10	Ounces(OZ)	15-Oct-18
1511585	1305-62-0	DEXPAN Type 2	44	Pounds(LB)	15-Oct-18
1511586	1305-62-0	DEXPAN Type 2	44	Pounds(LB)	15-Oct-18
1511611	2418-52-2	D-Threitol	250	Milligram(MG)	15-Oct-18
1511612	2418-52-2	D-Threitol	250	Milligram(MG)	15-Oct-18
1511613	2418-52-2	D-Threitol	250	Milligram(MG)	15-Oct-18
1511614	2418-52-2	D-Threitol	250	Milligram(MG)	15-Oct-18
1511615	2418-52-2	D-Threitol	250	Milligram(MG)	15-Oct-18
1511616	2418-52-2	D-Threitol	250	Milligram(MG)	15-Oct-18
1511617	2418-52-2	D-Threitol	250	Milligram(MG)	15-Oct-18
1511618	-	TRIZOL REAGENT	50	Milliliter(ML)	15-Oct-18
1511619	-	TRIZOL REAGENT	50	Milliliter(ML)	15-Oct-18
1511621	12070-12-1	TUNGSTEN CARBIDE	50	Gram(GM)	15-Oct-18
1511623	7440-38-2	ARSENIC	10	Milliliter(ML)	15-Oct-18
1511625	7440-38-2	ARSENIC	10	Milliliter(ML)	15-Oct-18
1511624	7440-38-2	ARSENIC	10	Milliliter(ML)	15-Oct-18
1511626	1310-73-2	SODIUM HYDROXIDE	100	Milliliter(ML)	15-Oct-18
1511627	109-99-9	TETRAHYDROFURAN ANHYDROUS 99.9%	100	Milliliter(ML)	15-Oct-18
1511628	764-48-7	Ethylene glycol vinyl ether	50	Milliliter(ML)	15-Oct-18
1511629	-	CLOROX	1	Gallon(GAL)	15-Oct-18
1511630	-	CLOROX	1	Gallon(GAL)	15-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511631	-	CLOROX	1	Gallon(GAL)	15-Oct-18
1511632	12069-32-8	BORON CARBIDE	5	Pounds(LB)	15-Oct-18
1511633	12069-32-8	BORON CARBIDE 800	5	Pounds(LB)	15-Oct-18
1511634	68551-17-7	MINERAL SPIRITS	128	Ounces(OZ)	15-Oct-18
1511635	156-57-0	2-AMINOETHANETHIOL HYDROCHLORIDE	100	Gram(GM)	15-Oct-18
1511636	109-99-9	TETRAHYDROFURAN	4	Liters(L)	15-Oct-18
1511638	109-99-9	TETRAHYDROFURAN	4	Liters(L)	15-Oct-18
1511639	109-99-9	TETRAHYDROFURAN	4	Liters(L)	15-Oct-18
1511637	109-99-9	TETRAHYDROFURAN	4	Liters(L)	15-Oct-18
1511695	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	15-Oct-18
1511696	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	15-Oct-18
1511697	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	15-Oct-18
1511698	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	15-Oct-18
1511699	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	15-Oct-18
1511700	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	15-Oct-18
1511701	67-64-1	ACETONE OPTIMA	4	Liters(L)	15-Oct-18
1511702	67-64-1	ACETONE OPTIMA	4	Liters(L)	15-Oct-18
1511708	67-64-1	ACETONE OPTIMA	4	Liters(L)	15-Oct-18
1511703	67-64-1	ACETONE OPTIMA	4	Liters(L)	15-Oct-18
1511704	67-64-1	ACETONE OPTIMA	4	Liters(L)	15-Oct-18
1511705	67-64-1	ACETONE OPTIMA	4	Liters(L)	15-Oct-18
1511706	67-64-1	ACETONE OPTIMA	4	Liters(L)	15-Oct-18
1511707	67-64-1	ACETONE OPTIMA	4	Liters(L)	15-Oct-18
1511709	-	Black Powder Chemicals Kit	12	Pounds(LB)	15-Oct-18
1511710	67-64-1	ACETONE	4	Liters(L)	16-Oct-18
1511711	67-64-1	ACETONE	4	Liters(L)	16-Oct-18
1511712	110-54-3	HEXANE OPTIMA	4	Liters(L)	16-Oct-18
1511713	-	Chloroform ACS	4	Liters(L)	16-Oct-18
1511714	43625-06-5	NITRIC-15N ACID	1	Gram(GM)	16-Oct-18
1511715	43625-06-5	NITRIC-15N ACID	1	Gram(GM)	16-Oct-18
1511716	43625-06-5	NITRIC-15N ACID	1	Gram(GM)	16-Oct-18
1511717	103-33-3	AZOBENZENE	100	Gram(GM)	16-Oct-18
1511718	1314-35-8	TUNGSTEN OXIDE	250	Gram(GM)	16-Oct-18
1511719	88-05-1	2 4 6-TRIMETHYLANILINE	25	Milliliter(ML)	16-Oct-18
1511720	12033-89-5	SILICON NITRIDE	4.5	Gram(GM)	16-Oct-18
1420272	-	Duralco 4461	10	Gram(GM)	16-Oct-18
1420273	-	DURALCO 4540	10	Gram(GM)	16-Oct-18
1420281	-	Duralco 4525	7	Gram(GM)	16-Oct-18
1420282	-	Duralco 4525	3	Gram(GM)	16-Oct-18
1497648	-	HEAVY DUTY BRAKE FLUID DOT3	1	Quarts(QT)	16-Oct-18
1561286	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561295	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561296	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561297	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561304	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561299	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561290	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561298	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561300	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561294	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561293	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561291	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561289	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561288	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561287	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561292	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561305	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561302	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561314	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561313	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561312	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561311	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561310	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561309	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561308	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561307	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561306	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561303	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561301	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Oct-18
1561315	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561318	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561319	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561322	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561323	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561324	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561325	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561326	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561327	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561328	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561329	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561321	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561317	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561316	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561320	74-98-6	PROPANE	50	Pounds(LB)	16-Oct-18
1561330	74-98-6	PROPANE	25	Pounds(LB)	16-Oct-18
1561331	74-98-6	PROPANE	25	Pounds(LB)	16-Oct-18
1561332	74-98-6	PROPANE	25	Pounds(LB)	16-Oct-18
1561333	-	Hydrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561375	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Oct-18
1561376	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Oct-18
1561377	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Oct-18
1561378	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Oct-18
1561379	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Oct-18
1561380	-	Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	16-Oct-18
1561381	-	Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	16-Oct-18
1561236	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561243	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561249	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561240	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561244	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561242	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561241	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561239	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561237	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561245	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561246	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561247	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561248	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561251	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561252	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561253	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561254	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561255	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561250	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1561238	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Oct-18
1497649	-	LIGHTWEIGHT BODY FILLER	793	Gram(GM)	16-Oct-18
1511622	18542-42-2	2-(METHYLTHIO)ETHYLAMINE	25	Gram(GM)	16-Oct-18
1511640	108-10-1	4-METHYL-2-PENTANONE	500	Milliliter(ML)	16-Oct-18
1511641	7787-58-8	BISMUTH(III) BROMIDE	25	Gram(GM)	16-Oct-18
1511642	7785-23-1	SILVER BROMIDE	25	Gram(GM)	16-Oct-18
1511643	-	Cobalt(II) chloride anhydrous 97%	25	Gram(GM)	16-Oct-18
1511644	865-47-4	POTASSIUM TERT-BUTOXIDE	50	Milliliter(ML)	16-Oct-18
1511645	2319-57-5	L-Threitol	1	Gram(GM)	16-Oct-18
1511648	2319-57-5	L-Threitol	1	Gram(GM)	16-Oct-18
1511651	2319-57-5	L-Threitol	1	Gram(GM)	16-Oct-18
1511649	2319-57-5	L-Threitol	1	Gram(GM)	16-Oct-18
1511647	2319-57-5	L-Threitol	1	Gram(GM)	16-Oct-18
1511646	2319-57-5	L-Threitol	1	Gram(GM)	16-Oct-18
1511650	2319-57-5	L-Threitol	1	Gram(GM)	16-Oct-18
1511652	2418-52-2	D-Threitol	250	Milligram(MG)	16-Oct-18
1511657	2418-52-2	D-Threitol	250	Milligram(MG)	16-Oct-18
1511653	2418-52-2	D-Threitol	250	Milligram(MG)	16-Oct-18
1511654	2418-52-2	D-Threitol	250	Milligram(MG)	16-Oct-18
1511655	2418-52-2	D-Threitol	250	Milligram(MG)	16-Oct-18
1511656	2418-52-2	D-Threitol	250	Milligram(MG)	16-Oct-18
1560622	7440-63-3	XENON	100	Liters(L)	16-Oct-18
1560623	7440-63-3	XENON	100	Liters(L)	16-Oct-18
1511658	-	Low Level Total Residual Chlorine	10	Milliliter(ML)	16-Oct-18
1511659	67-64-1	ACETONE REAGENT ACS	4	Liters(L)	16-Oct-18
1511660	1310-73-2	SODIUM HYDROXIDE	20	Liters(L)	16-Oct-18
1511661	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	16-Oct-18
1511666	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	16-Oct-18
1511662	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	16-Oct-18
1511663	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	16-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511664	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	16-Oct-18
1511665	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	16-Oct-18
1511667	-	CalVer® 2 Calcium Indicator Powder Pillows	10	Milligram(MG)	16-Oct-18
1511669	-	CalVer® 2 Calcium Indicator Powder Pillows	10	Milligram(MG)	16-Oct-18
1511670	-	CalVer® 2 Calcium Indicator Powder Pillows	10	Milligram(MG)	16-Oct-18
1511671	-	CalVer® 2 Calcium Indicator Powder Pillows	10	Milligram(MG)	16-Oct-18
1511668	-	CalVer® 2 Calcium Indicator Powder Pillows	10	Milligram(MG)	16-Oct-18
1511672	-	FERROVER IRON REAGENT	10	Milligram(MG)	16-Oct-18
1511678	-	FERROVER IRON REAGENT	10	Milligram(MG)	16-Oct-18
1511676	-	FERROVER IRON REAGENT	10	Milligram(MG)	16-Oct-18
1511680	-	FERROVER IRON REAGENT	10	Milligram(MG)	16-Oct-18
1511681	-	FERROVER IRON REAGENT	10	Milligram(MG)	16-Oct-18
1511679	-	FERROVER IRON REAGENT	10	Milligram(MG)	16-Oct-18
1511674	-	FERROVER IRON REAGENT	10	Milligram(MG)	16-Oct-18
1511675	-	FERROVER IRON REAGENT	10	Milligram(MG)	16-Oct-18
1511673	-	FERROVER IRON REAGENT	10	Milligram(MG)	16-Oct-18
1511677	-	FERROVER IRON REAGENT	10	Milligram(MG)	16-Oct-18
1511682	1310-58-3	POTASSIUM HYDROXIDE	100	Milliliter(ML)	16-Oct-18
1511683	1310-58-3	POTASSIUM HYDROXIDE	100	Milliliter(ML)	16-Oct-18
1511684	1310-58-3	POTASSIUM HYDROXIDE	100	Milliliter(ML)	16-Oct-18
1511685	-	SILICA REAGENT KIT	10	Milliliter(ML)	16-Oct-18
1511693	-	SILICA REAGENT KIT	10	Milliliter(ML)	16-Oct-18
1511692	-	SILICA REAGENT KIT	10	Milliliter(ML)	16-Oct-18
1511686	-	SILICA REAGENT KIT	10	Milliliter(ML)	16-Oct-18
1511691	-	SILICA REAGENT KIT	10	Milliliter(ML)	16-Oct-18
1511690	-	SILICA REAGENT KIT	10	Milliliter(ML)	16-Oct-18
1511689	-	SILICA REAGENT KIT	10	Milliliter(ML)	16-Oct-18
1511687	-	SILICA REAGENT KIT	10	Milliliter(ML)	16-Oct-18
1511694	-	SILICA REAGENT KIT	10	Milliliter(ML)	16-Oct-18
1511688	-	SILICA REAGENT KIT	10	Milliliter(ML)	16-Oct-18
1511721	506-68-3	Cyanogen bromide	100	Gram(GM)	16-Oct-18
1511722	64742-55-8	Parabar 10312	100	Milliliter(ML)	16-Oct-18
1511723	110-86-1	PYRIDINE	1	Liters(L)	16-Oct-18
1511724	-	FULLCURE 705	3.6	Kilograms(KG)	16-Oct-18
1511727	-	FULLCURE 705	3.6	Kilograms(KG)	16-Oct-18
1511726	-	FULLCURE 705	3.6	Kilograms(KG)	16-Oct-18
1511725	-	FULLCURE 705	3.6	Kilograms(KG)	16-Oct-18
1511731	-	FULLCURE 705	3.6	Kilograms(KG)	16-Oct-18
1511732	-	FULLCURE 705	3.6	Kilograms(KG)	16-Oct-18
1511728	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	1	Kilograms(KG)	16-Oct-18
1511729	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	1	Kilograms(KG)	16-Oct-18
1511730	-	FULLCURE 840	3.6	Kilograms(KG)	16-Oct-18
1540506	7786-30-3	MAGNESIUM CHLORIDE	3300	Pounds(LB)	16-Oct-18
1540510	7786-30-3	MAGNESIUM CHLORIDE	3300	Pounds(LB)	16-Oct-18
1540507	7786-30-3	MAGNESIUM CHLORIDE	3300	Pounds(LB)	16-Oct-18
1540508	7786-30-3	MAGNESIUM CHLORIDE	3300	Pounds(LB)	16-Oct-18
1540509	7786-30-3	MAGNESIUM CHLORIDE	3300	Pounds(LB)	16-Oct-18
1511032	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	17-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511039	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	17-Oct-18
1511034	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	17-Oct-18
1511035	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	17-Oct-18
1511036	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	17-Oct-18
1511038	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	17-Oct-18
1511040	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	17-Oct-18
1511041	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	17-Oct-18
1511042	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	17-Oct-18
1511043	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	17-Oct-18
1511033	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	17-Oct-18
1511037	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	17-Oct-18
1511462	-	UV DYMAX GLUE	30	Milliliter(ML)	17-Oct-18
900000006	811-97-2	DUSTER ES1017	1	Milligram(MG)	17-Oct-18
1511733	-	VERTREL CLEANING AGENT	5	Gallon(GAL)	17-Oct-18
1511734	6132-04-3	Sodium citrate tribasic dihydrate	500	Gram(GM)	17-Oct-18
1511735	174501-65-6	1-BUTYL-3-METHYLIMIDAZOLIUM	100	Gram(GM)	17-Oct-18
1511736	174899-66-2	1-Butyl-3-methylimidazolium	100	Gram(GM)	17-Oct-18
1511737	8042-47-5	MINERAL OIL	500	Milliliter(ML)	17-Oct-18
1511738	-	MICROTOX ACUTE REAGENT	4	Milliliter(ML)	17-Oct-18
1511739	-	MICROTOX ACUTE REAGENT	4	Milliliter(ML)	17-Oct-18
1511740	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	17-Oct-18
1511741	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	17-Oct-18
1511743	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	17-Oct-18
1511742	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	17-Oct-18
1511744	1314-56-3	PHOSPHORUS (V) OXIDE	50	Gram(GM)	17-Oct-18
1511745	1314-56-3	PHOSPHORUS (V) OXIDE	50	Gram(GM)	17-Oct-18
1511746	7439-91-0	LANTHANUM	100	Gram(GM)	17-Oct-18
1511747	106-95-6	ALLYL BROMIDE	250	Gram(GM)	17-Oct-18
1511748	10038-98-9	GERMANIUM TETRACHLORIDE	5	Gram(GM)	17-Oct-18
1511767	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511833	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511834	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511836	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511838	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511832	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511839	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511831	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511841	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511825	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511842	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511840	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511830	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511829	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511828	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511843	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511826	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511850	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511824	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511823	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511822	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511821	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511820	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511819	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511827	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511857	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511818	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511835	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511866	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511865	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511864	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511863	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511862	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511861	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511860	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511848	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511858	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511844	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511856	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511855	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511854	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511853	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511852	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511851	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511849	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511847	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511846	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511845	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511859	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511780	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511792	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511791	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511790	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511789	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511788	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511787	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511786	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511785	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511784	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511783	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511793	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511781	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511771	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511779	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511778	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511777	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511776	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511775	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511774	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511773	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511772	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511770	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511837	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511817	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511782	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511808	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511815	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511814	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511816	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511813	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511812	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511811	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511794	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511809	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511807	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511806	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511805	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511797	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511810	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511796	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511804	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511798	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511769	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511799	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511768	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511800	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511801	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511802	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511803	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511795	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511878	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511886	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511885	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511884	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511883	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511882	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511881	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511867	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511879	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511868	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511876	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511875	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511874	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511873	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511872	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511871	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511870	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511869	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511877	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511880	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Oct-18
1511887	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511905	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511904	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511903	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511902	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511901	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511900	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511895	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511899	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511906	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511889	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511897	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511888	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511898	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511890	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511891	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511892	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511893	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511894	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511896	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	17-Oct-18
1511907	383-63-1	ETHYL TRIFLUOROACETATE 99%	100	Gram(GM)	17-Oct-18
1511908	7664-39-3	HYDROFLUORIC ACID	500	Milliliter(ML)	17-Oct-18
1511909	67-51-6	3 5-DIMETHYLPYRAZOLE	100	Gram(GM)	17-Oct-18
1511910	56641-05-5	Poly(ethylene glycol) phenyl ether acrylate	250	Milliliter(ML)	17-Oct-18
1511911	12125-02-9	AMMONIUM CHLORIDE	2.5	Gallon(GAL)	17-Oct-18
1511912	75-09-2	DICHLOROMETHANE	1	Liters(L)	17-Oct-18
1511913	91-66-7	N N-DIETHYLANILINE	250	Milliliter(ML)	17-Oct-18
1511914	7778-18-9	DRIERITE 10-20 MESH	454	Gram(GM)	17-Oct-18
1511915	342573-75-5	1-Ethyl-3-methylimidazolium ethyl sulfate	100	Gram(GM)	17-Oct-18
1511916	12135-22-7	PALLADIUM HYDROXIDE 20 WT. % PD (DRY	2	Gram(GM)	17-Oct-18
1511917	60-29-7	DIETHYL ETHER	1	Liters(L)	17-Oct-18
1511918	67-63-0	ISOPROPYL ALCOHOL	5	Gallon(GAL)	17-Oct-18
1511919	67-63-0	ISOPROPYL ALCOHOL	5	Gallon(GAL)	17-Oct-18
1511920	7440-17-7	RUBIDIUM	5	Gram(GM)	17-Oct-18
900000012	-	High-Temperature Casting Compound Zirconium	1	Ounces(OZ)	17-Oct-18
1572915	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572921	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572919	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572918	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572922	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572916	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572917	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572931	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1572928	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572920	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572923	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572930	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572929	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572932	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572926	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572927	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572924	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572925	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	18-Oct-18
1572933	-	Blaw-Kote	5	Gallon(GAL)	18-Oct-18
1572934	-	Blaw-Kote	5	Gallon(GAL)	18-Oct-18
1572935	-	Blaw-Kote	5	Gallon(GAL)	18-Oct-18
1561435	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561453	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561452	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561451	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561450	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561447	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561448	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561446	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561445	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561449	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561454	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561455	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561456	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561457	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561461	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561462	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561463	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561464	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561444	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561458	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561459	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561442	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561441	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561440	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561439	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561438	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561437	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561436	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561443	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561460	-	Nitrogen UHP	220	Cubic Feet(CF)	18-Oct-18
1561465	7440-37-1	ARGON COMPRESSED	40	Cubic Feet(CF)	18-Oct-18
1561466	7440-37-1	ARGON COMPRESSED	40	Cubic Feet(CF)	18-Oct-18
1561467	7440-37-1	ARGON COMPRESSED	40	Cubic Feet(CF)	18-Oct-18
1561468	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561477	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561481	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561480	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561482	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561478	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561476	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561479	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561483	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561484	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561475	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561486	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561487	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561488	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561490	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561491	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561492	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561493	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561494	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561485	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561489	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561473	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561472	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561471	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561470	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561469	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561474	-	AIR COMPRESSED	220	Cubic Feet(CF)	18-Oct-18
1561495	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561496	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561497	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561498	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561499	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561500	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561501	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561502	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561506	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561503	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561507	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561508	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561509	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561504	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561505	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561510	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561513	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561524	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561523	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561522	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561521	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561520	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561519	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561518	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561517	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561516	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561514	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561512	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561511	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561515	7440-59-7	Helium UHP	220	Cubic Feet(CF)	18-Oct-18
1561534	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561552	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561544	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561545	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561536	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561546	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561543	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561547	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561549	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561551	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561561	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561553	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561554	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561555	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561556	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561557	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561558	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561559	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561548	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561560	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561550	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561541	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561540	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561539	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561537	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561535	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561538	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561542	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	18-Oct-18
1561562	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	18-Oct-18
1561563	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561631	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561622	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561623	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561624	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561625	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561626	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561627	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561628	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561630	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561618	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561632	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561633	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561629	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561621	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561634	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561619	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561640	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561617	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561616	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561615	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561614	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561613	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561611	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561609	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561608	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561607	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561620	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561648	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561661	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561660	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561659	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561658	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561657	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561656	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561655	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561654	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561653	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561652	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561651	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561638	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561649	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561635	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561647	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561646	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561645	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561644	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561643	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561642	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561641	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561610	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561639	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561606	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561637	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561636	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561650	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561573	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561583	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561582	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561581	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561580	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561579	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561578	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561577	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561576	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561584	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561574	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561571	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561572	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561605	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561570	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561612	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561568	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561567	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561566	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561565	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561564	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561575	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561602	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561569	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561585	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561603	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561601	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561600	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561599	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561598	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561597	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561596	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561588	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561594	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561593	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561592	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561591	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561590	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561589	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561586	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561587	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561604	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561595	-	ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	18-Oct-18
1561382	-	Argon UHP	220	Cubic Feet(CF)	18-Oct-18
1561383	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561385	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561384	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561386	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561391	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561392	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561394	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561390	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561387	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561388	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561389	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561393	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561395	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	18-Oct-18
1561396	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561397	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561402	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561398	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561399	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561403	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561401	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561400	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1561404	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	18-Oct-18
1331537	-	SPRAY PRIMER	12	Ounces(OZ)	18-Oct-18
1331538	-	SPRAY PRIMER	12	Ounces(OZ)	18-Oct-18
900000016	-	Lipopolysaccharides from Salmonella enterica	1	Ounces(OZ)	19-Oct-18
1202436	-	SUPER GLUE	0.14	Ounces(OZ)	19-Oct-18
1455024	-	Yellow Epoxy	1	Pint(PT)	19-Oct-18
1202823	68410-23-1	POLY(AMIDE) RESIN	1	Pint(PT)	19-Oct-18
1498953	-	SHEETROCK EASY SAND Lightweight Setting Type	18	Pounds(LB)	19-Oct-18
1498958	-	SHEETROCK EASY SAND Lightweight Setting Type	18	Pounds(LB)	19-Oct-18
1498957	-	SHEETROCK EASY SAND Lightweight Setting Type	18	Pounds(LB)	19-Oct-18
1498956	-	SHEETROCK EASY SAND Lightweight Setting Type	18	Pounds(LB)	19-Oct-18
1498954	-	SHEETROCK EASY SAND Lightweight Setting Type	18	Pounds(LB)	19-Oct-18
1498955	-	SHEETROCK EASY SAND Lightweight Setting Type	18	Pounds(LB)	19-Oct-18
1498959	-	INTERIOR SANDING SEALER	1	Gallon(GAL)	19-Oct-18
1498965	-	INTERIOR SANDING SEALER	1	Gallon(GAL)	19-Oct-18
1498962	-	INTERIOR SANDING SEALER	1	Gallon(GAL)	19-Oct-18
1498966	-	INTERIOR SANDING SEALER	1	Gallon(GAL)	19-Oct-18
1498961	-	INTERIOR SANDING SEALER	1	Gallon(GAL)	19-Oct-18
1498963	-	INTERIOR SANDING SEALER	1	Gallon(GAL)	19-Oct-18
1498960	-	INTERIOR SANDING SEALER	1	Gallon(GAL)	19-Oct-18
1498964	-	INTERIOR SANDING SEALER	1	Gallon(GAL)	19-Oct-18
1498967	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	19-Oct-18
1498968	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	19-Oct-18
1498969	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	19-Oct-18
1498970	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	19-Oct-18
1498971	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	19-Oct-18
1498972	-	SHEETROCK Brand PLUS 3 Lightweight All	5	Gallon(GAL)	19-Oct-18
1499033	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499049	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499042	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499047	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499046	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499045	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499044	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499043	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499048	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499040	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499039	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499038	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499037	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499036	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499035	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499034	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499041	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499050	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499021	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499022	-	Avalon Premium 100% Acrylic Interior Flat W/B	5	Gallon(GAL)	19-Oct-18
1499071	-	Avalon Premium 100% Acrylic Interior Satin D/B	1	Gallon(GAL)	19-Oct-18
1499072	-	Avalon Premium 100% Acrylic Interior Satin D/B	1	Gallon(GAL)	19-Oct-18
1499074	-	Avalon Premium 100% Acrylic Interior Satin D/B	1	Gallon(GAL)	19-Oct-18
1499073	-	Avalon Premium 100% Acrylic Interior Satin D/B	1	Gallon(GAL)	19-Oct-18
1499051	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499064	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499069	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499068	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499067	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499066	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499065	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499053	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499062	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499061	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499060	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499059	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499058	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499057	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499056	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499055	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499054	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499052	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499070	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499063	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	5	Gallon(GAL)	19-Oct-18
1499075	-	Avalon Premium 100% Acrylic Interior Satin M/B	1	Gallon(GAL)	19-Oct-18
1499076	-	BIN PRIMER SEALER	1	Gallon(GAL)	19-Oct-18
1499077	-	BIN PRIMER SEALER	1	Gallon(GAL)	19-Oct-18
1499078	-	BIN PRIMER SEALER	1	Gallon(GAL)	19-Oct-18
1499079	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	19-Oct-18
1499087	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	19-Oct-18
1499089	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	19-Oct-18
1499080	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	19-Oct-18
1499088	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	19-Oct-18
1499086	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	19-Oct-18
1499085	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	19-Oct-18
1499084	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	19-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499083	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	19-Oct-18
1499081	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	19-Oct-18
1499082	-	Avalon Premium 100% Acrylic Interior Semi-Gloss	1	Gallon(GAL)	19-Oct-18
1499099	-	BIN PRIMER SEALER	1	Gallon(GAL)	19-Oct-18
1499100	-	BIN PRIMER SEALER	1	Gallon(GAL)	19-Oct-18
1499195	-	BIN PRIMER SEALER	1	Gallon(GAL)	19-Oct-18
1499196	-	BIN PRIMER SEALER	1	Gallon(GAL)	19-Oct-18
1499101	-	COTE ALL DEEP BASE	1	Gallon(GAL)	19-Oct-18
1499103	-	Startex Lacquer Thinner	1	Gallon(GAL)	19-Oct-18
1499102	-	Startex Lacquer Thinner	1	Gallon(GAL)	19-Oct-18
1499104	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499105	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499107	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499108	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499109	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499110	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499111	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499112	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499113	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499106	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1202409	-	POLYAMIDE RESIN CURING AGENT	1	Pint(PT)	19-Oct-18
1499114	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499129	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499140	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499139	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499138	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499137	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499136	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499135	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499134	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499133	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499132	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499130	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499123	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499124	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499122	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499125	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499143	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499126	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499127	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499128	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499131	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499158	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499173	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499172	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499171	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499170	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499169	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499168	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499167	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499166	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499165	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499164	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499163	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499162	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499161	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499141	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499152	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499147	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499144	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499145	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499146	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499148	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499160	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499151	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499159	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499153	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499154	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499155	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499156	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499157	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499142	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499150	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499120	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499119	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499118	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499117	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499116	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499115	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499121	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499149	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499175	-	Startex Lacquer Thinner	1	Gallon(GAL)	19-Oct-18
1499176	-	Startex Lacquer Thinner	1	Gallon(GAL)	19-Oct-18
1499177	-	STARTEX PAINT THINNER	1	Gallon(GAL)	19-Oct-18
1499178	-	STARTEX PAINT THINNER	1	Gallon(GAL)	19-Oct-18
1499179	-	Cote All Safety Green	1	Gallon(GAL)	19-Oct-18
1499186	-	Cote All Safety Green	1	Gallon(GAL)	19-Oct-18
1499180	-	Cote All Safety Green	1	Gallon(GAL)	19-Oct-18
1499182	-	Cote All Safety Green	1	Gallon(GAL)	19-Oct-18
1499183	-	Cote All Safety Green	1	Gallon(GAL)	19-Oct-18
1499190	-	Cote All Safety Green	1	Gallon(GAL)	19-Oct-18
1499185	-	Cote All Safety Green	1	Gallon(GAL)	19-Oct-18
1499187	-	Cote All Safety Green	1	Gallon(GAL)	19-Oct-18
1499188	-	Cote All Safety Green	1	Gallon(GAL)	19-Oct-18
1499189	-	Cote All Safety Green	1	Gallon(GAL)	19-Oct-18
1499184	-	Cote All Safety Green	1	Gallon(GAL)	19-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499181	-	Cote All Safety Green	1	Gallon(GAL)	19-Oct-18
1289178	-	SCOTCHCAST ELECTRICAL RESIN	1	Gallon(GAL)	19-Oct-18
1499197	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499202	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499210	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499209	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499208	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499207	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499206	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499205	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499212	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499203	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499213	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499201	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499200	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499199	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499198	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499204	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499220	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499226	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499225	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499224	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499223	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499211	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499221	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499219	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499218	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499217	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499216	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499215	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499214	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1499222	-	White Traffic L/F Regular Dry	18.9	Liters(L)	19-Oct-18
1289177	-	SCOTCHCAST ELECTRICAL RESIN	1	Gallon(GAL)	19-Oct-18
1499227	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499245	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499228	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499229	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499237	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499246	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499230	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499231	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499232	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499233	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499234	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499236	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499238	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499239	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499240	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499241	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499242	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499243	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499244	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499235	-	White Traffic L/F Regular Dry	5	Gallon(GAL)	19-Oct-18
1499267	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499276	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499278	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499275	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499274	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499273	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499272	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499271	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499270	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499269	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499268	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499282	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499281	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499280	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499279	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499277	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499283	-	PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Oct-18
1499286	-	PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Oct-18
1499285	-	PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Oct-18
1499284	-	PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Oct-18
1499287	-	PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	19-Oct-18
1499297	-	PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	19-Oct-18
1499298	-	PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	19-Oct-18
1499293	-	PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	19-Oct-18
1499296	-	PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	19-Oct-18
1499288	-	PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	19-Oct-18
1499289	-	PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	19-Oct-18
1499290	-	PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	19-Oct-18
1499291	-	PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	19-Oct-18
1499292	-	PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	19-Oct-18
1499295	-	PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	19-Oct-18
1499294	-	PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	19-Oct-18
1499306	-	Easy Sand 5	3	Pounds(LB)	19-Oct-18
1499309	-	Easy Sand 5	3	Pounds(LB)	19-Oct-18
1499310	-	Easy Sand 5	3	Pounds(LB)	19-Oct-18
1499311	-	Easy Sand 5	3	Pounds(LB)	19-Oct-18
1499307	-	Easy Sand 5	3	Pounds(LB)	19-Oct-18
1499308	-	Easy Sand 5	3	Pounds(LB)	19-Oct-18
1499303	-	Porch & Floor Coating Anti-Skid texture (Tint	3.43	Liters(L)	19-Oct-18
1499305	-	Porch & Floor Coating Anti-Skid texture (Tint	3.43	Liters(L)	19-Oct-18
1499304	-	Porch & Floor Coating Anti-Skid texture (Tint	3.43	Liters(L)	19-Oct-18
1499316	-	Porch & Floor Coating Anti-Skid texture (Tint	3.43	Liters(L)	19-Oct-18
1499317	-	Porch & Floor Coating Anti-Skid texture (Tint	3.43	Liters(L)	19-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499318	-	Porch & Floor Coating Anti-Skid texture (Tint	3.43	Liters(L)	19-Oct-18
1499333	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499336	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499335	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499334	-	PSX 700 CURE US	0.2	Gallon(GAL)	19-Oct-18
1499346	-	PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Oct-18
1499347	-	PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Oct-18
1499348	-	PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Oct-18
1499349	-	PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Oct-18
1499350	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499362	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499355	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499356	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499357	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499358	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499359	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499353	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499361	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499352	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499363	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499371	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499370	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499369	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499368	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499367	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499366	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499360	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499373	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499351	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499365	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499364	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499372	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499354	-	FIREFIGHTER GL48	5	Gallon(GAL)	19-Oct-18
1499325	-	MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	19-Oct-18
1499326	-	MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	19-Oct-18
1499327	-	MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	19-Oct-18
1499328	-	MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	19-Oct-18
1499329	-	MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	19-Oct-18
1511025	-	LK BINDER	1	Gallon(GAL)	22-Oct-18
1511026	-	LK BINDER	1	Gallon(GAL)	22-Oct-18
1511044	-	DIGITAL ABS RGD531	3.6	Kilograms(KG)	22-Oct-18
1511045	-	DIGITAL ABS RGD531	3.6	Kilograms(KG)	22-Oct-18
1511749	67-63-0	2-PROPANOL	4	Liters(L)	22-Oct-18
1511752	67-63-0	2-PROPANOL	4	Liters(L)	22-Oct-18
1511753	67-63-0	2-PROPANOL	4	Liters(L)	22-Oct-18
1511754	67-63-0	2-PROPANOL	4	Liters(L)	22-Oct-18
1511756	67-63-0	2-PROPANOL	4	Liters(L)	22-Oct-18
1511755	67-63-0	2-PROPANOL	4	Liters(L)	22-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511750	67-63-0	2-PROPANOL	4	Liters(L)	22-Oct-18
1511751	67-63-0	2-PROPANOL	4	Liters(L)	22-Oct-18
1511921	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	22-Oct-18
1511923	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	22-Oct-18
1511922	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	22-Oct-18
1511925	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	22-Oct-18
1511926	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	22-Oct-18
1511924	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	22-Oct-18
1511927	9002-89-5	POLYVINYL ALCOHOL	25	Gram(GM)	22-Oct-18
1511928	54663-78-4	2-(Tributylstannyl)thiophene	10	Milliliter(ML)	22-Oct-18
1511929	9012-36-6	SEAKEM LE AGAROSE	500	Gram(GM)	22-Oct-18
1511930	-	AG MP-1M RESIN	500	Gram(GM)	22-Oct-18
1511931	-	AG MP-1M RESIN	500	Gram(GM)	22-Oct-18
1511932	64099-82-7	1-Propynyltri-n-butyltin	5	Gram(GM)	22-Oct-18
1511933	3601-89-6	2-Deoxy-3 5-di-o-p-toluoyl-ribofuranosyl chloride	25	Gram(GM)	22-Oct-18
1511934	6980-08-1	2-Amino-4-chloro-3-nitropyridine	10	Gram(GM)	22-Oct-18
1511935	7440-24-6	STRONTIUM STANDARD SOLUTION	125	Milliliter(ML)	22-Oct-18
1511936	7440-24-6	STRONTIUM STANDARD SOLUTION	125	Milliliter(ML)	22-Oct-18
1511937	-	YTTRIUM STANDARD SOLUTION	125	Milliliter(ML)	22-Oct-18
1511938	-	YTTRIUM STANDARD SOLUTION	125	Milliliter(ML)	22-Oct-18
1511939	-	ZIRCONIUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511940	-	ZIRCONIUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511941	-	MOLYBDENUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511942	-	MOLYBDENUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511943	-	SILVER STANDARD	125	Milliliter(ML)	22-Oct-18
1511944	-	SILVER STANDARD	125	Milliliter(ML)	22-Oct-18
1511945	7440-43-9	CADMIUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511946	7440-43-9	CADMIUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511947	-	CESIUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511948	-	CESIUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511949	-	BARIUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511950	-	BARIUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511951	-	CERIUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511952	-	CERIUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511953	7697-37-2	LANTHANUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511955	7697-37-2	LANTHANUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511954	7697-37-2	LANTHANUM STANDARD	125	Milliliter(ML)	22-Oct-18
1511956	-	TPH IN SOIL POCKET COLORIMETER II	10	Milliliter(ML)	22-Oct-18
1511957	431-47-0	METHYL TRIFLUOROACETATE	50	Gram(GM)	22-Oct-18
1511958	-	Norland Optical Adhesive 68T	30	Milliliter(ML)	22-Oct-18
1511463	7664-93-9	SULFURIC ACID	2.5	Liters(L)	23-Oct-18
1511757	-	NEODYMIUM STANDARD	100	Milliliter(ML)	23-Oct-18
1511758	-	NEODYMIUM STANDARD	100	Milliliter(ML)	23-Oct-18
1511759	-	SAMARIUM STANDARD	100	Milliliter(ML)	23-Oct-18
1511760	-	SAMARIUM STANDARD	100	Milliliter(ML)	23-Oct-18
1511761	-	EUROPIUM STANDARD	100	Milliliter(ML)	23-Oct-18
1511762	-	EUROPIUM STANDARD	100	Milliliter(ML)	23-Oct-18
1511763	-	TERBIUM STANDARD SOLUTION	100	Milliliter(ML)	23-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511764	-	TERBIUM STANDARD SOLUTION	100	Milliliter(ML)	23-Oct-18
1511765	-	FLOOR CLEANER	5	Gallon(GAL)	23-Oct-18
1511766	110-71-4	ETHYLENE GLYCOL DIMETHYL ETHER	100	Milliliter(ML)	23-Oct-18
1511960	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	23-Oct-18
1511964	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	23-Oct-18
1511963	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	23-Oct-18
1511962	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	23-Oct-18
1511961	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	23-Oct-18
1511965	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	23-Oct-18
1511966	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	23-Oct-18
1511967	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	23-Oct-18
1511968	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	23-Oct-18
1511971	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	23-Oct-18
1511970	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	23-Oct-18
1511969	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	23-Oct-18
1511972	Multi	PLATINUM CYCLOVINYLMETHYL SILOXANE	25	Gram(GM)	23-Oct-18
1511975	Multi	PLATINUM CYCLOVINYLMETHYL SILOXANE	25	Gram(GM)	23-Oct-18
1511974	Multi	PLATINUM CYCLOVINYLMETHYL SILOXANE	25	Gram(GM)	23-Oct-18
1511973	Multi	PLATINUM CYCLOVINYLMETHYL SILOXANE	25	Gram(GM)	23-Oct-18
1511976	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	100	Gram(GM)	23-Oct-18
1511977	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	100	Gram(GM)	23-Oct-18
1511978	-	SOLDERING FLUX	100	Milliliter(ML)	23-Oct-18
1511979	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	23-Oct-18
1499247	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499257	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499251	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499252	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499253	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499254	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499255	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499256	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499249	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499248	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499250	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499258	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499265	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499264	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499266	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499263	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499262	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499261	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499260	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1499259	-	Startex Lacquer Thinner	5	Gallon(GAL)	23-Oct-18
1511981	467-77-6	Coronaridine	5	Milligram(MG)	23-Oct-18
1511982	53597-69-6	1 3 5-Triaza-7-phosphaadamantane	1	Gram(GM)	23-Oct-18
1511983	64-17-5	ALCOHOL REAGENT	1	Gallon(GAL)	23-Oct-18
1511985	64-17-5	ALCOHOL REAGENT	1	Gallon(GAL)	23-Oct-18
1511986	64-17-5	ALCOHOL REAGENT	1	Gallon(GAL)	23-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511984	64-17-5	ALCOHOL REAGENT	1	Gallon(GAL)	23-Oct-18
1511987	67-63-0	2-PROPANOL	4	Liters(L)	23-Oct-18
1511988	67-63-0	2-PROPANOL	4	Liters(L)	23-Oct-18
1499321	-	Zinsser Spray B-I-N	1	Gallon(GAL)	23-Oct-18
1499322	-	Zinsser Spray B-I-N	1	Gallon(GAL)	23-Oct-18
1499330	-	Zinsser Spray B-I-N	1	Gallon(GAL)	23-Oct-18
1499332	-	Zinsser Spray B-I-N	1	Gallon(GAL)	23-Oct-18
1499331	-	Zinsser Spray B-I-N	1	Gallon(GAL)	23-Oct-18
1499384	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499391	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499396	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499385	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499394	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499403	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499393	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499392	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499397	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499390	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499389	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499387	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499400	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499395	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499401	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499388	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499399	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499398	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499402	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1499386	-	CONCRET BONDING ADHESIVE	1	Gallon(GAL)	23-Oct-18
1511989	67-68-5	Quant-iT dsDNA Assay Kit high sensitivity	255	Milliliter(ML)	23-Oct-18
1511990	-	Phusion* Hot Start II High-Fidelity DNA	100	Milliliter(ML)	23-Oct-18
1511991	-	Phusion* Hot Start II High-Fidelity DNA	100	Milliliter(ML)	23-Oct-18
1511992	865-49-6	DICHLOROMETHANE REAGENT 1L	4	Liters(L)	23-Oct-18
1511993	865-49-6	DICHLOROMETHANE REAGENT 1L	4	Liters(L)	23-Oct-18
1511994	98-59-9	P-TOLUENESULFONYL CHLORIDE	500	Gram(GM)	23-Oct-18
1511995	-	PALLADIUM ON ACTIVATED CARBON	1	Gram(GM)	23-Oct-18
1511996	-	PALLADIUM ON ACTIVATED CARBON	1	Gram(GM)	23-Oct-18
1511997	-	PALLADIUM ON ACTIVATED CARBON	1	Gram(GM)	23-Oct-18
1511998	-	Zeta Potential Transfer STD	500	Milliliter(ML)	23-Oct-18
1512055	-	pH Buffer Solutions Hach	500	Milliliter(ML)	23-Oct-18
1512057	-	pH Buffer Solutions Hach	500	Milliliter(ML)	23-Oct-18
1512056	-	pH Buffer Solutions Hach	500	Milliliter(ML)	23-Oct-18
1512058	676-58-4	METHYLMAGNESIUM CHLORIDE (3M SOLN IN	100	Milliliter(ML)	23-Oct-18
1512059	-	TRIZOL REAGENT	100	Milliliter(ML)	23-Oct-18
1512060	7631-86-9	SBA-15	20	Gram(GM)	23-Oct-18
1512061	-	SYLGARD 184	1.1	Pounds(LB)	23-Oct-18
1512062	-	SYLGARD 184	1.1	Pounds(LB)	23-Oct-18
1499174	-	Busch R-568 Flushing Oil	5	Gallon(GAL)	23-Oct-18
1499191	-	COTE ALL DEEP BASE	1	Gallon(GAL)	23-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499194	-	COTE ALL DEEP BASE	1	Gallon(GAL)	23-Oct-18
1499193	-	COTE ALL DEEP BASE	1	Gallon(GAL)	23-Oct-18
1499192	-	COTE ALL DEEP BASE	1	Gallon(GAL)	23-Oct-18
1512063	1310-58-3	CleanMor 706	1	Gallon(GAL)	23-Oct-18
1512064	1310-58-3	CleanMor 706	1	Gallon(GAL)	23-Oct-18
1512065	1310-58-3	CleanMor 706	1	Gallon(GAL)	23-Oct-18
1512066	1310-58-3	CleanMor 706	1	Gallon(GAL)	23-Oct-18
1512067	6484-52-2	AMMONIUM NITRATE	1	Pounds(LB)	23-Oct-18
1499299	-	Finium DTM-AT S/G Acrylic W/B	3.6	Liters(L)	23-Oct-18
1499300	-	Finium DTM-AT S/G Acrylic W/B	3.6	Liters(L)	23-Oct-18
1499301	-	Finium DTM-AT S/G Acrylic W/B	3.6	Liters(L)	23-Oct-18
1499302	-	Finium DTM-AT S/G Acrylic W/B	3.6	Liters(L)	23-Oct-18
1499319	-	Finium DTM-AT S/G Acrylic W/B	3.6	Liters(L)	23-Oct-18
1512068	-	Inert HMTD	1	Pounds(LB)	23-Oct-18
1512069	112926-00-8	Inert TATP	1	Pounds(LB)	23-Oct-18
1499320	-	Finium DTM-AT S/G Acrylic W/B	3.6	Liters(L)	23-Oct-18
1512070	-	Inert ANAl	1	Pounds(LB)	23-Oct-18
1512071	-	CUVER 1 COPPER REAGENT	10	Milliliter(ML)	23-Oct-18
1512076	1309-48-4	MAGNESIUM OXIDE	25	Gram(GM)	23-Oct-18
1540511	-	MicroC 2000	265	Gallon(GAL)	23-Oct-18
1540512	-	MicroC 2000	265	Gallon(GAL)	23-Oct-18
1499337	-	XIM PRIMER 400 CLEAR	12	Ounces(OZ)	23-Oct-18
1499339	-	XIM PRIMER 400 CLEAR	12	Ounces(OZ)	23-Oct-18
1499342	-	XIM PRIMER 400 CLEAR	12	Ounces(OZ)	23-Oct-18
1499343	-	XIM PRIMER 400 CLEAR	12	Ounces(OZ)	23-Oct-18
1499344	-	XIM PRIMER 400 CLEAR	12	Ounces(OZ)	23-Oct-18
1499345	-	XIM PRIMER 400 CLEAR	12	Ounces(OZ)	23-Oct-18
1499341	-	XIM PRIMER 400 CLEAR	12	Ounces(OZ)	23-Oct-18
1499338	-	XIM PRIMER 400 CLEAR	12	Ounces(OZ)	23-Oct-18
1499340	-	XIM PRIMER 400 CLEAR	12	Ounces(OZ)	23-Oct-18
1511464	20830-75-5	DIGOXIN	10	Milligram(MG)	24-Oct-18
1511465	11018-89-6	OUABAIN OCTAHYDRATE	10	Milligram(MG)	24-Oct-18
1511980	12027-67-7	AMMONIUM PARA-MOLYBDATE	100	Gram(GM)	24-Oct-18
1511999	-	FLOOR CLEANER	5	Gallon(GAL)	24-Oct-18
1512000	7664-38-2	PHOSPHORIC ACID	2.5	Liters(L)	24-Oct-18
1512001	5329-14-6	SULFAMIC ACID	500	Gram(GM)	24-Oct-18
1512002	1314-56-3	PHOSPHORUS (V) OXIDE	50	Gram(GM)	24-Oct-18
1512003	Multi	Buffer pH 4.01 (Pink)	475	Milliliter(ML)	24-Oct-18
1512004	-	BUFFER PH 10.01	475	Milliliter(ML)	24-Oct-18
1512079	4112-03-2	Methylsulfamic acid	5	Gram(GM)	24-Oct-18
1512080	53597-69-6	1 3 5-Triaza-7-phosphaadamantane	1	Gram(GM)	24-Oct-18
1512081	-	SINGLE ELEMENT STANDARDS	100	Milliliter(ML)	24-Oct-18
1512082	112-49-2	TRIETHYLENE GLYCOL DIMETHYL ETHER	100	Gram(GM)	24-Oct-18
1512083	150-76-5	4-METHOXYPHENOL	100	Gram(GM)	24-Oct-18
1512084	824-46-4	METHOXYHYDROQUINONE	25	Gram(GM)	24-Oct-18
1512085	67-66-3	CHLOROFORM	4	Liters(L)	24-Oct-18
1512088	67-66-3	CHLOROFORM	4	Liters(L)	24-Oct-18
1512087	67-66-3	CHLOROFORM	4	Liters(L)	24-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512086	67-66-3	CHLOROFORM	4	Liters(L)	24-Oct-18
1512089	18497-13-7	CHLOROPLATINIC ACID HEXAHYDRATE	1	Gram(GM)	24-Oct-18
1512090	155090-83-8	POLY(3 4-ETHYLENEDIOXYTHIOPHENE)-	250	Gram(GM)	24-Oct-18
1512091	62-53-3	ANILINE	500	Milliliter(ML)	24-Oct-18
1512092	62-53-3	ANILINE	500	Milliliter(ML)	24-Oct-18
1512093	65-85-0	BENZOIC ACID	25	Gram(GM)	24-Oct-18
1512094	75-05-8	ACETONITRILE ANHYDROUS	1	Liters(L)	24-Oct-18
1512095	67-64-1	ACETONE REAGENT ACS	2.5	Liters(L)	24-Oct-18
1512096	7782-63-0	FERROUS SULFATE HEPTAHYDRATE	500	Gram(GM)	24-Oct-18
1423189	-	SYNTHETIC LUBRICANT AND C	2.48	Pounds(LB)	24-Oct-18
1512097	-	INSTRUMENT CALIBRATION STANDARD 1	125	Milliliter(ML)	24-Oct-18
1512098	-	INSTRUMENT CALIBRATION STANDARD 3	125	Milliliter(ML)	24-Oct-18
1512099	-	INTERNAL STANDARD MIXTURE	100	Milligram(MG)	24-Oct-18
1512100	-	PC-3 BLACK EPOXY CEMENT	1	Pint(PT)	24-Oct-18
1512104	-	PC-3 BLACK EPOXY CEMENT	1	Pint(PT)	24-Oct-18
1512101	-	PC-3 BLACK EPOXY CEMENT	1	Pint(PT)	24-Oct-18
1512105	-	PC-3 BLACK EPOXY CEMENT	1	Pint(PT)	24-Oct-18
1512102	-	PC-3 BLACK EPOXY CEMENT	1	Pint(PT)	24-Oct-18
1512103	-	PC-3 BLACK EPOXY CEMENT	1	Pint(PT)	24-Oct-18
981974	-	DAP WELDWOOD CONTACT CEMENT	4	Pounds(LB)	24-Oct-18
981972	-	SOLVENT ABSORBENT	4	Pounds(LB)	24-Oct-18
981973	-	PLAZA PLUS Sealer/Finish	1	Gallon(GAL)	24-Oct-18
981971	-	GLASS AND MULTI-SURFACE CLEANER	1	Quarts(QT)	24-Oct-18
981970	-	BRILLIANT-SHINE POLISH	1	Quarts(QT)	24-Oct-18
1512125	-	ADHESIVE KIT	300	Milliliter(ML)	24-Oct-18
1512126	-	LOCTITE 496 INSTANT ADHESIVE	1	Ounces(OZ)	24-Oct-18
1512005	9011-14-7	PMMA A	500	Milliliter(ML)	24-Oct-18
1512006	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	24-Oct-18
1512008	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	24-Oct-18
1512009	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	24-Oct-18
1512007	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	24-Oct-18
1512010	621-07-8	N N-DIBENZYLHYDROXYLAMINE	5	Gram(GM)	24-Oct-18
1512011	9002-88-4	POLYETHYLENE POWDER MW 700	1	Kilograms(KG)	24-Oct-18
1512012	9002-88-4	POLYETHYLENE POWDER MW 700	1	Kilograms(KG)	24-Oct-18
1512013	75-09-2	DICHLOROMETHANE	4	Liters(L)	24-Oct-18
1512014	75-09-2	DICHLOROMETHANE	4	Liters(L)	24-Oct-18
1512015	75-09-2	DICHLOROMETHANE	4	Liters(L)	24-Oct-18
1512016	75-09-2	DICHLOROMETHANE	4	Liters(L)	24-Oct-18
1512017	-	SYLGARD 184	3.9	Kilograms(KG)	24-Oct-18
1512018	-	SYLGARD 184	3.9	Kilograms(KG)	24-Oct-18
1512019	-	STYCAST 2850FT BLACK	1	Quarts(QT)	24-Oct-18
1512020	112-57-2	9-CATALYST AMBER	4	Ounces(OZ)	24-Oct-18
1512021	32435-46-4	BIS(2-METHACRYLOXYETHYL)	100	Milliliter(ML)	24-Oct-18
1512022	62-55-5	THIOACETAMIDE	25	Gram(GM)	24-Oct-18
1512023	60-00-4	ETHYLENEDIAMINETETRAACETIC ACID	25	Gram(GM)	24-Oct-18
1512024	112926-00-8	SILICA GEL 60 (230-400 MESH)	250	Gram(GM)	24-Oct-18
1512025	7439-95-4	MAGNESIUM METAL PIECES	25	Gram(GM)	24-Oct-18
1512026	7439-95-4	MAGNESIUM METAL PIECES	25	Gram(GM)	24-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512027	7803-49-8	HYDROXYLAMINE	250	Milliliter(ML)	24-Oct-18
1512030	7803-49-8	HYDROXYLAMINE	250	Milliliter(ML)	24-Oct-18
1512031	7803-49-8	HYDROXYLAMINE	250	Milliliter(ML)	24-Oct-18
1512029	7803-49-8	HYDROXYLAMINE	250	Milliliter(ML)	24-Oct-18
1512028	7803-49-8	HYDROXYLAMINE	250	Milliliter(ML)	24-Oct-18
1512032	-	COOL-AMP	16	Ounces(OZ)	24-Oct-18
1512033	1310-73-2	SODIUM HYDROXIDE PELLETS	3	Kilograms(KG)	24-Oct-18
1512034	1310-73-2	SODIUM HYDROXIDE PELLETS	3	Kilograms(KG)	24-Oct-18
1511466	-	SYLGARD 184	3.9	Kilograms(KG)	25-Oct-18
1512036	-	In Vitro Protein Expression (iPE-SS) Kit for	100	Milliliter(ML)	25-Oct-18
1512037	129830-38-2	Y-27632 2HCl	10	Milligram(MG)	25-Oct-18
1511046	-	DIGITAL ABS RGD531	3	Kilograms(KG)	25-Oct-18
1512038	-	Poly(ethylene glycol) methyl ether thiol	1	Gram(GM)	25-Oct-18
1512041	-	Poly(ethylene glycol) methyl ether thiol	1	Gram(GM)	25-Oct-18
1512040	-	Poly(ethylene glycol) methyl ether thiol	1	Gram(GM)	25-Oct-18
1512039	-	Poly(ethylene glycol) methyl ether thiol	1	Gram(GM)	25-Oct-18
1512042	-	B-27 Plus Supplement (50X)	10	Milliliter(ML)	25-Oct-18
1512043	10102-18-8	N-2 Supplement	5	Milliliter(ML)	25-Oct-18
1512134	1313-84-4	SODIUM SULFIDE NONAHYDRATE	250	Gram(GM)	25-Oct-18
1512135	67-66-3	CLOROFORM CERTIFIED ACS	4	Liters(L)	25-Oct-18
1512136	67-66-3	CLOROFORM CERTIFIED ACS	4	Liters(L)	25-Oct-18
1512137	12036-21-4	VANADIUM(IV) OXIDE	50	Gram(GM)	25-Oct-18
1512138	67-63-0	2-PROPANOL	4	Liters(L)	25-Oct-18
1512141	67-63-0	2-PROPANOL	4	Liters(L)	25-Oct-18
1512139	67-63-0	2-PROPANOL	4	Liters(L)	25-Oct-18
1512140	67-63-0	2-PROPANOL	4	Liters(L)	25-Oct-18
1512142	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	25-Oct-18
1512143	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	25-Oct-18
1512146	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	25-Oct-18
1512147	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	25-Oct-18
1512144	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	25-Oct-18
1512145	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	25-Oct-18
1512148	67-56-1	METHANOL REAGENT ACS	1	Liters(L)	25-Oct-18
1512149	40615-36-9	Dimethoxytrityl chloride	100	Gram(GM)	25-Oct-18
1512150	-	AG MP-1M RESIN	500	Gram(GM)	25-Oct-18
1512151	-	MOBIL VACTRA OIL NO. 2	1	Gallon(GAL)	25-Oct-18
1512152	-	MOBIL VACTRA OIL NO. 2	1	Gallon(GAL)	25-Oct-18
1512153	-	MOBIL VACTRA OIL NO. 2	1	Gallon(GAL)	25-Oct-18
1512154	-	MOBIL VACTRA OIL NO. 2	1	Gallon(GAL)	25-Oct-18
1512155	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	25-Oct-18
1512156	75-09-2	DICHLOROMETHANE	1	Liters(L)	25-Oct-18
1512158	75-09-2	DICHLOROMETHANE	1	Liters(L)	25-Oct-18
1512159	75-09-2	DICHLOROMETHANE	1	Liters(L)	25-Oct-18
1512160	75-09-2	DICHLOROMETHANE	1	Liters(L)	25-Oct-18
1512157	75-09-2	DICHLOROMETHANE	1	Liters(L)	25-Oct-18
1512161	75-09-2	DICHLOROMETHANE	1	Liters(L)	25-Oct-18
1512162	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	25-Oct-18
1512164	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	25-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512168	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	25-Oct-18
1512163	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	25-Oct-18
1512169	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	25-Oct-18
1512170	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	25-Oct-18
1512166	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	25-Oct-18
1512165	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	25-Oct-18
1512171	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	25-Oct-18
1512167	-	EPOXY FOR FIBER OPTIC	25	Gram(GM)	25-Oct-18
1512172	-	Iron-57	500	Milligram(MG)	25-Oct-18
1512173	7440-44-0	N-Doped Mesoporous Carbon	1	Gram(GM)	25-Oct-18
1512174	7440-44-0	N-Doped Mesoporous Carbon	1	Gram(GM)	25-Oct-18
1512175	7440-44-0	Ordered Mesoporous Carbon Cmk-3	1	Gram(GM)	25-Oct-18
1512176	7440-44-0	Ordered Mesoporous Carbon Cmk-3	1	Gram(GM)	25-Oct-18
1512177	7782-61-8	FERRIC NITRATE NONAHYDRATE	100	Gram(GM)	25-Oct-18
1540513	-	NALCO 7408 CHLORINE SCAVENGER SOLUTION	55	Gallon(GAL)	25-Oct-18
1540514	-	TRI-ACT 1820	450	Pounds(LB)	25-Oct-18
1540515	-	Nalco 22341	503	Pounds(LB)	25-Oct-18
1511467	681-84-5	TETRAMETHYL ORTHOSILICATE	100	Gram(GM)	25-Oct-18
1511468	681-84-5	TETRAMETHYL ORTHOSILICATE	100	Gram(GM)	25-Oct-18
1512044	681-84-5	TETRAMETHYL ORTHOSILICATE	100	Gram(GM)	25-Oct-18
1511511469	7440-25-7	TANTALUM	54	Kilograms(KG)	25-Oct-18
1512045	998-40-3	TRIBUTYLPHOSPHINE	100	Gram(GM)	25-Oct-18
1512046	7719-12-2	PHOSPHORUS TRICHLORIDE	50	Gram(GM)	25-Oct-18
1512047	7440-42-8	BORON STANDARD SOLUTION	125	Milliliter(ML)	25-Oct-18
1512048	-	SILICON STANDARD SOLUTION	125	Milliliter(ML)	25-Oct-18
1512049	-	PHOSPHOROUS STANDARD SOLUTION	125	Milliliter(ML)	25-Oct-18
1512050	-	HARDMAN EXTRA-FAST SETTING EPOXY KIT	350	Gram(GM)	25-Oct-18
1512051	-	HARDMAN EXTRA-FAST SETTING EPOXY KIT	350	Gram(GM)	25-Oct-18
1512052	96-33-3	METHYL ACRYLATE INHIBITED	250	Milliliter(ML)	25-Oct-18
1512053	-	StemPro Accutase Cell Dissociation Reagent	100	Milliliter(ML)	25-Oct-18
1512054	-	StemPro Accutase Cell Dissociation Reagent	100	Milliliter(ML)	25-Oct-18
1512178	1317-70-0	TITANIUM OXIDE	50	Gram(GM)	25-Oct-18
1512179	9002-93-1	TRITON X-100	500	Milliliter(ML)	25-Oct-18
1561671	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561680	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561679	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561677	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561676	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561675	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561674	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561672	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561678	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561669	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561668	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561667	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561673	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561665	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561664	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561663	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561662	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561670	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1561666	7440-59-7	Helium UHP	220	Cubic Feet(CF)	25-Oct-18
1512180	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	3	Kilograms(KG)	26-Oct-18
1512181	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	4	Kilograms(KG)	26-Oct-18
1512183	17082-47-2	TETRAKIS(DIMETHYLSILOXY)SILANE	25	Gram(GM)	26-Oct-18
1512184	73018-55-0	PLATINUM CARBONYL	5	Gram(GM)	26-Oct-18
1512185	73018-55-0	PLATINUM CARBONYL	5	Gram(GM)	26-Oct-18
1512186	68478-92-2	PLATINUM-DIVINYLTETRAMETHYLDISILOXANE	5	Gram(GM)	26-Oct-18
1512187	68478-92-2	PLATINUM-DIVINYLTETRAMETHYLDISILOXANE	5	Gram(GM)	26-Oct-18
1512188	68585-32-0	PLATINUM/CYCLIC VINYLSILOXANE COMPLEX	5	Gram(GM)	26-Oct-18
1512189	301-10-0	BIS(2-ETHYLHEXANOATE)TIN 50% in	100	Gram(GM)	26-Oct-18
1512192	301-10-0	BIS(2-ETHYLHEXANOATE)TIN 50% in	100	Gram(GM)	26-Oct-18
1512191	301-10-0	BIS(2-ETHYLHEXANOATE)TIN 50% in	100	Gram(GM)	26-Oct-18
1512193	301-10-0	BIS(2-ETHYLHEXANOATE)TIN 50% in	100	Gram(GM)	26-Oct-18
1512190	301-10-0	BIS(2-ETHYLHEXANOATE)TIN 50% in	100	Gram(GM)	26-Oct-18
1512194	-	TEFLON DRY LUBRICANT SPRAY	14	Ounces(OZ)	26-Oct-18
1512195	-	TEFLON DRY LUBRICANT SPRAY	14	Ounces(OZ)	26-Oct-18
1512196	7440-42-8	BORON POWDER	250	Gram(GM)	26-Oct-18
1512197	7440-42-8	BORON POWDER	250	Gram(GM)	26-Oct-18
1512198	470-42-8	Marinobufagenin	5	Milligram(MG)	26-Oct-18
1512199	-	CdSe/ZnS Quantum Dots in Toluene	1	Milliliter(ML)	26-Oct-18
1512200	110-54-3	InP/ZnS core/shell quantum dots in hexane	1	Milliliter(ML)	26-Oct-18
1512201	2155-96-6	DIPHENYLVINYLPHOSPHINE	25	Gram(GM)	26-Oct-18
1512202	7789-09-5	AMMONIUM DICHROMATE	25	Gram(GM)	26-Oct-18
1512203	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512215	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512207	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512217	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512204	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512205	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512206	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512208	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512209	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512210	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512211	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512212	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512220	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512214	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512216	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512218	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512219	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512213	-	DE-SOLV-IT MULTI PURPOSE SOLVENT	13	Ounces(OZ)	26-Oct-18
1512221	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512222	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512227	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512232	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512231	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512233	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512230	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512223	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512228	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512235	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512226	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512234	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512224	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512225	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512229	-	NITRAVER X TEST N TUBE RE	500	Milliliter(ML)	26-Oct-18
1512271	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512280	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512285	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512275	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512276	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512277	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512278	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512279	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512282	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512284	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512272	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512273	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512274	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512283	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512281	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512286	811-97-2	SPRAY DUSTER	10	Ounces(OZ)	26-Oct-18
1512287	431-47-0	METHYL TRIFLUOROACETATE	25	Gram(GM)	26-Oct-18
1512288	431-47-0	METHYL TRIFLUOROACETATE	25	Gram(GM)	26-Oct-18
1512035	7664-93-9	SULFURIC ACID	2.5	Liters(L)	26-Oct-18
1512106	-	OSMOTIC ADJUSTING SOLUTION	50	Milliliter(ML)	26-Oct-18
1512107	-	RECONSTITUTION SOLUTION	50	Milliliter(ML)	26-Oct-18
1512108	-	DILUENT	1	Liters(L)	26-Oct-18
1512109	-	ALUMINA SLURRY	32	Ounces(OZ)	26-Oct-18
1512110	9002-84-0	POLYTETRAFLUOROETHYLENE	1	Kilograms(KG)	26-Oct-18
1512111	-	VARIAN TORR SEAL	118	Gram(GM)	26-Oct-18
1512113	-	VARIAN TORR SEAL	118	Gram(GM)	26-Oct-18
1512112	-	VARIAN TORR SEAL	118	Gram(GM)	26-Oct-18
1512114	7440-42-8	BORON STANDARD SOLUTION	125	Milliliter(ML)	26-Oct-18
1512115	-	COPPER STANDARD SOLUTION	125	Milliliter(ML)	26-Oct-18
1512116	7439-89-6	IRON STANDARD SOLUTION	125	Milliliter(ML)	26-Oct-18
1512117	-	POTASSIUM STANDARD SOLUTION	125	Milliliter(ML)	26-Oct-18
1512118	-	MAGNESIUM STANDARD	125	Milliliter(ML)	26-Oct-18
1512119	-	MANGANESE STANDARD SOLUTION	125	Milliliter(ML)	26-Oct-18
1512120	7439-98-7	MOLYBDENUM STANDARD SOLUTION	125	Milliliter(ML)	26-Oct-18
1512121	-	PHOSPHOROUS STANDARD SOLUTION	125	Milliliter(ML)	26-Oct-18
1512122	-	SULFUR STANDARD	125	Milliliter(ML)	26-Oct-18
1512123	-	ZINC STANDARD SOLUTION	125	Milliliter(ML)	26-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512124	7440-70-2	CALCIUM STANDARD SOLUTION	125	Milliliter(ML)	26-Oct-18
1512127	-	SYLGARD 184	1.1	Pounds(LB)	26-Oct-18
1512128	-	HYDROGEN PEROXIDE OPTIMA	500	Milliliter(ML)	26-Oct-18
1512129	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	26-Oct-18
1512131	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	26-Oct-18
1512133	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	26-Oct-18
1512132	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	26-Oct-18
1512130	7697-37-2	NITRIC ACID OPTIMA	2	Liters(L)	26-Oct-18
1512236	103898-11-9	N-Boc-diethanolamine	25	Gram(GM)	26-Oct-18
1512237	1310-73-2	SODIUM HYDROXIDE	1	Liters(L)	26-Oct-18
1512238	1310-73-2	SODIUM HYDROXIDE	1	Liters(L)	26-Oct-18
1512239	60-29-7	DIETHYL ETHER	1	Liters(L)	26-Oct-18
1512240	60-29-7	DIETHYL ETHER	1	Liters(L)	26-Oct-18
1512241	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	26-Oct-18
1512242	7778-50-9	POTASSIUM DICHROMATE	100	Gram(GM)	26-Oct-18
1512243	7758-94-3	IRON(II) CHLORIDE ANHYDROUS	50	Gram(GM)	26-Oct-18
1512244	1076-43-3	BENZENE-D6	50	Gram(GM)	26-Oct-18
1512245	7758-99-8	COPPER(II) SULFATE PENTAHYDRATE	250	Gram(GM)	26-Oct-18
1512246	5970-45-6	ZINC ACETATE DIHYDRATE	250	Gram(GM)	26-Oct-18
1512247	6381-92-6	Ethylenedinitrilotetraacetic acid disodium salt	250	Gram(GM)	26-Oct-18
1512248	-	VERSENE	100	Milliliter(ML)	26-Oct-18
1512249	-	VERSENE	100	Milliliter(ML)	26-Oct-18
1512250	-	PHENOLPHTHALEIN 1% SOLUTION	1	Liters(L)	26-Oct-18
1512251	25891-31-0	Triformamide	5	Gram(GM)	26-Oct-18
1512252	133407-82-6	MG-132	5	Milligram(MG)	26-Oct-18
1497650	-	Castrol Transynd Allison Transmission Fluid	5	Gallon(GAL)	26-Oct-18
1497651	-	Castrol Transynd Allison Transmission Fluid	5	Gallon(GAL)	26-Oct-18
1512253	486-86-2	N-Methylcytisine	25	Milligram(MG)	26-Oct-18
1512254	60177-39-1	RESIN AG 1-X4	500	Gram(GM)	26-Oct-18
1512262	60177-39-1	RESIN AG 1-X4	500	Gram(GM)	26-Oct-18
1512261	60177-39-1	RESIN AG 1-X4	500	Gram(GM)	26-Oct-18
1512260	60177-39-1	RESIN AG 1-X4	500	Gram(GM)	26-Oct-18
1512259	60177-39-1	RESIN AG 1-X4	500	Gram(GM)	26-Oct-18
1512258	60177-39-1	RESIN AG 1-X4	500	Gram(GM)	26-Oct-18
1512257	60177-39-1	RESIN AG 1-X4	500	Gram(GM)	26-Oct-18
1512256	60177-39-1	RESIN AG 1-X4	500	Gram(GM)	26-Oct-18
1512255	60177-39-1	RESIN AG 1-X4	500	Gram(GM)	26-Oct-18
1512263	60177-39-1	RESIN AG 1-X4	500	Gram(GM)	26-Oct-18
1512264	7782-40-3	Diamond Powder	200	Gram(GM)	26-Oct-18
1512265	7782-40-3	Diamond Powder	200	Gram(GM)	26-Oct-18
1512266	7782-40-3	Diamond Powder	200	Gram(GM)	26-Oct-18
1512267	7782-40-3	Diamond Powder	200	Gram(GM)	26-Oct-18
1512268	71-23-8	1-PROPANOL	2	Liters(L)	26-Oct-18
1512269	107-15-3	ETHYLENEDIAME	25	Milliliter(ML)	26-Oct-18
1512270	141-32-2	N-BUTYL ACRYLATE INHIBITED	1	Liters(L)	26-Oct-18
1512289	67-63-0	ISOPROPANOL (2-PROPANOL)	4	Liters(L)	26-Oct-18
1512290	-	Essential 8 Medium	500	Milliliter(ML)	26-Oct-18
1512291	-	Essential 8 Medium	500	Milliliter(ML)	26-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512292	10102-18-8	N-2 Supplement	5	Milliliter(ML)	26-Oct-18
1512293	-	PSC Cryopreservation Kit	50	Milliliter(ML)	26-Oct-18
1512294	-	BacTiter-Glo	100	Milliliter(ML)	26-Oct-18
1512295	56-86-0	L-GLUTAMIC ACID	10	Milligram(MG)	26-Oct-18
1511512296	1343-88-0	FLORISIL	500	Gram(GM)	26-Oct-18
1512297	79917-90-1	1-BUTYL-3-METHYLIMIDAZOLIUM CHLORIDE	50	Gram(GM)	26-Oct-18
1512343	67-56-1	METHANOL	4	Liters(L)	26-Oct-18
1512345	67-56-1	METHANOL	4	Liters(L)	26-Oct-18
1512346	67-56-1	METHANOL	4	Liters(L)	26-Oct-18
1512344	67-56-1	METHANOL	4	Liters(L)	26-Oct-18
1499582	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499595	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499594	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499593	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499592	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499591	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499585	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499583	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499584	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499590	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499589	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499588	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499587	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499586	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499596	-	ROOF GUARD 700 ELASTOMERIC COATING	5	Gallon(GAL)	26-Oct-18
1499597	-	SHEETROCK Brand PLUS 3 Lightweight All	4.5	Gallon(GAL)	26-Oct-18
1499598	-	SHEETROCK Brand PLUS 3 Lightweight All	4.5	Gallon(GAL)	26-Oct-18
1499611	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499617	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499619	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499618	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499616	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499615	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499614	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499612	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499627	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499613	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499630	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499634	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499633	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499632	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499625	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499631	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499620	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499629	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499628	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499626	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499624	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499623	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499622	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1499621	-	WD-40 AEROSOL	16	Ounces(OZ)	26-Oct-18
1561696	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561702	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561697	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561698	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561699	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561701	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561703	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561704	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561705	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561706	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561707	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561708	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561700	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561709	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561713	74-98-6	PROPANE	100	Pounds(LB)	29-Oct-18
1561717	74-98-6	PROPANE	100	Pounds(LB)	29-Oct-18
1561714	74-98-6	PROPANE	100	Pounds(LB)	29-Oct-18
1561715	74-98-6	PROPANE	100	Pounds(LB)	29-Oct-18
1561718	74-98-6	PROPANE	100	Pounds(LB)	29-Oct-18
1561716	74-98-6	PROPANE	100	Pounds(LB)	29-Oct-18
1561728	74-98-6	PROPANE	50	Pounds(LB)	29-Oct-18
1561727	74-98-6	PROPANE	50	Pounds(LB)	29-Oct-18
1561726	74-98-6	PROPANE	50	Pounds(LB)	29-Oct-18
1561723	74-98-6	PROPANE	50	Pounds(LB)	29-Oct-18
1561720	74-98-6	PROPANE	50	Pounds(LB)	29-Oct-18
1561724	74-98-6	PROPANE	50	Pounds(LB)	29-Oct-18
1561721	74-98-6	PROPANE	50	Pounds(LB)	29-Oct-18
1561725	74-98-6	PROPANE	50	Pounds(LB)	29-Oct-18
1561722	74-98-6	PROPANE	50	Pounds(LB)	29-Oct-18
1561719	74-98-6	PROPANE	50	Pounds(LB)	29-Oct-18
1561739	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561743	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561742	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561736	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561729	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561730	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561731	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561732	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561733	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561734	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561741	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561735	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561740	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561737	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18
1561738	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561754	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561758	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561757	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561756	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561744	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561753	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561752	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561751	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561750	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561749	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561748	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561747	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561755	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561745	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561746	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Oct-18
1561759	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561760	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561761	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561762	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561763	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561764	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561765	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561766	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561768	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561780	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561776	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561778	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561767	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561777	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561775	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561774	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561773	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561779	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561772	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561769	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561771	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561770	-	Oxygen UHP	220	Cubic Feet(CF)	29-Oct-18
1561781	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561782	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561783	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561784	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561785	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561786	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561787	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561788	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Oct-18
1561405	75-45-6	CHLORODIFLUOROMETHANE	30	Pounds(LB)	29-Oct-18
1561409	75-45-6	CHLORODIFLUOROMETHANE	30	Pounds(LB)	29-Oct-18
1561408	75-45-6	CHLORODIFLUOROMETHANE	30	Pounds(LB)	29-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561406	75-45-6	CHLORODIFLUOROMETHANE	30	Pounds(LB)	29-Oct-18
1561407	75-45-6	CHLORODIFLUOROMETHANE	30	Pounds(LB)	29-Oct-18
1540516	-	Nexguard 22350	551	Pounds(LB)	29-Oct-18
1540517	-	Nexguard 22350	551	Pounds(LB)	29-Oct-18
1540518	-	Nexguard 22350	551	Pounds(LB)	29-Oct-18
1420803	-	CHEMGRIP BONDING KIT	496	Gram(GM)	30-Oct-18
1420804	-	CHEMGRIP BONDING KIT	425	Gram(GM)	30-Oct-18
1420805	-	FLUOROETCH SAFETY SOLVENT	1	Pint(PT)	30-Oct-18
1499599	-	Permacryl Int Latex Eggshell W/B	121.6	Ounces(OZ)	30-Oct-18
1499600	-	Permacryl Int Latex Eggshell W/B	121.6	Ounces(OZ)	30-Oct-18
1499610	-	Permacryl Int Latex Eggshell W/B	121.6	Ounces(OZ)	30-Oct-18
1499609	-	Permacryl Int Latex Eggshell W/B	121.6	Ounces(OZ)	30-Oct-18
1499608	-	Permacryl Int Latex Eggshell W/B	121.6	Ounces(OZ)	30-Oct-18
1499607	-	Permacryl Int Latex Eggshell W/B	121.6	Ounces(OZ)	30-Oct-18
1499606	-	Permacryl Int Latex Eggshell W/B	121.6	Ounces(OZ)	30-Oct-18
1499605	-	Permacryl Int Latex Eggshell W/B	121.6	Ounces(OZ)	30-Oct-18
1499604	-	Permacryl Int Latex Eggshell W/B	121.6	Ounces(OZ)	30-Oct-18
1499603	-	Permacryl Int Latex Eggshell W/B	121.6	Ounces(OZ)	30-Oct-18
1499602	-	Permacryl Int Latex Eggshell W/B	121.6	Ounces(OZ)	30-Oct-18
1499601	-	Permacryl Int Latex Eggshell W/B	121.6	Ounces(OZ)	30-Oct-18
1512298	-	FMOC-ARG(PAC)WANG RESIN	25	Gram(GM)	30-Oct-18
1512299	Multi	Buffer pH 4.01 (Pink)	500	Milliliter(ML)	30-Oct-18
1512300	Multi	Buffer pH 4.01 (Pink)	500	Milliliter(ML)	30-Oct-18
1512301	Multi	Buffer pH 4.01 (Pink)	500	Milliliter(ML)	30-Oct-18
1512302	Multi	Buffer pH 4.01 (Pink)	500	Milliliter(ML)	30-Oct-18
1512303	7681-52-9	PH ELECTRODE CLEANER	180	Milliliter(ML)	30-Oct-18
1512304	-	ELECTRODE STORAGE SOLUTION	475	Milliliter(ML)	31-Oct-18
1512305	-	PH ELECTRODE FILLING SOLUTION	60	Milliliter(ML)	31-Oct-18
1512306	7647-14-5	SODIUM CHLORIDE	500	Gram(GM)	31-Oct-18
1512307	67-63-0	ISOPROPYL ALCOHOL	500	Milliliter(ML)	31-Oct-18
1512309	67-63-0	ISOPROPYL ALCOHOL	500	Milliliter(ML)	31-Oct-18
1512310	67-63-0	ISOPROPYL ALCOHOL	500	Milliliter(ML)	31-Oct-18
1512311	67-63-0	ISOPROPYL ALCOHOL	500	Milliliter(ML)	31-Oct-18
1512308	67-63-0	ISOPROPYL ALCOHOL	500	Milliliter(ML)	31-Oct-18
1512312	67-63-0	ISOPROPYL ALCOHOL	500	Milliliter(ML)	31-Oct-18
1512315	2893-78-9	SODIUM DICHLOROISOCYANURATE	25	Gram(GM)	31-Oct-18
1512316	-	FORMULA 2011	55	Gallon(GAL)	31-Oct-18
1512323	-	FORMULA 2011	55	Gallon(GAL)	31-Oct-18
1512325	-	FORMULA 2011	55	Gallon(GAL)	31-Oct-18
1512327	-	FORMULA 2011	55	Gallon(GAL)	31-Oct-18
1512326	-	FORMULA 2011	55	Gallon(GAL)	31-Oct-18
1512324	-	FORMULA 2011	55	Gallon(GAL)	31-Oct-18
1512319	-	FORMULA 2011	55	Gallon(GAL)	31-Oct-18
1512322	-	FORMULA 2011	55	Gallon(GAL)	31-Oct-18
1512321	-	FORMULA 2011	55	Gallon(GAL)	31-Oct-18
1512317	-	FORMULA 2011	55	Gallon(GAL)	31-Oct-18
1512318	-	FORMULA 2011	55	Gallon(GAL)	31-Oct-18
1512320	-	FORMULA 2011	55	Gallon(GAL)	31-Oct-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512328	60-29-7	DIETHYL ETHER	1	Liters(L)	31-Oct-18
1512329	103-90-2	4-Acetamidophenol	250	Gram(GM)	31-Oct-18
1512330	-	SILVER EPOXY	50	Gram(GM)	31-Oct-18
1512331	25068-38-6	CONDUCTIVE SILVER EPOXY	20	Gram(GM)	31-Oct-18
1512347	-	Reagent Sets for Colorimeters	500	Milliliter(ML)	31-Oct-18
1512348	7440-21-3	SILICON	125	Milliliter(ML)	31-Oct-18
1512349	7789-48-2	MAGNESIUM BROMIDE	10	Gram(GM)	31-Oct-18
1512350	6381-92-6	Ethylenedinitrilotetraacetic acid disodium salt	250	Gram(GM)	31-Oct-18
1512351	-	TPH IN SOIL POCKET COLORIMETER II	10	Milliliter(ML)	31-Oct-18
1512352	10025-91-9	ANTIMONY TRICHLORIDE CRYSTALS	100	Gram(GM)	31-Oct-18
1512353	60-29-7	DIETHYL ETHER	1	Liters(L)	31-Oct-18
1512354	60-29-7	DIETHYL ETHER	1	Liters(L)	31-Oct-18
1512355	60-29-7	DIETHYL ETHER	1	Liters(L)	31-Oct-18
1512356	7697-37-2	NITRIC ACID	500	Milliliter(ML)	31-Oct-18
1512358	7697-37-2	NITRIC ACID	500	Milliliter(ML)	31-Oct-18
1512357	7697-37-2	NITRIC ACID	500	Milliliter(ML)	31-Oct-18
1512359	7697-37-2	NITRIC ACID	100	Milliliter(ML)	31-Oct-18
1512360	547757-23-3	BMS-345541	5	Milligram(MG)	31-Oct-18
1512361	5039-78-1	[2-(Methacryloyloxy)ethyl]trimethylammonium	250	Milliliter(ML)	31-Oct-18
1512362	7631-86-9	LUDOX AS-40 colloidal silica	4	Liters(L)	31-Oct-18
1512363	30525-89-4	PARAFORMALDEHYDE	500	Gram(GM)	31-Oct-18
1512364	7664-41-7	AMMONIA	1	Liters(L)	31-Oct-18
1512365	7727-21-1	POTASSIUM PERSULFATE	100	Gram(GM)	31-Oct-18
1572936	-	John Deere Hy-Gard Transmission/Hydraulic Oil	5	Gallon(GAL)	31-Oct-18
1572937	-	John Deere Hy-Gard Transmission/Hydraulic Oil	5	Gallon(GAL)	31-Oct-18
1572938	-	John Deere Hy-Gard Transmission/Hydraulic Oil	5	Gallon(GAL)	31-Oct-18
1512415	-	Dimer DPX-C	1	Pint(PT)	31-Oct-18
1512417	-	Dimer DPX-C	1	Pint(PT)	31-Oct-18
1512418	-	Dimer DPX-C	1	Pint(PT)	31-Oct-18
1512416	-	Dimer DPX-C	1	Pint(PT)	31-Oct-18
1512419	-	Dimer DPX-C	1	Pint(PT)	31-Oct-18
913677	-	DURALCO 4538	210	Gram(GM)	01-Nov-18
1512313	-	Silver/Copper Powder	200	Gram(GM)	01-Nov-18
1512314	-	Silver/Copper Powder	200	Gram(GM)	01-Nov-18
1456759	2633-66-1	2-MESITYLMAGNESIUM BROMIDE (1M THF)	100	Milliliter(ML)	01-Nov-18
1456760	109-99-9	TETRAHYDROFURAN (STABILIZED)	500	Milliliter(ML)	01-Nov-18
1456761	616-47-7	1-METHYLIMIDAZOLE	100	Gram(GM)	01-Nov-18
1456762	298-07-7	BIS(2-ETHYLHEXYL) PHOSPHATE	100	Gram(GM)	01-Nov-18
1457407	-	HI Q HIGH HEAT SPRAY PAINT	12	Ounces(OZ)	02-Nov-18
1457408	-	HI Q HIGH HEAT SPRAY PAINT	12	Ounces(OZ)	02-Nov-18
1457409	-	HI Q HIGH HEAT SPRAY PAINT	12	Ounces(OZ)	02-Nov-18
1457410	-	HI Q HIGH HEAT SPRAY PAINT	12	Ounces(OZ)	02-Nov-18
1499312	-	RT150S G or D Big Blu SubZero	32	Ounces(OZ)	02-Nov-18
1499313	-	RT150S G or D Big Blu SubZero	32	Ounces(OZ)	02-Nov-18
1499315	-	RT150S G or D Big Blu SubZero	32	Ounces(OZ)	02-Nov-18
1499314	-	RT150S G or D Big Blu SubZero	32	Ounces(OZ)	02-Nov-18
1289433	-	RT150S G or D Big Blu SubZero	1	Gallon(GAL)	02-Nov-18
1289435	-	RT150S G or D Big Blu SubZero	1	Gallon(GAL)	02-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1289434	-	RT150S G or D Big Blu SubZero	1	Gallon(GAL)	02-Nov-18
1289436	-	RT150S G or D Big Blu SubZero	1	Gallon(GAL)	02-Nov-18
1499635	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499666	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499652	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499653	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499650	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499654	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499655	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499656	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499657	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499658	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499659	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499660	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499661	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499662	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499663	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499665	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499649	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499667	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499668	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499669	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499664	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499643	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499648	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499651	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499636	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499637	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499646	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499638	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499644	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499642	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499641	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499640	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499639	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499670	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499647	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499645	-	MOBILITH SHC 220	13.4	Ounces(OZ)	02-Nov-18
1499688	-	808-9907 COLORTREND B LAMP BLACK	1	Liters(L)	02-Nov-18
1499690	-	808-9907 COLORTREND B LAMP BLACK	1	Liters(L)	02-Nov-18
1499691	-	808-9907 COLORTREND B LAMP BLACK	1	Liters(L)	02-Nov-18
1499692	-	808-9907 COLORTREND B LAMP BLACK	1	Liters(L)	02-Nov-18
1499693	-	808-9907 COLORTREND B LAMP BLACK	1	Liters(L)	02-Nov-18
1499689	-	808-9907 COLORTREND B LAMP BLACK	1	Liters(L)	02-Nov-18
1499694	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	02-Nov-18
1499695	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	02-Nov-18
1499696	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	02-Nov-18
1499697	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	02-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499698	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	02-Nov-18
1499699	-	808-1810 COLORTREND C YELLOW OXIDE	1	Liters(L)	02-Nov-18
1499700	-	PSX 700 CURE US	0.2	Gallon(GAL)	02-Nov-18
1499701	-	PSX 700 CURE US	0.2	Gallon(GAL)	02-Nov-18
1499708	-	SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	02-Nov-18
1499709	-	SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	02-Nov-18
1499713	-	SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	02-Nov-18
1499712	-	SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	02-Nov-18
1499710	-	SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	02-Nov-18
1499711	-	SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	02-Nov-18
1499702	-	PSX 700 CURE US	0.2	Gallon(GAL)	02-Nov-18
1499707	-	PSX 700 CURE US	0.2	Gallon(GAL)	02-Nov-18
1499705	-	PSX 700 CURE US	0.2	Gallon(GAL)	02-Nov-18
1499704	-	PSX 700 CURE US	0.2	Gallon(GAL)	02-Nov-18
1499703	-	PSX 700 CURE US	0.2	Gallon(GAL)	02-Nov-18
1499706	-	PSX 700 CURE US	0.2	Gallon(GAL)	02-Nov-18
1499714	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499728	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499718	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499719	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499720	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499721	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499722	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499723	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499724	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499725	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499745	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499727	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499715	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499729	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499730	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499731	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499732	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499733	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499734	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499735	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499736	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499737	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499726	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499741	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499752	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499753	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499754	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499755	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499750	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499744	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499717	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499742	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499716	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499740	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499739	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499749	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499748	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499747	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499746	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499738	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499751	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1499743	-	Clorox Regular-Bleach	121	Ounces(OZ)	02-Nov-18
1497652	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1497654	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1497653	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1497655	-	Brakleen Brake Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1487261	-	3M SUPER 77 SPRAY ADHESIVE	16.75	Ounces(OZ)	02-Nov-18
1487264	-	3M SUPER 77 SPRAY ADHESIVE	16.75	Ounces(OZ)	02-Nov-18
1487259	-	3M SUPER 77 SPRAY ADHESIVE	16.75	Ounces(OZ)	02-Nov-18
1561789	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	02-Nov-18
1561792	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	02-Nov-18
1561790	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	02-Nov-18
1561791	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	02-Nov-18
1561793	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Cubic Feet(CF)	02-Nov-18
1561796	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Cubic Feet(CF)	02-Nov-18
1561795	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Cubic Feet(CF)	02-Nov-18
1561794	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Cubic Feet(CF)	02-Nov-18
1497656	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1486988	-	KOOL MIST SPRAY COOLANT	1	Gallon(GAL)	02-Nov-18
1486989	-	KOOL MIST SPRAY COOLANT	1	Gallon(GAL)	02-Nov-18
1487244	-	SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1497674	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497675	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497678	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497684	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497671	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497673	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497679	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497672	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497680	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497681	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497670	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497690	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497677	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497696	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497695	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497694	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497693	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497682	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497691	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497683	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497689	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497688	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497687	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497686	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497685	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497667	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497692	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497662	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497664	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497665	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497669	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497660	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497668	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497659	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497661	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497663	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497666	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497658	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497657	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1497676	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	02-Nov-18
1455727	-	SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1455728	-	SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1455729	-	SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1455730	-	SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1455731	-	SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1487246	-	SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1487237	-	SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1487236	-	SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1487240	-	SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1487245	-	SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	02-Nov-18
1487233	-	Simple Green All-Purpose Cleaner	1	Gallon(GAL)	02-Nov-18
1487234	-	Simple Green All-Purpose Cleaner	1	Gallon(GAL)	02-Nov-18
1487232	-	Simple Green All-Purpose Cleaner	1	Gallon(GAL)	02-Nov-18
1497697	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	02-Nov-18
1497698	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	02-Nov-18
1497699	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	02-Nov-18
1497700	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	02-Nov-18
1497701	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	02-Nov-18
1497702	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	02-Nov-18
1497703	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	02-Nov-18
1497704	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	02-Nov-18
1497705	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	02-Nov-18
1497706	-	3M Rubberized Undercoating Black PN08883	19.7	Ounces(OZ)	02-Nov-18
1497707	-	3M Rubberized Undercoating Black PN08883	19.7	Ounces(OZ)	02-Nov-18
1497708	-	Parts Plus Power Steering Fld	1	Quarts(QT)	02-Nov-18
1497709	-	Castrol Transynd Allison Transmission Fluid	5	Gallon(GAL)	02-Nov-18
1497712	-	Castrol Transynd Allison Transmission Fluid	5	Gallon(GAL)	02-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497711	-	Castrol Transynd Allison Transmission Fluid	5	Gallon(GAL)	02-Nov-18
1497710	-	Castrol Transynd Allison Transmission Fluid	5	Gallon(GAL)	02-Nov-18
1561797	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	48	Pounds(LB)	05-Nov-18
1561798	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	48	Pounds(LB)	05-Nov-18
1561799	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	48	Pounds(LB)	05-Nov-18
1561800	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	48	Pounds(LB)	05-Nov-18
1561801	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561818	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561812	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561820	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561821	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561819	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561817	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561816	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561815	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561813	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561811	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561810	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561809	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561808	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561807	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561806	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561805	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561804	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561803	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561802	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561814	-	Argon UHP	220	Cubic Feet(CF)	05-Nov-18
1561822	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561823	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561827	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561829	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561828	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561824	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561826	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561825	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561830	-	Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	05-Nov-18
1561831	-	Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	05-Nov-18
1561832	-	Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	05-Nov-18
1561833	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561835	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561843	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561842	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561841	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561840	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561839	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561838	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561836	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561834	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561844	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561837	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1561845	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561876	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561866	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561846	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561868	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561869	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561870	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561871	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561872	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561873	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561875	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561865	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561877	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561878	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561879	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561880	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561881	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561882	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561883	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561884	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561874	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561854	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561847	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561848	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561849	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561850	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561851	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561867	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561853	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561864	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561855	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561856	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561857	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561858	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561859	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561860	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561861	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561862	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561863	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561852	-	Nitrogen UHP	220	Cubic Feet(CF)	05-Nov-18
1561885	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561887	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561886	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561894	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561904	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561903	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561902	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561900	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561898	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561897	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561905	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561895	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561901	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561893	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561892	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561891	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561889	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561888	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561890	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561896	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1561899	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Nov-18
1540519	-	3D Scan Spray	400	Milliliter(ML)	05-Nov-18
1497713	-	DIELECTRIC GREASE	3.3	Ounces(OZ)	05-Nov-18
1497714	-	PERMATEX ULTRA BLACK	3.3	Ounces(OZ)	05-Nov-18
1455722	-	AIR COMPRESSED	220	Cubic Feet(CF)	05-Nov-18
1497715	-	QD ELECTRONIC CLEANER	11	Ounces(OZ)	05-Nov-18
1497716	-	Mobil 1 5W-40	1	Gallon(GAL)	05-Nov-18
1497718	-	Mobil 1 5W-40	1	Gallon(GAL)	05-Nov-18
1497719	-	Mobil 1 5W-40	1	Gallon(GAL)	05-Nov-18
1497717	-	Mobil 1 5W-40	1	Gallon(GAL)	05-Nov-18
1455718	-	EPOXY PUTTY	1	Ounces(OZ)	05-Nov-18
1561906	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561912	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561907	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561908	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561909	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561910	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561911	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561913	7782-44-7	OXYGEN COMPRESSED GAS	40	Cubic Feet(CF)	05-Nov-18
1561914	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561928	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561929	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561924	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561927	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561926	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561925	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561915	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561916	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561918	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561919	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561920	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561921	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561922	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561923	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561917	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	05-Nov-18
1561930	7727-37-9	NITROGEN COMPRESSED GAS	400	Cubic Feet(CF)	05-Nov-18
1455719	-	EPOXY PUTTY	1	Ounces(OZ)	05-Nov-18
1561931	7727-37-9	NITROGEN COMPRESSED GAS	400	Cubic Feet(CF)	05-Nov-18
1561932	7727-37-9	NITROGEN COMPRESSED GAS	400	Cubic Feet(CF)	05-Nov-18
1561933	7727-37-9	NITROGEN COMPRESSED GAS	400	Cubic Feet(CF)	05-Nov-18
1561934	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	05-Nov-18
1561936	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	05-Nov-18
1561935	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	05-Nov-18
1561937	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	05-Nov-18
1561938	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	05-Nov-18
1561939	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	05-Nov-18
1561940	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	05-Nov-18
1561941	74-86-2	ACETYLENE STABILIZED	20	Cubic Feet(CF)	05-Nov-18
1561949	74-86-2	ACETYLENE STABILIZED	20	Cubic Feet(CF)	05-Nov-18
1561950	74-86-2	ACETYLENE STABILIZED	20	Cubic Feet(CF)	05-Nov-18
1561948	74-86-2	ACETYLENE STABILIZED	20	Cubic Feet(CF)	05-Nov-18
1561947	74-86-2	ACETYLENE STABILIZED	20	Cubic Feet(CF)	05-Nov-18
1561944	74-86-2	ACETYLENE STABILIZED	20	Cubic Feet(CF)	05-Nov-18
1561945	74-86-2	ACETYLENE STABILIZED	20	Cubic Feet(CF)	05-Nov-18
1561943	74-86-2	ACETYLENE STABILIZED	20	Cubic Feet(CF)	05-Nov-18
1561942	74-86-2	ACETYLENE STABILIZED	20	Cubic Feet(CF)	05-Nov-18
1561946	74-86-2	ACETYLENE STABILIZED	20	Cubic Feet(CF)	05-Nov-18
1561951	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561960	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561954	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561971	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561970	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561969	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561968	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561967	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561966	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561965	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561964	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561963	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561961	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561972	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561959	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561958	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561957	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561956	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561955	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561953	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561952	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561962	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561973	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1561974	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Nov-18
1511475	593-84-0	RNeasy MinElute Cleanup Kit	2	Milliliter(ML)	05-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1511476	593-84-0	RNeasy MinElute Cleanup Kit	2	Milliliter(ML)	05-Nov-18
1512332	-	MOBIL DTE 24	55	Gallon(GAL)	05-Nov-18
1512333	-	MOBIL DTE 24	55	Gallon(GAL)	05-Nov-18
1512334	40677-94-9	Perfluorocyclohexylmethyl acarylate	5	Gram(GM)	05-Nov-18
1512339	67-56-1	METHANOL ANHYDROUS	2	Liters(L)	05-Nov-18
1512340	1112-39-6	DIMETHYLDIMETHOXYSILANE	500	Milliliter(ML)	05-Nov-18
1512366	162881-26-7	Phenylbis(2 4 6-trimethylbenzoyl)phosphine	50	Gram(GM)	05-Nov-18
1512367	-	EPH ETHYLENE GLYCOL PHENYL ETHER	250	Milliliter(ML)	05-Nov-18
1512368	2156-97-0	LAURYL ACRYLATE	100	Milliliter(ML)	05-Nov-18
1512369	32171-39-4	Polyethylene glycol methyl ether acrylate	250	Milliliter(ML)	05-Nov-18
1512370	666-52-4	ACETONE-D6	25	Milliliter(ML)	05-Nov-18
1512371	666-52-4	ACETONE-D6	25	Milliliter(ML)	05-Nov-18
1512372	-	EpoKwick FC Resin	128	Ounces(OZ)	05-Nov-18
1512373	-	EpoKwick FC Hardener	32	Ounces(OZ)	05-Nov-18
1512374	-	BUEHLER RELEASE AGENT	4	Ounces(OZ)	05-Nov-18
1512375	-	BUEHLER CONDUCTIVE FILLER	2	Pounds(LB)	05-Nov-18
1512376	-	MetaDi Supreme	32	Ounces(OZ)	05-Nov-18
1512377	-	MetaDi Supreme	32	Ounces(OZ)	05-Nov-18
1512378	-	MetaDi Supreme	8	Ounces(OZ)	05-Nov-18
1512379	-	BUEHLER MASTERMET 2	64	Ounces(OZ)	05-Nov-18
1512380	67-56-1	METHANOL HPLC	4	Liters(L)	05-Nov-18
1512382	67-56-1	METHANOL HPLC	4	Liters(L)	05-Nov-18
1512381	67-56-1	METHANOL HPLC	4	Liters(L)	05-Nov-18
1512383	67-56-1	METHANOL HPLC	4	Liters(L)	05-Nov-18
1512420	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512443	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512444	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512445	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512446	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512442	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512448	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512447	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512441	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512440	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512439	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512438	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512437	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512436	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512434	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512449	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512464	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512435	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512458	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512466	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512469	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512467	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512465	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512463	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512433	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512461	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512462	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512459	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512450	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512457	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512456	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512455	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512454	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512453	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512452	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512451	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512460	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512422	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512432	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512421	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512423	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512424	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512425	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512431	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512427	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512428	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512429	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512430	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512426	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512468	-	#102 Pocket-ETK	10	Milliliter(ML)	05-Nov-18
1512470	73513-42-5	HEXANES	1	Liters(L)	05-Nov-18
1512471	60-29-7	DIETHYL ETHER	1	Liters(L)	05-Nov-18
1512472	60-29-7	DIETHYL ETHER	1	Liters(L)	05-Nov-18
1512473	-	FLASH DRY SILVER PAINT	5	Ounces(OZ)	05-Nov-18
1512474	-	FLASH DRY SILVER PAINT	5	Ounces(OZ)	05-Nov-18
1512475	-	HYVAC PUMP OIL	1	Gallon(GAL)	05-Nov-18
1512476	-	PlatSil Gel-10	1	Gallon(GAL)	05-Nov-18
1512477	3810-74-0	STREPTOMYCIN SULFATE	10	Milliliter(ML)	05-Nov-18
1512478	3810-74-0	STREPTOMYCIN SULFATE	10	Milliliter(ML)	05-Nov-18
1512479	75-11-6	DIIODOMETHANE	500	Gram(GM)	05-Nov-18
1512480	7761-88-8	SILVER NITRATE	25	Gram(GM)	05-Nov-18
1512481	676-97-1	METHYLPHOSPHONIC DICHLORIDE	5	Gram(GM)	05-Nov-18
1512482	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	05-Nov-18
1512483	-	Flat Black Flameproof Coating	11	Ounces(OZ)	05-Nov-18
1512559	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512564	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512563	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512562	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512561	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512572	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512573	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512569	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512560	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512571	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512575	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512568	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512567	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512566	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512576	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512565	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512570	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512574	-	FREEZE SPRAY	11	Ounces(OZ)	05-Nov-18
1512631	-	VARIAN TORR SEAL	1.7	Ounces(OZ)	05-Nov-18
1512632	-	VARIAN TORR SEAL	1.7	Ounces(OZ)	05-Nov-18
1512633	-	VARIAN TORR SEAL	1.7	Ounces(OZ)	05-Nov-18
1512634	-	VARIAN TORR SEAL	1.7	Ounces(OZ)	05-Nov-18
1512635	156-60-5	Opteon SF79	45	Pounds(LB)	05-Nov-18
1512636	156-60-5	Opteon SF79	45	Pounds(LB)	05-Nov-18
1512637	156-60-5	Opteon SF79	45	Pounds(LB)	05-Nov-18
1452952	54-42-2	5-IODO-2'-DEOXYURIDINE	1	Kilograms(KG)	06-Nov-18
1497720	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	06-Nov-18
1497723	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	06-Nov-18
1497722	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	06-Nov-18
1497721	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	06-Nov-18
1512335	-	NucBlue Fixed Cell ReadyProbes Reagent	15	Milliliter(ML)	06-Nov-18
1512336	-	ActinGreen 488 ReadyProbes Reagent	5	Milliliter(ML)	06-Nov-18
1512337	-	NucGreen Dead 488 ReadyProbes Reagent	15	Milliliter(ML)	06-Nov-18
1512341	-	COLORIMETRIC CYTOTOXICITY ASSAY KIT	46	Milliliter(ML)	06-Nov-18
1512384	6484-52-2	AMMONIUM NITRATE	5	Gram(GM)	06-Nov-18
1512385	6484-52-2	AMMONIUM NITRATE	5	Gram(GM)	06-Nov-18
1512386	8032-32-4	PETROLEUM ETHER	1	Liters(L)	06-Nov-18
1497724	-	AW 32 HYDRAULIC FLUID	5	Gallon(GAL)	06-Nov-18
1512387	39795-60-3	4-(4-Bromophenyl)pyridine	1	Gram(GM)	06-Nov-18
1512395	39795-60-3	4-(4-Bromophenyl)pyridine	1	Gram(GM)	06-Nov-18
1512388	39795-60-3	4-(4-Bromophenyl)pyridine	1	Gram(GM)	06-Nov-18
1512396	39795-60-3	4-(4-Bromophenyl)pyridine	1	Gram(GM)	06-Nov-18
1512389	39795-60-3	4-(4-Bromophenyl)pyridine	1	Gram(GM)	06-Nov-18
1512394	39795-60-3	4-(4-Bromophenyl)pyridine	1	Gram(GM)	06-Nov-18
1512393	39795-60-3	4-(4-Bromophenyl)pyridine	1	Gram(GM)	06-Nov-18
1512392	39795-60-3	4-(4-Bromophenyl)pyridine	1	Gram(GM)	06-Nov-18
1512391	39795-60-3	4-(4-Bromophenyl)pyridine	1	Gram(GM)	06-Nov-18
1512390	39795-60-3	4-(4-Bromophenyl)pyridine	1	Gram(GM)	06-Nov-18
1512397	2524-52-9	Ethyl Pyridine-2-carboxylate	25	Gram(GM)	06-Nov-18
1512398	2524-52-9	Ethyl Pyridine-2-carboxylate	25	Gram(GM)	06-Nov-18
1512401	2524-52-9	Ethyl Pyridine-2-carboxylate	25	Gram(GM)	06-Nov-18
1512400	2524-52-9	Ethyl Pyridine-2-carboxylate	25	Gram(GM)	06-Nov-18
1512399	2524-52-9	Ethyl Pyridine-2-carboxylate	25	Gram(GM)	06-Nov-18
1512402	338-84-1	Perfluorotriamylamine (so called)	25	Gram(GM)	06-Nov-18
1512403	-	4% PARAFORMALDEHYDE IN PBS	250	Milliliter(ML)	06-Nov-18
1512404	60-29-7	ETHYL ETHER	4	Liters(L)	06-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512405	4731-53-7	TRI-N-OCTYLPHOSPHINE	500	Gram(GM)	06-Nov-18
1512406	78-78-4	2-METHYLBUTANE	500	Milliliter(ML)	06-Nov-18
1512407	109-66-0	N-PENTANE	1	Liters(L)	06-Nov-18
1512408	109-66-0	N-PENTANE	1	Liters(L)	06-Nov-18
1512409	12061-16-4	ERBIUM OXIDE	5	Kilograms(KG)	06-Nov-18
1512410	1314-36-9	YTTRIUM OXIDE	10	Kilograms(KG)	06-Nov-18
1512411	7727-54-0	AMMONIUM PERSULFATE	100	Gram(GM)	06-Nov-18
1512412	-	Black Powder Chemicals Kit	12	Pounds(LB)	06-Nov-18
1512413	-	Black Powder Chemicals Kit	12	Pounds(LB)	06-Nov-18
1512414	-	Black Powder Chemicals Kit	12	Pounds(LB)	06-Nov-18
1512484	-	PERMATEX ANTI-SEIZE LUBRICANT	8	Ounces(OZ)	06-Nov-18
1512485	-	PERMATEX ANTI-SEIZE LUBRICANT	8	Ounces(OZ)	06-Nov-18
1499671	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	06-Nov-18
1499672	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	06-Nov-18
1499673	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	06-Nov-18
1499674	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	06-Nov-18
1499675	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	06-Nov-18
1499676	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	06-Nov-18
1499677	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	06-Nov-18
1499678	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	06-Nov-18
1499679	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	06-Nov-18
1499680	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	06-Nov-18
1499681	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	06-Nov-18
1499682	64742-52-5	Pull Spout Oiler	4	Ounces(OZ)	06-Nov-18
1512486	5154-00-7	2-amino-6-hydroxypyridine	25	Gram(GM)	06-Nov-18
1512487	7697-37-2	MULTI ELEMENTS SOL	125	Milliliter(ML)	06-Nov-18
1512488	7697-37-2	MULTI ELEMENTS SOL	125	Milliliter(ML)	06-Nov-18
1512490	7697-37-2	MULTI ELEMENTS SOL	125	Milliliter(ML)	06-Nov-18
1512489	7697-37-2	MULTI ELEMENTS SOL	125	Milliliter(ML)	06-Nov-18
1512491	-	ANION RESIN AG MP-1 50-100 MESH CL FORM	500	Gram(GM)	06-Nov-18
1512494	872-50-4	1-METHYL-2-PYRROLIDINONE	2	Liters(L)	06-Nov-18
1512495	-	TRU RESIN	2	Milliliter(ML)	06-Nov-18
1512498	-	TRU RESIN	2	Milliliter(ML)	06-Nov-18
1512497	-	TRU RESIN	2	Milliliter(ML)	06-Nov-18
1512496	-	TRU RESIN	2	Milliliter(ML)	06-Nov-18
1512499	56-84-8	ASPARTIC ACID STD	2	Gram(GM)	06-Nov-18
1512500	60-00-4	ETHYLENEDIAMINETETRAACETIC ACID	100	Gram(GM)	06-Nov-18
1512501	57-47-6	PHYSOSTIGMINE	240	Milligram(MG)	06-Nov-18
1512502	67-56-1	METHANOL ANHYDROUS	1	Liters(L)	06-Nov-18
1512503	67-56-1	METHANOL ANHYDROUS	1	Liters(L)	06-Nov-18
1512504	7664-93-9	SULFURIC ACID	2.5	Liters(L)	06-Nov-18
1499756	-	RIDGID THREAD CUTTING OIL	1	Gallon(GAL)	06-Nov-18
1499761	-	RIDGID THREAD CUTTING OIL	1	Gallon(GAL)	06-Nov-18
1499760	-	RIDGID THREAD CUTTING OIL	1	Gallon(GAL)	06-Nov-18
1499759	-	RIDGID THREAD CUTTING OIL	1	Gallon(GAL)	06-Nov-18
1499758	-	RIDGID THREAD CUTTING OIL	1	Gallon(GAL)	06-Nov-18
1499757	-	RIDGID THREAD CUTTING OIL	1	Gallon(GAL)	06-Nov-18
1499683	-	MOBIL DTE OIL MEDIUM	5	Gallon(GAL)	06-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499686	-	MOBIL DTE OIL MEDIUM	5	Gallon(GAL)	06-Nov-18
1499685	-	MOBIL DTE OIL MEDIUM	5	Gallon(GAL)	06-Nov-18
1499687	-	MOBIL DTE OIL MEDIUM	5	Gallon(GAL)	06-Nov-18
1499684	-	MOBIL DTE OIL MEDIUM	5	Gallon(GAL)	06-Nov-18
1497725	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497728	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497729	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497730	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497731	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497732	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497733	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497734	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497735	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497726	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497727	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497736	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497737	-	Parts Plus All Makes AllModels 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497738	-	Parts Plus All Makes AllModels 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497739	-	Parts Plus All Makes AllModels 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1497740	-	Parts Plus All Makes AllModels 50/50 Prediluted	1	Gallon(GAL)	06-Nov-18
1317648	-	AG 1-X8	500	Gram(GM)	06-Nov-18
1317649	-	AG 1-X8	500	Gram(GM)	06-Nov-18
1512505	-	TEVA RESIN	2	Milliliter(ML)	07-Nov-18
1512508	-	TEVA RESIN	2	Milliliter(ML)	07-Nov-18
1512506	-	TEVA RESIN	2	Milliliter(ML)	07-Nov-18
1512507	-	TEVA RESIN	2	Milliliter(ML)	07-Nov-18
1512509	5329-14-6	SULFAMIC ACID	500	Gram(GM)	07-Nov-18
1512510	-	EGC III KOH	970	Milliliter(ML)	07-Nov-18
1512512	-	EGC III KOH	970	Milliliter(ML)	07-Nov-18
1512511	-	EGC III KOH	970	Milliliter(ML)	07-Nov-18
1512513	63148-62-9	PURE SILICONE FLUID	5	Gallon(GAL)	07-Nov-18
1512514	63148-62-9	PURE SILICONE FLUID	5	Gallon(GAL)	07-Nov-18
1512515	7664-93-9	SULFURIC ACID	2.5	Liters(L)	07-Nov-18
1512516	7664-93-9	SULFURIC ACID	2.5	Liters(L)	07-Nov-18
1512518	7664-93-9	SULFURIC ACID	2.5	Liters(L)	07-Nov-18
1512517	7664-93-9	SULFURIC ACID	2.5	Liters(L)	07-Nov-18
1512519	-	3dresyn Eng1 MF	1	Liters(L)	07-Nov-18
1512520	-	3dresyn Clear & Tough MF	1	Liters(L)	07-Nov-18
1512521	-	3dresyn Chemical resistant UHT	1	Liters(L)	07-Nov-18
1512522	-	3Dresyn HTR UHT	1	Liters(L)	07-Nov-18
1512523	-	Fine Tuner FT3	60	Milliliter(ML)	07-Nov-18
1512524	-	Fine Tuner FT3	60	Milliliter(ML)	07-Nov-18
1512525	-	Fine Tuner FT2	60	Milliliter(ML)	07-Nov-18
1512526	-	Fine Tuner FT2	60	Milliliter(ML)	07-Nov-18
1512527	-	3dresyn LB1 Light Blocker	0	Milliliter(ML)	07-Nov-18
1512528	-	3dresyn LB1 Light Blocker	0	Milliliter(ML)	07-Nov-18
1512529	-	3dresyn SFUT	1	Liters(L)	07-Nov-18
1512530	-	PROTEINASEK	25	Milliliter(ML)	07-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512531	999-97-3	HEXAMETHYLDISILAZANE	25	Milliliter(ML)	07-Nov-18
1512532	-	Urethane acrylate methacrylate resin	25	Gram(GM)	07-Nov-18
1512533	75-36-5	ACETYL CHLORIDE	250	Milliliter(ML)	07-Nov-18
1512534	75-77-4	CHLOROTRIMETHYLSILANE	10	Milliliter(ML)	07-Nov-18
1512535	7782-63-0	FERROUS SULFATE HEPTAHYDRATE	500	Gram(GM)	07-Nov-18
1512536	18001-13-3	p-STYRYLTRIMETHOXYSILANE	10	Gram(GM)	07-Nov-18
1512539	18001-13-3	p-STYRYLTRIMETHOXYSILANE	10	Gram(GM)	07-Nov-18
1512537	18001-13-3	p-STYRYLTRIMETHOXYSILANE	10	Gram(GM)	07-Nov-18
1512538	18001-13-3	p-STYRYLTRIMETHOXYSILANE	10	Gram(GM)	07-Nov-18
1512540	18052-76-1	1-NAPHTHYLTRIMETHOXYSILANE	5	Gram(GM)	07-Nov-18
1512547	18052-76-1	1-NAPHTHYLTRIMETHOXYSILANE	5	Gram(GM)	07-Nov-18
1512546	18052-76-1	1-NAPHTHYLTRIMETHOXYSILANE	5	Gram(GM)	07-Nov-18
1512545	18052-76-1	1-NAPHTHYLTRIMETHOXYSILANE	5	Gram(GM)	07-Nov-18
1512542	18052-76-1	1-NAPHTHYLTRIMETHOXYSILANE	5	Gram(GM)	07-Nov-18
1512544	18052-76-1	1-NAPHTHYLTRIMETHOXYSILANE	5	Gram(GM)	07-Nov-18
1512543	18052-76-1	1-NAPHTHYLTRIMETHOXYSILANE	5	Gram(GM)	07-Nov-18
1512541	18052-76-1	1-NAPHTHYLTRIMETHOXYSILANE	5	Gram(GM)	07-Nov-18
1512548	508-77-0	Cymarin	20	Milligram(MG)	07-Nov-18
1512549	7664-38-2	PHOSPHORIC ACID	2.5	Liters(L)	07-Nov-18
1512550	7664-93-9	SULFURIC ACID	2	Liters(L)	07-Nov-18
1512551	12027-67-7	AMMONIUM MOLYBDATE TETRAHYDRATE	100	Gram(GM)	07-Nov-18
1512552	9002-92-0	Brij L23 Solution	100	Milliliter(ML)	07-Nov-18
1512577	8020-83-5	MINERAL OIL (LIGHT WHITE OIL)	1	Kilograms(KG)	07-Nov-18
1512578	8020-83-5	MINERAL OIL (LIGHT WHITE OIL)	1	Kilograms(KG)	07-Nov-18
1512579	8020-83-5	MINERAL OIL (LIGHT WHITE OIL)	1	Kilograms(KG)	07-Nov-18
1512581	8020-83-5	MINERAL OIL (LIGHT WHITE OIL)	1	Kilograms(KG)	07-Nov-18
1512580	8020-83-5	MINERAL OIL (LIGHT WHITE OIL)	1	Kilograms(KG)	07-Nov-18
1512582	-	BARCO BOND MB-165	0.3	Pounds(LB)	07-Nov-18
1512587	-	BARCO BOND MB-165	0.3	Pounds(LB)	07-Nov-18
1512590	-	BARCO BOND MB-165	0.3	Pounds(LB)	07-Nov-18
1512588	-	BARCO BOND MB-165	0.3	Pounds(LB)	07-Nov-18
1512586	-	BARCO BOND MB-165	0.3	Pounds(LB)	07-Nov-18
1512585	-	BARCO BOND MB-165	0.3	Pounds(LB)	07-Nov-18
1512584	-	BARCO BOND MB-165	0.3	Pounds(LB)	07-Nov-18
1512583	-	BARCO BOND MB-165	0.3	Pounds(LB)	07-Nov-18
1512589	-	BARCO BOND MB-165	0.3	Pounds(LB)	07-Nov-18
1512591	-	BARCO BOND MB-165 175 185 EPOXY RESIN	0.3	Pounds(LB)	07-Nov-18
1512602	-	BARCO BOND MB-165 175 185 EPOXY RESIN	0.3	Pounds(LB)	07-Nov-18
1512592	-	BARCO BOND MB-165 175 185 EPOXY RESIN	0.3	Pounds(LB)	07-Nov-18
1512601	-	BARCO BOND MB-165 175 185 EPOXY RESIN	0.3	Pounds(LB)	07-Nov-18
1512600	-	BARCO BOND MB-165 175 185 EPOXY RESIN	0.3	Pounds(LB)	07-Nov-18
1512599	-	BARCO BOND MB-165 175 185 EPOXY RESIN	0.3	Pounds(LB)	07-Nov-18
1512598	-	BARCO BOND MB-165 175 185 EPOXY RESIN	0.3	Pounds(LB)	07-Nov-18
1512597	-	BARCO BOND MB-165 175 185 EPOXY RESIN	0.3	Pounds(LB)	07-Nov-18
1512596	-	BARCO BOND MB-165 175 185 EPOXY RESIN	0.3	Pounds(LB)	07-Nov-18
1512595	-	BARCO BOND MB-165 175 185 EPOXY RESIN	0.3	Pounds(LB)	07-Nov-18
1512593	-	BARCO BOND MB-165 175 185 EPOXY RESIN	0.3	Pounds(LB)	07-Nov-18
1512594	-	BARCO BOND MB-165 175 185 EPOXY RESIN	0.3	Pounds(LB)	07-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512603	-	BARCO BOND EPOXY KIT MB-165	0.3	Pounds(LB)	07-Nov-18
1512610	-	BARCO BOND EPOXY KIT MB-165	0.3	Pounds(LB)	07-Nov-18
1512614	-	BARCO BOND EPOXY KIT MB-165	0.3	Pounds(LB)	07-Nov-18
1512613	-	BARCO BOND EPOXY KIT MB-165	0.3	Pounds(LB)	07-Nov-18
1512611	-	BARCO BOND EPOXY KIT MB-165	0.3	Pounds(LB)	07-Nov-18
1512609	-	BARCO BOND EPOXY KIT MB-165	0.3	Pounds(LB)	07-Nov-18
1512608	-	BARCO BOND EPOXY KIT MB-165	0.3	Pounds(LB)	07-Nov-18
1512607	-	BARCO BOND EPOXY KIT MB-165	0.3	Pounds(LB)	07-Nov-18
1512606	-	BARCO BOND EPOXY KIT MB-165	0.3	Pounds(LB)	07-Nov-18
1512605	-	BARCO BOND EPOXY KIT MB-165	0.3	Pounds(LB)	07-Nov-18
1512604	-	BARCO BOND EPOXY KIT MB-165	0.3	Pounds(LB)	07-Nov-18
1512612	-	BARCO BOND EPOXY KIT MB-165	0.3	Pounds(LB)	07-Nov-18
1512615	-	MOBIL VACTRA OIL NO. 2	55	Gallon(GAL)	07-Nov-18
1512616	-	MOBIL VACTRA OIL NO. 2	55	Gallon(GAL)	07-Nov-18
1512617	-	CIM-COOL CUTTING FLUID	5	Gallon(GAL)	07-Nov-18
1512618	-	CIM-COOL CUTTING FLUID	5	Gallon(GAL)	07-Nov-18
1512619	-	3-6559 CURE ACCELERATOR	0.5	Kilograms(KG)	07-Nov-18
1512620	-	3-6559 CURE ACCELERATOR	0.5	Kilograms(KG)	07-Nov-18
1512621	-	LOCTITE 496 INSTANT ADHESIVE	1	Ounces(OZ)	07-Nov-18
1512622	-	LOCTITE 496 INSTANT ADHESIVE	1	Ounces(OZ)	07-Nov-18
1512623	-	DOW CORNING SYLGARD 184 SILICON	0.5	Kilograms(KG)	07-Nov-18
1512624	-	DOW CORNING SYLGARD 184 SILICON	0.5	Kilograms(KG)	07-Nov-18
1512703	57-48-7	D-FRUCTOSE	100	Gram(GM)	07-Nov-18
1512704	64044-51-5	LACTOSE MONOHYDRATE POWDER	25	Gram(GM)	07-Nov-18
1512705	69-65-8	D-MANNITOL	100	Gram(GM)	07-Nov-18
1512706	50-69-1	D-RIBOSE	5	Gram(GM)	07-Nov-18
1512707	527-07-1	SODIUM GLUCONATE	100	Gram(GM)	07-Nov-18
1512708	25561-30-2	N O-BIS(TRIMETHYLSILYL)TRIFLUOROACETAMIDE	10	Milliliter(ML)	07-Nov-18
1512709	593-56-6	METHOXYAMINE HYDROCHLORIDE	5	Gram(GM)	07-Nov-18
1512710	18156-74-6	N-TRIMETHYL SILYL IMIDIZOLE	10	Milliliter(ML)	07-Nov-18
1512711	-	ALKANES	1000	MicroGram(UG	07-Nov-18
1512712	24589-78-4	N-METHYL-N-(TRIMETHYLSILYL)	10	Milliliter(ML)	07-Nov-18
1512713	685-27-8	N-METHYL-BIS-TRIFLUOROACETAMIDE	10	Milliliter(ML)	07-Nov-18
1512714	57-50-1	SUCROSE	250	Gram(GM)	07-Nov-18
1497741	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497757	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497742	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497743	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497744	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497745	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497746	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497747	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497748	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497749	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497750	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497751	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497752	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497753	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497755	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497756	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497758	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497754	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	08-Nov-18
1497759	-	Parts Plus All Makes AllModels 50/50 Prediluted	1	Gallon(GAL)	08-Nov-18
1497760	-	Parts Plus All Makes AllModels 50/50 Prediluted	1	Gallon(GAL)	08-Nov-18
1497761	-	Parts Plus All Makes AllModels 50/50 Prediluted	1	Gallon(GAL)	08-Nov-18
1497762	-	Parts Plus All Makes AllModels 50/50 Prediluted	1	Gallon(GAL)	08-Nov-18
1497763	-	Parts Plus All Makes AllModels 50/50 Prediluted	1	Gallon(GAL)	08-Nov-18
1497764	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	08-Nov-18
1497769	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	08-Nov-18
1497768	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	08-Nov-18
1497767	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	08-Nov-18
1497765	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	08-Nov-18
1497766	-	Parts Plus Conventional Green 50/50 Prediluted	1	Gallon(GAL)	08-Nov-18
1561980	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562013	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562002	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562003	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562004	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562005	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562006	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562007	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562008	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562009	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562010	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562012	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562014	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562015	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562016	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562018	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562020	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562021	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562001	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562017	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562011	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562000	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561981	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562019	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561982	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561983	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561984	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561985	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561986	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561987	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561988	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561989	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561996	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1561990	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561997	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561998	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561995	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561999	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561994	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561993	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561992	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1561991	-	Nitrogen UHP	220	Cubic Feet(CF)	08-Nov-18
1562078	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562082	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562081	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562080	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562079	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562083	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562101	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562100	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562097	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562098	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562084	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562088	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562099	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562091	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562095	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562096	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562085	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562093	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562092	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562094	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562102	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562090	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562089	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562087	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1562086	7440-59-7	Helium UHP	220	Cubic Feet(CF)	08-Nov-18
1561975	7727-37-9	NITROGEN COMPRESSED GAS	10	Pounds(LB)	08-Nov-18
1499771	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1499780	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1499777	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1499779	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1499781	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1499782	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1499778	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1499775	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1499774	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1499776	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1499772	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1499773	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1499784	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499790	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Nov-18
1499793	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Nov-18
1499792	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Nov-18
1499791	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Nov-18
1499785	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Nov-18
1499789	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Nov-18
1499786	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Nov-18
1499787	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Nov-18
1499788	-	PSX 700 CURE US	0.2	Gallon(GAL)	09-Nov-18
1497770	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1497771	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1499783	-	LOCTITE C5-A Copper Based Anti-Seize Lubricant	8	Ounces(OZ)	09-Nov-18
1497772	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	09-Nov-18
1497777	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	09-Nov-18
1497773	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	09-Nov-18
1497775	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	09-Nov-18
1497776	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	09-Nov-18
1497774	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	09-Nov-18
1497778	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	09-Nov-18
1497780	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	09-Nov-18
1497779	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	09-Nov-18
1497781	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	09-Nov-18
1497782	-	DUPLI-COLOR Acrylic Enamel Aerosol Paint Flat	12	Ounces(OZ)	09-Nov-18
1497783	-	DUPLI-COLOR Acrylic Enamel Aerosol Paint Flat	12	Ounces(OZ)	09-Nov-18
1497784	-	DUPLI-COLOR Acrylic Enamel Aerosol Paint Flat	12	Ounces(OZ)	09-Nov-18
1497787	-	DUPLI-COLOR Acrylic Enamel Aerosol Paint Flat	12	Ounces(OZ)	09-Nov-18
1497785	-	DUPLI-COLOR Acrylic Enamel Aerosol Paint Flat	12	Ounces(OZ)	09-Nov-18
1497786	-	DUPLI-COLOR Acrylic Enamel Aerosol Paint Flat	12	Ounces(OZ)	09-Nov-18
1497788	-	DUPLI-COLOR 2-in-1 Filler & Sandable Primer	12	Ounces(OZ)	09-Nov-18
1497789	-	DUPLI-COLOR 2-in-1 Filler & Sandable Primer	12	Ounces(OZ)	09-Nov-18
1497790	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	09-Nov-18
1497791	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	09-Nov-18
1497792	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	09-Nov-18
1497793	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-18
1497799	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-18
1497802	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-18
1497800	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-18
1497798	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-18
1497797	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-18
1497796	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-18
1497795	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-18
1497794	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-18
1497801	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-18
1497803	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1497804	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1497805	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1497806	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	09-Nov-18
1497807	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497818	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1497817	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1497816	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1497809	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1497810	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1497811	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1497812	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1497813	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1497814	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1497815	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1497808	-	Brakleen Brake Parts Cleaner - Non-chlorinated	14	Ounces(OZ)	09-Nov-18
1497819	-	ULTRA GREY SILICONE SEALANT	3.5	Ounces(OZ)	09-Nov-18
1497820	-	Forney Paint Stick	2	Ounces(OZ)	09-Nov-18
1497821	-	Forney Paint Stick	2	Ounces(OZ)	09-Nov-18
1497822	-	STA-LUBE HEAVY DUTY WHEEL BEARING GREASE	14	Ounces(OZ)	09-Nov-18
1497823	-	LOCTITE 242 THREADLOCKER	0.34	Ounces(OZ)	09-Nov-18
1497824	-	STARTING FLUID	10.7	Ounces(OZ)	09-Nov-18
1497825	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	09-Nov-18
1497826	-	Parts Plus DEX/MERC AUTOMATIC	1	Quarts(QT)	09-Nov-18
1497827	-	SAE 75W-90 GEAR OIL	1	Quarts(QT)	09-Nov-18
1497828	-	Valvoline Professional Series 75W-140 FULL	1	Quarts(QT)	09-Nov-18
1497829	-	POWER STEERING FLUID	1	Quarts(QT)	09-Nov-18
1497830	-	POWER STEERING FLUID	1	Quarts(QT)	09-Nov-18
1497831	-	Parts Plus Type F ATF	1	Quarts(QT)	09-Nov-18
1497832	-	Parts Plus Type F ATF	1	Quarts(QT)	09-Nov-18
1497833	-	732 MULTI-PURPOSE SEALANT	10.1	Ounces(OZ)	09-Nov-18
1497834	-	732 MULTI-PURPOSE SEALANT	10.1	Ounces(OZ)	09-Nov-18
1497835	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	09-Nov-18
1497840	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	09-Nov-18
1497836	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	09-Nov-18
1497837	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	09-Nov-18
1497838	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	09-Nov-18
1497839	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	09-Nov-18
1456839	98-09-9	BENZENESULFONYL CHLORIDE	100	Gram(GM)	09-Nov-18
1456848	26913-06-4	POLYETHYLENEIMINE	1	Gram(GM)	09-Nov-18
1456857	-	POLYETHYLENEIMINE 50% IN WATER	250	Gram(GM)	09-Nov-18
1065545	-	M-BOND 610 KIT	1	Ounces(OZ)	09-Nov-18
1456875	603-34-9	TRIPHENYLAMINE	25	Gram(GM)	09-Nov-18
1065546	-	M-BOND 610 KIT	1	Ounces(OZ)	09-Nov-18
1456884	626-67-5	N-METHYLPIPERIDINE	500	Milliliter(ML)	09-Nov-18
1456893	-	METHYL BENZENESULFONATE (970)	500	Gram(GM)	09-Nov-18
1456902	-	PHENYL SULFONE (977)	100	Gram(GM)	09-Nov-18
1456838	-	PHENYL SULFONE (977)	100	Gram(GM)	09-Nov-18
1456847	-	PHENYL SULFONE (977)	100	Gram(GM)	09-Nov-18
1499815	-	Startex Lacquer Thinner	1	Gallon(GAL)	13-Nov-18
1499816	-	Startex Lacquer Thinner	1	Gallon(GAL)	13-Nov-18
1499817	-	Startex Lacquer Thinner	1	Gallon(GAL)	13-Nov-18
1499818	-	Startex Lacquer Thinner	1	Gallon(GAL)	13-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499819	-	Startex Lacquer Thinner	1	Gallon(GAL)	13-Nov-18
1499820	-	Startex Lacquer Thinner	1	Gallon(GAL)	13-Nov-18
1499822	-	Startex Denatured Alcohol	1	Gallon(GAL)	13-Nov-18
1499821	-	Startex Denatured Alcohol	1	Gallon(GAL)	13-Nov-18
1499823	-	Startex Lacquer Thinner	1	Gallon(GAL)	13-Nov-18
1499824	-	Startex Lacquer Thinner	1	Gallon(GAL)	13-Nov-18
1499939	-	Startex Lacquer Thinner	1	Gallon(GAL)	13-Nov-18
1499940	-	Startex Lacquer Thinner	1	Gallon(GAL)	13-Nov-18
1499937	-	Startex Lacquer Thinner	1	Gallon(GAL)	13-Nov-18
1499938	-	Startex Lacquer Thinner	1	Gallon(GAL)	13-Nov-18
1499512	65997-15-1	Concrete	50	Pounds(LB)	13-Nov-18
1499514	65997-15-1	Concrete	50	Pounds(LB)	13-Nov-18
1499518	65997-15-1	Concrete	50	Pounds(LB)	13-Nov-18
1499517	65997-15-1	Concrete	50	Pounds(LB)	13-Nov-18
1499516	65997-15-1	Concrete	50	Pounds(LB)	13-Nov-18
1499513	65997-15-1	Concrete	50	Pounds(LB)	13-Nov-18
1499515	65997-15-1	Concrete	50	Pounds(LB)	13-Nov-18
1499825	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499827	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499828	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499833	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499826	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499834	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499829	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499830	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499831	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499832	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499835	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499872	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499836	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499837	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499838	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499860	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499840	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499844	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499867	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499871	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499870	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499869	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499839	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499868	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499862	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499863	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499864	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499865	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499866	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499861	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499857	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499846	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499851	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499852	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499859	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499853	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499854	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499855	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499858	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499847	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499848	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499850	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499849	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499856	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499842	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499843	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499841	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499845	-	PSX 700 CURE US	0.2	Gallon(GAL)	13-Nov-18
1499941	-	Excelsior AW-510	4	Gallon(GAL)	13-Nov-18
1499947	-	Excelsior AW-510	4	Gallon(GAL)	13-Nov-18
1499949	-	Excelsior AW-510	4	Gallon(GAL)	13-Nov-18
1499948	-	Excelsior AW-510	4	Gallon(GAL)	13-Nov-18
1499946	-	Excelsior AW-510	4	Gallon(GAL)	13-Nov-18
1499944	-	Excelsior AW-510	4	Gallon(GAL)	13-Nov-18
1499943	-	Excelsior AW-510	4	Gallon(GAL)	13-Nov-18
1499942	-	Excelsior AW-510	4	Gallon(GAL)	13-Nov-18
1499945	-	Excelsior AW-510	4	Gallon(GAL)	13-Nov-18
1497841	-	MOBIL 1 5W-50	1	Quarts(QT)	13-Nov-18
1497843	-	MOBIL 1 5W-50	1	Quarts(QT)	13-Nov-18
1497842	-	MOBIL 1 5W-50	1	Quarts(QT)	13-Nov-18
981930	64742-65-0	SLICK 50 ENGINE TREATMENT	1	Quarts(QT)	13-Nov-18
1381552	7440-59-7	HELIUM	200	Liters(L)	13-Nov-18
1512554	7778-50-9	POTASSIUM DICHROMATE	100	Gram(GM)	13-Nov-18
1512555	12054-85-2	AMMONIUM MOLYBDATE(VI) TETRAHYDRATE	3	Kilograms(KG)	13-Nov-18
1381525	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381526	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381528	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381527	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1512556	7439-89-6	IRON METAL	1	Milligram(MG)	13-Nov-18
1512557	119478-56-7	Meropenem trihydrate	50	Milligram(MG)	13-Nov-18
1512558	4064-06-6	1 2:3 4-Di-O-isopropylidene-a-D-galactopyranose	25	Gram(GM)	13-Nov-18
1512625	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	13-Nov-18
1512629	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	13-Nov-18
1512627	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	13-Nov-18
1512626	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	13-Nov-18
1512630	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	13-Nov-18
1512628	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	13-Nov-18
1512721	7782-42-5	GRAPHITE POWDER	25	Gram(GM)	13-Nov-18
1512722	25583-20-4	TITANIUM NITRIDE	25	Gram(GM)	13-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1381537	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381538	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381539	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1512723	25583-20-4	TITANIUM NITRIDE	5	Gram(GM)	13-Nov-18
1381542	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381548	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381547	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381543	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381546	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381545	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381544	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381551	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1381550	-	PRESIDENT	53	Milliliter(ML)	13-Nov-18
1512724	-	ETK #108	5	Ounces(OZ)	13-Nov-18
1512725	-	ETK #108	5	Ounces(OZ)	13-Nov-18
1512726	108-65-6	S1813 G2	1	Quarts(QT)	13-Nov-18
1512727	-	MF-319 DEVELOPER	4	Gallon(GAL)	13-Nov-18
1512730	-	MF-319 DEVELOPER	4	Gallon(GAL)	13-Nov-18
1512729	-	MF-319 DEVELOPER	4	Gallon(GAL)	13-Nov-18
1512728	-	MF-319 DEVELOPER	4	Gallon(GAL)	13-Nov-18
1512731	24936-68-3	POLYCARBONATE RESIN	5	Gram(GM)	13-Nov-18
1512732	100-97-0	HEXAMETHYLENETETRAMINE	100	Gram(GM)	13-Nov-18
1512733	143-66-8	SODIUM TETRAPHENYL BORON	25	Gram(GM)	13-Nov-18
1512734	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	100	Gram(GM)	13-Nov-18
1512735	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	100	Gram(GM)	13-Nov-18
1512775	1310-73-2	SODIUM HYDROXIDE	20	Liters(L)	13-Nov-18
1512776	1310-73-2	SODIUM HYDROXIDE	20	Liters(L)	13-Nov-18
1512777	-	SC-75	1	Gallon(GAL)	13-Nov-18
1512778	-	SC-75	1	Gallon(GAL)	13-Nov-18
1512779	75-09-2	DICHLOROMETHANE	4	Liters(L)	13-Nov-18
1512780	75-09-2	DICHLOROMETHANE	4	Liters(L)	13-Nov-18
1512781	7705-08-0	FERRIC CHLORIDE	55	Gallon(GAL)	13-Nov-18
1512783	7705-08-0	FERRIC CHLORIDE	55	Gallon(GAL)	13-Nov-18
1512782	7705-08-0	FERRIC CHLORIDE	55	Gallon(GAL)	13-Nov-18
1511478	811-97-2	DUSTER	10	Ounces(OZ)	13-Nov-18
1512640	-	FLEXBAR REPRORUBBER THIN POUR MATERIAL	380	Milliliter(ML)	13-Nov-18
1512645	-	FLEXBAR REPRORUBBER THIN POUR MATERIAL	380	Milliliter(ML)	13-Nov-18
1512643	-	FLEXBAR REPRORUBBER THIN POUR MATERIAL	380	Milliliter(ML)	13-Nov-18
1512641	-	FLEXBAR REPRORUBBER THIN POUR MATERIAL	380	Milliliter(ML)	13-Nov-18
1512642	-	FLEXBAR REPRORUBBER THIN POUR MATERIAL	380	Milliliter(ML)	13-Nov-18
1512644	-	FLEXBAR REPRORUBBER THIN POUR MATERIAL	380	Milliliter(ML)	13-Nov-18
1512736	-	A-2 Epoxy Adhesive A-E C Kit	82	Gram(GM)	13-Nov-18
1512741	-	A-2 Epoxy Adhesive A-E C Kit	82	Gram(GM)	13-Nov-18
1512737	-	A-2 Epoxy Adhesive A-E C Kit	82	Gram(GM)	13-Nov-18
1512739	-	A-2 Epoxy Adhesive A-E C Kit	82	Gram(GM)	13-Nov-18
1512738	-	A-2 Epoxy Adhesive A-E C Kit	82	Gram(GM)	13-Nov-18
1512740	-	A-2 Epoxy Adhesive A-E C Kit	82	Gram(GM)	13-Nov-18
1512743	110-86-1	Pyridine anhydrous	100	Milliliter(ML)	13-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512744	75-05-8	ACETONITRILE ANHYDROUS	100	Milliliter(ML)	13-Nov-18
1512745	-	RBS Solid Detergent	5	Kilograms(KG)	13-Nov-18
1512746	67-56-1	METHANOL	4	Liters(L)	13-Nov-18
1512749	67-56-1	METHANOL	4	Liters(L)	13-Nov-18
1512747	67-56-1	METHANOL	4	Liters(L)	13-Nov-18
1512748	67-56-1	METHANOL	4	Liters(L)	13-Nov-18
1512784	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	13-Nov-18
1512787	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	13-Nov-18
1512788	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	13-Nov-18
1512786	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	13-Nov-18
1512785	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	13-Nov-18
1512638	7757-93-9	BONE ASH	20	Pounds(LB)	13-Nov-18
1512639	-	CHROME OXIDE POLISHING COMPOUND 1-5	10	Pounds(LB)	13-Nov-18
1512553	123334-20-3	VANADIUM(IV) SULFATE OXIDE HYDRATE	50	Gram(GM)	13-Nov-18
1512646	-	BA005: Aqueous Binder	20	Liters(L)	13-Nov-18
1512649	-	BA005: Aqueous Binder	20	Liters(L)	13-Nov-18
1512651	-	BA005: Aqueous Binder	20	Liters(L)	13-Nov-18
1512647	-	BA005: Aqueous Binder	20	Liters(L)	13-Nov-18
1512648	-	BA005: Aqueous Binder	20	Liters(L)	13-Nov-18
1512650	-	BA005: Aqueous Binder	20	Liters(L)	13-Nov-18
1512652	-	CL001	20	Liters(L)	13-Nov-18
1512654	-	CL001	20	Liters(L)	13-Nov-18
1512655	-	CL001	20	Liters(L)	13-Nov-18
1512657	-	CL001	20	Liters(L)	13-Nov-18
1512653	-	CL001	20	Liters(L)	13-Nov-18
1512656	-	CL001	20	Liters(L)	13-Nov-18
1512658	57-55-6	Capping Sponge Solution	500	Milliliter(ML)	13-Nov-18
1512660	57-55-6	Capping Sponge Solution	500	Milliliter(ML)	13-Nov-18
1512659	57-55-6	Capping Sponge Solution	500	Milliliter(ML)	13-Nov-18
1512661	-	Plaster Usg#1 Pottery	50	Pounds(LB)	13-Nov-18
1512662	-	Plaster Usg#1 Pottery	50	Pounds(LB)	13-Nov-18
1512666	-	Plaster Usg#1 Pottery	50	Pounds(LB)	13-Nov-18
1512665	-	Plaster Usg#1 Pottery	50	Pounds(LB)	13-Nov-18
1512663	-	Plaster Usg#1 Pottery	50	Pounds(LB)	13-Nov-18
1512664	-	Plaster Usg#1 Pottery	50	Pounds(LB)	13-Nov-18
1512750	58-86-6	D-XYLOSE	100	Gram(GM)	13-Nov-18
1512751	528-50-7	D-(+)-CELLOBIOSE	5	Gram(GM)	13-Nov-18
1512752	6138-23-4	D(+)TREHALOSE DIHYDRATE	5	Gram(GM)	13-Nov-18
1512753	547-25-1	D-Turanose	1	Gram(GM)	13-Nov-18
1456866	831-59-4	1 3-Benzenedisulfonic acid disodium salt for	100	Gram(GM)	13-Nov-18
1499873	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499893	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499927	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499919	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499920	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499921	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499922	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499923	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499924	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499891	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499926	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499916	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499928	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499929	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499930	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499931	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499932	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499933	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499925	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499909	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499901	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499902	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499903	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499904	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499905	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499906	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499918	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499908	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499917	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499910	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499911	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499912	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499913	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499914	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499915	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499936	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499907	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499882	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499934	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499894	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499900	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499892	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499890	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499889	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499896	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499883	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499897	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499881	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499880	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499879	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499878	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499877	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499876	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499875	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499888	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499898	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499874	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499899	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499935	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499887	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499895	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499884	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499885	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1499886	-	DURABAK 18 PROTECTIVE COATING	1	Gallon(GAL)	14-Nov-18
1497844	-	DUPLI-COLOR Acrylic Enamel Aerosol Paint Gloss	12	Ounces(OZ)	14-Nov-18
1497845	-	DUPLI-COLOR Acrylic Enamel Aerosol Paint Gloss	12	Ounces(OZ)	14-Nov-18
1497846	-	DUPLI-COLOR Acrylic Enamel Aerosol Paint Gloss	12	Ounces(OZ)	14-Nov-18
1497847	-	HI TEMPERATURE DISC BRAKE WHEEL BEARING	14	Ounces(OZ)	14-Nov-18
1497848	-	SPLASH WINDSHIELD WASHER FLUID	1	Gallon(GAL)	14-Nov-18
1497849	-	Parts Plus Power Steering Fld	1	Quarts(QT)	14-Nov-18
1512754	-	D-(+)-Maltose Monohydrate	100	Gram(GM)	14-Nov-18
1497850	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497877	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497878	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497870	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497869	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497868	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497867	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497852	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497876	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497866	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497871	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497875	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497872	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497873	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497874	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497853	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497879	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497851	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497865	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497864	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497863	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497862	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497861	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497860	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497859	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497858	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497857	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497856	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497855	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497854	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497880	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497882	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497885	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497883	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497881	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1497884	-	Parts Plus Type F ATF	1	Quarts(QT)	14-Nov-18
1499794	-	EL REY LASTIC FINISHES	60	Pounds(LB)	14-Nov-18
1499795	-	EL REY LASTIC FINISHES	60	Pounds(LB)	14-Nov-18
1499796	-	EL REY LASTIC FINISHES	60	Pounds(LB)	14-Nov-18
1512755	13718-94-0	Palatinose hydrate 98+%	25	Gram(GM)	14-Nov-18
1512756	1109-28-0	MALTOTRIOSE 95%	1	Gram(GM)	14-Nov-18
1512757	17629-30-0	D(+)-RAFFINOSE PENTAHYDRATE	10	Gram(GM)	14-Nov-18
1562103	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Nov-18
1562105	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Nov-18
1562104	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Nov-18
1562107	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Nov-18
1562106	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Nov-18
1562112	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Nov-18
1562111	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Nov-18
1562109	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Nov-18
1562108	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Nov-18
1562110	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Nov-18
1562113	-	Hydrogen UHP	220	Cubic Feet(CF)	14-Nov-18
1562114	-	Hydrogen UHP	220	Cubic Feet(CF)	14-Nov-18
1562115	-	Hydrogen UHP	220	Cubic Feet(CF)	14-Nov-18
1562116	-	Hydrogen UHP	220	Cubic Feet(CF)	14-Nov-18
1562117	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562132	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562118	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562123	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562133	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562131	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562130	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562129	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562128	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562120	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562121	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562122	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562127	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562124	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562126	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562125	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1562119	74-98-6	PROPANE	50	Cubic Feet(CF)	14-Nov-18
1512758	98-80-6	Benzeneboronic acid 98+%	10	Gram(GM)	14-Nov-18
1562134	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562136	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562137	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562135	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562138	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562139	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562022	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562027	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562023	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562035	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562024	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562025	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562026	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562038	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562045	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562044	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562043	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562042	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562041	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562033	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562039	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562028	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562037	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562036	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562034	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562032	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562031	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562030	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562029	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562040	-	Argon UHP	220	Cubic Feet(CF)	14-Nov-18
1562046	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562047	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562057	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562048	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562049	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562050	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562051	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562052	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562053	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562054	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562066	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562056	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562065	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562058	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562059	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562060	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562061	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562062	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562063	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562064	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562055	-	AIR COMPRESSED	220	Cubic Feet(CF)	14-Nov-18
1562067	124-38-9	CARBON DIOXIDE GAS	50	Cubic Feet(CF)	14-Nov-18
1562070	124-38-9	CARBON DIOXIDE GAS	50	Cubic Feet(CF)	14-Nov-18
1562068	124-38-9	CARBON DIOXIDE GAS	50	Cubic Feet(CF)	14-Nov-18
1562069	124-38-9	CARBON DIOXIDE GAS	50	Cubic Feet(CF)	14-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562071	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562077	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562076	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562075	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562074	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562072	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562073	-	HYDROGEN 5% IN NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1512759	100-42-5	Acrylic Plastic Casting	16	Ounces(OZ)	14-Nov-18
1512760	67-56-1	METHANOL ANHYDROUS	1	Liters(L)	14-Nov-18
1512761	6556-12-3	D-GLUCURONIC ACID	5	Gram(GM)	14-Nov-18
1512762	207511-10-2	D-(+)-Melezitose hydrate 99%	10	Gram(GM)	14-Nov-18
1512763	431-47-0	METHYL TRIFLUOROACETATE	100	Gram(GM)	14-Nov-18
1512764	1068-55-9	ISOPROPYLMAGNESIUM CHLORIDE	100	Milliliter(ML)	14-Nov-18
1512789	109-86-4	2-METHOXYETHANOL ANHYDROUS	2	Liters(L)	14-Nov-18
1512791	109-86-4	2-METHOXYETHANOL ANHYDROUS	2	Liters(L)	14-Nov-18
1512790	109-86-4	2-METHOXYETHANOL ANHYDROUS	2	Liters(L)	14-Nov-18
1512792	149-73-5	TRIMETHYL ORTHOFORMATE	500	Milliliter(ML)	14-Nov-18
1512793	149-73-5	TRIMETHYL ORTHOFORMATE	500	Milliliter(ML)	14-Nov-18
1512794	67-56-1	METHANOL ANHYDROUS	1	Liters(L)	14-Nov-18
1512795	75-05-8	ACETONITRILE HPLC	4	Liters(L)	14-Nov-18
1512801	75-05-8	ACETONITRILE HPLC	4	Liters(L)	14-Nov-18
1512796	75-05-8	ACETONITRILE HPLC	4	Liters(L)	14-Nov-18
1512802	75-05-8	ACETONITRILE HPLC	4	Liters(L)	14-Nov-18
1512798	75-05-8	ACETONITRILE HPLC	4	Liters(L)	14-Nov-18
1512799	75-05-8	ACETONITRILE HPLC	4	Liters(L)	14-Nov-18
1512800	75-05-8	ACETONITRILE HPLC	4	Liters(L)	14-Nov-18
1512797	75-05-8	ACETONITRILE HPLC	4	Liters(L)	14-Nov-18
1512803	-	BARCO BOND EPOXY KIT	0.25	Pounds(LB)	14-Nov-18
1512805	-	BARCO BOND EPOXY KIT	0.25	Pounds(LB)	14-Nov-18
1512804	-	BARCO BOND EPOXY KIT	0.25	Pounds(LB)	14-Nov-18
1512806	2155-96-6	DIPHENYLVINYLPHOSPHINE	25	Gram(GM)	14-Nov-18
1512807	-	DOW CORNING 7 RELEASE COMPOUND	5.3	Ounces(OZ)	14-Nov-18
1512815	-	DOW CORNING 7 RELEASE COMPOUND	5.3	Ounces(OZ)	14-Nov-18
1512808	-	DOW CORNING 7 RELEASE COMPOUND	5.3	Ounces(OZ)	14-Nov-18
1512809	-	DOW CORNING 7 RELEASE COMPOUND	5.3	Ounces(OZ)	14-Nov-18
1512810	-	DOW CORNING 7 RELEASE COMPOUND	5.3	Ounces(OZ)	14-Nov-18
1512811	-	DOW CORNING 7 RELEASE COMPOUND	5.3	Ounces(OZ)	14-Nov-18
1512812	-	DOW CORNING 7 RELEASE COMPOUND	5.3	Ounces(OZ)	14-Nov-18
1512813	-	DOW CORNING 7 RELEASE COMPOUND	5.3	Ounces(OZ)	14-Nov-18
1512814	-	DOW CORNING 7 RELEASE COMPOUND	5.3	Ounces(OZ)	14-Nov-18
1512816	-	DOW CORNING 7 RELEASE COMPOUND	5.3	Ounces(OZ)	14-Nov-18
1512817	-	DOW CORNING 7 RELEASE COMPOUND	5.3	Ounces(OZ)	14-Nov-18
1512818	-	DOW CORNING 7 RELEASE COMPOUND	5.3	Ounces(OZ)	14-Nov-18
1512667	-	BacTiter-Glo	100	Milliliter(ML)	14-Nov-18
1512742	-	Ultra Light-Weld OP-4-20632	30	Milliliter(ML)	14-Nov-18
1512765	17220-38-1	3 4-DIAMINOFURAZAN	4	Kilograms(KG)	14-Nov-18
1512766	17220-38-1	3 4-DIAMINOFURAZAN	4	Kilograms(KG)	14-Nov-18
1512767	108-01-0	2-DIMETHYLAMINOETHANOL	500	Milliliter(ML)	14-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512768	27740-43-8	Erysotrine	5	Milligram(MG)	14-Nov-18
1512769	20824-29-7	Strictosidine	5	Milligram(MG)	14-Nov-18
1512770	12069-32-8	BORON CARBIDE	25	Pounds(LB)	14-Nov-18
1512771	-	LOR B Series Resists	500	Milliliter(ML)	14-Nov-18
1512772	10099-58-8	LANTHANUM (III) CHLORIDE ANHYDROUS	100	Gram(GM)	14-Nov-18
1562148	74-98-6	PROPANE	650	Pounds(LB)	14-Nov-18
1512773	100929-99-5	NAPHTHYLAMIDE DIHYDROCHLORIDE	25	Milligram(MG)	14-Nov-18
1562149	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1562155	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1562158	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1562153	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1562162	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	14-Nov-18
1562161	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1562159	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1562157	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1562156	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1562152	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1562151	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1562150	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1562160	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1562154	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Nov-18
1512819	10025-78-2	TRICHLOROSILANE	100	Gram(GM)	14-Nov-18
1512820	14044-65-6	BORANE-TETRAHYDROFURAN COMPLEX	25	Milliliter(ML)	14-Nov-18
1512822	14044-65-6	BORANE-TETRAHYDROFURAN COMPLEX	25	Milliliter(ML)	14-Nov-18
1512823	14044-65-6	BORANE-TETRAHYDROFURAN COMPLEX	25	Milliliter(ML)	14-Nov-18
1512821	14044-65-6	BORANE-TETRAHYDROFURAN COMPLEX	25	Milliliter(ML)	14-Nov-18
1562163	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	14-Nov-18
1562165	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	14-Nov-18
1562164	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	14-Nov-18
1512668	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512678	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512683	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512690	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512689	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512688	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512687	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512686	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512676	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512684	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512669	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512682	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512681	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512680	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512672	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512685	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512671	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512679	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512673	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512674	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512670	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512677	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512675	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	14-Nov-18
1512691	1663-67-8	MALONYL DICHLORIDE	25	Gram(GM)	14-Nov-18
1562140	-	15% OXYGEN BAL. NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562143	-	15% OXYGEN BAL. NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562141	-	15% OXYGEN BAL. NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1562142	-	15% OXYGEN BAL. NITROGEN	220	Cubic Feet(CF)	14-Nov-18
1512692	13939-06-5	MOLYBDENUM HEXACARBONYL	10	Gram(GM)	14-Nov-18
1512774	434-90-2	DECAFLUOROBIPHENYL	25	Gram(GM)	14-Nov-18
1512824	865-47-4	POTASSIUM tert-BUTOXIDE	25	Gram(GM)	14-Nov-18
1512825	865-47-4	POTASSIUM tert-BUTOXIDE	25	Gram(GM)	14-Nov-18
1512826	865-47-4	POTASSIUM tert-BUTOXIDE	25	Gram(GM)	14-Nov-18
1512827	865-47-4	POTASSIUM tert-BUTOXIDE	25	Gram(GM)	14-Nov-18
1512828	-	CLR	1	Gallon(GAL)	14-Nov-18
1512829	-	CLR	1	Gallon(GAL)	14-Nov-18
1512847	133745-75-2	N-Fluorobenzenesulfonimide	5	Gram(GM)	14-Nov-18
1512848	133745-75-2	N-Fluorobenzenesulfonimide	5	Gram(GM)	14-Nov-18
1512849	486-25-9	9-FLUORENONE	100	Gram(GM)	14-Nov-18
1512850	486-25-9	9-FLUORENONE	100	Gram(GM)	14-Nov-18
1512851	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	50	Gram(GM)	14-Nov-18
1512854	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	50	Gram(GM)	14-Nov-18
1512853	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	50	Gram(GM)	14-Nov-18
1512852	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	50	Gram(GM)	14-Nov-18
1512855	-	Stellaris RNA FISH Wash Buffer A	60	Milliliter(ML)	14-Nov-18
1512856	-	Stellaris RNA FISH Wash Buffer A	60	Milliliter(ML)	14-Nov-18
1512857	-	Stellaris RNA FISH Hybridization Buffer	10	Milliliter(ML)	14-Nov-18
1512858	-	Stellaris RNA FISH Hybridization Buffer	10	Milliliter(ML)	14-Nov-18
1512859	86-30-6	N-NITROSODIPHENYLAMINE	50	Gram(GM)	14-Nov-18
1512860	1304-76-3	BISMUTH(III) OXIDE	10	Gram(GM)	14-Nov-18
1512861	1304-76-3	BISMUTH(III) OXIDE	25	Gram(GM)	14-Nov-18
1512862	1304-76-3	BISMUTH(III) OXIDE	100	Gram(GM)	14-Nov-18
1512863	308796-32-9	Bismuth aluminate hydrate	500	Gram(GM)	14-Nov-18
1512864	-	Citrax EP No. 1	400	Gram(GM)	14-Nov-18
1512867	-	Citrax EP No. 1	400	Gram(GM)	14-Nov-18
1512866	-	Citrax EP No. 1	400	Gram(GM)	14-Nov-18
1512865	-	Citrax EP No. 1	400	Gram(GM)	14-Nov-18
1512868	75-12-7	FORMAMIDE	100	Milliliter(ML)	14-Nov-18
1512869	6683-19-8	PENTAERYTHRITOL TETRAKIS(3 5-DI-TERT-BUTYL-	100	Gram(GM)	14-Nov-18
1512870	6683-19-8	PENTAERYTHRITOL TETRAKIS(3 5-DI-TERT-BUTYL-	100	Gram(GM)	14-Nov-18
1499404	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499487	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499480	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499481	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499505	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499482	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499483	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499484	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499489	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499486	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499490	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499488	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499494	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499493	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499442	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499498	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499497	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499479	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499496	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499475	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499492	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499491	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499485	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499408	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499457	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499456	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499455	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499454	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499453	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499405	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499477	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499407	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499460	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499409	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499410	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499411	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499412	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499413	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499414	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499415	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499406	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499467	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499476	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499495	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499474	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499473	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499472	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499471	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499470	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499458	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499468	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499459	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499466	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499465	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499464	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499463	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499462	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499461	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499478	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499469	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499450	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499446	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499447	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499448	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499417	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499419	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499416	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499420	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499421	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499422	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499445	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499449	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499418	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499451	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499424	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499425	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499452	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499426	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499427	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499428	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499429	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499500	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499499	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499423	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499502	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499437	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499436	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499435	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499434	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499444	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499438	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499439	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499433	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499503	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499501	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499430	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499441	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499443	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499431	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499440	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499504	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499432	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1540546	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	14-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1499507	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499508	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499506	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499509	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499511	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499510	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	14-Nov-18
1499374	-	fast setting cement	50	Pounds(LB)	14-Nov-18
1499382	-	fast setting cement	50	Pounds(LB)	14-Nov-18
1499383	-	fast setting cement	50	Pounds(LB)	14-Nov-18
1499381	-	fast setting cement	50	Pounds(LB)	14-Nov-18
1499377	-	fast setting cement	50	Pounds(LB)	14-Nov-18
1499380	-	fast setting cement	50	Pounds(LB)	14-Nov-18
1499379	-	fast setting cement	50	Pounds(LB)	14-Nov-18
1499375	-	fast setting cement	50	Pounds(LB)	14-Nov-18
1499376	-	fast setting cement	50	Pounds(LB)	14-Nov-18
1499378	-	fast setting cement	50	Pounds(LB)	14-Nov-18
1004981	64742-49-0	FLUX OFF NO CLEAN	10	Ounces(OZ)	14-Nov-18
1499323	-	LIGHTWEIGHT SETTING TYPE JOINT COMPOUND -	18	Pounds(LB)	14-Nov-18
1499324	-	LIGHTWEIGHT SETTING TYPE JOINT COMPOUND -	18	Pounds(LB)	14-Nov-18
1386322	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	15-Nov-18
1481310	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481316	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481317	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481326	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481311	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481312	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481313	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481314	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481315	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481324	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481327	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481318	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481319	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481325	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481323	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481322	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481321	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481320	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1481328	-	RAPID ROAD REPAIR	50	Pounds(LB)	15-Nov-18
1004976	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	15-Nov-18
1004973	-	Krylon Striping Paint	18	Ounces(OZ)	15-Nov-18
1004975	-	SPRAY PAINT RED	10.5	Ounces(OZ)	15-Nov-18
1004969	-	Simple Green All-Purpose Cleaner	32	Ounces(OZ)	15-Nov-18
1004977	-	RAPID TAP	1	Gallon(GAL)	15-Nov-18
978894	-	Clorox Regular-Bleach	1	Quarts(QT)	15-Nov-18
978902	-	CLOROX	1	Quarts(QT)	15-Nov-18
978895	-	CLOROX	1	Gallon(GAL)	15-Nov-18
978896	-	CLOROX	1	Gallon(GAL)	15-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562167	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	15-Nov-18
1562172	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	15-Nov-18
1562171	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	15-Nov-18
1562168	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	15-Nov-18
1562169	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	15-Nov-18
1562170	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	15-Nov-18
1562174	74-86-2	ACETYLENE STABILIZED	240	Cubic Feet(CF)	15-Nov-18
1562173	74-86-2	ACETYLENE STABILIZED	240	Cubic Feet(CF)	15-Nov-18
1562182	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	15-Nov-18
1562186	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	15-Nov-18
1562185	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	15-Nov-18
1562183	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	15-Nov-18
1562181	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	15-Nov-18
1562180	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	15-Nov-18
1562179	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	15-Nov-18
1562178	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	15-Nov-18
1562177	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	15-Nov-18
1562176	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	15-Nov-18
1562175	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	15-Nov-18
1562184	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	15-Nov-18
1562187	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562198	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562196	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562201	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562199	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562197	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562195	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562189	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562190	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562191	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562192	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562200	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562193	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562194	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562188	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562376	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562366	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562370	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562375	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562374	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562373	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562372	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562371	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562369	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562377	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562367	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562353	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562365	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562364	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562363	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562362	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562361	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562360	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562359	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562358	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562368	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562356	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562352	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562351	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562355	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562378	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562357	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562380	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562379	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562354	7440-59-7	HELIUM	220	Cubic Feet(CF)	15-Nov-18
1562243	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562245	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562244	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562254	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562250	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562246	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562247	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562248	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562249	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562253	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562252	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562251	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562255	7440-59-7	Helium UHP	220	Cubic Feet(CF)	15-Nov-18
1562202	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562214	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562210	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562216	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562217	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562215	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562213	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562211	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562209	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562208	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562207	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562206	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562205	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562204	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562203	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562212	-	94% ARGON/BAL. HYDROGEN	220	Cubic Feet(CF)	15-Nov-18
1562218	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562219	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562223	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562222	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562220	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562232	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562237	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562236	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562235	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562221	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562233	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562231	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562230	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562229	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562228	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562227	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562226	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562225	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562224	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562234	-	AIR COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562238	74-98-6	PROPANE	50	Pounds(LB)	15-Nov-18
1562242	74-98-6	PROPANE	50	Pounds(LB)	15-Nov-18
1562239	74-98-6	PROPANE	50	Pounds(LB)	15-Nov-18
1562240	74-98-6	PROPANE	50	Pounds(LB)	15-Nov-18
1562241	74-98-6	PROPANE	50	Pounds(LB)	15-Nov-18
1562256	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562266	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562259	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562260	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562261	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562262	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562263	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562269	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562265	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562257	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562258	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562270	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562267	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562268	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562264	-	6% HYDROGEN BALANCE ARGON	220	Cubic Feet(CF)	15-Nov-18
1562271	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562282	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562272	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562275	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562274	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562276	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562277	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562278	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562284	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562273	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562283	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562280	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562281	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562279	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Nov-18
1562295	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562308	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562310	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562309	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562300	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562307	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562297	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562299	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562296	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562301	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562302	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562303	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562304	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562305	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562306	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562298	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562311	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562329	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562325	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562327	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562328	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562330	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562331	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562332	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562323	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562334	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562324	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562333	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562326	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562321	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562320	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562319	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562318	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562317	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562316	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562315	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562314	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562313	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562312	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1562322	-	Nitrogen UHP	220	Cubic Feet(CF)	15-Nov-18
1512338	586-98-1	2-(Hydroxymethyl)pyridine 98%	25	Gram(GM)	15-Nov-18
1512830	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	15-Nov-18
1512833	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	15-Nov-18
1512832	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	15-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512831	110-54-3	HEXANES (CERTIFIED ACS)	4	Liters(L)	15-Nov-18
1562335	124-38-9	CARBON DIOXIDE GAS	220	Cubic Feet(CF)	15-Nov-18
1562336	124-38-9	CARBON DIOXIDE GAS	220	Cubic Feet(CF)	15-Nov-18
1562337	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Nov-18
1562339	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Nov-18
1562340	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Nov-18
1562341	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Nov-18
1562338	7782-44-7	OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Nov-18
1512834	67-56-1	METHANOL ANHYDROUS	1	Liters(L)	15-Nov-18
1512835	75-05-8	ACETONITRILE ANHYDROUS	1	Liters(L)	15-Nov-18
1512837	75-05-8	ACETONITRILE ANHYDROUS	1	Liters(L)	15-Nov-18
1512836	75-05-8	ACETONITRILE ANHYDROUS	1	Liters(L)	15-Nov-18
1512838	4731-53-7	TRIOCTYLPHOSPHINE	100	Milliliter(ML)	15-Nov-18
1512839	4731-53-7	TRIOCTYLPHOSPHINE	100	Milliliter(ML)	15-Nov-18
1512871	2420-87-3	3 3' 4 4'-BIPHENYLTETRACARBOXYLIC	25	Gram(GM)	15-Nov-18
1512872	2420-87-3	3 3' 4 4'-BIPHENYLTETRACARBOXYLIC	25	Gram(GM)	15-Nov-18
1512873	2420-87-3	3 3' 4 4'-BIPHENYLTETRACARBOXYLIC	25	Gram(GM)	15-Nov-18
1512874	301-10-0	Tin(II) 2-ethylhexanoate	250	Gram(GM)	15-Nov-18
1512875	882-33-7	PHENYL DISULFIDE	50	Gram(GM)	15-Nov-18
1512876	2370-88-9	1 3 5 7-TETRAMETHYLCUCLOT	100	Milliliter(ML)	15-Nov-18
1512877	-	Ceramabond 865	1	Pint(PT)	15-Nov-18
1512878	-	Ceramabond 571-L Liquid Binder	1	Pint(PT)	15-Nov-18
1512879	-	Ceramacast 675-N	1	Pint(PT)	15-Nov-18
1512881	13760-81-1	LUTETIUM FLUORIDE	100	Gram(GM)	15-Nov-18
1512882	69011-20-7	AG 50W-X8 RESIN	500	Gram(GM)	15-Nov-18
1512883	69011-20-7	AG 50W-X8 RESIN	500	Gram(GM)	15-Nov-18
1512919	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512922	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512931	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512920	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512934	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512921	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512923	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512925	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512926	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512927	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512928	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512924	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512930	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512942	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512932	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512933	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512935	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512937	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512938	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512939	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512940	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512941	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512929	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512936	-	PTFE RELEASE AGENT DRY LU	14	Ounces(OZ)	15-Nov-18
1512943	64-17-5	ETHANOL	1	Gallon(GAL)	15-Nov-18
1540547	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Nov-18
1540551	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Nov-18
1540550	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Nov-18
1540548	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Nov-18
1540549	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	15-Nov-18
1562342	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562343	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562347	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562346	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562344	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562348	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562345	-	Argon UHP	220	Cubic Feet(CF)	15-Nov-18
1562349	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562350	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	15-Nov-18
1562384	-	Nitrogen UHP	220	Cubic Feet(CF)	16-Nov-18
1562385	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	16-Nov-18
1562386	-	AIR COMPRESSED	220	Cubic Feet(CF)	16-Nov-18
1562290	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Nov-18
1562294	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Nov-18
1562293	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Nov-18
1562291	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Nov-18
1562289	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Nov-18
1562288	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Nov-18
1562287	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Nov-18
1562286	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Nov-18
1562285	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Nov-18
1562292	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	16-Nov-18
981939	-	VITALIFE 400	8	Ounces(OZ)	16-Nov-18
981938	-	NISSEN METAL MARKER	4	Ounces(OZ)	16-Nov-18
981929	-	HI-TEMP C5-A ANTI-SEIZE LUBRICANT	4	Ounces(OZ)	16-Nov-18
981937	-	HEAVY DUTY ANTI-SEIZE THREAD SEALANT	2	Ounces(OZ)	16-Nov-18
981936	-	Amplex Diamond Compound Type W522C	500	Gram(GM)	16-Nov-18
981934	-	stainless steel cleaner maintainer	12	Ounces(OZ)	16-Nov-18
981933	-	DAP Watertight Concrete Filler & Sealant	1	Gallon(GAL)	16-Nov-18
981931	-	DAP Watertight Concrete Filler & Sealant	25	Pounds(LB)	16-Nov-18
981932	-	OAKITE ALKALINE MATERIAL TEST KIT	1	Ounces(OZ)	16-Nov-18
981935	-	OAKITE ALKALINE MATERIAL TEST KIT	1	Ounces(OZ)	16-Nov-18
978903	-	Luria Broth (Miller's LB Broth Base)	2.5	Kilograms(KG)	16-Nov-18
978904	8013-01-2	YEAST EXTRACT	2	Kilograms(KG)	16-Nov-18
978905	-	HEPES	250	Gram(GM)	16-Nov-18
978911	-	DULBECCO'S PHOSPHATE-BUFFERED SALINE	97.4	Gram(GM)	16-Nov-18
1317674	-	ACTINIDE RESIN	200	Gram(GM)	16-Nov-18
981969	-	Molykote Valve Seal	8	Ounces(OZ)	16-Nov-18
981968	-	LUBRISEAL	75	Gram(GM)	16-Nov-18
981967	-	PRE-CEMENTING PRIMER	1	Pint(PT)	16-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
981963	-	PVC CEMENT	1	Quarts(QT)	16-Nov-18
981965	-	INDUSTRIAL MAINTENANCE	1	Gallon(GAL)	16-Nov-18
981964	-	CINI TAP	1	Pint(PT)	16-Nov-18
981962	-	CONTACT CEMENT	125	Milliliter(ML)	16-Nov-18
981960	-	CONTACT CEMENT	125	Milliliter(ML)	16-Nov-18
981961	-	CONTACT CEMENT	125	Milliliter(ML)	16-Nov-18
981959	-	CONTACT CEMENT	125	Milliliter(ML)	16-Nov-18
981957	-	ELECTROLYTE SOLUTION DF-EOF	125	Milliliter(ML)	16-Nov-18
981956	-	ELECTROLYTE SOLUTION DF-EOF	125	Milliliter(ML)	16-Nov-18
981958	-	ELECTROTEMP CEMENT POWDER	4	Ounces(OZ)	16-Nov-18
1499951	-	Matrix 102 SBS Membrane Adhesive	4.75	Gallon(GAL)	19-Nov-18
1499959	-	Matrix 102 SBS Membrane Adhesive	4.75	Gallon(GAL)	19-Nov-18
1499952	-	Matrix 102 SBS Membrane Adhesive	4.75	Gallon(GAL)	19-Nov-18
1499953	-	Matrix 102 SBS Membrane Adhesive	4.75	Gallon(GAL)	19-Nov-18
1499954	-	Matrix 102 SBS Membrane Adhesive	4.75	Gallon(GAL)	19-Nov-18
1499955	-	Matrix 102 SBS Membrane Adhesive	4.75	Gallon(GAL)	19-Nov-18
1499960	-	Matrix 102 SBS Membrane Adhesive	4.75	Gallon(GAL)	19-Nov-18
1499958	-	Matrix 102 SBS Membrane Adhesive	4.75	Gallon(GAL)	19-Nov-18
1499956	-	Matrix 102 SBS Membrane Adhesive	4.75	Gallon(GAL)	19-Nov-18
1499957	-	Matrix 102 SBS Membrane Adhesive	4.75	Gallon(GAL)	19-Nov-18
1499950	-	MOBIL SHC GEAR 460	35	Pounds(LB)	19-Nov-18
1512693	-	OmegaClean	5	Gallon(GAL)	19-Nov-18
1512694	-	OmegaClean	5	Gallon(GAL)	19-Nov-18
1512695	-	OmegaClean	5	Gallon(GAL)	19-Nov-18
1512696	-	OmegaClean	5	Gallon(GAL)	19-Nov-18
1512840	67-63-0	2-PROPANOL	4	Liters(L)	19-Nov-18
1512844	67-63-0	2-PROPANOL	4	Liters(L)	19-Nov-18
1512845	67-63-0	2-PROPANOL	4	Liters(L)	19-Nov-18
1512841	67-63-0	2-PROPANOL	4	Liters(L)	19-Nov-18
1512842	67-63-0	2-PROPANOL	4	Liters(L)	19-Nov-18
1512843	67-63-0	2-PROPANOL	4	Liters(L)	19-Nov-18
1512884	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	19-Nov-18
1512885	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	19-Nov-18
1512886	7697-37-2	NITRIC ACID FUMING	400	Milliliter(ML)	19-Nov-18
1512887	4926-28-7	2-Bromo-4-methylpyridine	100	Gram(GM)	19-Nov-18
1512888	57-11-4	STEARIC ACID	500	Gram(GM)	19-Nov-18
1512889	138495-42-8	2H 3H-PERFLUOROPENTANE	100	Gram(GM)	19-Nov-18
1512890	98-80-6	Benzeneboronic acid 98+%	10	Gram(GM)	19-Nov-18
1512891	98-80-6	Benzeneboronic acid 98+%	10	Gram(GM)	19-Nov-18
1512892	98-80-6	Benzeneboronic acid 98+%	10	Gram(GM)	19-Nov-18
1512893	98-80-6	Benzeneboronic acid 98+%	10	Gram(GM)	19-Nov-18
1512894	98-80-6	Benzeneboronic acid 98+%	10	Gram(GM)	19-Nov-18
1512895	98-80-6	Benzeneboronic acid 98+%	10	Gram(GM)	19-Nov-18
1512896	98-80-6	Benzeneboronic acid 98+%	10	Gram(GM)	19-Nov-18
1512897	98-80-6	Benzeneboronic acid 98+%	10	Gram(GM)	19-Nov-18
1512898	98-80-6	Benzeneboronic acid 98+%	10	Gram(GM)	19-Nov-18
1512899	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512909	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1512912	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512911	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512910	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512908	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512907	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512906	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512905	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512904	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512903	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512902	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512900	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512913	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512916	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512915	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512917	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512918	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512914	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512901	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1512944	141-52-6	SODIUM ETHOXIDE	50	Gram(GM)	19-Nov-18
1512945	557-20-0	DIETHYLZINC	100	Gram(GM)	19-Nov-18
1512950	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	19-Nov-18
1512951	109-72-8	N-BUTYLLITHIUM	100	Milliliter(ML)	19-Nov-18
1512952	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	19-Nov-18
1512953	7664-93-9	SULFURIC ACID	2	Liters(L)	19-Nov-18
1512995	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513027	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513030	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513029	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513021	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513028	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513032	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513031	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513026	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513025	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513024	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513022	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513033	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513045	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513023	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513044	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513006	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513051	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513052	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513053	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513054	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513050	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513049	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513048	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513043	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513046	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513034	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513042	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513041	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513040	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513039	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513038	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513037	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513036	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513035	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513047	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513004	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513008	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1512996	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1512997	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1512998	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1512999	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513000	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513001	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513003	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513005	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513007	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513009	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513010	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513015	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513002	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513011	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513019	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513018	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513017	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513016	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513020	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513014	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513013	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513012	-	MOLD RELEASE	5.3	Ounces(OZ)	19-Nov-18
1513055	-	Diamond Powder GMM 8-12	200	Gram(GM)	19-Nov-18
1513056	-	Diamond Powder GMM 8-12	200	Gram(GM)	19-Nov-18
1513057	7782-40-3	Diamond Powder	200	Gram(GM)	19-Nov-18
1513058	-	Diamond Powder GMM 10-20	100	Gram(GM)	19-Nov-18
1513059	-	Diamond Powder GMM 10-20	100	Gram(GM)	19-Nov-18
1513060	-	SOLDER PASTE	50	Gram(GM)	19-Nov-18
1513351	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513370	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513365	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513364	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513371	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513372	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513369	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513368	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513367	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513374	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513373	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513354	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513352	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513366	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513353	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513355	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513356	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513357	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513359	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513360	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513363	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513361	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513362	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1513358	64-17-5	ETHANOL 200 PROOF	1	Pint(PT)	19-Nov-18
1497886	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	19-Nov-18
1512699	-	Gold nanoparticles	25	Milliliter(ML)	19-Nov-18
1512700	7631-86-9	Silicon dioxide Nanopowder	25	Milliliter(ML)	19-Nov-18
1512697	-	TRYPSIN-EDTA	500	Milliliter(ML)	20-Nov-18
1512698	-	TRYPSIN-EDTA	500	Milliliter(ML)	20-Nov-18
1512701	-	NanoXact Gold Nanospheres Silica Shelled	25	Milliliter(ML)	20-Nov-18
1512846	-	CYANOBACTERIA BG-11 FRESHWATER	500	Milliliter(ML)	20-Nov-18
1513061	110-54-3	HEXANE	4	Liters(L)	20-Nov-18
1513062	4334-88-7	4-ETHOXYCARBONYLPHENYLBORONIC ACID	100	Gram(GM)	20-Nov-18
1513063	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	20-Nov-18
1513073	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	20-Nov-18
1513067	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	20-Nov-18
1513074	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	20-Nov-18
1513071	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	20-Nov-18
1513070	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	20-Nov-18
1513072	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	20-Nov-18
1513064	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	20-Nov-18
1513069	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	20-Nov-18
1513065	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	20-Nov-18
1513068	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	20-Nov-18
1513066	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	20-Nov-18
1513099	-	TRITYL CHLORIDE	100	Gram(GM)	20-Nov-18
1513100	123-91-1	1 4-DIOXANE	2	Liters(L)	20-Nov-18
1513101	123-91-1	1 4-DIOXANE	2	Liters(L)	20-Nov-18
1513102	937-14-4	3-CHLOROPEROXYBENZOIC ACID	100	Gram(GM)	20-Nov-18
1513103	123-91-1	1 4-DIOXANE	500	Milliliter(ML)	20-Nov-18
1513104	75-05-8	ACETONITRILE ANHYDROUS	1	Liters(L)	20-Nov-18
1513135	1672-46-4	Digoxigenin	25	Milligram(MG)	20-Nov-18
1513207	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513216	-	CLOROX	121	Ounces(OZ)	20-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513239	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513252	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513251	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513250	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513249	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513248	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513247	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513246	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513245	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513244	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513243	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513242	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513227	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513240	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513255	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513238	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513237	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513236	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513235	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513234	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513233	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513232	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513231	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513230	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513229	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513228	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513241	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513268	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513281	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513280	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513279	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513278	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513277	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513276	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513275	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513274	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513273	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513272	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513271	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513253	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513269	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513254	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513267	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513266	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513265	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513264	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513263	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513214	-	CLOROX	121	Ounces(OZ)	20-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513261	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513259	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513258	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513257	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513256	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513260	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513270	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513262	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513208	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513209	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513210	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513211	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513212	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513226	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513215	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513217	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513218	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513219	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513220	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513221	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513222	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513223	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513224	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513225	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1513213	-	CLOROX	121	Ounces(OZ)	20-Nov-18
1540552	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	20-Nov-18
1540553	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	20-Nov-18
1562387	-	AEROSOLS	12	Ounces(OZ)	20-Nov-18
1562391	-	AEROSOLS	12	Ounces(OZ)	20-Nov-18
1562388	-	AEROSOLS	12	Ounces(OZ)	20-Nov-18
1562390	-	AEROSOLS	12	Ounces(OZ)	20-Nov-18
1562392	-	AEROSOLS	12	Ounces(OZ)	20-Nov-18
1562389	-	AEROSOLS	12	Ounces(OZ)	20-Nov-18
1562393	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562400	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562394	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562395	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562396	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562397	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562398	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562399	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562401	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562402	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18
1562408	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18
1562409	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18
1562407	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18
1562403	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18
1562405	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562404	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18
1562406	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18
1562410	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562420	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562422	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562423	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562424	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562427	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562426	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562418	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562419	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562428	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562429	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562425	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562417	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562416	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562415	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562414	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562413	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562412	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562411	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562430	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562421	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Nov-18
1562431	-	AIR COMPRESSED	220	Cubic Feet(CF)	20-Nov-18
1562437	-	AIR COMPRESSED	220	Cubic Feet(CF)	20-Nov-18
1562436	-	AIR COMPRESSED	220	Cubic Feet(CF)	20-Nov-18
1562435	-	AIR COMPRESSED	220	Cubic Feet(CF)	20-Nov-18
1562434	-	AIR COMPRESSED	220	Cubic Feet(CF)	20-Nov-18
1562433	-	AIR COMPRESSED	220	Cubic Feet(CF)	20-Nov-18
1562432	-	AIR COMPRESSED	220	Cubic Feet(CF)	20-Nov-18
1562443	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Nov-18
1562444	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562459	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562455	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562451	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562456	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562454	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562453	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562452	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562458	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562449	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562448	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562447	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562446	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562450	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562445	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562457	-	Argon UHP	220	Cubic Feet(CF)	20-Nov-18
1562460	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562461	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18
1562465	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18
1562462	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18
1562463	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18
1562464	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Nov-18
1513105	106984-09-2	N-t-boc-amido-dPEG4-alcohol	1	Gram(GM)	21-Nov-18
1513106	331242-61-6	N-Boc-PEG6-alcohol	1	Gram(GM)	21-Nov-18
1513107	98-01-1	FURFURAL	100	Milliliter(ML)	21-Nov-18
1513108	15933-59-2	TETRAMETHYL DISILAZANE	10	Gram(GM)	21-Nov-18
1513109	383-63-1	ETHYL TRIFLUOROACETATE 99%	25	Gram(GM)	21-Nov-18
1513110	67-68-5	Qubit dsDNA HS Assay Kit	500	Milliliter(ML)	21-Nov-18
1513111	10034-85-2	HYDRIOTIC ACID 57%	250	Milliliter(ML)	21-Nov-18
1513112	75-09-2	DICHLOROMETHANE	4	Liters(L)	21-Nov-18
1513113	7697-37-2	NITRIC ACID	2.5	Liters(L)	21-Nov-18
1513114	7697-37-2	NITRIC ACID	2.5	Liters(L)	21-Nov-18
1513115	6825-20-3	3 6-Dibromocarbazole	25	Gram(GM)	21-Nov-18
1513116	-	EGC III MSA EluGen Methanesulfonic Acid	1	Liters(L)	21-Nov-18
1513117	-	EGC III MSA EluGen Methanesulfonic Acid	1	Liters(L)	21-Nov-18
1513118	-	EGC III MSA EluGen Methanesulfonic Acid	1	Liters(L)	21-Nov-18
1513119	77-58-7	DIBUTYLTIN DILAURATE	100	Gram(GM)	21-Nov-18
1513120	-	Gempler's Laundry Detergent	50	Pounds(LB)	21-Nov-18
1513141	-	Hocut 8640	5	Gallon(GAL)	21-Nov-18
1513146	-	Hocut 8640	5	Gallon(GAL)	21-Nov-18
1513145	-	Hocut 8640	5	Gallon(GAL)	21-Nov-18
1513144	-	Hocut 8640	5	Gallon(GAL)	21-Nov-18
1513143	-	Hocut 8640	5	Gallon(GAL)	21-Nov-18
1513142	-	Hocut 8640	5	Gallon(GAL)	21-Nov-18
1513148	-	Hocut 8640	5	Gallon(GAL)	21-Nov-18
1513147	-	Hocut 8640	5	Gallon(GAL)	21-Nov-18
1513149	-	Hocut Sym-C	5	Gallon(GAL)	21-Nov-18
1513150	-	Hocut 8640	55	Gallon(GAL)	21-Nov-18
1513151	-	Hocut Sym-C	5	Gallon(GAL)	21-Nov-18
1540554	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	21-Nov-18
1540555	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	21-Nov-18
1540556	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	21-Nov-18
1540557	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	21-Nov-18
1540558	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	21-Nov-18
1513121	23978-09-8	4 7 13 16 21 24-HEXAOAX-1 10-DIAZABICYCLO[8	1	Gram(GM)	26-Nov-18
1513122	68951-93-9	Poly(dimethylsiloxane-co-diphenylsiloxane)	25	Milliliter(ML)	26-Nov-18
1513123	127-06-0	Acetoxime	100	Gram(GM)	26-Nov-18
1513124	280-57-9	1 4-DIAZABICYCLO[2.2.2]OCTANE	100	Gram(GM)	26-Nov-18
1513125	111-27-3	N-HEXANOL	1	Liters(L)	26-Nov-18
1513126	-	PHENOLPHTHALEIN 1% SOLUTION ALCOHOLIC	500	Milliliter(ML)	26-Nov-18
1513127	14221-01-3	TETRAKIS(TRIPHENYLPHOSPHINE)-PALLADIUM(O)	5	Gram(GM)	26-Nov-18
1562381	-	CARBON MONOXIDE IN NITROGEN	2.05	Cubic Feet(CF)	26-Nov-18
1562382	-	CARBON MONOXIDE IN NITROGEN	2.05	Cubic Feet(CF)	26-Nov-18
1562383	-	CARBON MONOXIDE IN NITROGEN	2.05	Cubic Feet(CF)	26-Nov-18
1513133	1404-93-9	VANCOMYCIN HYDROCHLORIDE	1	Gram(GM)	26-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513134	10043-35-3	BORIC ACID	1	Kilograms(KG)	26-Nov-18
1513152	11031-11-1	ZEOCINT 100 MG/ML IN HEPES	1	Milliliter(ML)	26-Nov-18
1513282	14221-01-3	TETRAKIS(TRIPHENYLPHOSPHINE)-PALLADIUM(O)	1	Gram(GM)	26-Nov-18
1513283	14221-01-3	TETRAKIS(TRIPHENYLPHOSPHINE)-PALLADIUM(O)	1	Gram(GM)	26-Nov-18
1513284	14221-01-3	TETRAKIS(TRIPHENYLPHOSPHINE)-PALLADIUM(O)	1	Gram(GM)	26-Nov-18
1513375	-	Big D Non-Para Urinal Toss Block	5	Ounces(OZ)	26-Nov-18
1513377	-	Big D Non-Para Urinal Toss Block	5	Ounces(OZ)	26-Nov-18
1513378	-	Big D Non-Para Urinal Toss Block	5	Ounces(OZ)	26-Nov-18
1513376	-	Big D Non-Para Urinal Toss Block	5	Ounces(OZ)	26-Nov-18
1513379	-	Big D Non-Para Urinal Toss Block	5	Ounces(OZ)	26-Nov-18
1513380	-	Big D Non-Para Urinal Toss Block	5	Ounces(OZ)	26-Nov-18
1513383	-	Big D Non-Para Urinal Toss Block	5	Ounces(OZ)	26-Nov-18
1513384	-	Big D Non-Para Urinal Toss Block	5	Ounces(OZ)	26-Nov-18
1513382	-	Big D Non-Para Urinal Toss Block	5	Ounces(OZ)	26-Nov-18
1513381	-	Big D Non-Para Urinal Toss Block	5	Ounces(OZ)	26-Nov-18
1513385	10361-37-2	BARIUM CHLORIDE ANHYDROUS	100	Gram(GM)	26-Nov-18
1513386	10361-37-2	BARIUM CHLORIDE ANHYDROUS	100	Gram(GM)	26-Nov-18
1513387	-	Techspray Duster	15	Ounces(OZ)	26-Nov-18
1513388	-	Techspray Duster	15	Ounces(OZ)	26-Nov-18
1513389	64-17-5	ETHANOL 200 PROOF	100	Milliliter(ML)	26-Nov-18
1513390	64-17-5	ETHANOL 200 PROOF	100	Milliliter(ML)	26-Nov-18
1513391	14235-81-5	4-Ethynylaniline	25	Gram(GM)	26-Nov-18
1513392	-	IC INSTRUMENT CHECK STANDARD 3	100	Milliliter(ML)	26-Nov-18
1513393	-	IC INSTRUMENT CHECK STAND	100	Milliliter(ML)	26-Nov-18
1513394	7439-92-1	LEAD SHOT	50	Gram(GM)	26-Nov-18
1513395	75-09-2	DICHLOROMETHANE	4	Liters(L)	26-Nov-18
1513397	75-09-2	DICHLOROMETHANE	4	Liters(L)	26-Nov-18
1513398	75-09-2	DICHLOROMETHANE	4	Liters(L)	26-Nov-18
1513396	75-09-2	DICHLOROMETHANE	4	Liters(L)	26-Nov-18
1513399	940-71-6	PHOSPHONITRILLIC CHLORIDE TRIMER	100	Gram(GM)	26-Nov-18
1513401	940-71-6	PHOSPHONITRILLIC CHLORIDE TRIMER	100	Gram(GM)	26-Nov-18
1513402	940-71-6	PHOSPHONITRILLIC CHLORIDE TRIMER	100	Gram(GM)	26-Nov-18
1513403	940-71-6	PHOSPHONITRILLIC CHLORIDE TRIMER	100	Gram(GM)	26-Nov-18
1513400	940-71-6	PHOSPHONITRILLIC CHLORIDE TRIMER	100	Gram(GM)	26-Nov-18
1512955	60-29-7	ETHYL ETHER ANHYDROUS	1	Liters(L)	26-Nov-18
1512957	60-29-7	ETHYL ETHER ANHYDROUS	1	Liters(L)	26-Nov-18
1512956	60-29-7	ETHYL ETHER ANHYDROUS	1	Liters(L)	26-Nov-18
1513153	30685-43-9	ß-Methyl Digoxin	2.5	Milligram(MG)	26-Nov-18
1513154	30685-43-9	ß-Methyl Digoxin	2.5	Milligram(MG)	26-Nov-18
1513285	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513286	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513291	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513287	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513288	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513290	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513292	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513293	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513294	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513295	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513296	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513298	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513299	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513300	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513301	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513289	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513302	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513303	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513297	10213-79-3	SODIUM METASILICATE PENTAHYDRATE	1	Kilograms(KG)	26-Nov-18
1513304	96-29-7	2-Butanone oxime	25	Milliliter(ML)	26-Nov-18
1513404	-	Crystalbond 509	200	Gram(GM)	26-Nov-18
1513405	-	Crystalbond 509	200	Gram(GM)	26-Nov-18
1513406	584-84-9	TOLUENE-2 4-DIISOCYANATE	100	Milliliter(ML)	26-Nov-18
1513407	106-89-8	EPICHLOROHYDRIN	1	Liters(L)	26-Nov-18
1513408	1310-73-2	SODIUM HYDROXIDE	1	Kilograms(KG)	26-Nov-18
1513409	592-87-0	LEAD THIOCYANATE	100	Gram(GM)	26-Nov-18
1513410	96-29-7	2-Butanone oxime	25	Milliliter(ML)	26-Nov-18
1513411	4206-67-1	IODOMETHYL TRIMETHYL-SILANE	5	Milliliter(ML)	26-Nov-18
1513412	4206-67-1	IODOMETHYL TRIMETHYL-SILANE	5	Milliliter(ML)	26-Nov-18
1513413	60-29-7	DIETHYL ETHER	1	Liters(L)	26-Nov-18
1513414	1493-13-6	TRIFLUOROMETHANE SULFONIC ACID	100	Gram(GM)	26-Nov-18
1540559	7786-30-3	MAGNESIUM CHLORIDE 30% SOLUTION	3000	Gallon(GAL)	26-Nov-18
1320462	63393-96-4	Aliquat 336	250	Milliliter(ML)	26-Nov-18
1420730	-	SPEX ELEMENT KIT W/49 COMMON ELEMENTS	1000	Milligram(MG)	26-Nov-18
1513128	-	Polyclear Mix 30	0.5	Gallon(GAL)	26-Nov-18
1513132	-	Polyclear Mix 30	0.5	Gallon(GAL)	26-Nov-18
1513131	-	Polyclear Mix 30	0.5	Gallon(GAL)	26-Nov-18
1513130	-	Polyclear Mix 30	0.5	Gallon(GAL)	26-Nov-18
1513129	-	Polyclear Mix 30	0.5	Gallon(GAL)	26-Nov-18
1487481	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	27-Nov-18
1487489	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	27-Nov-18
1487488	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	27-Nov-18
1487487	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	27-Nov-18
1487486	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	27-Nov-18
1487485	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	27-Nov-18
1487484	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	27-Nov-18
1487483	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	27-Nov-18
1487482	-	FANTASTIKE ALL PURPOSE CLEANER	1	Gallon(GAL)	27-Nov-18
1457599	-	METADI II DIAMOND POLISHING COMPOUND	20	Gram(GM)	28-Nov-18
1457600	-	METADI DIAMOND POLISHING COMPOUND (0.25	20	Gram(GM)	28-Nov-18
1457601	-	COLLOIDAL SILICA SUSPENSION	500	Milliliter(ML)	28-Nov-18
1562466	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18
1562468	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18
1562469	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18
1562470	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18
1562467	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18
1562471	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562472	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18
1562473	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18
1562474	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18
1562475	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18
1562476	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18
1562477	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18
1562478	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Nov-18
1562480	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	28-Nov-18
1562479	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	28-Nov-18
1456702	-	COLLOIDAL SILICA SUSPENSION	500	Milliliter(ML)	28-Nov-18
1562481	7727-37-9	NITROGEN COMPRESSED GAS	20	Cubic Feet(CF)	28-Nov-18
1456703	57-55-6	DiaLube Diamond Suspension	16	Ounces(OZ)	28-Nov-18
1562483	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Cubic Feet(CF)	28-Nov-18
1562484	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Cubic Feet(CF)	28-Nov-18
1456704	-	Micro Organic Soap (Undiluted)	32	Ounces(OZ)	28-Nov-18
1562485	7664-41-7	AMMONIA ANHYDROUS	2	Pounds(LB)	28-Nov-18
1512958	1303-86-2	BORON OXIDE	2	Kilograms(KG)	28-Nov-18
1512959	13765-25-8	EUROPIUM(III) FLUORIDE	5	Gram(GM)	28-Nov-18
1512960	10026-07-0	TELLURIUM(IV) CHLORIDE	25	Gram(GM)	28-Nov-18
1512961	7782-42-5	GRAPHITE	1	Kilograms(KG)	28-Nov-18
1512962	7782-42-5	GRAPHITE SYNTHETIC	1	Kilograms(KG)	28-Nov-18
1512963	Multi	FAST DNA SPIN KIT FOR SOIL	100	Milliliter(ML)	28-Nov-18
1512968	Multi	FAST DNA SPIN KIT FOR SOIL	100	Milliliter(ML)	28-Nov-18
1512967	Multi	FAST DNA SPIN KIT FOR SOIL	100	Milliliter(ML)	28-Nov-18
1512965	Multi	FAST DNA SPIN KIT FOR SOIL	100	Milliliter(ML)	28-Nov-18
1512964	Multi	FAST DNA SPIN KIT FOR SOIL	100	Milliliter(ML)	28-Nov-18
1512966	Multi	FAST DNA SPIN KIT FOR SOIL	100	Milliliter(ML)	28-Nov-18
1512969	-	TORR SEAL	2	Ounces(OZ)	28-Nov-18
1512970	-	TORR SEAL	2	Ounces(OZ)	28-Nov-18
1512971	-	TORR SEAL	2	Ounces(OZ)	28-Nov-18
1457605	-	KONDUCTOMET I CONDUCTIVE PHENOLIC	1	Pounds(LB)	28-Nov-18
1512972	123847-85-8	NPB	5	Gram(GM)	28-Nov-18
1512973	139092-78-7	TcTa	5	Gram(GM)	28-Nov-18
1457606	-	DIAMOND POLISHING COMPOUND	18	Gram(GM)	28-Nov-18
1457607	-	DIAMOND POLISHING COMPOUND	18	Gram(GM)	28-Nov-18
1457608	-	BUEHLER KONDUCTOMET I	1	Pounds(LB)	28-Nov-18
1512974	105598-27-4	HAT-CN	5	Gram(GM)	28-Nov-18
1457609	-	BUEHLER KONDUCTOMET I	1	Pounds(LB)	28-Nov-18
1512975	1313-27-5	MOLYBDENUM (VI)OXIDE	10	Gram(GM)	28-Nov-18
1512976	5919-26-6	2-Nitro-1H-pyrrole	1	Gram(GM)	28-Nov-18
1457610	-	CONDUCTIVE PHENOLIC MOUNTING	5	Pounds(LB)	28-Nov-18
1457611	-	MOLD RELEASE	8	Ounces(OZ)	28-Nov-18
1457612	-	HIGH VACUUM GREASE	150	Gram(GM)	28-Nov-18
1457613	-	HIGH VACUUM GREASE	150	Gram(GM)	28-Nov-18
1500022	-	RAPID ROAD REPAIR	50	Pounds(LB)	28-Nov-18
1457614	-	TRANSISTOR GREASE (HEAT SINK COMPOUND)	4	Ounces(OZ)	28-Nov-18
1500021	-	RAPID ROAD REPAIR	50	Pounds(LB)	28-Nov-18
1457615	-	FOMBLIN Y	100	Gram(GM)	28-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1457616	-	APIEZON GREASE	25	Gram(GM)	28-Nov-18
1457617	-	CONDUCTIVE CARBON PAINT	60	Cubic	28-Nov-18
1457618	-	VAC GOOP	1	Ounces(OZ)	28-Nov-18
1512977	-	Rhodamine B Fluorescent Melamine	15	Milliliter(ML)	28-Nov-18
1512978	78-59-1	ISOPHORONE	1	Kilograms(KG)	28-Nov-18
1512979	4906-24-5	Acetoin acetate	100	Gram(GM)	28-Nov-18
1512980	151-50-8	POTASSIUM CYANIDE 97%	500	Gram(GM)	28-Nov-18
1512981	9041-93-4	BLEOMYCIN SULFATE (BLENOXANE) STERILE	1	Milligram(MG)	28-Nov-18
1512982	9041-93-4	BLEOMYCIN SULFATE (BLENOXANE) STERILE	1	Milligram(MG)	28-Nov-18
1512983	128-37-0	BUTYLATED HYDROXY TOLUENE	500	Milligram(MG)	28-Nov-18
1512984	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	28-Nov-18
1513155	126-73-8	TRIBUTYL PHOSPHATE	4	Liters(L)	28-Nov-18
1513156	126-73-8	TRIBUTYL PHOSPHATE	4	Liters(L)	28-Nov-18
1513157	126-73-8	TRIBUTYL PHOSPHATE	4	Liters(L)	28-Nov-18
1513158	126-73-8	TRIBUTYL PHOSPHATE	4	Liters(L)	28-Nov-18
1513159	-	RFCIMAI - Red First Contact InterMax Kit All-	479	Milliliter(ML)	28-Nov-18
1513306	4733-39-5	Bathocuproine	1	Gram(GM)	28-Nov-18
1513310	4733-39-5	Bathocuproine	1	Gram(GM)	28-Nov-18
1513307	4733-39-5	Bathocuproine	1	Gram(GM)	28-Nov-18
1513308	4733-39-5	Bathocuproine	1	Gram(GM)	28-Nov-18
1513309	4733-39-5	Bathocuproine	1	Gram(GM)	28-Nov-18
1513311	102-54-5	FERROCEN	5	Gram(GM)	28-Nov-18
1513312	3109-63-5	TETRABUTYLAMMONIUM	25	Gram(GM)	28-Nov-18
1513313	78-40-0	TRIETHYL PHOSPHATE	1	Liters(L)	28-Nov-18
1513314	9002-84-0	POLYTETRAFLUOROETHYLENE	100	Gram(GM)	28-Nov-18
1513315	-	TORR SEAL	135	Gram(GM)	28-Nov-18
1513316	-	TORR SEAL	135	Gram(GM)	28-Nov-18
1513317	-	TORR SEAL	135	Gram(GM)	28-Nov-18
1513318	-	TORR SEAL	135	Gram(GM)	28-Nov-18
1513319	-	TORR SEAL	135	Gram(GM)	28-Nov-18
1513320	-	TORR SEAL	135	Gram(GM)	28-Nov-18
1513321	-	TORR SEAL	135	Gram(GM)	28-Nov-18
1513322	-	TORR SEAL	135	Gram(GM)	28-Nov-18
1513323	-	TORR SEAL	135	Gram(GM)	28-Nov-18
1513324	-	TORR SEAL	135	Gram(GM)	28-Nov-18
1513325	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	100	Gram(GM)	28-Nov-18
1513327	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	100	Gram(GM)	28-Nov-18
1513328	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	100	Gram(GM)	28-Nov-18
1513329	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	100	Gram(GM)	28-Nov-18
1513330	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	100	Gram(GM)	28-Nov-18
1513331	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	100	Gram(GM)	28-Nov-18
1513332	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	100	Gram(GM)	28-Nov-18
1513333	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	100	Gram(GM)	28-Nov-18
1513334	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	100	Gram(GM)	28-Nov-18
1513326	68951-96-2	VINYL TERMINATED (4-6% DIPHENYLSILOXANE)-	100	Gram(GM)	28-Nov-18
1513335	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	28-Nov-18
1513342	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	28-Nov-18
1513343	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	28-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513344	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	28-Nov-18
1513340	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	28-Nov-18
1513336	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	28-Nov-18
1513337	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	28-Nov-18
1513338	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	28-Nov-18
1513339	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	28-Nov-18
1513341	68037-59-2	METHYLHYDROSILOXANE (15-18%)	100	Gram(GM)	28-Nov-18
1513415	60-29-7	DIETHYL ETHER	1	Liters(L)	28-Nov-18
1513416	-	2 3-BUTANEDIOL	100	Gram(GM)	28-Nov-18
1499797	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1513417	90076-65-6	BIS(TRIFLUOROMETHANE)SULFONIMIDE	50	Gram(GM)	28-Nov-18
1513418	-	AVICEL PH-101	1	Kilograms(KG)	28-Nov-18
1499804	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499798	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499799	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499800	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499801	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499803	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499802	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499809	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499805	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499806	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499807	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499808	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499814	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499813	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499812	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499810	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1499811	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500038	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500058	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500050	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500034	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500032	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500031	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500055	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500033	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500057	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500037	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500059	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500060	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500061	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500062	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500035	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500036	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500056	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500047	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500053	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1500052	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500051	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500048	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500039	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500040	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500046	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500045	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500044	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500043	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500042	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500041	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500054	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1500049	-	CONCRETE MIX	50	Pounds(LB)	28-Nov-18
1513419	12008-21-8	Lanthanum Hexaboride	6	Gram(GM)	28-Nov-18
1513420	7440-21-3	SILICON	7.5	Gallon(GAL)	28-Nov-18
1513421	822-06-0	HEXAMETHYLENE DIISOCYANATE	250	Milliliter(ML)	28-Nov-18
1513422	7440-44-0	Glassy carbon splinter powder 0.4 to 12¿m type	50	Gram(GM)	28-Nov-18
1562489	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562509	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562493	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562505	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562511	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562492	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562504	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562508	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562506	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562507	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562510	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562499	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562495	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562490	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562491	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562496	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562498	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562494	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562500	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562501	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562502	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562503	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562497	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562486	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562487	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562488	-	Nitrogen UHP	220	Cubic Feet(CF)	29-Nov-18
1562512	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562524	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562527	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562513	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562514	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562515	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562531	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562530	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562522	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562528	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562516	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562526	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562525	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562523	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562521	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562520	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562519	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562518	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562517	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562529	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Nov-18
1562532	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	29-Nov-18
1562536	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	29-Nov-18
1562533	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	29-Nov-18
1562535	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	29-Nov-18
1562537	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	29-Nov-18
1562538	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	29-Nov-18
1562539	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	29-Nov-18
1562540	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	29-Nov-18
1562534	-	94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	29-Nov-18
1562541	-	AIR COMPRESSED	220	Cubic Feet(CF)	29-Nov-18
1562542	-	AIR COMPRESSED	220	Cubic Feet(CF)	29-Nov-18
1562543	-	AIR COMPRESSED	220	Cubic Feet(CF)	29-Nov-18
15652544	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	29-Nov-18
1562545	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	29-Nov-18
1562551	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	29-Nov-18
1562550	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	29-Nov-18
1562549	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	29-Nov-18
1562548	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	29-Nov-18
1562546	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	29-Nov-18
1562547	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	29-Nov-18
1562556	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562565	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562566	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562564	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562563	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562562	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562561	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562560	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562559	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562555	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562554	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562553	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562552	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562557	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1562558	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	29-Nov-18
1513160	1310-73-2	Sodium Hydroxide 25%	55	Gallon(GAL)	29-Nov-18
1513162	1310-73-2	Sodium Hydroxide 25%	55	Gallon(GAL)	29-Nov-18
1513161	1310-73-2	Sodium Hydroxide 25%	55	Gallon(GAL)	29-Nov-18
1513163	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1513165	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1513166	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1513167	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1513168	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1513169	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1513170	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1513171	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1513172	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1513173	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1513174	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1513175	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1513164	-	KRATON G 1650	140	Pounds(LB)	29-Nov-18
1499989	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1499992	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500004	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1499990	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1499991	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500007	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1499993	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1499995	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1499996	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1499997	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1499998	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1499999	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500000	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500001	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1499994	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500003	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500018	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500006	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500008	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500009	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500010	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500011	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500012	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500013	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500014	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500015	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500016	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500017	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500002	-	fast setting cement	50	Pounds(LB)	29-Nov-18
1500005	-	fast setting cement	50	Pounds(LB)	29-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513345	34806-73-0	ZIRCONIUM SULFATE HYDRATE	25	Gram(GM)	29-Nov-18
1513346	23491-45-4	Hoechst 33258 solution	1	Milliliter(ML)	29-Nov-18
1513347	62-31-7	DOPAMINE HYDROCHLORIDE	25	Gram(GM)	29-Nov-18
1513348	10026-11-6	ZIRCONIUM(IV) CHLORIDE	50	Gram(GM)	29-Nov-18
1513423	2206-26-0	ACETONITRILE-D3	25	Gram(GM)	29-Nov-18
1513424	2206-26-0	ACETONITRILE-D3	25	Gram(GM)	29-Nov-18
1513425	2206-26-0	ACETONITRILE-D3	25	Gram(GM)	29-Nov-18
1513426	2206-26-0	ACETONITRILE-D3	25	Gram(GM)	29-Nov-18
1513427	1665-00-5	METHYLENE CHLORIDE-D2	25	Gram(GM)	29-Nov-18
1513428	865-49-6	CHLOROFORM-D	100	Gram(GM)	29-Nov-18
1513433	865-49-6	CHLOROFORM-D	100	Gram(GM)	29-Nov-18
1513434	865-49-6	CHLOROFORM-D	100	Gram(GM)	29-Nov-18
1513432	865-49-6	CHLOROFORM-D	100	Gram(GM)	29-Nov-18
1513431	865-49-6	CHLOROFORM-D	100	Gram(GM)	29-Nov-18
1513430	865-49-6	CHLOROFORM-D	100	Gram(GM)	29-Nov-18
1513429	865-49-6	CHLOROFORM-D	100	Gram(GM)	29-Nov-18
1513435	865-49-6	CHLOROFORM-D	100	Gram(GM)	29-Nov-18
1513436	2206-27-1	DIMETHYL SULFOXIDE-D6	50	Gram(GM)	29-Nov-18
1513437	2206-27-1	DIMETHYL SULFOXIDE-D6	50	Gram(GM)	29-Nov-18
1513438	2206-26-0	ACETONITRILE-D3	50	Gram(GM)	29-Nov-18
1513439	2206-26-0	ACETONITRILE-D3	50	Gram(GM)	29-Nov-18
1513440	865-49-6	CHLOROFORM-D	100	Gram(GM)	29-Nov-18
1513441	865-49-6	CHLOROFORM-D	100	Gram(GM)	29-Nov-18
1513442	811-98-3	METHANOL D4	25	Gram(GM)	29-Nov-18
1513443	811-98-3	METHANOL D4	25	Gram(GM)	29-Nov-18
1513444	1310-73-2	SODIUM HYDROXIDE	100	Milliliter(ML)	29-Nov-18
1513452	1310-73-2	SODIUM HYDROXIDE	100	Milliliter(ML)	29-Nov-18
1513453	1310-73-2	SODIUM HYDROXIDE	100	Milliliter(ML)	29-Nov-18
1513447	1310-73-2	SODIUM HYDROXIDE	100	Milliliter(ML)	29-Nov-18
1513445	1310-73-2	SODIUM HYDROXIDE	100	Milliliter(ML)	29-Nov-18
1513446	1310-73-2	SODIUM HYDROXIDE	100	Milliliter(ML)	29-Nov-18
1513451	1310-73-2	SODIUM HYDROXIDE	100	Milliliter(ML)	29-Nov-18
1513450	1310-73-2	SODIUM HYDROXIDE	100	Milliliter(ML)	29-Nov-18
1513449	1310-73-2	SODIUM HYDROXIDE	100	Milliliter(ML)	29-Nov-18
1513448	1310-73-2	SODIUM HYDROXIDE	100	Milliliter(ML)	29-Nov-18
1513454	7664-93-9	SULFURIC ACID	500	Milliliter(ML)	29-Nov-18
1513456	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	29-Nov-18
1513457	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	29-Nov-18
1513458	7697-37-2	NITRIC ACID	100	Milliliter(ML)	29-Nov-18
1513459	7697-37-2	NITRIC ACID	100	Milliliter(ML)	29-Nov-18
1513460	1310-73-2	SODIUM HYDROXIDE 50%	1	Liters(L)	29-Nov-18
1513462	1310-73-2	SODIUM HYDROXIDE 50%	1	Liters(L)	29-Nov-18
1513461	1310-73-2	SODIUM HYDROXIDE 50%	1	Liters(L)	29-Nov-18
1513463	1310-73-2	SODIUM HYDROXIDE 50%	1	Liters(L)	29-Nov-18
1513495	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513526	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513517	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513518	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513519	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513520	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513521	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513522	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513523	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513525	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513514	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513527	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513528	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513529	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513530	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513531	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513532	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513533	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513534	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513524	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513505	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513535	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513496	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513497	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513498	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513499	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513500	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513501	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513502	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513516	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513504	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513515	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513506	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513507	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513508	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513509	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513510	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513511	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513512	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513513	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513503	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513557	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513541	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513543	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513545	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513546	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513547	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513548	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513549	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513550	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513551	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513552	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513553	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513554	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513540	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513556	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513542	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513558	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513559	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513560	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513561	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513562	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513563	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513564	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513565	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513566	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513567	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513568	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513569	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513555	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513571	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513537	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513538	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513536	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513574	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513573	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513544	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513572	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513570	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1513539	-	FANTASTIK ALL PURPOSE CLEANER	1	Gallon(GAL)	29-Nov-18
1458101	-	RED RTV 106 SILICONE RUBBER ADHESIVE	3	Ounces(OZ)	30-Nov-18
1455025	-	VERSAMID 140 POLYAMIDE RESIN (CURING	1	Pint(PT)	30-Nov-18
1202825	-	VERSAMID 140 POLYAMIDE RESIN (CURING	1	Pint(PT)	30-Nov-18
1202824	-	VERSAMID 140 POLYAMIDE RESIN (CURING	1	Pint(PT)	30-Nov-18
1455023	-	EPOXY RESIN CURING AGENT	1	Pint(PT)	30-Nov-18
1202832	-	3M Scotchcast Electrical Resin 281 Part A	1	Gallon(GAL)	30-Nov-18
1202831	-	3M Scotchcast Electrical Resin 281 Part B	1	Gallon(GAL)	30-Nov-18
1512985	530-62-1	N N'-CARBONYLDIIMIDAZOLE	500	Gram(GM)	03-Dec-18
1512986	98-03-3	2-THIOPHENECARBOXALDEHYDE	100	Gram(GM)	03-Dec-18
1512987	34803-66-2	1-(2-PYRIDYL)PIPERAZINE	25	Gram(GM)	03-Dec-18
1512988	1539-42-0	DI-(2-PICOYL)AMINE	10	Gram(GM)	03-Dec-18
1512989	-	DOW CORNING 732 MULTI-PURPOSE SEALANT	3	Ounces(OZ)	03-Dec-18
1512990	-	Glassy Carbon Powder Spherical	10	Gram(GM)	03-Dec-18
1513349	-	BUFFER SOLUTIONS (PH 2.00)	1	Liters(L)	03-Dec-18
1513350	1493-13-6	TRIFLUOROMETHANE SULFONIC ACID	100	Gram(GM)	03-Dec-18
1513464	101-68-8	4 4'-Methylenebis(phenyl isocyanate)	500	Gram(GM)	03-Dec-18
1513465	105-60-2	CAPROLACTAM	250	Gram(GM)	03-Dec-18
1513466	67-51-6	3 5-DIMETHYLPYRAZOLE	100	Gram(GM)	03-Dec-18
1513467	613-91-2	Acetophenone oxime	25	Gram(GM)	03-Dec-18
1004150	1317-65-3	CRUSHED LIMESTONE	15	Pounds(LB)	03-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513469	941-69-5	N-PHENYLMALEIMIDE	100	Gram(GM)	03-Dec-18
1004148	471-34-1	CALCIUM CARBONATE POWDER	25	Pounds(LB)	03-Dec-18
1004149	471-34-1	CALCIUM CARBONATE POWDER	25	Pounds(LB)	03-Dec-18
1562567	7727-37-9	NITROGEN COMPRESSED GAS	1.2	Cubic Feet(CF)	03-Dec-18
1513470	101-77-9	4 4'-Diaminodiphenylmethane	250	Gram(GM)	03-Dec-18
1513471	2493-02-9	P-BROMOPHENYL ISOCYANATE	50	Gram(GM)	03-Dec-18
1513472	14221-01-3	TETRAKIS(TRIPHENYLPHOSPHINE)-PALLADIUM(O)	25	Gram(GM)	03-Dec-18
1513473	88-06-2	2 4 6-TRICHLOROPHENOL	50	Gram(GM)	03-Dec-18
1513474	88-06-2	2 4 6-TRICHLOROPHENOL	50	Gram(GM)	03-Dec-18
1513475	1336-21-6	AMMONIUM HYDROXIDE	2.5	Liters(L)	03-Dec-18
1513476	1336-21-6	AMMONIUM HYDROXIDE	2.5	Liters(L)	03-Dec-18
1513477	108-88-3	TOLUENE	4	Liters(L)	03-Dec-18
1513479	108-88-3	TOLUENE	4	Liters(L)	03-Dec-18
1513480	108-88-3	TOLUENE	4	Liters(L)	03-Dec-18
1513478	108-88-3	TOLUENE	4	Liters(L)	03-Dec-18
1513481	24424-99-5	DI-T-BUTYLDICARBONATE	250	Gram(GM)	03-Dec-18
1513482	64-17-5	ETHANOL (ETHYL ALCOHOL)	500	Milliliter(ML)	03-Dec-18
1513483	64-17-5	ETHANOL	500	Milliliter(ML)	03-Dec-18
1513484	64-17-5	ETHANOL	500	Milliliter(ML)	03-Dec-18
1513485	67-63-0	2-PROPANOL	4	Liters(L)	03-Dec-18
1513486	67-63-0	2-PROPANOL	4	Liters(L)	03-Dec-18
1513488	67-63-0	2-PROPANOL	4	Liters(L)	03-Dec-18
1513487	67-63-0	2-PROPANOL	4	Liters(L)	03-Dec-18
1513489	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Gallon(GAL)	03-Dec-18
1562569	-	Isobutane 100ppm/Bal. Air	103	Liters(L)	03-Dec-18
1513575	95079-19-9	Resorufin ß - D - Galactopyranoside	25	Milligram(MG)	03-Dec-18
1513576	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513621	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513628	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513633	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513634	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513635	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513627	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513626	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513625	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513624	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513631	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513622	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513630	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513620	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513619	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513577	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513618	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513586	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513585	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513606	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513607	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513623	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513588	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513605	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513604	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513603	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513602	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513601	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513600	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513599	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513598	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513632	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513596	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513587	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513595	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513594	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513593	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513592	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513591	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513590	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513589	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513629	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513597	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513614	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513582	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513611	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513609	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513610	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513617	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513583	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513613	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513608	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513581	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513580	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513615	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513579	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513578	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513616	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513612	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513584	7697-37-2	NITRIC ACID	2.5	Liters(L)	03-Dec-18
1513636	534-13-4	N N'-Dimethylthiourea	100	Gram(GM)	03-Dec-18
1513637	-	MAGNESIUM IODIDE	1	Gram(GM)	03-Dec-18
1513638	7786-30-3	MAGNESIUM CHLORIDE ANHYDROUS	100	Gram(GM)	03-Dec-18
1513639	7440-44-0	Glassy carbon splinter powder 0.4 to 12¿m type	50	Gram(GM)	03-Dec-18
1513640	-	SILANOL TERMINATED POLYDIMETHYLSILOXANE	100	Gram(GM)	03-Dec-18
1513641	-	VARIAN TORR SEAL BASE RESIN (PART A)	82	Gram(GM)	03-Dec-18
1513642	-	VARIAN TORR SEAL BASE RESIN (PART A)	82	Gram(GM)	03-Dec-18
1513643	-	DOW CORNING 7-COMPOUND	5.3	Ounces(OZ)	03-Dec-18
1513654	-	DOW CORNING 7-COMPOUND	5.3	Ounces(OZ)	03-Dec-18
1513653	-	DOW CORNING 7-COMPOUND	5.3	Ounces(OZ)	03-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513652	-	DOW CORNING 7-COMPOUND	5.3	Ounces(OZ)	03-Dec-18
1513651	-	DOW CORNING 7-COMPOUND	5.3	Ounces(OZ)	03-Dec-18
1513649	-	DOW CORNING 7-COMPOUND	5.3	Ounces(OZ)	03-Dec-18
1513648	-	DOW CORNING 7-COMPOUND	5.3	Ounces(OZ)	03-Dec-18
1513647	-	DOW CORNING 7-COMPOUND	5.3	Ounces(OZ)	03-Dec-18
1513646	-	DOW CORNING 7-COMPOUND	5.3	Ounces(OZ)	03-Dec-18
1513645	-	DOW CORNING 7-COMPOUND	5.3	Ounces(OZ)	03-Dec-18
1513644	-	DOW CORNING 7-COMPOUND	5.3	Ounces(OZ)	03-Dec-18
1513650	-	DOW CORNING 7-COMPOUND	5.3	Ounces(OZ)	03-Dec-18
1562568	-	18% Oxygen/Balance Nitrogen	1.2	Cubic Feet(CF)	03-Dec-18
1513140	10034-85-2	HYDRIODIC ACID	250	Milliliter(ML)	03-Dec-18
1540560	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	03-Dec-18
1540564	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	03-Dec-18
1540561	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	03-Dec-18
1540562	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	03-Dec-18
1540563	1310-73-2	Sodium Hydroxide 25%	3400	Pounds(LB)	03-Dec-18
1499965	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499974	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499983	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499971	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499984	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499986	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499987	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499967	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499966	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499988	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499985	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499972	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499981	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499980	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499970	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499979	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499978	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499977	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499976	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499975	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499982	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499969	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499968	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1499973	-	DAP ALEX PLUS ACRYLIC LATEX PLUS SILICONE	9.8	Ounces(OZ)	03-Dec-18
1512702	1310-73-2	Sodium Hydroxide 25%	55	Gallon(GAL)	03-Dec-18
1513189	1121-22-8	trans-1 2-Diaminocyclohexane	5	Gram(GM)	03-Dec-18
1513190	1121-22-8	trans-1 2-Diaminocyclohexane	5	Gram(GM)	03-Dec-18
1513191	21436-03-3	(1S 2S)-(+)-1 2-DIAMINOCYCLOHEXANE	5	Gram(GM)	03-Dec-18
1513192	21436-03-3	(1S 2S)-(+)-1 2-DIAMINOCYCLOHEXANE	5	Gram(GM)	03-Dec-18
1420097	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1513193	106-44-5	P-CRESOL	100	Gram(GM)	03-Dec-18
1420103	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1420111	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420102	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420112	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420113	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420128	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420099	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420114	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420101	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420115	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420100	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420110	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420098	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420119	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420116	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420104	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420105	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420106	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420107	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420108	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420130	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420118	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420109	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420120	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420126	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420122	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420123	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420124	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420125	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420129	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420127	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420121	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1420117	7727-43-7	BARIUM SULFATE	55	Pounds(LB)	03-Dec-18
1513194	76-83-5	TRIPHENYL CHLOROMETHANE	100	Gram(GM)	03-Dec-18
1513490	1415800-37-1	Bromoacetamido-PEG5-azide	100	Milligram(MG)	03-Dec-18
1513491	811-97-2	SPRAY DUSTER	12	Ounces(OZ)	03-Dec-18
1513492	109-76-2	1 3-DIAMINOPROPANE	25	Gram(GM)	03-Dec-18
1513493	506-61-6	POTASSIUM SILVER CYANIDE	100	Gram(GM)	03-Dec-18
1513494	143-62-4	Digitoxigenin	10	Milligram(MG)	03-Dec-18
1420131	115-77-5	PENTEK (PENTAERYTHRITOL)	42	Pounds(LB)	03-Dec-18
1513655	-	BUFFER PH 10.01	475	Milliliter(ML)	03-Dec-18
1004147	-	TALC POWDER	20	Pounds(LB)	03-Dec-18
1513711	69013-23-6	Thixotropic Deep Section Cure Adhesive Sealant	50	Milliliter(ML)	03-Dec-18
1513712	69013-23-6	Thixotropic Deep Section Cure Adhesive Sealant	50	Milliliter(ML)	03-Dec-18
1513713	69013-23-6	Thixotropic Deep Section Cure Adhesive Sealant	50	Milliliter(ML)	03-Dec-18
1513714	69013-23-6	Thixotropic Deep Section Cure Adhesive Sealant	50	Milliliter(ML)	03-Dec-18
1513715	7778-74-7	POTASSIUM PERCHLORATE	1	Pounds(LB)	03-Dec-18
1513717	7778-74-7	POTASSIUM PERCHLORATE	1	Pounds(LB)	03-Dec-18
1513721	7778-74-7	POTASSIUM PERCHLORATE	1	Pounds(LB)	03-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513718	7778-74-7	POTASSIUM PERCHLORATE	1	Pounds(LB)	03-Dec-18
1513719	7778-74-7	POTASSIUM PERCHLORATE	1	Pounds(LB)	03-Dec-18
1513720	7778-74-7	POTASSIUM PERCHLORATE	1	Pounds(LB)	03-Dec-18
1513722	7778-74-7	POTASSIUM PERCHLORATE	1	Pounds(LB)	03-Dec-18
1513723	7778-74-7	POTASSIUM PERCHLORATE	1	Pounds(LB)	03-Dec-18
1513724	7778-74-7	POTASSIUM PERCHLORATE	1	Pounds(LB)	03-Dec-18
1513716	7778-74-7	POTASSIUM PERCHLORATE	1	Pounds(LB)	03-Dec-18
1513725	592-05-2	LEAD CYANIDE	100	Gram(GM)	03-Dec-18
1513726	7758-05-6	POTASSIUM IODATE	100	Gram(GM)	03-Dec-18
1513727	7758-05-6	POTASSIUM IODATE	100	Gram(GM)	03-Dec-18
1513728	2156-97-0	LAURYL ACRYLATE	500	Milliliter(ML)	03-Dec-18
1513729	162881-26-7	Phenylbis(2 4 6-trimethylbenzoyl)phosphine	50	Gram(GM)	03-Dec-18
1513730	103-11-7	2-ETHYLHEXYL ACRYLATE	3	Liters(L)	03-Dec-18
1513731	76-59-5	BROMOTHYMOL BLUE	5	Gram(GM)	03-Dec-18
1513732	7681-49-4	SODIUM FLUORIDE	100	Gram(GM)	03-Dec-18
1513733	7681-49-4	SODIUM FLUORIDE	100	Gram(GM)	03-Dec-18
1513783	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513800	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513784	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513790	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513791	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513789	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513792	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513788	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513801	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513793	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513799	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513798	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513796	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513797	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513786	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513795	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513787	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513802	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513794	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1513785	67-64-1	ACETONE	4	Liters(L)	03-Dec-18
1562570	7727-37-9	NITROGEN COMPRESSED GAS	1.2	Liters(L)	03-Dec-18
1562571	-	OXYGEN IN NITROGEN	1.2	Liters(L)	03-Dec-18
1513176	94825-44-2	GUANOSINE 5'-O-(3-THIOTRIPHOSPHATE)	10	Milligram(MG)	04-Dec-18
1513734	6289-46-9	Dimethyl 2 5-dioxocyclohexane-1 4-dicarboxylate	100	Gram(GM)	04-Dec-18
1513735	75-05-8	ACETONITRILE	1	Liters(L)	04-Dec-18
744412	-	LIQUID WRENCH	4	Ounces(OZ)	04-Dec-18
1513736	109-99-9	TETRAHYDROFURAN	4	Liters(L)	04-Dec-18
1513737	7787-32-8	BARIUM FLUORIDE	50	Gram(GM)	04-Dec-18
1513740	7787-32-8	BARIUM FLUORIDE	50	Gram(GM)	04-Dec-18
1513743	7787-32-8	BARIUM FLUORIDE	50	Gram(GM)	04-Dec-18
1513738	7787-32-8	BARIUM FLUORIDE	50	Gram(GM)	04-Dec-18
1513739	7787-32-8	BARIUM FLUORIDE	50	Gram(GM)	04-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513742	7787-32-8	BARIUM FLUORIDE	50	Gram(GM)	04-Dec-18
1513741	7787-32-8	BARIUM FLUORIDE	50	Gram(GM)	04-Dec-18
1513744	-	BLASOCUT 4000 STRONG	5	Gallon(GAL)	04-Dec-18
1513745	7440-50-8	COPPER POWDER	34	Pounds(LB)	04-Dec-18
1513746	6825-20-3	3 6-Dibromocarbazole	25	Gram(GM)	04-Dec-18
1513747	-	Support SUP707	3.6	Kilograms(KG)	04-Dec-18
1513748	-	FULLCURE 705	3.6	Kilograms(KG)	04-Dec-18
1513749	-	FULLCURE 840	3.6	Kilograms(KG)	04-Dec-18
1513750	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	3.6	Kilograms(KG)	04-Dec-18
1513751	-	VEROCLEAR RGD810	3.6	Kilograms(KG)	04-Dec-18
1513752	-	RIGUR RGD450	3.6	Kilograms(KG)	04-Dec-18
1513753	-	HIGH TEMPERATURE WHITE RGD525	3.6	Kilograms(KG)	04-Dec-18
1513754	-	HIGH TEMPERATURE WHITE RGD525	3.6	Kilograms(KG)	04-Dec-18
1513755	-	OBJET VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	04-Dec-18
1513756	-	TANGOPLUS FLX930	3.6	Kilograms(KG)	04-Dec-18
1513757	-	TANGOGRAY FLX950	3.6	Kilograms(KG)	04-Dec-18
1513758	-	TANGOBLACK FLX973	3.6	Kilograms(KG)	04-Dec-18
1513759	-	Objet DurusWhite RGD430	3.6	Kilograms(KG)	04-Dec-18
1513760	-	FULLCURE 720	3.6	Kilograms(KG)	04-Dec-18
1513761	-	OBJET VEROGRAY RGD850	3.6	Kilograms(KG)	04-Dec-18
1513762	-	FULLCURE 835 VEROWHITE PLUS MODEL RESIN	1	Kilograms(KG)	04-Dec-18
1513763	-	Support SUP705	1	Kilograms(KG)	04-Dec-18
1513764	-	FLASH DRY SILVER PAINT	5	Ounces(OZ)	04-Dec-18
1513765	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	04-Dec-18
1513766	547-58-0	METHYL ORANGE	25	Gram(GM)	04-Dec-18
1513767	-	STYCAST 2850FT BLACK	3	Pounds(LB)	04-Dec-18
931197	142-82-5	HEPTANE	2	Liters(L)	04-Dec-18
931198	109-66-0	PENTANE ANHYDROUS	2	Liters(L)	04-Dec-18
931199	1712-64-7	ISOPROPYL NITRATE	0.5	Liters(L)	04-Dec-18
931200	1712-64-7	ISOPROPYL NITRATE	0.5	Liters(L)	04-Dec-18
1513177	71-43-2	BENZENE	1	Liters(L)	05-Dec-18
1513178	7789-23-3	POTASSIUM FLUORIDE	1	Liters(L)	05-Dec-18
1513195	-	M-BOND 200 ADHESIVE	10	Gram(GM)	05-Dec-18
1513200	-	M-BOND 200 ADHESIVE	10	Gram(GM)	05-Dec-18
1513196	-	M-BOND 200 ADHESIVE	10	Gram(GM)	05-Dec-18
1513197	-	M-BOND 200 ADHESIVE	10	Gram(GM)	05-Dec-18
1513198	-	M-BOND 200 ADHESIVE	10	Gram(GM)	05-Dec-18
1513199	-	M-BOND 200 ADHESIVE	10	Gram(GM)	05-Dec-18
1513202	367-93-1	ISOPROPYL-B-D-THIOGALACTOPYRANSIDE	1	Gram(GM)	05-Dec-18
1513203	367-93-1	ISOPROPYL-B-D-THIOGALACTOPYRANSIDE	1	Gram(GM)	05-Dec-18
1513204	-	VACUOLINE OIL	5	Gallon(GAL)	05-Dec-18
1513205	67-66-3	CHLOROFORM HPLC FOR HIGH PERFORMANCE	4	Liters(L)	05-Dec-18
1513656	156-10-5	P-NITROSODIPHENYLAMINE	25	Gram(GM)	05-Dec-18
1513657	1066-45-1	TRIMETHYLTIN CHLORIDE	25	Gram(GM)	05-Dec-18
1513658	1066-45-1	TRIMETHYLTIN CHLORIDE	25	Gram(GM)	05-Dec-18
1513659	17465-86-0	GAMMA-CYCLODEXTRIN	25	Gram(GM)	05-Dec-18
1513660	623-00-7	4-BROMOBENZONITRILE	250	Gram(GM)	05-Dec-18
1513661	19524-06-2	4-BROMOPYRIDINE HYDROCHLORIDE	25	Gram(GM)	05-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513768	60177-39-1	AG 1-X2	500	Gram(GM)	05-Dec-18
1513769	60177-39-1	AG 1-X2	500	Gram(GM)	05-Dec-18
1513770	144-55-8	SODIUM BICARBONATE	2.5	Kilograms(KG)	05-Dec-18
1513771	10031-22-8	LEAD BROMIDE	25	Gram(GM)	05-Dec-18
1513772	-	OPTIMA 3000 STANDARD UV WAVECAL	500	Milliliter(ML)	05-Dec-18
1420079	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420089	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420081	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420088	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420090	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420091	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420092	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420085	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420084	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420086	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420082	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420080	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420093	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420087	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420096	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420095	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420094	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1420083	-	900-21 INERT MOLDING POWDER	100	Pounds(LB)	05-Dec-18
1513776	778-25-6	PLY-7602 DIPHENYLMETHYLSILANOL	1	Pint(PT)	05-Dec-18
1513777	-	PLY-7608	1	Pint(PT)	05-Dec-18
1513778	70131-67-8	PLY-7609 SILICONE FLUID	1	Gallon(GAL)	05-Dec-18
1513779	00682-01-9	TETRA-N-PROPYL-SILICATE	1	Pint(PT)	05-Dec-18
1513780	63148-57-2	METHYLHYDROGEN POLYSILOXANE	1	Pint(PT)	05-Dec-18
1513781	620175-39-5	AFN-1252	5	Milligram(MG)	05-Dec-18
1513782	67-68-5	Qubit dsDNA BR Assay Kit	10	Milliliter(ML)	05-Dec-18
1513803	7697-37-2	NITRIC ACID OPTIMA	1	Liters(L)	05-Dec-18
1513805	7697-37-2	NITRIC ACID OPTIMA	1	Liters(L)	05-Dec-18
1513806	7697-37-2	NITRIC ACID OPTIMA	1	Liters(L)	05-Dec-18
1513807	7697-37-2	NITRIC ACID OPTIMA	1	Liters(L)	05-Dec-18
1513804	7697-37-2	NITRIC ACID OPTIMA	1	Liters(L)	05-Dec-18
1513855	2353-33-5	5-AZA-2'-DEOXYCYTIDINE	10	Milligram(MG)	05-Dec-18
1513856	2353-33-5	5-AZA-2'-DEOXYCYTIDINE	10	Milligram(MG)	05-Dec-18
1513857	7761-88-8	SILVER NITRATE	500	Gram(GM)	05-Dec-18
1513858	-	BLUEVIEW 10X TAE BUFFER	1	Liters(L)	05-Dec-18
1513859	-	BLUEVIEW 10X TAE BUFFER	1	Liters(L)	05-Dec-18
1500019	-	PROSEAL PROSEAL SPRAY FIBERSEAL	1	Gallon(GAL)	05-Dec-18
1500020	-	PROSEAL PROSEAL SPRAY FIBERSEAL	1	Gallon(GAL)	05-Dec-18
1499961	-	BUSCH R 570 Vacuum Pump Oil	5	Gallon(GAL)	05-Dec-18
1266108	-	Norland Optical Adhesive 76	100	Gram(GM)	05-Dec-18
1061171	-	KRYTOX GREASE	227	Gram(GM)	05-Dec-18
1266109	-	Norland Optical Adhesive 76	100	Gram(GM)	05-Dec-18
1061172	-	KRYTOX GREASE	227	Gram(GM)	05-Dec-18
1061173	-	5 MINUTE EPOXY GEL	25	Milliliter(ML)	05-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1061169	-	RTV SILICONE RUBBER SEALANT	50	Milliliter(ML)	05-Dec-18
1061170	-	RTV SILICONE RUBBER SEALANT	50	Milliliter(ML)	05-Dec-18
1456975	-	RTV SILICONE RUBBER SEALANT	50	Milliliter(ML)	05-Dec-18
1456976	-	RTV SILICONE RUBBER SEALANT	50	Milliliter(ML)	05-Dec-18
1456977	-	RTV SILICONE RUBBER SEALANT	50	Milliliter(ML)	05-Dec-18
1061174	-	SYNTHETIC GREASE	1	Pounds(LB)	05-Dec-18
1497887	-	BRAKLEEN	14	Ounces(OZ)	06-Dec-18
1497889	-	BRAKLEEN	14	Ounces(OZ)	06-Dec-18
1497888	-	BRAKLEEN	14	Ounces(OZ)	06-Dec-18
1497891	-	BRAKLEEN	14	Ounces(OZ)	06-Dec-18
1497890	-	BRAKLEEN	14	Ounces(OZ)	06-Dec-18
1497892	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	06-Dec-18
1497894	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	06-Dec-18
1497893	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	06-Dec-18
1497895	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	06-Dec-18
1497896	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	06-Dec-18
1497897	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	06-Dec-18
1497898	-	SAE 0W-20 Synthetic Motor Oil	1	Quarts(QT)	06-Dec-18
1497899	-	POWER STEERING FLUID	1	Quarts(QT)	06-Dec-18
1497900	-	ULTRA BLACK GASKET MAKER	3.35	Ounces(OZ)	06-Dec-18
1513201	2155-96-6	DIPHENYLVINYLPHOSPHINE	25	Gram(GM)	06-Dec-18
1513773	-	GEL-8150 Part A	2	Pint(PT)	06-Dec-18
1513775	-	GEL-8150 Part A	2	Pint(PT)	06-Dec-18
1513774	-	GEL-8150 Part A	2	Pint(PT)	06-Dec-18
1513206	-	cOmplete Mini EDTA-free Protease Inhibitor	100	Gram(GM)	06-Dec-18
1513860	7758-02-3	POTASSIUM BROMIDE 99+%	500	Gram(GM)	06-Dec-18
1513861	53463-68-6	10-Bromo-1-decanol	5	Gallon(GAL)	06-Dec-18
1513862	26063-00-3	Polyhydroxybutyrate - Biopolymer	1000	Gram(GM)	06-Dec-18
1513863	26063-00-3	Polyhydroxybutyrate - Biopolymer	1000	Gram(GM)	06-Dec-18
1513864	9002-88-4	POLYETHYLENE	1000	Gram(GM)	06-Dec-18
1513865	24937-79-9	POLYVINYLIDENE FLUORIDE	1000	Gram(GM)	06-Dec-18
1513866	7664-93-9	SULFURIC ACID	1	Liters(L)	06-Dec-18
1513867	7664-93-9	SULFURIC ACID	1	Liters(L)	06-Dec-18
1513868	7664-93-9	SULFURIC ACID	1	Liters(L)	06-Dec-18
1513869	7664-93-9	SULFURIC ACID	1	Liters(L)	06-Dec-18
1513870	7664-93-9	SULFURIC ACID	1	Liters(L)	06-Dec-18
1513872	8052-41-3	STODDARD SOLVENT	4	Liters(L)	06-Dec-18
1513873	-	TANGOBLACK PLUS FLX980	3.6	Kilograms(KG)	06-Dec-18
1513874	26628-22-8	Image-iT FX Signal Enhancer	660	Milliliter(ML)	06-Dec-18
1513875	10294-41-4	CERIUM(III) NITRATE HEXAHYDRATE	500	Gram(GM)	06-Dec-18
1513876	10294-41-4	CERIUM(III) NITRATE HEXAHYDRATE	500	Gram(GM)	06-Dec-18
1513877	75-09-2	DICHLOROMETHANE	16	Liters(L)	06-Dec-18
1513880	75-09-2	DICHLOROMETHANE	16	Liters(L)	06-Dec-18
1513879	75-09-2	DICHLOROMETHANE	16	Liters(L)	06-Dec-18
1513878	75-09-2	DICHLOROMETHANE	16	Liters(L)	06-Dec-18
1513881	71-23-8	1-PROPANOL	1	Liters(L)	06-Dec-18
1513883	71-23-8	1-PROPANOL	1	Liters(L)	06-Dec-18
1513884	71-23-8	1-PROPANOL	1	Liters(L)	06-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513882	71-23-8	1-PROPANOL	1	Liters(L)	06-Dec-18
1513885	1306-38-3	CERIUM (IV) OXIDE 99.9%	500	Gram(GM)	06-Dec-18
1513887	1306-38-3	CERIUM (IV) OXIDE 99.9%	500	Gram(GM)	06-Dec-18
1513891	1306-38-3	CERIUM (IV) OXIDE 99.9%	500	Gram(GM)	06-Dec-18
1513892	1306-38-3	CERIUM (IV) OXIDE 99.9%	500	Gram(GM)	06-Dec-18
1513893	1306-38-3	CERIUM (IV) OXIDE 99.9%	500	Gram(GM)	06-Dec-18
1513894	1306-38-3	CERIUM (IV) OXIDE 99.9%	500	Gram(GM)	06-Dec-18
1513890	1306-38-3	CERIUM (IV) OXIDE 99.9%	500	Gram(GM)	06-Dec-18
1513888	1306-38-3	CERIUM (IV) OXIDE 99.9%	500	Gram(GM)	06-Dec-18
1513886	1306-38-3	CERIUM (IV) OXIDE 99.9%	500	Gram(GM)	06-Dec-18
1513889	1306-38-3	CERIUM (IV) OXIDE 99.9%	500	Gram(GM)	06-Dec-18
1513895	-	DNeasy PowerSoil HTP 96 Kit	200	Milliliter(ML)	06-Dec-18
1513896	-	DNeasy PowerSoil HTP 96 Kit	200	Milliliter(ML)	06-Dec-18
1513897	-	DNeasy PowerSoil HTP 96 Kit	200	Milliliter(ML)	06-Dec-18
1513898	-	DNeasy PowerSoil HTP 96 Kit	200	Milliliter(ML)	06-Dec-18
1513899	-	DNeasy PowerSoil HTP 96 Kit	200	Milliliter(ML)	06-Dec-18
1562572	-	15% OXYGEN BAL. NITROGEN	220	Cubic Feet(CF)	06-Dec-18
1562573	-	15% OXYGEN BAL. NITROGEN	220	Cubic Feet(CF)	06-Dec-18
1562574	-	15% OXYGEN BAL. NITROGEN	220	Cubic Feet(CF)	06-Dec-18
1562575	-	15% OXYGEN BAL. NITROGEN	220	Cubic Feet(CF)	06-Dec-18
1562576	7782-44-7	OXYGEN COMPRESSED GAS	6	Pounds(LB)	06-Dec-18
1562577	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Cubic Feet(CF)	06-Dec-18
1562578	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Cubic Feet(CF)	06-Dec-18
1562579	7440-59-7	HELIUM REFRIGERATED LIQUID (CRYOGENIC	100	Cubic Feet(CF)	06-Dec-18
1562580	7440-59-7	Helium UHP	220	Cubic Feet(CF)	06-Dec-18
1562582	7440-59-7	Helium UHP	220	Cubic Feet(CF)	06-Dec-18
1562583	7440-59-7	Helium UHP	220	Cubic Feet(CF)	06-Dec-18
1562581	7440-59-7	Helium UHP	220	Cubic Feet(CF)	06-Dec-18
1562584	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562635	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562645	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562644	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562643	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562640	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562638	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562646	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562636	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562641	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562634	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562633	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562632	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562631	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562642	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562637	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562648	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562649	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562650	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562639	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562647	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562656	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562655	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562654	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562653	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562651	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562652	-	Nitrogen UHP	220	Cubic Feet(CF)	06-Dec-18
1562657	7440-59-7	Helium UHP	220	Cubic Feet(CF)	06-Dec-18
1562660	7440-59-7	Helium UHP	220	Cubic Feet(CF)	06-Dec-18
1562658	7440-59-7	Helium UHP	220	Cubic Feet(CF)	06-Dec-18
1562659	7440-59-7	Helium UHP	220	Cubic Feet(CF)	06-Dec-18
1562585	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562596	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562608	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562607	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562606	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562605	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562604	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562603	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562602	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562601	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562600	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562599	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562597	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562610	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562595	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562594	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562593	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562592	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562586	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562587	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562588	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562589	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562590	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562591	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562611	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562598	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562612	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562609	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562613	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562614	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	06-Dec-18
1562615	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562627	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562628	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562626	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562625	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562624	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562623	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562622	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562620	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562619	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562618	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562617	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562616	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562621	-	Argon UHP	220	Cubic Feet(CF)	06-Dec-18
1562629	-	AIR COMPRESSED	220	Cubic Feet(CF)	06-Dec-18
1562630	-	AIR COMPRESSED	220	Cubic Feet(CF)	06-Dec-18
1562661	-	95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	06-Dec-18
1562664	-	95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	06-Dec-18
1562662	-	95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	06-Dec-18
1562663	-	95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	06-Dec-18
1562665	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	06-Dec-18
1562672	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	06-Dec-18
1562670	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	06-Dec-18
1562669	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	06-Dec-18
1562666	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	06-Dec-18
1562667	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	06-Dec-18
1562668	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	06-Dec-18
1562673	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	06-Dec-18
1562674	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	06-Dec-18
1562671	74-86-2	ACETYLENE STABILIZED	40	Cubic Feet(CF)	06-Dec-18
1497901	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497917	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497906	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497913	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497902	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497903	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497905	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497920	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497924	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497923	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497910	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497909	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497922	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497915	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497921	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497907	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497919	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497918	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497904	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497916	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497912	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497914	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497908	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1497911	-	Parts Plus Type F ATF	1	Quarts(QT)	06-Dec-18
1562676	7439-90-9	KRYPTON	100	Liters(L)	06-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497925	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	06-Dec-18
1497926	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	06-Dec-18
1497933	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	06-Dec-18
1497934	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	06-Dec-18
1497935	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	06-Dec-18
1497932	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	06-Dec-18
1497936	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	06-Dec-18
1497928	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	06-Dec-18
1497930	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	06-Dec-18
1497931	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	06-Dec-18
1497927	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	06-Dec-18
1497929	-	Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	06-Dec-18
1497937	-	Mobil 1 5W-40	1	Gallon(GAL)	06-Dec-18
1497947	-	Mobil 1 5W-40	1	Gallon(GAL)	06-Dec-18
1497946	-	Mobil 1 5W-40	1	Gallon(GAL)	06-Dec-18
1497945	-	Mobil 1 5W-40	1	Gallon(GAL)	06-Dec-18
1497944	-	Mobil 1 5W-40	1	Gallon(GAL)	06-Dec-18
1497939	-	Mobil 1 5W-40	1	Gallon(GAL)	06-Dec-18
1497938	-	Mobil 1 5W-40	1	Gallon(GAL)	06-Dec-18
1497943	-	Mobil 1 5W-40	1	Gallon(GAL)	06-Dec-18
1497942	-	Mobil 1 5W-40	1	Gallon(GAL)	06-Dec-18
1497941	-	Mobil 1 5W-40	1	Gallon(GAL)	06-Dec-18
1497940	-	Mobil 1 5W-40	1	Gallon(GAL)	06-Dec-18
1497948	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	06-Dec-18
1497949	-	SPLASH Original Blue Windshield Wash	1	Gallon(GAL)	06-Dec-18
1513900	460-19-5	Carbon Nitride Powder	5	Gram(GM)	07-Dec-18
1513901	-	RPMI-1640 MEDIUM	500	Milliliter(ML)	07-Dec-18
1513902	-	RPMI-1640 MEDIUM	500	Milliliter(ML)	07-Dec-18
1513903	67-68-5	Qubit dsDNA HS Assay Kit	100	Milliliter(ML)	07-Dec-18
1513904	73049-73-7	PEPTONE	100	Gram(GM)	07-Dec-18
1513905	24991-55-7	POLY(ETHYLENE GLYCOL) DIM	100	Milliliter(ML)	07-Dec-18
1513906	48145-04-6	2-Phenoxyethyl Acrylate (stabilized with MEHQ)	500	Gram(GM)	07-Dec-18
1513907	48145-04-6	2-Phenoxyethyl Acrylate (stabilized with MEHQ)	500	Gram(GM)	07-Dec-18
1513908	67-64-1	ACETONE	4	Liters(L)	07-Dec-18
1513910	67-64-1	ACETONE	4	Liters(L)	07-Dec-18
1513911	67-64-1	ACETONE	4	Liters(L)	07-Dec-18
1513909	67-64-1	ACETONE	4	Liters(L)	07-Dec-18
1513912	7439-97-6	MERCURY	25	Gram(GM)	07-Dec-18
1513913	1310-73-2	SODIUM HYDROXIDE PELLETS	100	Gram(GM)	07-Dec-18
1513914	67-63-0	ISOPROPYL ALCOHOL AND WATER	2.5	Liters(L)	07-Dec-18
1513915	67-63-0	ISOPROPYL ALCOHOL AND WATER	2.5	Liters(L)	07-Dec-18
1513916	-	Castable Resin	1	Liters(L)	07-Dec-18
1513917	-	Castable Wax Resin	1	Liters(L)	07-Dec-18
1513918	-	ELKEM RTV 4100 / V40064 SILICONE ADHESIVE	90	Gram(GM)	07-Dec-18
1513919	-	EMI Gaskets Sheets Absorbers & Shielding FFP	1	Pounds(LB)	07-Dec-18
1513920	-	EMI Gaskets Sheets Absorbers & Shielding FFP	1	Pounds(LB)	07-Dec-18
1513921	107-06-2	1 2-DICHLOROETHANE (ETHYLENE DICHLORIDE	2.5	Liters(L)	07-Dec-18
1513922	107-06-2	1 2-DICHLOROETHANE (ETHYLENE DICHLORIDE	1	Liters(L)	07-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1513923	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	07-Dec-18
1513924	10043-35-3	BORIC ACID	500	Gram(GM)	07-Dec-18
1513927	75-09-2	DICHLOROMETHANE	4	Liters(L)	07-Dec-18
1513929	75-09-2	DICHLOROMETHANE	4	Liters(L)	07-Dec-18
1513930	75-09-2	DICHLOROMETHANE	4	Liters(L)	07-Dec-18
1513928	75-09-2	DICHLOROMETHANE	4	Liters(L)	07-Dec-18
1513931	6876-37-5	Methylammonium Bromide	250	Gram(GM)	07-Dec-18
1513932	6876-37-5	Methylammonium Bromide	250	Gram(GM)	07-Dec-18
1513933	19244-98-5	Guanidinium bromide	100	Gram(GM)	07-Dec-18
1513934	146958-06-7	Formamidinium Bromide	100	Gram(GM)	07-Dec-18
1513935	109-99-9	TETRAHYDROFURAN	4	Liters(L)	07-Dec-18
1513938	109-99-9	TETRAHYDROFURAN	4	Liters(L)	07-Dec-18
1513937	109-99-9	TETRAHYDROFURAN	4	Liters(L)	07-Dec-18
1513936	109-99-9	TETRAHYDROFURAN	4	Liters(L)	07-Dec-18
1513939	108-88-3	TOLUENE	4	Liters(L)	07-Dec-18
1513940	108-88-3	TOLUENE	4	Liters(L)	07-Dec-18
1513941	108-88-3	TOLUENE	4	Liters(L)	07-Dec-18
1513942	108-88-3	TOLUENE	4	Liters(L)	07-Dec-18
1513943	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513947	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513955	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513951	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513950	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513944	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513948	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513945	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513946	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513953	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513952	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513954	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513956	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513957	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513949	7697-37-2	NITRIC ACID TRACEMETAL	500	Milliliter(ML)	07-Dec-18
1513958	9017-40-7	POLY(4-VINYLPYRIDINE) CROSS-LINKED (REILIX	100	Gram(GM)	07-Dec-18
1513959	637-88-7	1 4-CYCLOHEXANEDIONE	500	Gram(GM)	07-Dec-18
1513960	1202-34-2	2 2-DIPYRIDYLAMINE	5	Gram(GM)	07-Dec-18
1513961	2446-83-5	DIISOPROPYL AZODICARBOXYLATE	100	Gram(GM)	07-Dec-18
1513962	37-02-5	BRAIN HEART INFUSION	500	Gram(GM)	07-Dec-18
1813871	-	SILIA FLASH P60 SILICA GEL	5	Kilograms(KG)	07-Dec-18
744413	-	CERIUM INORGANIC STANDARD	125	Milliliter(ML)	07-Dec-18
744414	-	DYSPROSIUM STANDARD SOLUTION	125	Milliliter(ML)	07-Dec-18
1540565	-	Nexguard 22350	551	Pounds(LB)	07-Dec-18
744415	-	ERBIUM PLASMA STANDARD	125	Milliliter(ML)	07-Dec-18
744416	7440-53-1	EUROPIUM AAS STANDARD 1000UG/ML	125	Milliliter(ML)	07-Dec-18
744420	-	ATOMIC ABSORPTION STANDARD - 1 000 PPM	125	Milliliter(ML)	07-Dec-18
744421	-	HOLMIUM STANDARD SOLUTION	125	Milliliter(ML)	07-Dec-18
744422	-	LANTHANUM ATOMIC ABSORPTION STANDARD	125	Milliliter(ML)	07-Dec-18
1540566	-	NALCO 7408 CHLORINE SCAVENGER SOLUTION	55	Gallon(GAL)	07-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
744423	-	LUTETIUM PLASMA STANDARD SOLUTION	125	Milliliter(ML)	07-Dec-18
744424	-	NEODYMIUM PLASMA STANDARD	125	Milliliter(ML)	07-Dec-18
984311	-	PermaTreat PC-510T	511	Pounds(LB)	07-Dec-18
744425	-	PRASEODYMIUM INORGANIC STANDARD	125	Milliliter(ML)	07-Dec-18
984312	-	NALCO 8735	639	Pounds(LB)	07-Dec-18
984313	-	Nalco 22341	503	Pounds(LB)	07-Dec-18
744429	-	SAMARIUM STANDARD SOLUTION	125	Milliliter(ML)	07-Dec-18
744430	7440-20-2	SCANDIUM ICP STANDARD 1000PPM	125	Milliliter(ML)	07-Dec-18
744431	-	TERBIUM STANDARD SOLUTION	125	Milliliter(ML)	07-Dec-18
984314	-	Nexguard 22350	551	Pounds(LB)	07-Dec-18
744432	7440-30-4	THULIUM ICP STANDARD 1000PPM	125	Milliliter(ML)	07-Dec-18
984315	-	Nexguard 22350	551	Pounds(LB)	07-Dec-18
744433	7440-64-4	YTTERBIUM AAS STANDARD 1000UG/ML	125	Milliliter(ML)	07-Dec-18
984316	-	Nexguard 22350	551	Pounds(LB)	07-Dec-18
744434	-	YTTRIUM STANDARD SOLUTION	125	Milliliter(ML)	07-Dec-18
1513808	-	ULTIMA GOLD	10	Liters(L)	07-Dec-18
1513814	-	ULTIMA GOLD	10	Liters(L)	07-Dec-18
1513815	-	ULTIMA GOLD	10	Liters(L)	07-Dec-18
1513817	-	ULTIMA GOLD	10	Liters(L)	07-Dec-18
1513812	-	ULTIMA GOLD	10	Liters(L)	07-Dec-18
1513816	-	ULTIMA GOLD	10	Liters(L)	07-Dec-18
1513813	-	ULTIMA GOLD	10	Liters(L)	07-Dec-18
1513811	-	ULTIMA GOLD	10	Liters(L)	07-Dec-18
1513810	-	ULTIMA GOLD	10	Liters(L)	07-Dec-18
1513809	-	ULTIMA GOLD	10	Liters(L)	07-Dec-18
1513963	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	07-Dec-18
1513969	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	07-Dec-18
1513971	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	07-Dec-18
1513970	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	07-Dec-18
1513964	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	07-Dec-18
1513965	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	07-Dec-18
1513966	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	07-Dec-18
1513967	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	07-Dec-18
1513968	7722-84-1	HYDROGEN PEROXIDE 30%	250	Milliliter(ML)	07-Dec-18
1513972	-	SU-8 Developer	4	Liters(L)	07-Dec-18
1513973	7697-37-2	NITRIC ACID OPTIMA	500	Milliliter(ML)	07-Dec-18
1513974	93-58-3	METHYL BENZOATE	500	Milliliter(ML)	07-Dec-18
1513975	-	STANNOUS CHLORIDE CRYSTALS	500	Gram(GM)	07-Dec-18
1513976	9003-36-5	EPO-TEK 353ND Part A	1	Ounces(OZ)	07-Dec-18
1513977	-	Thermoset Hardener No. 67	1	Gallon(GAL)	07-Dec-18
1513978	9003-36-5	EPO-TEK 353ND Part A	1	Ounces(OZ)	07-Dec-18
1513979	-	SILVER CONDUCTIVE EPOXY	1	Ounces(OZ)	07-Dec-18
1513980	25114-58-3	INDIUM (III) ACETATE	10	Gram(GM)	07-Dec-18
1513981	25114-58-3	INDIUM (III) ACETATE	10	Gram(GM)	07-Dec-18
1513982	104-49-4	1 4-PHENYLENE DIISOCYANATE	25	Gram(GM)	07-Dec-18
1513983	104-49-4	1 4-PHENYLENE DIISOCYANATE	25	Gram(GM)	07-Dec-18
734304	7439-95-4	MAGNESIUM METAL PIECES	75	Milligram(MG)	07-Dec-18
1579999	7697-37-2	NITRIC ACID	500	Milliliter(ML)	10-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1580009	-	Diamond Suspension Polycrystal .25um	480	Milliliter(ML)	10-Dec-18
1580008	-	WATER BASED POLYCRYSTALLINE DIAMOND	16	Ounces(OZ)	10-Dec-18
1580000	-	DIAMOND SUSPENSION 1 MICR	18	Gram(GM)	10-Dec-18
1580002	-	DIAMOND SUSPENSION 1 MICR	18	Gram(GM)	10-Dec-18
1580001	-	DIAMOND SUSPENSION 1 MICR	18	Gram(GM)	10-Dec-18
1580003	-	POLYCRYSTALLINE DIAMOND SUSPENSION 3UM	18	Gram(GM)	10-Dec-18
1580005	-	POLYCRYSTALLINE DIAMOND SUSPENSION 3UM	18	Gram(GM)	10-Dec-18
1580004	-	POLYCRYSTALLINE DIAMOND SUSPENSION 3UM	18	Gram(GM)	10-Dec-18
1580006	-	DIAMOND SUSPENSION 6 MICR	18	Gram(GM)	10-Dec-18
1580007	-	DIAMOND SUSPENSION 6 MICR	18	Gram(GM)	10-Dec-18
1513819	-	LYSOL BRAND II DISINFECTANT	19	Ounces(OZ)	10-Dec-18
1513820	-	LYSOL BRAND II DISINFECTANT	19	Ounces(OZ)	10-Dec-18
1513984	73513-42-5	HEXANES NORMAL	4	Liters(L)	10-Dec-18
1513985	73513-42-5	HEXANES NORMAL	4	Liters(L)	10-Dec-18
1513986	79-10-7	ACRYLIC ACID	3	Kilograms(KG)	10-Dec-18
1513987	7726-95-6	BROMINE CERTIFIED ACS	50	Milliliter(ML)	10-Dec-18
1513988	98-98-6	2-PICOLINIC ACID	100	Gram(GM)	10-Dec-18
1513989	6132-04-3	SODIUM CITRATE	1	Gram(GM)	10-Dec-18
1513990	557-34-6	ZINC ACETATE	100	Gram(GM)	10-Dec-18
1513991	7727-54-0	AMMONIUM PERSULFATE	2.5	Kilograms(KG)	10-Dec-18
1513992	12069-32-8	BORON CARBIDE	500	Gram(GM)	10-Dec-18
1513993	12069-32-8	BORON CARBIDE	500	Gram(GM)	10-Dec-18
1513994	-	SPRIselect Reagent	5	Milliliter(ML)	10-Dec-18
1513995	-	QIAQUICK PCR PURIFICATION KIT	2	Milliliter(ML)	10-Dec-18
1513996	-	SODIUM SILICATE SOLUTION (40-43 BE)	4	Liters(L)	10-Dec-18
1513997	937-14-4	3-CHLOROPEROXYBENZOIC ACID	100	Gram(GM)	10-Dec-18
1513998	937-14-4	3-CHLOROPEROXYBENZOIC ACID	100	Gram(GM)	10-Dec-18
1513999	77-98-5	TETRAETHYL AMMONIUM HYDROXIDE	250	Milliliter(ML)	10-Dec-18
1514000	151-21-3	SODIUM DODECYL SULFATE HPCE GRADE	25	Gram(GM)	10-Dec-18
1514001	5470-11-1	HYDROXYLAMINE HYDROCHLORIDE	50	Gram(GM)	10-Dec-18
1514003	5470-11-1	HYDROXYLAMINE HYDROCHLORIDE	50	Gram(GM)	10-Dec-18
1514002	5470-11-1	HYDROXYLAMINE HYDROCHLORIDE	50	Gram(GM)	10-Dec-18
1266466	-	Hi-Temp 1200F Stove Paint	16	Ounces(OZ)	10-Dec-18
1266446	-	High Heat Protective Enamel	1	Gallon(GAL)	10-Dec-18
1266447	-	High Heat Protective Enamel	1	Gallon(GAL)	10-Dec-18
1266448	-	LATEX PAINT	1	Quarts(QT)	10-Dec-18
1266449	-	High Temp Coating 290-00	1	Gallon(GAL)	10-Dec-18
1266450	-	High Temp Coating 290-00	1	Gallon(GAL)	10-Dec-18
1562677	7440-59-7	Helium UHP	220	Cubic Feet(CF)	10-Dec-18
1562678	7440-59-7	Helium UHP	220	Cubic Feet(CF)	10-Dec-18
1562679	7440-59-7	Helium UHP	220	Cubic Feet(CF)	10-Dec-18
1562683	-	NITROGEN 96% OXYGEN 4%	220	Cubic Feet(CF)	10-Dec-18
1562685	-	2% Oxygen/Balance Nitrogen	220	Cubic Feet(CF)	10-Dec-18
1562684	-	6% OXYGEN / 94% NITROGEN	220	Cubic Feet(CF)	10-Dec-18
1055650	-	HALOCARBON OIL	1	Gallon(GAL)	10-Dec-18
1055651	-	HALOCARBON OIL	1	Gallon(GAL)	10-Dec-18
1055652	-	HALOCARBON OIL	1	Gallon(GAL)	10-Dec-18
1055653	-	HALOCARBON OIL	1	Gallon(GAL)	10-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1580011	-	STRUERS OP-ALUMINA SUSPENSION	750	Milliliter(ML)	11-Dec-18
1580013	-	STRUERS OP-ALUMINA SUSPENSION	750	Milliliter(ML)	11-Dec-18
1580014	-	STRUERS OP-ALUMINA SUSPENSION	750	Milliliter(ML)	11-Dec-18
1580012	-	STRUERS OP-ALUMINA SUSPENSION	750	Milliliter(ML)	11-Dec-18
15800015	-	STRUERS OP-S SUSPENSION	750	Milliliter(ML)	11-Dec-18
15800021	-	STRUERS OP-S SUSPENSION	750	Milliliter(ML)	11-Dec-18
15800020	-	STRUERS OP-S SUSPENSION	750	Milliliter(ML)	11-Dec-18
15800022	-	STRUERS OP-S SUSPENSION	750	Milliliter(ML)	11-Dec-18
15800019	-	STRUERS OP-S SUSPENSION	750	Milliliter(ML)	11-Dec-18
15800018	-	STRUERS OP-S SUSPENSION	750	Milliliter(ML)	11-Dec-18
15800017	-	STRUERS OP-S SUSPENSION	750	Milliliter(ML)	11-Dec-18
15800016	-	STRUERS OP-S SUSPENSION	750	Milliliter(ML)	11-Dec-18
15800023	-	STRUERS OP-S SUSPENSION	750	Milliliter(ML)	11-Dec-18
1580027	-	NIOBIUM POWDER	3	Kilograms(KG)	11-Dec-18
1580026	-	NIOBIUM POWDER	3	Kilograms(KG)	11-Dec-18
1497950	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	11-Dec-18
1497958	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	11-Dec-18
1497959	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	11-Dec-18
1497957	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	11-Dec-18
1497956	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	11-Dec-18
1497955	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	11-Dec-18
1497960	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	11-Dec-18
1497954	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	11-Dec-18
1497953	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	11-Dec-18
1497952	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	11-Dec-18
1497951	-	CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	11-Dec-18
1497961	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Dec-18
1497966	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Dec-18
1497965	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Dec-18
1497963	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Dec-18
1497962	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Dec-18
1497964	-	Pyroil CARB & THROTTLE BODY CLEANER PYC16	13	Ounces(OZ)	11-Dec-18
1497967	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	11-Dec-18
1497970	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	11-Dec-18
1497973	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	11-Dec-18
1497974	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	11-Dec-18
1497972	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	11-Dec-18
1497968	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	11-Dec-18
1497969	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	11-Dec-18
1497971	-	LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	11-Dec-18
1497975	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Dec-18
1497980	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Dec-18
1497983	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Dec-18
1497978	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Dec-18
1497976	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Dec-18
1497977	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Dec-18
1497979	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Dec-18
1497982	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1497984	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Dec-18
1497981	-	KRYLON ColorMaster with Covermax Technology	12	Ounces(OZ)	11-Dec-18
1497985	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	11-Dec-18
1497986	-	DRY FILM MOLY LUBRICANT LU 200	11	Ounces(OZ)	11-Dec-18
1497987	-	PERMATEX ANTI-SEIZE LUBRICANT	16	Ounces(OZ)	11-Dec-18
1497988	-	PERMATEX ANTI-SEIZE LUBRICANT	16	Ounces(OZ)	11-Dec-18
1497989	-	Battery Cleaner with Acid Indicator	11	Ounces(OZ)	11-Dec-18
1497990	-	DIELECTRIC GREASE	3.3	Ounces(OZ)	11-Dec-18
1497991	-	WD-40 NON-AEROSOL	20	Ounces(OZ)	11-Dec-18
1497992	-	SUPER HEAVY DUTY BRAKE FLUID	1	Quarts(QT)	11-Dec-18
1497993	-	2 CYCLE OIL	32	Ounces(OZ)	11-Dec-18
1513818	326-91-0	THENOYLTRIFLUOROACETONE	25	Gram(GM)	11-Dec-18
1513821	-	MicroC 2000	265	Gallon(GAL)	11-Dec-18
1513822	-	MicroC 2000	265	Gallon(GAL)	11-Dec-18
1514004	104-15-4	Chlorine Free Indicator Solution 473 mL	473	Milliliter(ML)	11-Dec-18
1514005	64771-72-8	PF SOLVENT DEGREASER	4	Gallon(GAL)	11-Dec-18
1514008	64771-72-8	PF SOLVENT DEGREASER	4	Gallon(GAL)	11-Dec-18
1514007	64771-72-8	PF SOLVENT DEGREASER	4	Gallon(GAL)	11-Dec-18
1514006	64771-72-8	PF SOLVENT DEGREASER	4	Gallon(GAL)	11-Dec-18
1514010	1665-00-5	DICHLOROMETHANE-D2	25	Gram(GM)	11-Dec-18
1514011	7778-77-0	POTASSIUM PHOSPHATE MONOBASIC	500	Gram(GM)	11-Dec-18
1514012	122-62-3	BIS(2-ETHYLHEXYL)SEBACATE	1000	Milliliter(ML)	11-Dec-18
1514017	122-62-3	BIS(2-ETHYLHEXYL)SEBACATE	1000	Milliliter(ML)	11-Dec-18
1514018	122-62-3	BIS(2-ETHYLHEXYL)SEBACATE	1000	Milliliter(ML)	11-Dec-18
1514016	122-62-3	BIS(2-ETHYLHEXYL)SEBACATE	1000	Milliliter(ML)	11-Dec-18
1514015	122-62-3	BIS(2-ETHYLHEXYL)SEBACATE	1000	Milliliter(ML)	11-Dec-18
1514014	122-62-3	BIS(2-ETHYLHEXYL)SEBACATE	1000	Milliliter(ML)	11-Dec-18
1514013	122-62-3	BIS(2-ETHYLHEXYL)SEBACATE	1000	Milliliter(ML)	11-Dec-18
1514019	122-62-3	BIS(2-ETHYLHEXYL)SEBACATE	1000	Milliliter(ML)	11-Dec-18
1514020	7365-45-9	HEPES	1	Kilograms(KG)	11-Dec-18
1514021	1665-00-5	DICHLOROMETHANE-D2	25	Gram(GM)	11-Dec-18
1514024	1665-00-5	DICHLOROMETHANE-D2	25	Gram(GM)	11-Dec-18
1514023	1665-00-5	DICHLOROMETHANE-D2	25	Gram(GM)	11-Dec-18
1514022	1665-00-5	DICHLOROMETHANE-D2	25	Gram(GM)	11-Dec-18
1514025	123-91-1	1 4-DIOXANE	2	Liters(L)	11-Dec-18
1514026	69011-20-7	AG 50W-X8 RESIN	500	Gram(GM)	11-Dec-18
1514027	69011-20-7	AG 50W-X8 RESIN	500	Gram(GM)	11-Dec-18
1514028	-	2-[(Dimethylamino)methyl]phenol	500	Milligram(MG)	11-Dec-18
1514029	107-21-1	ETHYLENE GLYCOL	4	Liters(L)	11-Dec-18
1514032	107-21-1	ETHYLENE GLYCOL	4	Liters(L)	11-Dec-18
1514030	107-21-1	ETHYLENE GLYCOL	4	Liters(L)	11-Dec-18
1514031	107-21-1	ETHYLENE GLYCOL	4	Liters(L)	11-Dec-18
1514033	-	HARDMAN DOUBLE/BUBBLE EPOXY	3.5	Gram(GM)	11-Dec-18
1514034	-	DOUBLE BUBBLE EPOXY	350	Gram(GM)	11-Dec-18
1514035	-	DOUBLE BUBBLE EPOXY	350	Gram(GM)	11-Dec-18
1420589	-	Craft Bond Multi-Purpose Spray Glue	10.25	Ounces(OZ)	12-Dec-18
1420592	-	Craft Bond Multi-Purpose Spray Glue	10.25	Ounces(OZ)	12-Dec-18
1420593	-	Craft Bond Multi-Purpose Spray Glue	10.25	Ounces(OZ)	12-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1420594	-	Craft Bond Multi-Purpose Spray Glue	10.25	Ounces(OZ)	12-Dec-18
1420595	-	Craft Bond Multi-Purpose Spray Glue	10.25	Ounces(OZ)	12-Dec-18
1420596	-	Craft Bond Multi-Purpose Spray Glue	10.25	Ounces(OZ)	12-Dec-18
1420590	-	Craft Bond Multi-Purpose Spray Glue	10.25	Ounces(OZ)	12-Dec-18
1420591	-	Craft Bond Multi-Purpose Spray Glue	10.25	Ounces(OZ)	12-Dec-18
1500063	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500084	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500081	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500085	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500086	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500087	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500064	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500082	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500071	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500068	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500083	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500067	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500066	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500070	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500072	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500073	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500077	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500080	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500079	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500069	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500078	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500074	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500076	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500075	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500065	-	Matrix Mastic 102	5	Gallon(GAL)	12-Dec-18
1500088	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500098	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500090	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500101	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500100	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500099	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500102	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500097	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500096	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500095	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500094	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500093	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500091	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500103	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500089	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500104	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500092	-	MATRIX MASTIC 202	5	Gallon(GAL)	12-Dec-18
1500105	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1500143	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500108	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500107	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500134	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500136	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500106	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500137	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500138	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500139	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500140	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500109	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500142	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500133	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500144	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500145	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500146	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500147	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500148	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500149	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500150	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500151	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500152	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500141	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500121	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500115	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500114	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500113	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500116	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500117	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500118	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500135	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500120	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500110	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500122	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500123	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500124	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500132	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500119	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500112	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500125	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500131	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500129	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500128	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500127	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500126	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500130	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500111	-	Lysol Disinfectant Cleaner	12	Ounces(OZ)	12-Dec-18
1500247	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1500254	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500253	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500252	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500251	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500250	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500248	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500282	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500255	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500249	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500279	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500256	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500280	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500278	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500277	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500276	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500275	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500274	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500273	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500272	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500271	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500270	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500269	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500261	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500281	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500257	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500268	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500260	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500258	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500262	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500263	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500264	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500265	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500266	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500267	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500259	-	SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	12-Dec-18
1500283	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500300	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500299	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500298	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500297	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500296	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500295	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500301	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500293	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500292	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500294	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500302	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500290	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1500289	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500287	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500285	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500284	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500286	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500291	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1500288	-	matrix 202 sbs flshing 5gal	4.75	Gallon(GAL)	12-Dec-18
1289148	-	Yellow Epoxy	32	Ounces(OZ)	12-Dec-18
1202423	-	Yellow Epoxy	32	Ounces(OZ)	12-Dec-18
1202411	68410-23-1	POLY(AMIDE) RESIN	1	Pint(PT)	12-Dec-18
1289120	-	SCOTCHWELD EPOXY ADHESIVE	50	Milliliter(ML)	12-Dec-18
1202829	-	SCOTCHCAST ELECTRICAL RESIN	1	Gallon(GAL)	12-Dec-18
1202830	-	SCOTCHCAST ELECTRICAL RESIN	1	Gallon(GAL)	12-Dec-18
1513662	-	3M FLUORINERT FC-70	0.75	Gallon(GAL)	12-Dec-18
1426284	-	ADIPRENE L-100	1	Gallon(GAL)	12-Dec-18
1513663	-	LIVE/DEAD BacLight Bacterial Viability Kit	100	Milliliter(ML)	12-Dec-18
1513664	-	SYLGARD 184	3.9	Kilograms(KG)	12-Dec-18
1513669	-	SYLGARD 184	3.9	Kilograms(KG)	12-Dec-18
1513668	-	SYLGARD 184	3.9	Kilograms(KG)	12-Dec-18
1513667	-	SYLGARD 184	3.9	Kilograms(KG)	12-Dec-18
1513666	-	SYLGARD 184	3.9	Kilograms(KG)	12-Dec-18
1513665	-	SYLGARD 184	3.9	Kilograms(KG)	12-Dec-18
1513670	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	12-Dec-18
1513823	-	GLYCERINE	262	Gallon(GAL)	12-Dec-18
1513829	7786-30-3	MAGNESIUM CHLORIDE	6	Milliliter(ML)	12-Dec-18
1514038	-	ALL-IN-ONE STANDARD PH BUFFER	60	Milliliter(ML)	12-Dec-18
1562686	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562696	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562703	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562701	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562700	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562699	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562689	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562698	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562697	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562695	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562694	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562693	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562692	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562690	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562704	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562688	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562687	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562691	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562702	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562706	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562707	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562708	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562709	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562710	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562705	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	12-Dec-18
1562711	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	12-Dec-18
1562712	7727-37-9	NITROGEN COMPRESSED GAS	40	Cubic Feet(CF)	12-Dec-18
1562713	7727-37-9	NITROGEN COMPRESSED GAS	20	Cubic Feet(CF)	12-Dec-18
1562714	7727-37-9	NITROGEN COMPRESSED GAS	20	Cubic Feet(CF)	12-Dec-18
1562482	7727-37-9	NITROGEN COMPRESSED GAS	20	Cubic Feet(CF)	12-Dec-18
1514039	-	BUFFER PH 1.68	475	Milliliter(ML)	13-Dec-18
1514040	-	PH ELECTRODE STORAGE SOLUTION	475	Milliliter(ML)	13-Dec-18
1514041	7697-37-2	NITRIC ACID OPTIMA	1	Liters(L)	13-Dec-18
1514042	-	SULFURIC ACID SOLUTION	1	Liters(L)	13-Dec-18
1514046	-	SULFURIC ACID SOLUTION	1	Liters(L)	13-Dec-18
1514047	-	SULFURIC ACID SOLUTION	1	Liters(L)	13-Dec-18
1514045	-	SULFURIC ACID SOLUTION	1	Liters(L)	13-Dec-18
1514044	-	SULFURIC ACID SOLUTION	1	Liters(L)	13-Dec-18
1514043	-	SULFURIC ACID SOLUTION	1	Liters(L)	13-Dec-18
1514048	760-67-8	2-ETHYL HEXANOYL CHLORIDE	25	Milliliter(ML)	13-Dec-18
1514049	10035-10-6	HYDROBROMIC ACID 48%	500	Milliliter(ML)	13-Dec-18
1514050	10035-10-6	HYDROBROMIC ACID 48%	500	Milliliter(ML)	13-Dec-18
1514051	10035-10-6	HYDROBROMIC ACID 48%	500	Milliliter(ML)	13-Dec-18
1514052	128-37-0	BUTYLATED HYDROXY TOLUENE	125	Gram(GM)	13-Dec-18
1514053	-	FLEX SEAL	32	Ounces(OZ)	13-Dec-18
1514055	-	FLEX SEAL	32	Ounces(OZ)	13-Dec-18
1514054	-	FLEX SEAL	32	Ounces(OZ)	13-Dec-18
1514056	-	FLEX SEAL	32	Ounces(OZ)	13-Dec-18
1514057	7697-37-2	NITRIC ACID 70%	500	Milliliter(ML)	13-Dec-18
1514060	7697-37-2	NITRIC ACID 70%	500	Milliliter(ML)	13-Dec-18
1514059	7697-37-2	NITRIC ACID 70%	500	Milliliter(ML)	13-Dec-18
1514061	7697-37-2	NITRIC ACID 70%	500	Milliliter(ML)	13-Dec-18
1514062	7697-37-2	NITRIC ACID 70%	500	Milliliter(ML)	13-Dec-18
1514058	7697-37-2	NITRIC ACID 70%	500	Milliliter(ML)	13-Dec-18
1514063	-	DPD COMPOUND FOR FREE AND	25	Gram(GM)	13-Dec-18
1514066	-	DPD COMPOUND FOR FREE AND	25	Gram(GM)	13-Dec-18
1514064	-	DPD COMPOUND FOR FREE AND	25	Gram(GM)	13-Dec-18
1514065	-	DPD COMPOUND FOR FREE AND	25	Gram(GM)	13-Dec-18
1514067	-	DPD COMPOUND FOR FREE AND	25	Gram(GM)	13-Dec-18
1562715	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562723	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562728	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562717	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562727	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562726	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562725	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562724	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562722	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562721	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562720	7440-59-7	HELIUM	150	Cubic	13-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562718	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562716	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562719	7440-59-7	HELIUM	150	Cubic	13-Dec-18
1562809	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562827	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562823	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562831	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562830	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562829	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562828	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562825	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562824	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562822	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562821	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562820	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562811	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562826	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562810	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562819	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562812	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562813	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562814	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562815	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562816	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562817	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562818	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562833	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562834	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562835	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562836	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562837	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562838	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562832	7440-59-7	HELIUM	220	Cubic Feet(CF)	13-Dec-18
1562839	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1514068	68951-93-9	Poly(dimethylsiloxane-co-diphenylsiloxane)	100	Gram(GM)	13-Dec-18
1514070	68951-93-9	Poly(dimethylsiloxane-co-diphenylsiloxane)	100	Gram(GM)	13-Dec-18
1514069	68951-93-9	Poly(dimethylsiloxane-co-diphenylsiloxane)	100	Gram(GM)	13-Dec-18
1562840	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562846	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562844	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562848	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562847	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562849	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562850	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562851	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562852	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562853	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562842	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562843	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562854	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562841	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562845	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	13-Dec-18
1562855	7440-59-7	Helium UHP	220	Cubic Feet(CF)	13-Dec-18
1562859	7440-59-7	Helium UHP	220	Cubic Feet(CF)	13-Dec-18
1562856	7440-59-7	Helium UHP	220	Cubic Feet(CF)	13-Dec-18
1562858	7440-59-7	Helium UHP	220	Cubic Feet(CF)	13-Dec-18
1562857	7440-59-7	Helium UHP	220	Cubic Feet(CF)	13-Dec-18
1562860	-	CARBON DIOXIDE IN NITROGEN	150	Cubic Feet(CF)	13-Dec-18
1562729	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562740	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562742	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562743	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562744	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562745	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562746	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562732	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562741	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562739	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562731	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562733	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562734	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562735	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562736	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562730	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562737	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562738	-	Argon UHP	220	Cubic Feet(CF)	13-Dec-18
1562747	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562755	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562769	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562759	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562764	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562768	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562767	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562766	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562765	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562763	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562762	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562760	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562758	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562757	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562756	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562761	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562776	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562770	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562771	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562772	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562784	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562773	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562774	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562775	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562778	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562779	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562780	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562781	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562783	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562782	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562777	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1514071	109-99-9	TETRAHYDROFURAN	4	Liters(L)	13-Dec-18
1514072	109-99-9	TETRAHYDROFURAN	4	Liters(L)	13-Dec-18
1514073	109-99-9	TETRAHYDROFURAN	4	Liters(L)	13-Dec-18
1514074	109-99-9	TETRAHYDROFURAN	4	Liters(L)	13-Dec-18
1562785	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562788	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562789	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562787	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1562786	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	13-Dec-18
1514075	811-97-2	AERO-DUSTER	11	Ounces(OZ)	13-Dec-18
1514078	811-97-2	AERO-DUSTER	11	Ounces(OZ)	13-Dec-18
1514077	811-97-2	AERO-DUSTER	11	Ounces(OZ)	13-Dec-18
1514082	811-97-2	AERO-DUSTER	11	Ounces(OZ)	13-Dec-18
1514079	811-97-2	AERO-DUSTER	11	Ounces(OZ)	13-Dec-18
1514080	811-97-2	AERO-DUSTER	11	Ounces(OZ)	13-Dec-18
1514081	811-97-2	AERO-DUSTER	11	Ounces(OZ)	13-Dec-18
1514083	811-97-2	AERO-DUSTER	11	Ounces(OZ)	13-Dec-18
1514085	811-97-2	AERO-DUSTER	11	Ounces(OZ)	13-Dec-18
1514086	811-97-2	AERO-DUSTER	11	Ounces(OZ)	13-Dec-18
1514076	811-97-2	AERO-DUSTER	11	Ounces(OZ)	13-Dec-18
1514084	811-97-2	AERO-DUSTER	11	Ounces(OZ)	13-Dec-18
1562790	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562798	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562807	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562806	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562805	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562804	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562803	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562802	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562801	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562808	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562796	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562791	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562792	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562793	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562800	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562795	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562797	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562799	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1562794	-	AIR COMPRESSED	220	Cubic Feet(CF)	13-Dec-18
1514087	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	13-Dec-18
1514091	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	13-Dec-18
1514098	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	13-Dec-18
1514096	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	13-Dec-18
1514095	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	13-Dec-18
1514094	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	13-Dec-18
1514092	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	13-Dec-18
1514090	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	13-Dec-18
1514089	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	13-Dec-18
1514088	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	13-Dec-18
1514097	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	13-Dec-18
1514093	811-97-2	SPRAY DUSTER	11	Ounces(OZ)	13-Dec-18
1562861	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	13-Dec-18
1514099	-	Chemical Oxygen Demand (COD) Mercury-Free	50	Milliliter(ML)	13-Dec-18
1562863	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	13-Dec-18
1562862	7782-44-7	OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	13-Dec-18
1514101	-	Chemical Oxygen Demand (COD) Mercury-Free	50	Milliliter(ML)	13-Dec-18
1514102	-	Chemical Oxygen Demand (COD) Mercury-Free	50	Milliliter(ML)	13-Dec-18
1514103	-	Chemical Oxygen Demand (COD) Mercury-Free	50	Milliliter(ML)	13-Dec-18
1514104	-	Chemical Oxygen Demand (COD) Mercury-Free	50	Milliliter(ML)	13-Dec-18
1514100	-	Chemical Oxygen Demand (COD) Mercury-Free	50	Milliliter(ML)	13-Dec-18
1514105	-	TOTAL ALKALINITY INDICATOR	50	Milliliter(ML)	13-Dec-18
1514108	-	TOTAL ALKALINITY INDICATOR	50	Milliliter(ML)	13-Dec-18
1514110	-	TOTAL ALKALINITY INDICATOR	50	Milliliter(ML)	13-Dec-18
1514109	-	TOTAL ALKALINITY INDICATOR	50	Milliliter(ML)	13-Dec-18
1514107	-	TOTAL ALKALINITY INDICATOR	50	Milliliter(ML)	13-Dec-18
1514106	-	TOTAL ALKALINITY INDICATOR	50	Milliliter(ML)	13-Dec-18
1514111	3264-67-3	TRIETHYLOXONIUM HEXACHLOROANTIMONATE	5	Gram(GM)	13-Dec-18
1562864	-	NITROGEN 96% OXYGEN 4%	220	Cubic Feet(CF)	13-Dec-18
1514112	993-13-5	METHYLPHOSPHONIC ACID	25	Gram(GM)	13-Dec-18
1514114	993-13-5	METHYLPHOSPHONIC ACID	25	Gram(GM)	13-Dec-18
1514113	993-13-5	METHYLPHOSPHONIC ACID	25	Gram(GM)	13-Dec-18
1562865	-	1% OXYGEN/99% NITROGEN	220	Cubic Feet(CF)	13-Dec-18
1562866	-	2% Oxygen/Balance Nitrogen	220	Cubic Feet(CF)	13-Dec-18
984317	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	13-Dec-18
1266585	-	TORR SEAL MIXER SYST. W/GUN	60	Milliliter(ML)	14-Dec-18
1266586	-	TORR SEAL MIXER SYST. W/GUN	60	Milliliter(ML)	14-Dec-18
1562868	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-18
1562869	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-18
1562870	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-18
1266578	-	HOUSEHOLD GLUE SILICONE II	82.8	Milliliter(ML)	14-Dec-18
1562871	7727-37-9	NITROGEN COMPRESSED GAS	100	Liters(L)	14-Dec-18
1562753	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	14-Dec-18
1562748	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	14-Dec-18
1562749	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	14-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562750	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	14-Dec-18
1562752	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	14-Dec-18
1562754	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	14-Dec-18
1562751	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	14-Dec-18
1266588	-	MN5A M-PREP NEUTRRALIZER 5A	50	Milliliter(ML)	14-Dec-18
1562872	1333-74-0	HYDROGEN	100	Liters(L)	14-Dec-18
1562873	1333-74-0	HYDROGEN	100	Liters(L)	14-Dec-18
1562874	1333-74-0	HYDROGEN	100	Liters(L)	14-Dec-18
1562875	-	P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Dec-18
1562544	74-86-2	ACETYLENE STABILIZED	130	Cubic Feet(CF)	14-Dec-18
1513671	-	Cooper's Own Self Dissolving Lily Tabs	40	Gram(GM)	17-Dec-18
1513672	-	Cooper's Own Self Dissolving Lily Tabs	40	Gram(GM)	17-Dec-18
1513675	-	Cooper's Own Self Dissolving Lily Tabs	40	Gram(GM)	17-Dec-18
1513673	-	Cooper's Own Self Dissolving Lily Tabs	40	Gram(GM)	17-Dec-18
1513674	-	Cooper's Own Self Dissolving Lily Tabs	40	Gram(GM)	17-Dec-18
1513824	12070-12-1	TUNGSTEN CARBIDE	500	Gram(GM)	17-Dec-18
1513825	109-72-8	BUTYLLITHIUM 2.5M SOLUTION IN HEXANES	100	Milliliter(ML)	17-Dec-18
1513826	829-85-6	DIPHENYLPHOSPHINE	10	Gram(GM)	17-Dec-18
1513828	829-85-6	DIPHENYLPHOSPHINE	10	Gram(GM)	17-Dec-18
1513827	829-85-6	DIPHENYLPHOSPHINE	10	Gram(GM)	17-Dec-18
1514125	-	5B HARDNESS TEST KIT	20	Milliliter(ML)	17-Dec-18
1514126	-	5B HARDNESS TEST KIT	20	Milliliter(ML)	17-Dec-18
1514127	-	5B HARDNESS TEST KIT	20	Milliliter(ML)	17-Dec-18
1514129	-	MULTI-ELEMENT TEST SOLUTION	100	Milliliter(ML)	17-Dec-18
1514131	-	MULTI-ELEMENT TEST SOLUTION	100	Milliliter(ML)	17-Dec-18
1514130	-	MULTI-ELEMENT TEST SOLUTION	100	Milliliter(ML)	17-Dec-18
1497994	-	BLUE RTV SILICONE GASKET MAKER	1.69	Ounces(OZ)	17-Dec-18
1497995	-	BLUE RTV SILICONE GASKET MAKER	1.69	Ounces(OZ)	17-Dec-18
1497996	-	MOTOR ASSEMBLY GREASE NO.105	10	Ounces(OZ)	17-Dec-18
1497997	-	Windex Foaming Glass Cleaner	19.7	Ounces(OZ)	17-Dec-18
1497998	-	Windex Foaming Glass Cleaner	19.7	Ounces(OZ)	17-Dec-18
1498000	-	Windex Foaming Glass Cleaner	19.7	Ounces(OZ)	17-Dec-18
1497999	-	Windex Foaming Glass Cleaner	19.7	Ounces(OZ)	17-Dec-18
1498008	-	Windex Foaming Glass Cleaner	19.7	Ounces(OZ)	17-Dec-18
1498012	-	Windex Foaming Glass Cleaner	19.7	Ounces(OZ)	17-Dec-18
1498011	-	Windex Foaming Glass Cleaner	19.7	Ounces(OZ)	17-Dec-18
1498010	-	Windex Foaming Glass Cleaner	19.7	Ounces(OZ)	17-Dec-18
1498009	-	Windex Foaming Glass Cleaner	19.7	Ounces(OZ)	17-Dec-18
1498014	-	Windex Foaming Glass Cleaner	19.7	Ounces(OZ)	17-Dec-18
1498013	-	Windex Foaming Glass Cleaner	19.7	Ounces(OZ)	17-Dec-18
1498015	-	Windex Foaming Glass Cleaner	19.7	Ounces(OZ)	17-Dec-18
1498016	-	Scotchgard Spot Remover & upholstery cleaner	17	Ounces(OZ)	17-Dec-18
1498018	-	Scotchgard Spot Remover & upholstery cleaner	17	Ounces(OZ)	17-Dec-18
1498019	-	Scotchgard Spot Remover & upholstery cleaner	17	Ounces(OZ)	17-Dec-18
1498017	-	Scotchgard Spot Remover & upholstery cleaner	17	Ounces(OZ)	17-Dec-18
1514132	-	UniVer 3 Hardness Reagent	28.3	Gram(GM)	17-Dec-18
1514134	-	UniVer 3 Hardness Reagent	28.3	Gram(GM)	17-Dec-18
1514133	-	UniVer 3 Hardness Reagent	28.3	Gram(GM)	17-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1514135	-	MULTI ELEMENT STANDARD	250	Milliliter(ML)	17-Dec-18
1514136	-	MULTI ELEMENT STANDARD	250	Milliliter(ML)	17-Dec-18
1514137	110-62-3	VALERALDEHYDE	25	Milliliter(ML)	17-Dec-18
1514138	124-19-6	NONANAL	36	Milliliter(ML)	17-Dec-18
1514139	124-13-0	OCTANAL	25	Milliliter(ML)	17-Dec-18
1514140	111-71-7	HEPTANAL	25	Milliliter(ML)	17-Dec-18
1514141	1774-47-6	TRIMETHYLSULFOXONIUM IODIDE	100	Gram(GM)	17-Dec-18
1514142	64-17-5	ETHANOL	16	Ounces(OZ)	17-Dec-18
1514143	919-30-2	3-(Triethoxysilyl)propylamine	100	Milliliter(ML)	17-Dec-18
1514144	-	Loss On Ignition RM (LOI= 5%)	100	Gram(GM)	17-Dec-18
1514145	621-23-8	1 3 5-TRIMETHOXYBENZENE	10	Gram(GM)	17-Dec-18
1514146	1122-58-3	4-(DIMETHYLAMINO)PYRIDINE	5	Gram(GM)	17-Dec-18
1514147	7786-30-3	MAGNESIUM CHLORIDE ANHYDROUS	5	Gram(GM)	17-Dec-18
1514148	109-72-8	N-BUTYLLITHIUM	50	Milliliter(ML)	17-Dec-18
1514149	109-72-8	N-BUTYLLITHIUM	50	Milliliter(ML)	17-Dec-18
1514150	7440-32-6	TITANIUM POWDER	100	Gram(GM)	17-Dec-18
1514151	Multi	Buffer pH 4.01 (Pink)	475	Milliliter(ML)	17-Dec-18
1498020	-	DISINFECTANT SPRAY	12.5	Ounces(OZ)	17-Dec-18
1498023	-	DISINFECTANT SPRAY	12.5	Ounces(OZ)	17-Dec-18
1498022	-	DISINFECTANT SPRAY	12.5	Ounces(OZ)	17-Dec-18
1498024	-	DISINFECTANT SPRAY	12.5	Ounces(OZ)	17-Dec-18
1498025	-	DISINFECTANT SPRAY	12.5	Ounces(OZ)	17-Dec-18
1498026	-	DISINFECTANT SPRAY	12.5	Ounces(OZ)	17-Dec-18
1498021	-	DISINFECTANT SPRAY	12.5	Ounces(OZ)	17-Dec-18
1513676	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	17-Dec-18
1513677	7647-01-0	HYDROCHLORIC ACID OPTIMA-34%	2	Liters(L)	17-Dec-18
1513678	-	TUNGSTEN STANDARD	50	Milliliter(ML)	17-Dec-18
1513679	-	GOLD STANDARD	50	Milliliter(ML)	17-Dec-18
1513680	-	ALUMINUM STANDARD	500	Milliliter(ML)	17-Dec-18
1513681	-	MANGANESE STANDARD	100	Milliliter(ML)	17-Dec-18
1513682	79-37-8	OXALYL CHLORIDE	25	Gram(GM)	17-Dec-18
1513683	98-01-1	FURFURAL	500	Milliliter(ML)	17-Dec-18
1513684	4111-54-0	LITHIUM DIISOPROPYLAMIDE (LDA)	100	Milliliter(ML)	17-Dec-18
1513685	-	Nsil-HF	200	Milliliter(ML)	17-Dec-18
1513830	1336-21-6	AMMONIUM HYDROXIDE	500	Milliliter(ML)	17-Dec-18
1513831	1336-21-6	AMMONIUM HYDROXIDE	2.5	Liters(L)	17-Dec-18
1513832	1336-21-6	AMMONIUM HYDROXIDE	1	Liters(L)	17-Dec-18
1513833	110-54-3	HEXANE HPLC	1	Liters(L)	17-Dec-18
1514152	76-05-1	TRIFLUOROACETIC ACID	500	Gram(GM)	17-Dec-18
1514157	76-05-1	TRIFLUOROACETIC ACID	500	Gram(GM)	17-Dec-18
1514153	76-05-1	TRIFLUOROACETIC ACID	500	Gram(GM)	17-Dec-18
1514154	76-05-1	TRIFLUOROACETIC ACID	500	Gram(GM)	17-Dec-18
1514155	76-05-1	TRIFLUOROACETIC ACID	500	Gram(GM)	17-Dec-18
1514156	76-05-1	TRIFLUOROACETIC ACID	500	Gram(GM)	17-Dec-18
1514158	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514173	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514168	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514170	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1514159	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514160	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514161	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514162	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514163	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514164	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514165	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514175	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514167	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514181	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514169	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514171	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514174	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514176	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514177	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514178	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514179	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514180	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514166	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514172	-	GREAT STUFF FOAM SEALANT	24	Ounces(OZ)	17-Dec-18
1514182	19524-06-2	4-BROMOPYRIDINE HYDROCHLORIDE	25	Gram(GM)	17-Dec-18
1514183	19524-06-2	4-BROMOPYRIDINE HYDROCHLORIDE	25	Gram(GM)	17-Dec-18
1514184	-	TRIS(DIBUTYLSULFIDE)RHODIUM TRICHLORIDE	5	Gram(GM)	17-Dec-18
1514185	-	TRIS(DIBUTYLSULFIDE)RHODIUM TRICHLORIDE	25	Gram(GM)	17-Dec-18
1514186	-	TRIS(DIBUTYLSULFIDE)RHODIUM TRICHLORIDE	5	Gram(GM)	17-Dec-18
1514187	-	TRIS(DIBUTYLSULFIDE)RHODIUM TRICHLORIDE	5	Gram(GM)	17-Dec-18
1514188	-	TRIS(DIBUTYLSULFIDE)RHODIUM TRICHLORIDE	5	Gram(GM)	17-Dec-18
1514189	10361-82-7	SAMARIUM TRICHLORIDE	10	Gram(GM)	17-Dec-18
1514190	10024-93-8	NEODYMIUM (III) CHLORIDE	5	Gram(GM)	17-Dec-18
1514191	-	MULTI-ELEMENT PLASMA STANDARD QC-19	100	Milliliter(ML)	17-Dec-18
1514192	-	RADIACWASH	1	Gallon(GAL)	17-Dec-18
1514193	-	RADIACWASH	1	Gallon(GAL)	17-Dec-18
1514194	-	TOTAL CHLORINE INDICATOR SOLUTION# 22634-	473	Milliliter(ML)	17-Dec-18
1514195	-	TOTAL CHLORINE INDICATOR SOLUTION# 22634-	473	Milliliter(ML)	17-Dec-18
1514196	-	TOTAL CHLORINE INDICATOR SOLUTION# 22634-	473	Milliliter(ML)	17-Dec-18
1514197	104-15-4	Chlorine Free Indicator Solution 473 mL	473	Milliliter(ML)	17-Dec-18
1514198	104-15-4	Chlorine Free Indicator Solution 473 mL	473	Milliliter(ML)	17-Dec-18
1514199	513-86-0	3-HYDROXY-2-BUTANONE	50	Gram(GM)	17-Dec-18
1514200	141-43-5	ETHANOLAMINE	100	Milliliter(ML)	17-Dec-18
1514201	10450-60-9	PERIODIC ACID (HYDRATED)	100	Gram(GM)	17-Dec-18
1514202	7440-31-5	TIN METAL	500	Gram(GM)	17-Dec-18
1514203	-	GLASS CLEANER	32	Ounces(OZ)	17-Dec-18
1514204	-	ARMSTRONG EPOXY RESIN A-2	82	Gram(GM)	17-Dec-18
1514209	-	ARMSTRONG EPOXY RESIN A-2	82	Gram(GM)	17-Dec-18
1514206	-	ARMSTRONG EPOXY RESIN A-2	82	Gram(GM)	17-Dec-18
1514207	-	ARMSTRONG EPOXY RESIN A-2	82	Gram(GM)	17-Dec-18
1514208	-	ARMSTRONG EPOXY RESIN A-2	82	Gram(GM)	17-Dec-18
1514205	-	ARMSTRONG EPOXY RESIN A-2	82	Gram(GM)	17-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1514210	65-85-0	BENZOIC ACID	1	Kilograms(KG)	17-Dec-18
1514211	141-78-6	ETHYL ACETATE	4	Liters(L)	17-Dec-18
1514214	-	Thermo200 Treated Water Solution with Nalco	5	Gallon(GAL)	17-Dec-18
1514215	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	17-Dec-18
1514217	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	17-Dec-18
1514218	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	17-Dec-18
1514216	-	NITROGEN AMMONIA STANDARD	500	Milliliter(ML)	17-Dec-18
1514219	-	DPD FREE CHLORINE REAGENT	100	Gram(GM)	17-Dec-18
1514220	-	DPD TOTAL CHLORINE REAGENT	1000	Gram(GM)	17-Dec-18
1514221	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514223	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514233	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514222	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514225	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514226	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514227	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514228	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514229	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514230	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514231	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514232	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514237	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514224	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514236	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514234	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514235	7664-93-9	SULFURIC ACID	100	Milliliter(ML)	17-Dec-18
1514238	7681-65-4	COPPER(I) IODIDE	100	Gram(GM)	17-Dec-18
1514239	-	50X TRIS-Acetate-EDTA Buffer Ultra Pure Grade	1.6	Liters(L)	17-Dec-18
1514240	7664-38-2	PHOSPHORIC ACID 85%	1	Liters(L)	17-Dec-18
1514241	7664-38-2	PHOSPHORIC ACID 85%	1	Liters(L)	17-Dec-18
1513686	367-93-1	ISOPROPYL BETA-D-THIOGALACTOPYRANOSIDE	5	Gram(GM)	18-Dec-18
1514242	-	SYLGARD 186 SILICONE ELASTOMER KIT	0.5	Kilograms(KG)	18-Dec-18
1514246	-	SYLGARD 186 SILICONE ELASTOMER KIT	0.5	Kilograms(KG)	18-Dec-18
1514247	-	SYLGARD 186 SILICONE ELASTOMER KIT	0.5	Kilograms(KG)	18-Dec-18
1514244	-	SYLGARD 186 SILICONE ELASTOMER KIT	0.5	Kilograms(KG)	18-Dec-18
1514243	-	SYLGARD 186 SILICONE ELASTOMER KIT	0.5	Kilograms(KG)	18-Dec-18
1514245	-	SYLGARD 186 SILICONE ELASTOMER KIT	0.5	Kilograms(KG)	18-Dec-18
1514248	60-29-7	DIETHYL ETHER	5	Liters(L)	18-Dec-18
1514249	60-29-7	DIETHYL ETHER	5	Liters(L)	18-Dec-18
1514250	67-63-0	2-PROPANOL (2-PROPANOL ANHYDROUS	1	Liters(L)	18-Dec-18
1514251	10217-52-4	HYDRAZINE HYDRATE	250	Milliliter(ML)	18-Dec-18
1514252	106-88-7	1 2-EPOXYBUTANE	100	Gram(GM)	18-Dec-18
1514253	-	2-[(Dimethylamino)methyl]phenol	500	Milligram(MG)	18-Dec-18
1514254	326-91-0	2-Thenoyltrifluoroacetone	100	Gram(GM)	18-Dec-18
1514255	10217-52-4	HYDRAZINE HYDRATE	250	Milliliter(ML)	18-Dec-18
1514256	30525-89-4	PARAFORMALDEHYDE	100	Gram(GM)	18-Dec-18
1514257	1066-54-2	TRIMETHYLSILYLACETYLENE 98%	25	Gram(GM)	18-Dec-18
1514258	75-09-2	DICHLOROMETHANE	2.5	Liters(L)	18-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1514259	75-09-2	DICHLOROMETHANE	2.5	Liters(L)	18-Dec-18
1514260	-	PH ELECTRODE FILLING SOLUTION	60	Milliliter(ML)	18-Dec-18
1514261	-	PH ELECTRODE STORAGE SOLUTION	475	Milliliter(ML)	18-Dec-18
1514262	-	DC 3-6559 ACCELERATOR	0.45	Kilograms(KG)	18-Dec-18
1514263	2923-28-6	SILVER TRIFLUOROMETHANESULFONATE	25	Gram(GM)	18-Dec-18
1514264	10060-12-5	CHROMIUM(III) CHLORIDE HEXAHYDRATE	100	Gram(GM)	18-Dec-18
1514265	-	WELD ON PLASTIC PIPE CEMENT	4	Ounces(OZ)	18-Dec-18
1514268	-	WELD ON PLASTIC PIPE CEMENT	4	Ounces(OZ)	18-Dec-18
1514266	-	WELD ON PLASTIC PIPE CEMENT	4	Ounces(OZ)	18-Dec-18
1514267	-	WELD ON PLASTIC PIPE CEMENT	4	Ounces(OZ)	18-Dec-18
1514269	64-17-5	ETHYL ALCOHOL 200 PROOF	1	Pint(PT)	18-Dec-18
1514270	67-63-0	2-PROPANOL	4	Liters(L)	18-Dec-18
984318	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	18-Dec-18
984319	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	18-Dec-18
984320	7732-18-5	Hydrochloric Acid 30-31%	3000	Pounds(LB)	18-Dec-18
1498027	-	AW HYDRAULIC FLUID ISO 32	5	Gallon(GAL)	18-Dec-18
1498029	-	AW HYDRAULIC FLUID ISO 32	5	Gallon(GAL)	18-Dec-18
1498028	-	AW HYDRAULIC FLUID ISO 32	5	Gallon(GAL)	18-Dec-18
1498030	-	PREMIUM HYDRAULIC FLUID AW-32	5	Gallon(GAL)	18-Dec-18
1498032	-	PREMIUM HYDRAULIC FLUID AW-32	5	Gallon(GAL)	18-Dec-18
1498033	-	PREMIUM HYDRAULIC FLUID AW-32	5	Gallon(GAL)	18-Dec-18
1498031	-	PREMIUM HYDRAULIC FLUID AW-32	5	Gallon(GAL)	18-Dec-18
981896	7782-42-5	COLLODIAL GRAPHITE	30	Gram(GM)	18-Dec-18
981897	7782-42-5	COLLODIAL GRAPHITE	30	Gram(GM)	18-Dec-18
1514271	6915-15-7	DL-MALIC ACID	50	Gram(GM)	18-Dec-18
1514272	110-03-2	2 5-DIMETHYL-2 5-HEXANEDIOL	100	Gram(GM)	18-Dec-18
1514273	76-09-5	PINACOL	100	Gram(GM)	18-Dec-18
1514274	107-22-2	GLYOXAL	100	Gram(GM)	18-Dec-18
1514275	57-13-6	UREA	1	Kilograms(KG)	18-Dec-18
1514276	57-13-6	UREA	1	Kilograms(KG)	18-Dec-18
1514277	107-22-2	GLYOXAL 40% AQUEOUS SOLUTION	100	Gram(GM)	18-Dec-18
1514278	108-29-2	GAMMA-VALEROACETONE	100	Gram(GM)	18-Dec-18
1514279	-	2 3-BUTANEDIOL	500	Gram(GM)	18-Dec-18
1514280	67-51-6	3 5-DIMETHYLPYRAZOLE	100	Gram(GM)	18-Dec-18
1514281	540-38-5	4-IODOPHENOL	25	Gram(GM)	18-Dec-18
1514282	13965-03-2	BIS(TRIPHENYLPHOSPHINE)PALLADIUM(II)	25	Gram(GM)	18-Dec-18
1514283	68951-93-9	Poly(dimethylsiloxane-co-diphenylsiloxane)	25	Milliliter(ML)	18-Dec-18
1514284	86-74-8	CARBAZOLE	100	Gram(GM)	18-Dec-18
1514285	4511-42-6	L-(-)-Lactide	25	Gram(GM)	18-Dec-18
1514286	6289-46-9	Dimethyl 2 5-dioxocyclohexane-1 4-dicarboxylate	1	Kilograms(KG)	18-Dec-18
1514287	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514296	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514297	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514295	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514294	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514292	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514290	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514289	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1514288	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514293	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514308	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514316	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514315	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514314	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514313	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514312	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514311	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514301	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514309	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514291	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514307	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514306	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514305	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514304	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514303	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514302	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514310	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514326	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514334	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514333	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514332	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514331	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514330	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514329	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514317	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514327	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514319	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514325	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514324	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514323	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514322	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514321	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514320	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514318	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514328	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514298	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514299	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514300	-	POLYURETHANE SEALANT	10.1	Ounces(OZ)	18-Dec-18
1514335	7722-64-7	POTASSIUM PERMANGANATE	500	Gram(GM)	18-Dec-18
1514336	123-91-1	1 4-DIOXANE	1	Liters(L)	18-Dec-18
1514337	540-63-6	1 2-ETHANEDITHIOL	100	Milliliter(ML)	18-Dec-18
1514338	68609-97-2	Lord E-301 Adhesive Black	1	Quarts(QT)	18-Dec-18
1514339	68609-97-2	Lord E-301 Adhesive Black	1	Quarts(QT)	18-Dec-18
1514340	7440-42-8	BORON	1	Kilograms(KG)	18-Dec-18
1514341	-	KRYTOX GREASE	2	Ounces(OZ)	18-Dec-18
1514342	-	KRYTOX GREASE	2	Ounces(OZ)	18-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1514343	68951-93-9	Poly(dimethylsiloxane-co-diphenylsiloxane)	25	Milliliter(ML)	18-Dec-18
1514345	68951-93-9	Poly(dimethylsiloxane-co-diphenylsiloxane)	25	Milliliter(ML)	18-Dec-18
1514344	68951-93-9	Poly(dimethylsiloxane-co-diphenylsiloxane)	25	Milliliter(ML)	18-Dec-18
1514346	121-44-8	TRIETHYLAMINE	1	Liters(L)	18-Dec-18
1514347	108-31-6	MALEIC ANHYDRIDE	500	Gram(GM)	18-Dec-18
1514348	1450-14-2	HEXAMETHYLDISILANE	50	Gram(GM)	18-Dec-18
1514349	1450-14-2	HEXAMETHYLDISILANE	50	Gram(GM)	18-Dec-18
1514352	-	Drierite with indicator	5	Pounds(LB)	18-Dec-18
1514355	-	Drierite with indicator	5	Pounds(LB)	18-Dec-18
1514354	-	Drierite with indicator	5	Pounds(LB)	18-Dec-18
1514353	-	Drierite with indicator	5	Pounds(LB)	18-Dec-18
1432972	-	SNOOP LEAK DETECT	1	Gallon(GAL)	19-Dec-18
1423191	-	SUPER EPOXY	25	Milliliter(ML)	19-Dec-18
1487630	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	19-Dec-18
1487635	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	19-Dec-18
1487633	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	19-Dec-18
1487634	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	19-Dec-18
1487632	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	19-Dec-18
1487631	-	LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	19-Dec-18
1487625	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487629	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487626	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487627	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487628	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487671	-	Loctite High Performance LB N-5000	1	Pounds(LB)	19-Dec-18
1487674	-	Loctite High Performance LB N-5000	1	Pounds(LB)	19-Dec-18
1487673	-	Loctite High Performance LB N-5000	1	Pounds(LB)	19-Dec-18
1487672	-	Loctite High Performance LB N-5000	1	Pounds(LB)	19-Dec-18
1487636	-	Steelstik/J-B Stik	2	Ounces(OZ)	19-Dec-18
1487645	-	Steelstik/J-B Stik	2	Ounces(OZ)	19-Dec-18
1487644	-	Steelstik/J-B Stik	2	Ounces(OZ)	19-Dec-18
1487638	-	Steelstik/J-B Stik	2	Ounces(OZ)	19-Dec-18
1487640	-	Steelstik/J-B Stik	2	Ounces(OZ)	19-Dec-18
1487641	-	Steelstik/J-B Stik	2	Ounces(OZ)	19-Dec-18
1487642	-	Steelstik/J-B Stik	2	Ounces(OZ)	19-Dec-18
1487643	-	Steelstik/J-B Stik	2	Ounces(OZ)	19-Dec-18
1487637	-	Steelstik/J-B Stik	2	Ounces(OZ)	19-Dec-18
1487639	-	Steelstik/J-B Stik	2	Ounces(OZ)	19-Dec-18
1487419	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487422	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487423	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487424	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487425	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487427	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487428	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487426	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487420	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487421	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1487413	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487418	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487417	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487416	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487415	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487414	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	19-Dec-18
1487493	-	DYKEM SPRAY STEEL BLUE	12	Ounces(OZ)	19-Dec-18
1487495	-	DYKEM SPRAY STEEL BLUE	12	Ounces(OZ)	19-Dec-18
1487494	-	DYKEM SPRAY STEEL BLUE	12	Ounces(OZ)	19-Dec-18
1487490	-	DYKEM SPRAY BLUE FLUID	8	Ounces(OZ)	19-Dec-18
1487492	-	DYKEM SPRAY BLUE FLUID	8	Ounces(OZ)	19-Dec-18
1487491	-	DYKEM SPRAY BLUE FLUID	8	Ounces(OZ)	19-Dec-18
1487647	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487660	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487670	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487669	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487668	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487667	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487666	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487665	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487664	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487663	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487661	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487654	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487648	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487649	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487650	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487651	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487652	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487662	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487653	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487659	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487655	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487656	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487657	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487658	-	5-MINUTE EPOXY RESIN	1	Ounces(OZ)	19-Dec-18
1487383	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487389	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487390	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487392	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487391	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487387	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487388	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487384	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487385	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487386	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487403	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487409	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1487404	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487405	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487406	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487407	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487408	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487410	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487411	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487412	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487393	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487394	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487395	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487396	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487397	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487398	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487399	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487400	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487402	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487401	-	Cross Check - All Colors	1	Ounces(OZ)	19-Dec-18
1487496	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487499	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487497	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487498	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487575	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487580	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487602	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487601	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487600	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487599	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487598	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487597	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487596	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487595	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487593	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487591	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487577	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487603	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487579	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487594	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487581	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487582	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487590	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487589	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487588	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487587	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487586	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487585	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487584	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487583	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1487576	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487578	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487613	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487615	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487604	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487592	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487616	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487614	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487612	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487611	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487610	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487609	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487608	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487607	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487606	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487605	-	5-MINUTE EPOXY	1	Ounces(OZ)	19-Dec-18
1487574	-	SIMPLE GREEN	5	Gallon(GAL)	19-Dec-18
1487550	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487557	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487568	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487567	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487552	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487569	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487551	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487562	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487565	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487559	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487564	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487563	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487566	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487572	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487561	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487553	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487558	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487571	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487554	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487573	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487555	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487556	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487570	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487560	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1487542	-	5-MINUTE EPOXY RESIN	25	Milliliter(ML)	19-Dec-18
1487543	-	5-MINUTE EPOXY RESIN	25	Milliliter(ML)	19-Dec-18
1487544	-	5-MINUTE EPOXY RESIN	25	Milliliter(ML)	19-Dec-18
1487545	-	5-MINUTE EPOXY RESIN	25	Milliliter(ML)	19-Dec-18
1487546	-	5-MINUTE EPOXY RESIN	25	Milliliter(ML)	19-Dec-18
1487547	-	5-MINUTE EPOXY RESIN	25	Milliliter(ML)	19-Dec-18
1487549	-	5-MINUTE EPOXY RESIN	25	Milliliter(ML)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1487548	-	5-MINUTE EPOXY RESIN	25	Milliliter(ML)	19-Dec-18
1487539	-	LOCTITE 272 THREADLOCKER	50	Milliliter(ML)	19-Dec-18
1487540	-	LOCTITE 272 THREADLOCKER	50	Milliliter(ML)	19-Dec-18
1487503	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487506	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487514	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487504	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487512	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487511	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487510	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487505	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487509	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487508	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487507	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487513	-	Tap Magic EP-Xtra Cutting Fluid	4	Ounces(OZ)	19-Dec-18
1487527	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487538	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487528	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487529	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487530	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487531	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487532	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487533	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487534	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487535	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487536	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487537	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487470	-	LPS PRECISION CLEAN	28	Ounces(OZ)	19-Dec-18
1487479	-	LPS PRECISION CLEAN	28	Ounces(OZ)	19-Dec-18
1487478	-	LPS PRECISION CLEAN	28	Ounces(OZ)	19-Dec-18
1487477	-	LPS PRECISION CLEAN	28	Ounces(OZ)	19-Dec-18
1487473	-	LPS PRECISION CLEAN	28	Ounces(OZ)	19-Dec-18
1487476	-	LPS PRECISION CLEAN	28	Ounces(OZ)	19-Dec-18
1487472	-	LPS PRECISION CLEAN	28	Ounces(OZ)	19-Dec-18
1487471	-	LPS PRECISION CLEAN	28	Ounces(OZ)	19-Dec-18
1487475	-	LPS PRECISION CLEAN	28	Ounces(OZ)	19-Dec-18
1487474	-	LPS PRECISION CLEAN	28	Ounces(OZ)	19-Dec-18
1487459	-	CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	19-Dec-18
1487460	-	CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	19-Dec-18
1487461	-	CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	19-Dec-18
1487462	-	CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	19-Dec-18
1487463	-	CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	19-Dec-18
1487464	-	CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	19-Dec-18
1487465	-	CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	19-Dec-18
1487466	-	CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	19-Dec-18
1487467	-	CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	19-Dec-18
1487468	-	CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	19-Dec-18
1487469	-	Simple Green All-Purpose Cleaner	55	Gallon(GAL)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1487541	-	Simple Green All-Purpose Cleaner	55	Gallon(GAL)	19-Dec-18
1487455	-	HIT-RE 500 V3	11.1	Ounces(OZ)	19-Dec-18
1487458	-	HIT-RE 500 V3	11.1	Ounces(OZ)	19-Dec-18
1487456	-	HIT-RE 500 V3	11.1	Ounces(OZ)	19-Dec-18
1487457	-	HIT-RE 500 V3	11.1	Ounces(OZ)	19-Dec-18
1487278	-	Rescor 760 Ultra Temp Zirconia Oxide Base	4	Pint(PT)	19-Dec-18
1487279	-	Rescor 760 Ultra Temp Zirconia Oxide Base	4	Pint(PT)	19-Dec-18
1487267	-	Synergy 735	5	Gallon(GAL)	19-Dec-18
1500508	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500525	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500526	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500527	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500529	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500520	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500530	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500531	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500532	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500533	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500534	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500535	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500536	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500537	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500528	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500522	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500516	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500509	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500524	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500519	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500510	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500511	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500512	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500513	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500514	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500515	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500518	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500517	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500523	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500521	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500538	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500544	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500563	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500562	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500561	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500560	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500559	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500558	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500583	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500556	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1500566	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500598	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500545	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500546	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500547	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500548	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500549	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500557	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500573	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500582	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500581	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500580	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500579	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500578	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500577	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500576	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500564	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500574	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500565	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500572	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500571	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500570	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500569	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500568	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500567	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500552	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500575	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500617	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500550	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500611	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500612	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500613	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500614	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500615	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500609	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500597	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500608	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500618	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500619	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500620	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500621	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500622	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500623	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500624	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500616	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500542	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500599	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500553	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1500554	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500555	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500600	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500602	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500610	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500543	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500551	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500541	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500540	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500539	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500604	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500605	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500606	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500607	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500603	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500596	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500590	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500591	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500592	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500593	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500595	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500625	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500626	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500627	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500601	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500589	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500586	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500587	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500588	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500585	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500584	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500594	-	VULKEM 116 POLYURETHANE SEALANT	10.1	Ounces(OZ)	19-Dec-18
1500628	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500679	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500675	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500711	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500632	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500680	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500689	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500681	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500682	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500631	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500633	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500630	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500676	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500724	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500674	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500673	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1500672	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500699	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500698	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500634	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500671	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500683	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500670	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500677	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500702	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500726	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500727	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500728	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500721	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500720	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500719	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500718	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500717	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500705	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500697	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500703	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500678	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500701	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500700	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500716	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500715	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500664	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500669	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500725	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500722	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500629	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500704	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500696	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500646	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500666	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500644	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500643	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500642	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500641	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500640	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500639	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500638	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500693	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500694	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500668	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500714	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500647	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500687	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500686	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1500685	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500684	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500706	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500707	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500713	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500712	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500708	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500709	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500710	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500695	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500635	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500667	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500723	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500665	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500729	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500663	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500662	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500661	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500660	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500659	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500658	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500645	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500656	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500648	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500651	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500692	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500637	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500649	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500650	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500688	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500657	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500636	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500652	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500653	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500654	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500691	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500690	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500655	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500778	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500777	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500775	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500776	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500757	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500736	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500737	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500738	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500739	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500740	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1500741	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500742	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500743	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500759	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500745	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500747	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500756	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500755	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500754	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500753	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500752	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500751	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500750	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500749	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500748	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500744	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500762	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500773	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500772	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500771	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500770	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500769	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500768	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500767	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500766	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500765	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500735	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500763	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500734	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500761	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500760	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500758	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500802	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500730	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500731	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500732	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500733	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500774	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500764	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500788	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500779	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500800	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500801	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500799	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500798	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500797	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500796	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500795	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1500794	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500793	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500792	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500787	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500789	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500746	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500783	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500791	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500790	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500781	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500782	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500784	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500785	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500780	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500786	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500815	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500822	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500819	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500817	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500813	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500818	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500824	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500820	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500825	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500823	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500821	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500812	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500814	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500827	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500826	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500804	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500828	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500811	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500816	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500831	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500833	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500834	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500835	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500832	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500837	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500830	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500805	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500806	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500807	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500829	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500808	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500809	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1500810	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1500836	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1487431	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487435	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487434	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487433	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487441	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487436	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487437	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487438	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487439	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487440	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487432	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487450	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487454	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487453	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487448	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487451	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487442	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487449	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487447	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487446	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487445	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487444	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487443	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1487452	-	LPS Tapmatic #1 Gold (Aerosol)	11	Ounces(OZ)	19-Dec-18
1500477	-	VULKEM 116 WHITE	10.1	Ounces(OZ)	19-Dec-18
1487359	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487376	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487371	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487361	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487362	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487363	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487364	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487365	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487366	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487367	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487368	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487360	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487370	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487375	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487372	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487373	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487377	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487378	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487379	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487380	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487381	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487382	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1487374	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487369	-	AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	19-Dec-18
1487280	-	LOCTITE 262 THREADLOCKER	50	Milliliter(ML)	19-Dec-18
1487283	-	LOCTITE 262 THREADLOCKER	50	Milliliter(ML)	19-Dec-18
1487282	-	LOCTITE 262 THREADLOCKER	50	Milliliter(ML)	19-Dec-18
1487284	-	LOCTITE 262 THREADLOCKER	50	Milliliter(ML)	19-Dec-18
1487285	-	LOCTITE 262 THREADLOCKER	50	Milliliter(ML)	19-Dec-18
1487281	-	LOCTITE 262 THREADLOCKER	50	Milliliter(ML)	19-Dec-18
1487270	-	Synergy 735	55	Gallon(GAL)	19-Dec-18
1487271	-	Synergy 735	55	Gallon(GAL)	19-Dec-18
1487268	-	Blasoclean AF	1	Gallon(GAL)	19-Dec-18
1487269	-	Blasoclean AF	1	Gallon(GAL)	19-Dec-18
1562876	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Dec-18
1487272	-	Blasocut BC 940	55	Gallon(GAL)	19-Dec-18
1487274	-	Blasocut BC 940	55	Gallon(GAL)	19-Dec-18
1487275	-	Blasocut BC 940	55	Gallon(GAL)	19-Dec-18
1487276	-	Blasocut BC 940	55	Gallon(GAL)	19-Dec-18
1487273	-	Blasocut BC 940	55	Gallon(GAL)	19-Dec-18
1487277	-	Blasocut BC 940	55	Gallon(GAL)	19-Dec-18
1562884	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Dec-18
1562887	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Dec-18
1562885	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Dec-18
1562883	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Dec-18
1562882	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Dec-18
1562880	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Dec-18
1562877	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Dec-18
1562879	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Dec-18
1562878	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Dec-18
1562881	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Dec-18
1562886	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Dec-18
1487265	-	NU-CLEAR THREAD CUTTING OIL	1	Gallon(GAL)	19-Dec-18
1487266	-	NU-CLEAR THREAD CUTTING OIL	1	Gallon(GAL)	19-Dec-18
1486781	-	VP Tech	5	Gallon(GAL)	19-Dec-18
1486782	-	VP Tech	5	Gallon(GAL)	19-Dec-18
1487247	-	TAPMATIC AQUACUT CUTTING FLUID	16	Ounces(OZ)	19-Dec-18
1487248	-	TAPMATIC AQUACUT CUTTING FLUID	16	Ounces(OZ)	19-Dec-18
1487249	-	TAPMATIC AQUACUT CUTTING FLUID	16	Ounces(OZ)	19-Dec-18
1487258	-	TAPMATIC AQUACUT CUTTING FLUID	16	Ounces(OZ)	19-Dec-18
1487257	-	TAPMATIC AQUACUT CUTTING FLUID	16	Ounces(OZ)	19-Dec-18
1487256	-	TAPMATIC AQUACUT CUTTING FLUID	16	Ounces(OZ)	19-Dec-18
1487255	-	TAPMATIC AQUACUT CUTTING FLUID	16	Ounces(OZ)	19-Dec-18
1487254	-	TAPMATIC AQUACUT CUTTING FLUID	16	Ounces(OZ)	19-Dec-18
1487253	-	TAPMATIC AQUACUT CUTTING FLUID	16	Ounces(OZ)	19-Dec-18
1487250	-	TAPMATIC AQUACUT CUTTING FLUID	16	Ounces(OZ)	19-Dec-18
1487251	-	TAPMATIC AQUACUT CUTTING FLUID	16	Ounces(OZ)	19-Dec-18
1487252	-	TAPMATIC AQUACUT CUTTING FLUID	16	Ounces(OZ)	19-Dec-18
1486990	-	MOBIL DTE 25 HYDRULIC OIL	5	Gallon(GAL)	19-Dec-18
1485662	-	FS-One Max	10	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1485665	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1485666	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1485664	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1485663	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1485668	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1485672	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1485671	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1485670	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1485669	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1485673	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1485667	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1562888	-	CHLOROFLUOROMETHANE	36	Cubic Feet(CF)	19-Dec-18
1562890	-	15% OXYGEN BAL. NITROGEN	2	Cubic Feet(CF)	19-Dec-18
1562893	-	15% OXYGEN BAL. NITROGEN	2	Cubic Feet(CF)	19-Dec-18
1562891	-	15% OXYGEN BAL. NITROGEN	2	Cubic Feet(CF)	19-Dec-18
1562892	-	15% OXYGEN BAL. NITROGEN	2	Cubic Feet(CF)	19-Dec-18
1498034	-	MOBIL 1 5W-50	1	Quarts(QT)	19-Dec-18
1498043	-	MOBIL 1 5W-50	1	Quarts(QT)	19-Dec-18
1498042	-	MOBIL 1 5W-50	1	Quarts(QT)	19-Dec-18
1498041	-	MOBIL 1 5W-50	1	Quarts(QT)	19-Dec-18
1498040	-	MOBIL 1 5W-50	1	Quarts(QT)	19-Dec-18
1498039	-	MOBIL 1 5W-50	1	Quarts(QT)	19-Dec-18
1498038	-	MOBIL 1 5W-50	1	Quarts(QT)	19-Dec-18
1498044	-	MOBIL 1 5W-50	1	Quarts(QT)	19-Dec-18
1498036	-	MOBIL 1 5W-50	1	Quarts(QT)	19-Dec-18
1498035	-	MOBIL 1 5W-50	1	Quarts(QT)	19-Dec-18
1498045	-	MOBIL 1 5W-50	1	Quarts(QT)	19-Dec-18
1498037	-	MOBIL 1 5W-50	1	Quarts(QT)	19-Dec-18
1487215	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487216	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487228	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487219	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487223	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487224	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487225	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487226	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487222	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487220	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487221	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487229	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487218	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487217	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487230	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487227	-	SIMPLE GREEN	24	Ounces(OZ)	19-Dec-18
1487231	-	SIMPLE GREEN	1	Gallon(GAL)	19-Dec-18
1487235	-	SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	19-Dec-18
1486976	-	STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	19-Dec-18
1486983	-	STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1486981	-	STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	19-Dec-18
1486984	-	STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	19-Dec-18
1486980	-	STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	19-Dec-18
1486987	-	STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	19-Dec-18
1486979	-	STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	19-Dec-18
1486977	-	STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	19-Dec-18
1486978	-	STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	19-Dec-18
1486986	-	STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	19-Dec-18
1486985	-	STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	19-Dec-18
1486982	-	STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	19-Dec-18
1486960	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486973	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486965	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486975	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486974	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486972	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486970	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486969	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486968	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486971	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486966	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486964	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486963	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486962	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486961	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486967	-	Stihl HP 2-Cycle Engine Oil	6.4	Ounces(OZ)	19-Dec-18
1486778	-	Stick-Kut	15	Ounces(OZ)	19-Dec-18
1486780	-	Stick-Kut	15	Ounces(OZ)	19-Dec-18
1486779	-	Stick-Kut	15	Ounces(OZ)	19-Dec-18
1486948	-	LPS TAPMATIC NATURAL DUAL ACTION CUTTING	16	Ounces(OZ)	19-Dec-18
1486952	-	LPS TAPMATIC NATURAL DUAL ACTION CUTTING	16	Ounces(OZ)	19-Dec-18
1486955	-	LPS TAPMATIC NATURAL DUAL ACTION CUTTING	16	Ounces(OZ)	19-Dec-18
1486950	-	LPS TAPMATIC NATURAL DUAL ACTION CUTTING	16	Ounces(OZ)	19-Dec-18
1486949	-	LPS TAPMATIC NATURAL DUAL ACTION CUTTING	16	Ounces(OZ)	19-Dec-18
1486951	-	LPS TAPMATIC NATURAL DUAL ACTION CUTTING	16	Ounces(OZ)	19-Dec-18
1486953	-	LPS TAPMATIC NATURAL DUAL ACTION CUTTING	16	Ounces(OZ)	19-Dec-18
1486954	-	LPS TAPMATIC NATURAL DUAL ACTION CUTTING	16	Ounces(OZ)	19-Dec-18
1486956	-	LPS TAPMATIC NATURAL DUAL ACTION CUTTING	16	Ounces(OZ)	19-Dec-18
1486957	-	LPS TAPMATIC NATURAL DUAL ACTION CUTTING	16	Ounces(OZ)	19-Dec-18
1486958	-	LPS TAPMATIC NATURAL DUAL ACTION CUTTING	16	Ounces(OZ)	19-Dec-18
1486959	-	LPS TAPMATIC NATURAL DUAL ACTION CUTTING	16	Ounces(OZ)	19-Dec-18
1486936	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1486941	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1486946	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1486945	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1486944	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1486943	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1486937	-	FS-One Max	10	Ounces(OZ)	19-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1486942	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1486940	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1486939	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1486938	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1486947	-	FS-One Max	10	Ounces(OZ)	19-Dec-18
1386709	-	PVC CEMENT REGULAR BODIED CLEAR	8	Ounces(OZ)	19-Dec-18
1386710	-	PURPLE PRIMER	8	Ounces(OZ)	19-Dec-18
1562894	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562898	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562895	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562896	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562899	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562911	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562920	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562919	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562918	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562917	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562916	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562915	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562914	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562897	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562912	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562910	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562903	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562900	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562913	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562902	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562909	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562904	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562905	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562906	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562907	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562908	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562901	-	Argon UHP	220	Cubic Feet(CF)	20-Dec-18
1562921	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	20-Dec-18
1562922	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	20-Dec-18
1562923	7440-37-1	ARGON COMPRESSED	220	Cubic Feet(CF)	20-Dec-18
1562924	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562941	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562944	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562943	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562953	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562952	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562951	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562950	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562949	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562948	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562947	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562945	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562942	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562940	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562939	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562938	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562928	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562925	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562946	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562927	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562937	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562929	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562930	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562931	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562936	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562933	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562934	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562935	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562932	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562926	-	Nitrogen UHP	220	Cubic Feet(CF)	20-Dec-18
1562954	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562967	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562968	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562969	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562970	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562971	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562972	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562974	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562958	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562966	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562973	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562957	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562960	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562965	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562956	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562959	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562955	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562961	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562962	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562963	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562964	7440-59-7	Helium UHP	220	Cubic Feet(CF)	20-Dec-18
1562975	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562990	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562978	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562984	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562989	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562988	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562987	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562986	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1562985	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562983	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562982	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562981	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562979	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562977	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562976	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562993	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562992	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562980	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563018	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563011	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563012	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563013	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563014	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563015	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562991	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563017	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563008	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563019	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563020	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563021	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563022	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563023	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563024	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563016	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563002	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562994	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562995	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562996	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562997	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562998	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1562999	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563010	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563001	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563009	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563003	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563004	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563005	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563006	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563007	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563000	-	6% Hydrogen 94% Argon	220	Cubic Feet(CF)	20-Dec-18
1563025	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Dec-18
1563026	7727-37-9	NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Dec-18
1563027	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563042	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563052	1333-74-0	HYDROGEN	150	Pounds(LB)	20-Dec-18
1563051	1333-74-0	HYDROGEN	150	Pounds(LB)	20-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1563050	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563049	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563048	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563047	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563046	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563045	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563043	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563041	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563040	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563030	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563044	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563029	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563039	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563031	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563032	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563033	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563034	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563035	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563036	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563037	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563038	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1563028	74-98-6	PROPANE	50	Cubic Feet(CF)	20-Dec-18
1433094	-	Spears LW-5 One-Step Low VOC Cement for	1	Quarts(QT)	20-Dec-18
1433120	-	Bridgit Lead Free Solder	1	Pounds(LB)	20-Dec-18
1563053	7727-37-9	NITROGEN COMPRESSED GAS	100	Liters(L)	20-Dec-18
1433123	-	Bridgit Lead Free Solder	1	Pounds(LB)	20-Dec-18
1433121	-	Bridgit Lead Free Solder	1	Pounds(LB)	20-Dec-18
1433122	-	Bridgit Lead Free Solder	1	Pounds(LB)	20-Dec-18
1563054	7727-37-9	NITROGEN COMPRESSED GAS	100	Liters(L)	20-Dec-18
1563055	7727-37-9	NITROGEN COMPRESSED GAS	100	Liters(L)	20-Dec-18
1433201	-	Megaloc	0.5	Pint(PT)	20-Dec-18
1563056	1333-74-0	HYDROGEN	100	Liters(L)	20-Dec-18
1563059	1333-74-0	HYDROGEN	100	Liters(L)	20-Dec-18
1563057	1333-74-0	HYDROGEN	100	Liters(L)	20-Dec-18
1563058	1333-74-0	HYDROGEN	100	Liters(L)	20-Dec-18
1433196	-	Bridgit Lead Free Solder	1	Pounds(LB)	20-Dec-18
1433199	-	Bridgit Lead Free Solder	1	Pounds(LB)	20-Dec-18
1433198	-	Bridgit Lead Free Solder	1	Pounds(LB)	20-Dec-18
1433197	-	Bridgit Lead Free Solder	1	Pounds(LB)	20-Dec-18
1433200	-	NOKORODE REGULAR PASTE FLUX	1	Pounds(LB)	20-Dec-18
1433095	-	NOKORODE REGULAR PASTE FLUX	1	Pounds(LB)	20-Dec-18
1433099	-	NOKORODE REGULAR PASTE FLUX	1	Pounds(LB)	20-Dec-18
1433096	-	NOKORODE REGULAR PASTE FLUX	1	Pounds(LB)	20-Dec-18
1433098	-	NOKORODE REGULAR PASTE FLUX	1	Pounds(LB)	20-Dec-18
1433097	-	NOKORODE REGULAR PASTE FLUX	1	Pounds(LB)	20-Dec-18
1433100	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433111	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433101	-	silvabrite 100	1	Pounds(LB)	20-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1433102	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433103	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433104	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433105	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433106	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433107	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433108	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433119	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433110	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433118	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433112	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433113	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433114	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433115	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433116	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433117	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433109	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433130	-	HERCULES PURPLE PVC PRIMER	1	Pint(PT)	20-Dec-18
1433131	-	Hercules PVC plastic pipe cement (clear med	1	Pint(PT)	20-Dec-18
1433132	-	ACID-AWAY	4	Ounces(OZ)	20-Dec-18
1433136	-	ACID-AWAY	4	Ounces(OZ)	20-Dec-18
1433138	-	ACID-AWAY	4	Ounces(OZ)	20-Dec-18
1433133	-	ACID-AWAY	4	Ounces(OZ)	20-Dec-18
1433137	-	ACID-AWAY	4	Ounces(OZ)	20-Dec-18
1433143	-	ACID-AWAY	4	Ounces(OZ)	20-Dec-18
1433139	-	ACID-AWAY	4	Ounces(OZ)	20-Dec-18
1433140	-	ACID-AWAY	4	Ounces(OZ)	20-Dec-18
1433141	-	ACID-AWAY	4	Ounces(OZ)	20-Dec-18
1433142	-	ACID-AWAY	4	Ounces(OZ)	20-Dec-18
1433134	-	ACID-AWAY	4	Ounces(OZ)	20-Dec-18
1433135	-	ACID-AWAY	4	Ounces(OZ)	20-Dec-18
1433124	-	PRIMER-70 PURPLE PRIMER	1	Quarts(QT)	20-Dec-18
1433125	-	PRIMER-70 PURPLE PRIMER	1	Quarts(QT)	20-Dec-18
1433126	-	Spears PVC-05 Low VOC PVC Plastic Pipe Cement	1	Quarts(QT)	20-Dec-18
1433129	-	Spears PVC-05 Low VOC PVC Plastic Pipe Cement	1	Quarts(QT)	20-Dec-18
1433128	-	Spears PVC-05 Low VOC PVC Plastic Pipe Cement	1	Quarts(QT)	20-Dec-18
1433127	-	Spears PVC-05 Low VOC PVC Plastic Pipe Cement	1	Quarts(QT)	20-Dec-18
1433144	-	MOBIL DTE OIL HEAVY MEDIUM	5	Gallon(GAL)	20-Dec-18
1433146	-	MOBIL DTE OIL HEAVY MEDIUM	5	Gallon(GAL)	20-Dec-18
1433147	-	MOBIL DTE OIL HEAVY MEDIUM	5	Gallon(GAL)	20-Dec-18
1433148	-	MOBIL DTE OIL HEAVY MEDIUM	5	Gallon(GAL)	20-Dec-18
1433145	-	MOBIL DTE OIL HEAVY MEDIUM	5	Gallon(GAL)	20-Dec-18
1433149	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433163	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433162	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433152	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433154	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433156	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1433153	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433161	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433160	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433159	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433158	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433157	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433170	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433169	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433167	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433155	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433168	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433166	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433165	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433171	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433150	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433164	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433151	-	Blue Monster PTFE Pipe Thread Sealant	0.25	Pint(PT)	20-Dec-18
1433172	57-55-6	PROPYLENE GLYCOL	558	Gallon(GAL)	20-Dec-18
1433173	-	Mainline Purple Low VOC Primer for PVC and	0.25	Pint(PT)	20-Dec-18
1433174	-	Mainline Purple Low VOC Primer for PVC and	0.25	Pint(PT)	20-Dec-18
1433175	-	Mainline Multi-Purpose Clear Medium Bodied	0.25	Pint(PT)	20-Dec-18
1433176	-	Mainline Multi-Purpose Clear Medium Bodied	0.25	Pint(PT)	20-Dec-18
1433177	-	Triple-D	1	Gallon(GAL)	20-Dec-18
1433179	-	Triple-D	1	Gallon(GAL)	20-Dec-18
1433180	-	Triple-D	1	Gallon(GAL)	20-Dec-18
1433178	-	Triple-D	1	Gallon(GAL)	20-Dec-18
1433181	-	STIHL MOTOMIX HIgh Performance Patented	1	Gallon(GAL)	20-Dec-18
1433183	-	STIHL MOTOMIX HIgh Performance Patented	1	Gallon(GAL)	20-Dec-18
1433184	-	STIHL MOTOMIX HIgh Performance Patented	1	Gallon(GAL)	20-Dec-18
1433182	-	STIHL MOTOMIX HIgh Performance Patented	1	Gallon(GAL)	20-Dec-18
1433185	-	STIHL MOTOMIX HIgh Performance Patented	1	Gallon(GAL)	20-Dec-18
1433186	-	DOW CORNING HIGH VACUUM GREASE	5.3	Ounces(OZ)	20-Dec-18
1433187	-	DOW CORNING HIGH VACUUM GREASE	5.3	Ounces(OZ)	20-Dec-18
1433188	-	DOW CORNING HIGH VACUUM GREASE	5.3	Ounces(OZ)	20-Dec-18
1433189	-	DOW CORNING HIGH VACUUM GREASE	5.3	Ounces(OZ)	20-Dec-18
1433190	-	DOW CORNING HIGH VACUUM GREASE	5.3	Ounces(OZ)	20-Dec-18
1433191	8042-47-5	Mueller Hydrant Lubricant	1	Gallon(GAL)	20-Dec-18
1433192	8042-47-5	Mueller Hydrant Lubricant	1	Gallon(GAL)	20-Dec-18
1433195	8042-47-5	Mueller Hydrant Lubricant	1	Gallon(GAL)	20-Dec-18
1433194	8042-47-5	Mueller Hydrant Lubricant	1	Gallon(GAL)	20-Dec-18
1433193	8042-47-5	Mueller Hydrant Lubricant	1	Gallon(GAL)	20-Dec-18
1433202	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433203	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433204	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433205	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433206	-	silvabrite 100	1	Pounds(LB)	20-Dec-18
1433207	-	NOKORODE REGULAR PASTE FLUX	1	Pounds(LB)	20-Dec-18
1433209	-	NOKORODE REGULAR PASTE FLUX	1	Pounds(LB)	20-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1433208	-	NOKORODE REGULAR PASTE FLUX	1	Pounds(LB)	20-Dec-18
1513687	7697-37-2	NITRIC ACID	2	Liters(L)	20-Dec-18
1513688	7697-37-2	NITRIC ACID	2	Liters(L)	20-Dec-18
1513690	7697-37-2	NITRIC ACID	2	Liters(L)	20-Dec-18
1513689	7697-37-2	NITRIC ACID	2	Liters(L)	20-Dec-18
1513691	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	20-Dec-18
1513692	7647-01-0	HYDROCHLORIC ACID (HCL HYDROGEN	2.5	Liters(L)	20-Dec-18
1513693	5329-14-6	SULFAMIC ACID	500	Gram(GM)	20-Dec-18
1513694	156-60-5	TRANS-1 2-DICHLOROETHYLENE	1	Gram(GM)	20-Dec-18
1513834	1592-20-7	4-VINYLBENZYLCHLORIDE	100	Milliliter(ML)	20-Dec-18
1513835	1592-20-7	4-VINYLBENZYLCHLORIDE	100	Milliliter(ML)	20-Dec-18
1514356	7664-93-9	Sulfuric Acid Digital Titrator Cartridge	100	Milliliter(ML)	20-Dec-18
1514358	7664-93-9	Sulfuric Acid Digital Titrator Cartridge	100	Milliliter(ML)	20-Dec-18
1514357	7664-93-9	Sulfuric Acid Digital Titrator Cartridge	100	Milliliter(ML)	20-Dec-18
1514359	-	Phenolphthalein Indicator Powder Pillows	100	Milligram(MG)	20-Dec-18
1514360	-	Phenolphthalein Indicator Powder Pillows	100	Milligram(MG)	20-Dec-18
1514361	-	Phenolphthalein Indicator Powder Pillows	100	Milligram(MG)	20-Dec-18
1514362	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514374	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514375	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514373	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514372	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514371	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514370	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514368	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514367	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514366	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514365	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514364	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514363	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514376	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514369	-	EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	20-Dec-18
1514377	-	EDTA Digital Titrator Cartridge 0.0800 M	1	Milliliter(ML)	20-Dec-18
1514378	-	EDTA Digital Titrator Cartridge 0.0800 M	1	Milliliter(ML)	20-Dec-18
1514379	-	EDTA Digital Titrator Cartridge 0.0800 M	1	Milliliter(ML)	20-Dec-18
1514380	-	EDTA Digital Titrator Cartridge 0.0800 M	1	Milliliter(ML)	20-Dec-18
1514381	-	EDTA Digital Titrator Cartridge 0.0800 M	1	Milliliter(ML)	20-Dec-18
1514382	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514386	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514416	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514412	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514394	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514393	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514415	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514417	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514411	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514414	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514404	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1514413	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514410	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514409	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514408	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514407	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514405	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514383	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514384	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514387	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514388	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514389	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514390	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514399	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514395	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514406	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514385	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514396	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514397	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514398	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514400	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514401	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514403	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514392	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514391	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514402	-	Aerosol Duster	11	Ounces(OZ)	20-Dec-18
1514419	-	AG MP-1M RESIN	500	Gram(GM)	20-Dec-18
1514420	75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	1.5	Milliliter(ML)	20-Dec-18
1514421	75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	1.5	Milliliter(ML)	20-Dec-18
1514422	75-09-2	METHYLENE CHLORIDE (DICHLOROMETHANE)	1.5	Milliliter(ML)	20-Dec-18
1514425	100-43-6	4-VINYLPYRIDINE	100	Milliliter(ML)	20-Dec-18
1514426	94-36-0	Luperox A75 Benzoyl peroxide	5	Gram(GM)	20-Dec-18
1514427	94-36-0	Luperox A75 Benzoyl peroxide	5	Gram(GM)	20-Dec-18
1514503	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514530	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514518	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514508	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514506	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514529	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514505	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514504	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514531	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514509	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514510	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514511	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514512	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514513	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514514	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514515	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1514517	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514528	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514520	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514516	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514519	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514526	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514525	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514524	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514523	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514522	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514532	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514521	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514507	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
1514527	-	Vermiculite	60	Cubic Feet(CF)	20-Dec-18
984321	-	TRI-ACT 1820	450	Pounds(LB)	20-Dec-18
984322	-	NALCO 1720 OXYGEN SCAVENGER SOLUTION	528	Pounds(LB)	20-Dec-18
984323	-	NALCO 7408 CHLORINE SCAVENGER SOLUTION	55	Gallon(GAL)	20-Dec-18
984324	-	Nexguard 22350	551	Pounds(LB)	20-Dec-18
1513836	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513848	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513851	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513850	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513849	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513843	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513837	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513838	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513847	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513846	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513844	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513842	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513841	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513839	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513840	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513845	872-50-4	1-METHYL-2-PYRROLIDINONE	4	Liters(L)	20-Dec-18
1513852	-	CLOROX	121	Ounces(OZ)	20-Dec-18
1513853	-	CLOROX	121	Ounces(OZ)	20-Dec-18
1514428	2767-80-8	Tris(hydroxymethyl)phosphine	1	Gram(GM)	20-Dec-18
1514429	2767-80-8	Tris(hydroxymethyl)phosphine	1	Gram(GM)	20-Dec-18
1514430	13822-56-5	3-(TRIMETHOXYSILYL)-1-PROPANAMINE	250	Milliliter(ML)	20-Dec-18
1514431	-	Sodium Hydroxide Digital Titrator Cartridge 8.00	1	Milliliter(ML)	20-Dec-18
1514437	-	Sodium Hydroxide Digital Titrator Cartridge 8.00	1	Milliliter(ML)	20-Dec-18
1514440	-	Sodium Hydroxide Digital Titrator Cartridge 8.00	1	Milliliter(ML)	20-Dec-18
1514438	-	Sodium Hydroxide Digital Titrator Cartridge 8.00	1	Milliliter(ML)	20-Dec-18
1514436	-	Sodium Hydroxide Digital Titrator Cartridge 8.00	1	Milliliter(ML)	20-Dec-18
1514435	-	Sodium Hydroxide Digital Titrator Cartridge 8.00	1	Milliliter(ML)	20-Dec-18
1514434	-	Sodium Hydroxide Digital Titrator Cartridge 8.00	1	Milliliter(ML)	20-Dec-18
1514433	-	Sodium Hydroxide Digital Titrator Cartridge 8.00	1	Milliliter(ML)	20-Dec-18
1514432	-	Sodium Hydroxide Digital Titrator Cartridge 8.00	1	Milliliter(ML)	20-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1514439	-	Sodium Hydroxide Digital Titrator Cartridge 8.00	1	Milliliter(ML)	20-Dec-18
1514441	-	GREAT STUFF FOAM SEALANT	12	Ounces(OZ)	20-Dec-18
1514444	-	GREAT STUFF FOAM SEALANT	12	Ounces(OZ)	20-Dec-18
1514443	-	GREAT STUFF FOAM SEALANT	12	Ounces(OZ)	20-Dec-18
1514442	-	GREAT STUFF FOAM SEALANT	12	Ounces(OZ)	20-Dec-18
1514445	151-21-3	SODIUM DODECYL SULFATE HPCE GRADE	500	Gram(GM)	20-Dec-18
1514446	-	MULTI ELEMENT STANDARD	200	Milliliter(ML)	20-Dec-18
1514447	7782-61-8	IRON(III) NITRATE NONAHYDRATE	10	Gram(GM)	20-Dec-18
1514448	66-28-4	Strophanthidin	250	Milligram(MG)	20-Dec-18
1514449	9003-39-8	POLYVINYLPYRROLIDONE	500	Gram(GM)	20-Dec-18
1514450	9003-39-8	POLYVINYLPYRROLIDONE	500	Gram(GM)	20-Dec-18
1514451	10102-20-2	SODIUM TELLURITE	10	Gram(GM)	20-Dec-18
1514452	1122-62-9	2-ACETYLPYRIDINE	100	Gram(GM)	20-Dec-18
1514453	1122-62-9	2-ACETYLPYRIDINE	100	Gram(GM)	20-Dec-18
1514454	129-00-0	PYRENE	100	Gram(GM)	20-Dec-18
1514455	129-00-0	PYRENE	100	Gram(GM)	20-Dec-18
1514456	-	FLUORIDE STANDARD	100	Milliliter(ML)	20-Dec-18
1514457	-	SULFATE STANDARD	100	Milliliter(ML)	20-Dec-18
1514458	18282-10-5	STANNIC OXIDE [TIN(IV) OXIDE]	100	Gram(GM)	20-Dec-18
1514463	7732-18-5	Fluorescent nanodiamond	5	Milliliter(ML)	20-Dec-18
1514464	2564-83-2	TEMPO FREE RADICAL	5	Gram(GM)	20-Dec-18
1514465	67-68-5	DIMETHYL SULFOXIDE	100	Milliliter(ML)	20-Dec-18
1514466	25034-58-6	BIO-GEL GEL	100	Gram(GM)	20-Dec-18
1514467	-	SYLGARD 184	3.9	Kilograms(KG)	20-Dec-18
1514468	-	SYLGARD 184	3.9	Kilograms(KG)	20-Dec-18
1514469	1321-74-0	DIVINYLBENZENE	250	Milliliter(ML)	20-Dec-18
1514470	75-11-6	DIIODOMETHANE	500	Gram(GM)	20-Dec-18
1514533	7726-95-6	BROMINE CERTIFIED ACS	100	Gram(GM)	20-Dec-18
1514534	7726-95-6	BROMINE CERTIFIED ACS	100	Gram(GM)	20-Dec-18
1514535	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514544	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514545	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514546	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514547	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514548	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514549	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514550	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514551	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514552	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514553	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514558	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514556	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514566	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514570	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514555	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514569	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514568	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514559	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1514560	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514561	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514562	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514563	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514567	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514564	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514565	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514554	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514557	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514542	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514541	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514540	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514539	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514538	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514537	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514536	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1514543	-	SYNFILM 68	1	Quarts(QT)	20-Dec-18
1500339	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500348	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500349	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500350	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500351	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500352	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500390	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500347	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500375	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500381	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500374	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500389	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500376	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500377	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500378	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500373	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500380	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500354	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500382	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500383	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500346	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500345	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500344	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500343	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500342	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500379	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500358	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500364	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500365	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500366	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500386	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1500385	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500341	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500384	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500363	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500362	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500361	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500387	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500359	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500372	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500357	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500367	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500368	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500369	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500370	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500356	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500355	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500353	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500388	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500371	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500360	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
1500340	497-19-8	SODIUM CARBONATE (SODA ASH)	50	Pounds(LB)	20-Dec-18
958552	-	MOBIL VACTRA 2	1	Gallon(GAL)	21-Dec-18
958547	-	MOBIL VACTRA 2	1	Gallon(GAL)	21-Dec-18
958548	-	MOBIL VACTRA 2	1	Gallon(GAL)	21-Dec-18
958549	-	MOBIL VACTRA 2	1	Gallon(GAL)	21-Dec-18
958550	-	MOBIL VACTRA 2	1	Gallon(GAL)	21-Dec-18
958551	-	MOBIL VACTRA 2	1	Gallon(GAL)	21-Dec-18
958554	-	VELOCITE OIL 3	5	Gallon(GAL)	21-Dec-18
958553	-	WD-40	1	Gallon(GAL)	21-Dec-18
958555	-	ALUMICUT	16	Ounces(OZ)	21-Dec-18
958557	-	ALUMICUT	16	Ounces(OZ)	21-Dec-18
958556	-	ALUMICUT	16	Ounces(OZ)	21-Dec-18
958558	-	MISTIC METAL MOVER ALUMICUT CUTTING	16	Ounces(OZ)	21-Dec-18
958559	-	MISTIC METAL MOVER ALUMICUT CUTTING	16	Ounces(OZ)	21-Dec-18
1514472	-	APIEZON GREASE TYPE L	25	Gram(GM)	21-Dec-18
1514473	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	21-Dec-18
1514480	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	21-Dec-18
1514484	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	21-Dec-18
1514483	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	21-Dec-18
1514482	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	21-Dec-18
1514474	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	21-Dec-18
1514481	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	21-Dec-18
1514479	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	21-Dec-18
1514478	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	21-Dec-18
1514477	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	21-Dec-18
1514476	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	21-Dec-18
1514475	-	FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	21-Dec-18
1514485	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	25	Milliliter(ML)	21-Dec-18

Chemical Usage July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1514494	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	25	Milliliter(ML)	21-Dec-18
1514487	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	25	Milliliter(ML)	21-Dec-18
1514488	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	25	Milliliter(ML)	21-Dec-18
1514489	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	25	Milliliter(ML)	21-Dec-18
1514490	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	25	Milliliter(ML)	21-Dec-18
1514491	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	25	Milliliter(ML)	21-Dec-18
1514486	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	25	Milliliter(ML)	21-Dec-18
1514493	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	25	Milliliter(ML)	21-Dec-18
1514492	865-49-6	CHLOROFORM-D 99.8+ ATOM% D	25	Milliliter(ML)	21-Dec-18
1514495	-	APIEZON AP101 GREASE	50	Gram(GM)	21-Dec-18
1514496	-	APIEZON AP101 GREASE	50	Gram(GM)	21-Dec-18
1514497	-	APIEZON AP101 GREASE	50	Gram(GM)	21-Dec-18
1514498	98-95-3	NITROBENZENE	2	Liters(L)	21-Dec-18
1514499	-	QIAQUICK PCR PURIFICATION KIT	2	Milliliter(ML)	21-Dec-18
1514500	-	Lipid Quantification Kit	200	Milliliter(ML)	21-Dec-18
1514501	-	MagAttract HMW DNA Kit	260.45	Milliliter(ML)	21-Dec-18
1514502	2923-28-6	SILVER TRIFLUOROMETHANESULFONATE	1	Gram(GM)	21-Dec-18
1514634	123-91-1	1 4-DIOXANE	2	Liters(L)	21-Dec-18
1514635	6196-95-8	ECOSCINT A	4	Liters(L)	21-Dec-18
1514636	6196-95-8	ECOSCINT A	4	Liters(L)	21-Dec-18
1514639	6196-95-8	ECOSCINT A	4	Liters(L)	21-Dec-18
1514640	6196-95-8	ECOSCINT A	4	Liters(L)	21-Dec-18
1514642	6196-95-8	ECOSCINT A	4	Liters(L)	21-Dec-18
1514641	6196-95-8	ECOSCINT A	4	Liters(L)	21-Dec-18
1514637	6196-95-8	ECOSCINT A	4	Liters(L)	21-Dec-18
1514646	6196-95-8	ECOSCINT A	4	Liters(L)	21-Dec-18
1514645	6196-95-8	ECOSCINT A	4	Liters(L)	21-Dec-18
1514644	6196-95-8	ECOSCINT A	4	Liters(L)	21-Dec-18
1514643	6196-95-8	ECOSCINT A	4	Liters(L)	21-Dec-18
1514638	6196-95-8	ECOSCINT A	4	Liters(L)	21-Dec-18
1514647	-	AVISTACLEAN MF 1000	350	Pounds(LB)	21-Dec-18
1514648	-	AVISTACLEAN MF 1000	350	Pounds(LB)	21-Dec-18
1514649	-	AVISTACLEAN MF 1000	350	Pounds(LB)	21-Dec-18
1514650	-	AvistaClean MF3000	350	Pounds(LB)	21-Dec-18
1514652	-	AvistaClean MF3000	350	Pounds(LB)	21-Dec-18
1514651	-	AvistaClean MF3000	350	Pounds(LB)	21-Dec-18

ATTACHMENT A907.B.a.

Chemical Usage

RLUOB-CHEM Chemical Purchases from ChemDB

RLUOB-CHEM Chemical Purchases July - December 2018

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
1521093	1341-49-7	DISSOLUTION SOLUTION - AMMONIUM BIFLUORIDE IN WATER	500	Milliliter(ML)	25-Jul-18
1521095	1341-49-7	DISSOLUTION SOLUTION - AMMONIUM BIFLUORIDE IN WATER	500	Milliliter(ML)	25-Jul-18
1521094	1341-49-7	DISSOLUTION SOLUTION - AMMONIUM BIFLUORIDE IN WATER	500	Milliliter(ML)	25-Jul-18
1511463	7664-93-9	SULFURIC ACID	2.5	Liters(L)	23-Oct-18
1511980	12027-67-7	AMMONIUM PARA-MOLYBDATE	100	Gram(GM)	24-Oct-18
1512000	7664-38-2	PHOSPHORIC ACID	2.5	Liters(L)	24-Oct-18
1512001	5329-14-6	SULFAMIC ACID	500	Gram(GM)	24-Oct-18
1512096	7782-63-0	FERROUS SULFATE HEPTAHYDRATE	500	Gram(GM)	24-Oct-18
1512023	60-00-4	ETHYLENEDIAMINETETRAACETIC ACID	25	Gram(GM)	24-Oct-18
1512137	12036-21-4	VANADIUM(IV) OXIDE	50	Gram(GM)	25-Oct-18
1512150	-	AG MP-1M RESIN	500	Gram(GM)	25-Oct-18
1512179	9002-93-1	TRITON X-100	500	Milliliter(ML)	25-Oct-18
1512128	-	HYDROGEN PEROXIDE OPTIMA	500	Milliliter(ML)	26-Oct-18
1512242	7778-50-9	POTASSIUM DICHROMATE	100	Gram(GM)	26-Oct-18
1512364	7664-41-7	AMMONIA	1	Liters(L)	31-Oct-18

ATTACHMENT A907.B.b.

Chemical Usage

RLUOB-CHEM Chemical Quantity Total

RLUOB-CHEM Chemical Totals July - December 2018

2018 CMRR-RLUOB HAPs Monthly Emission Rates (lbs)

Cas Number	Chemical Name	January	February	March	April	May	June	July	August	September	October	November	December
107-21-1	Ethylene Glycol	0	0	0	0	0	0	0	0	0	0	0	0
110-54-3	Hexane	0	0	0	0	0	0	0	0	0	0	0	0
7664-39-3	Hydrogen Fluoride	0	0	0.55	0	0	0	0	0	0	0	0	0
7647-01-0	Hydrochloric Acid	0	9.26	9.26	5.79	0	0	0	0	0	0	0	0
67-56-1	Methyl Alcohol	0	0	0	0	0	0	0	0	0	0	0	0
75-09-2	Methylene Chloride	0	0	0	0	0	0	0	0	0	0	0	0
100-42-5	Styrene	0	0	0	0	0	0	0	0	0	0	0	0
108-88-3	Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Nickel	Nickel Compounds	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
HAPs Monthly Total		0	9.26	9.81	5.79	0	0	0	0	0	0	0	0

2018 CMRR-RLUOB HAPS 12-Month Rolling Total (lb)

Cas Number	Chemical Name	January	February	March	April	May	June	July	August	September	October	November	December
107-21-1	Ethylene Glycol	0	0	0	0	0	0	0	0	0	0	0	0
110-54-3	Hexane	0	0	0	0	0	0	0	0	0	0	0	0
7664-39-3	Hydrogen Fluoride	0.55	0.55	1.1	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
7647-01-0	Hydrochloric Acid	12.17	21.43	30.69	31.25	31.25	31.25	31.25	31.25	24.31	24.31	24.31	24.31
67-56-1	Methyl Alcohol	0	0	0	0	0	0	0	0	0	0	0	0
75-09-2	Methylene Chloride	0	0	0	0	0	0	0	0	0	0	0	0
100-42-5	Styrene	0	0	0	0	0	0	0	0	0	0	0	0
108-88-3	Toluene	0	0	0	0	0	0	0	0	0	0	0	0
Nickel	Nickel Compounds	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
TAPs 12 Month Rolling Total		12.72	21.98	31.79	31.8	31.8	31.8	31.8	31.8	24.86	24.86	24.86	24.86

RLUOB-CHEM Chemical Totals July - December 2018

2018 CMRR-RLUOB TAPs Monthly Emission Rates (lb)

	January	February	March	April	May	June	July	August	September	October	November	December
Total TAPs	0.00	27.35	21.59	4.76	0.00	20.01	0.00	0.00	0.00	22.08	0.00	0.00
TAPs 12 Month Rolling Total	36.05	54.99	76.58	81.34	67.88	87.05	87.05	87.05	73.71	95.79	95.79	95.79

2018 CMRR-RLUOB VOC Monthly Emission Rates (lb)

	January	February	March	April	May	June	July	August	September	October	November	December
Total VOC	0.00	0.00	4.46	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC 12 Month Rolling Total	0.00	0.00	4.46	6.78	6.78	6.78	6.78	6.78	6.78	6.78	6.78	6.78

ATTACHMENT A1007.A.a.

Degreaser

Degreaser Solvent Usage from Tracking Database

Degreaser Solvent Usage
July – December 2018

Emission Unit	TA/Building	Type of Degreaser	Solvent
TA-55-DG-1	TA-55	Cold Batch	3M Novec Engineered Fluid 72DE

Date Measured	Initial Solvent Level (inches)	Volume Added (liters)	Level Added (inches)	Volume Removed (liters)	Level Removed (inches)
Jul-31-2018	0.00	0.00	0.00	0.00	0.00
Sep-01-2018	0.00	0.00	0.00	0.00	0.00
Oct-01-2018	0.00	15.73	8.00	0.00	0.00
Oct-31-2018	7.00	0.00	0.00	0.00	0.00
Nov-09-2018	7.00	1.97	1.00	0.00	0.00
Jan-07-2019	5.00	0.00	0.00	0.00	0.00

ATTACHMENT A1007.A.b.

Degreaser

Completed Work Practice Checklist

MONTHLY WORK PRACTICE CHECK LIST
TA-55-DG-1 DEGREASER

R 04/20/2015

Date of Action: 7/31/18	Location of Source : (TA/BLDG/Room) TA-55-PF4-319

Monitoring Requirements(A1007.A[1]):	Yes/No	Comments
1. Does the operator monitor and record the amount of solvent added to the degreaser?	Yes	
Recordkeeping Requirements (A1007.A[1])	**Yes/No**	**Comments**
1. Are the actual emissions rate (pounds/month) of VOC and HAPS based on the quantity of solvent lost to evaporation calculated on a monthly basis?	Yes	Emissions are calculated using the Degreaser Compliance Database by air quality compliance personnel.
2. Are the semi-annual emissions rate (tons/year) calculated for this source category and added to the facility-wide emissions rates in Table 106.B (Facility-wide Allowable Emissions)?	Yes	Emissions are calculated using the Degreaser Compliance Database by air quality compliance personnel.
3. Does the operator maintain records of the degreaser solvent content?	Yes	
4. Does the operator maintain work practice checklists?	Yes	
5. Does the operator maintain records in accordance with Section B109, General Recordkeeping Requirements?	Yes	
Operational Requirements (A1007.A[1])	**Yes/No**	**Comments**
1. Does the operator ensure the degreaser is closed with a tight fitting cover whenever not in use?	Yes	
2. Does the operator maintain a freeboard ratio of 0.75 or greater?	Yes	Glove box is included in freeboard ratio determination.
3. Does the operator ensure that all collected and stored waste solvent and wipe rags are placed in closed containers?	Yes	
4. Does the operator ensure that flushing is performed only within the freeboard area only?	Yes	All rinsing is performed within the freeboard area.
5. Does the operator allow cleaned parts to drip for 15 seconds or until dripping stops (whichever is longer)?	Yes	
6. Does the operator ensure that the solvent level does not exceed the fill line on the solvent level?	Yes	
7. Does the operator ensure that all spills are wiped up immediately?	Yes	
8. Does the operator ensure that there is no creation of observable splashing with agitation device?	N/A	An air or pump agitated solvent bath is not used.

MONTHLY WORK PRACTICE CHECK LIST
TA-55-DG-1 DEGREASER

R 04/20/2015

Operational Requirements (A1007.A[1]) continued	Yes/No	Comments
9. Does the operator ensure that the degreaser is not exposed to drafts greater than 40 meters per minute (132 feet per minute)?	Yes	Glove box air flow rates based on system design descriptions average between 5 acfm (normal operating) up to 40 acfm maximum for a single glove box.
10. Does the operator ensure that no sponges, fabric, wood or paper products are cleaned in the degreaser?	Yes	

Notification Requirements: If any of the boxes were checked with "No", please contact Air Quality Compliance Personnel at 665-1338.

Comments:

Form completed by:

Signature	Name (print)	Z number	Date
[signature]	Arsenio Salaza	163479	7/31/18

The permit section or condition noted at the end of each requirement is from the following reference:

[1] Title V Operating Permit No: P100-R2

All required documentation must be kept for a minimum of 5 years from the date it was gathered or from the date of the operating permit issuance (February 27, 2015).

<u>At the end of each assessment period this form must be filed as an official record.</u>

MONTHLY WORK PRACTICE CHECK LIST
TA-55-DG-1 DEGREASER

R 04/20/2015

Date of Action: 8/30/18	Location of Source : (TA/BLDG/Room) TA-55-PF4-319

Monitoring Requirements(A1007.A[1]):	Yes/No	Comments
1. Does the operator monitor and record the amount of solvent added to the degreaser?	Yes	
Recordkeeping Requirements (A1007.A[1])	**Yes/No**	**Comments**
1. Are the actual emissions rate (pounds/month) of VOC and HAPS based on the quantity of solvent lost to evaporation calculated on a monthly basis?	Yes	Emissions are calculated using the Degreaser Compliance Database by air quality compliance personnel.
2. Are the semi-annual emissions rate (tons/year) calculated for this source category and added to the facility-wide emissions rates in Table 106.B (Facility-wide Allowable Emissions)?	Yes	Emissions are calculated using the Degreaser Compliance Database by air quality compliance personnel.
3. Does the operator maintain records of the degreaser solvent content?	Yes	
4. Does the operator maintain work practice checklists?	Yes	
5. Does the operator maintain records in accordance with Section B109, General Recordkeeping Requirements?	Yes	
Operational Requirements (A1007.A[1])	**Yes/No**	**Comments**
1. Does the operator ensure the degreaser is closed with a tight fitting cover whenever not in use?	Yes	
2. Does the operator maintain a freeboard ratio of 0.75 or greater?	Yes	Glove box is included in freeboard ratio determination.
3. Does the operator ensure that all collected and stored waste solvent and wipe rags are placed in closed containers?	Yes	
4. Does the operator ensure that flushing is performed only within the freeboard area only?	Yes	All rinsing is performed within the freeboard area.
5. Does the operator allow cleaned parts to drip for 15 seconds or until dripping stops (whichever is longer)?	Yes	
6. Does the operator ensure that the solvent level does not exceed the fill line on the solvent level?	Yes	
7. Does the operator ensure that all spills are wiped up immediately?	Yes	
8. Does the operator ensure that there is no creation of observable splashing with agitation device?	N/A	An air or pump agitated solvent bath is not used.

MONTHLY WORK PRACTICE CHECK LIST
TA-55-DG-1 DEGREASER

R 04/20/2015

Operational Requirements (A1007.A[1]) continued	Yes/No	Comments
9. Does the operator ensure that the degreaser is not exposed to drafts greater than 40 meters per minute (132 feet per minute)?	yes	Glove box air flow rates based on system design descriptions average between 5 acfm (normal operating) up to 40 acfm maximum for a single glove box.
10. Does the operator ensure that no sponges, fabric, wood or paper products are cleaned in the degreaser?	yes	

Notification Requirements: If any of the boxes were checked with "No", please contact Air Quality Compliance Personnel at 665-1338.

Comments:

Form completed by:

Signature	Name (print)	Z number	Date
Arsenio Salazar Jr	Arsenio Salazar	163429	8/30/18

The permit section or condition noted at the end of each requirement is from the following reference:

[1] Title V Operating Permit No: P100-R2

All required documentation must be kept for a minimum of 5 years from the date it was gathered or from the date of the operating permit issuance (February 27, 2015).

At the end of each assessment period this form must be filed as an official record.

MONTHLY WORK PRACTICE CHECK LIST
TA-55-DG-1 DEGREASER

R 04/20/2015

Date of Action: 9/27/18	Location of Source : (TA/BLDG/Room) TA-55-PF4-319

Monitoring Requirements(A1007.A[1]):	Yes/No	Comments
1. Does the operator monitor and record the amount of solvent added to the degreaser?	Yes	
Recordkeeping Requirements (A1007.A[1])	**Yes/No**	**Comments**
1. Are the actual emissions rate (pounds/month) of VOC and HAPS based on the quantity of solvent lost to evaporation calculated on a monthly basis?	Yes	Emissions are calculated using the Degreaser Compliance Database by air quality compliance personnel.
2. Are the semi-annual emissions rate (tons/year) calculated for this source category and added to the facility-wide emissions rates in Table 106.B (Facility-wide Allowable Emissions)?	Yes	Emissions are calculated using the Degreaser Compliance Database by air quality compliance personnel.
3. Does the operator maintain records of the degreaser solvent content?	Yes	
4. Does the operator maintain work practice checklists?	Yes	
5. Does the operator maintain records in accordance with Section B109, General Recordkeeping Requirements?	Yes	
Operational Requirements (A1007.A[1])	**Yes/No**	**Comments**
1. Does the operator ensure the degreaser is closed with a tight fitting cover whenever not in use?	Yes	
2. Does the operator maintain a freeboard ratio of 0.75 or greater?	Yes	Glove box is included in freeboard ratio determination.
3. Does the operator ensure that all collected and stored waste solvent and wipe rags are placed in closed containers?	Yes	
4. Does the operator ensure that flushing is performed only within the freeboard area only?	Yes	All rinsing is performed within the freeboard area.
5. Does the operator allow cleaned parts to drip for 15 seconds or until dripping stops (whichever is longer)?	Yes	
6. Does the operator ensure that the solvent level does not exceed the fill line on the solvent level?	Yes	
7. Does the operator ensure that all spills are wiped up immediately?	Yes	
8. Does the operator ensure that there is no creation of observable splashing with agitation device?	N/A	An air or pump agitated solvent bath is not used.

MONTHLY WORK PRACTICE CHECK LIST
TA-55-DG-1 DEGREASER

R 04/20/2015

Operational Requirements (A1007.A[1]) continued	Yes/No	Comments
9. Does the operator ensure that the degreaser is not exposed to drafts greater than 40 meters per minute (132 feet per minute)?	yes	Glove box air flow rates based on system design descriptions average between 5 acfm (normal operating) up to 40 acfm maximum for a single glove box.
10. Does the operator ensure that no sponges, fabric, wood or paper products are cleaned in the degreaser?	yes	

Notification Requirements: If any of the boxes were checked with "No", please contact Air Quality Compliance Personnel at 665-1338.

Comments:

Form completed by:

Signature	Name (print)	Z number	Date
Arseno Sg r	Arseno Salazar	163429	9/27/18

The permit section or condition noted at the end of each requirement is from the following reference:

[1] Title V Operating Permit No: P100-R2

All required documentation must be kept for a minimum of 5 years from the date it was gathered or from the date of the operating permit issuance (February 27, 2015).

<u>At the end of each assessment period this form must be filed as an official record.</u>

MONTHLY WORK PRACTICE CHECK LIST
TA-55-DG-1 DEGREASER

R 04/20/2015

Date of Action: 10/31/18	Location of Source : (TA/BLDG/Room) TA-55-PF4-319

Monitoring Requirements(A1007.A[1]):	Yes/No	Comments
1. Does the operator monitor and record the amount of solvent added to the degreaser?	yes	
Recordkeeping Requirements (A1007.A[1])	**Yes/No**	**Comments**
1. Are the actual emissions rate (pounds/month) of VOC and HAPS based on the quantity of solvent lost to evaporation calculated on a monthly basis?	Yes	Emissions are calculated using the Degreaser Compliance Database by air quality compliance personnel.
2. Are the semi-annual emissions rate (tons/year) calculated for this source category and added to the facility-wide emissions rates in Table 106.B (Facility-wide Allowable Emissions)?	Yes	Emissions are calculated using the Degreaser Compliance Database by air quality compliance personnel.
3. Does the operator maintain records of the degreaser solvent content?	yes	
4. Does the operator maintain work practice checklists?	yes	
5. Does the operator maintain records in accordance with Section B109, General Recordkeeping Requirements?	yes	
Operational Requirements (A1007.A[1])	**Yes/No**	**Comments**
1. Does the operator ensure the degreaser is closed with a tight fitting cover whenever not in use?	yes	
2. Does the operator maintain a freeboard ratio of 0.75 or greater?	yes	Glove box is included in freeboard ratio determination.
3. Does the operator ensure that all collected and stored waste solvent and wipe rags are placed in closed containers?	yes	
4. Does the operator ensure that flushing is performed only within the freeboard area only?	yes	All rinsing is performed within the freeboard area.
5. Does the operator allow cleaned parts to drip for 15 seconds or until dripping stops (whichever is longer)?	yes	
6. Does the operator ensure that the solvent level does not exceed the fill line on the solvent level?	yes	
7. Does the operator ensure that all spills are wiped up immediately?	yes	
8. Does the operator ensure that there is no creation of observable splashing with agitation device?	N/A	An air or pump agitated solvent bath is not used.

MONTHLY WORK PRACTICE CHECK LIST
TA-55-DG-1 DEGREASER

R 04/20/2015

Operational Requirements (A1007.A[1]) continued	Yes/No	Comments
9. Does the operator ensure that the degreaser is not exposed to drafts greater than 40 meters per minute (132 feet per minute)?	yes	Glove box air flow rates based on system design descriptions average between 5 acfm (normal operating) up to 40 acfm maximum for a single glove box.
10. Does the operator ensure that no sponges, fabric, wood or paper products are cleaned in the degreaser?	yes	

Notification Requirements: If any of the boxes were checked with "No", please contact Air Quality Compliance Personnel at 665-1338.

Comments:

Form completed by:

Signature	Name (print)	Z number	Date
[signature]	Arturo Salazar	163429	10/31/18

The permit section or condition noted at the end of each requirement is from the following reference:

[1] Title V Operating Permit No: P100-R2

All required documentation must be kept for a minimum of 5 years from the date it was gathered or from the date of the operating permit issuance (February 27, 2015).

<u>At the end of each assessment period this form must be filed as an official record.</u>

MONTHLY WORK PRACTICE CHECK LIST
TA-55-DG-1 DEGREASER

R 04/20/2015

Date of Action: 11/29/18	Location of Source : (TA/BLDG/Room) TA-55-PF4-319

Monitoring Requirements(A1007.A[1]):	Yes/No	Comments
1. Does the operator monitor and record the amount of solvent added to the degreaser?	yes	
Recordkeeping Requirements (A1007.A[1])	**Yes/No**	**Comments**
1. Are the actual emissions rate (pounds/month) of VOC and HAPS based on the quantity of solvent lost to evaporation calculated on a monthly basis?	Yes	Emissions are calculated using the Degreaser Compliance Database by air quality compliance personnel.
2. Are the semi-annual emissions rate (tons/year) calculated for this source category and added to the facility-wide emissions rates in Table 106.B (Facility-wide Allowable Emissions)?	Yes	Emissions are calculated using the Degreaser Compliance Database by air quality compliance personnel.
3. Does the operator maintain records of the degreaser solvent content?	Yes	
4. Does the operator maintain work practice checklists?	yes	
5. Does the operator maintain records in accordance with Section B109, General Recordkeeping Requirements?	yes	
Operational Requirements (A1007.A[1])	**Yes/No**	**Comments**
1. Does the operator ensure the degreaser is closed with a tight fitting cover whenever not in use?	yes	
2. Does the operator maintain a freeboard ratio of 0.75 or greater?	yes	Glove box is included in freeboard ratio determination.
3. Does the operator ensure that all collected and stored waste solvent and wipe rags are placed in closed containers?	yes	
4. Does the operator ensure that flushing is performed only within the freeboard area only?	Yes	All rinsing is performed within the freeboard area.
5. Does the operator allow cleaned parts to drip for 15 seconds or until dripping stops (whichever is longer)?	yes	
6. Does the operator ensure that the solvent level does not exceed the fill line on the solvent level?	yes	
7. Does the operator ensure that all spills are wiped up immediately?	yes	
8. Does the operator ensure that there is no creation of observable splashing with agitation device?	N/A	An air or pump agitated solvent bath is not used.

MONTHLY WORK PRACTICE CHECK LIST
TA-55-DG-1 DEGREASER

R 04/20/2015

Operational Requirements (A1007.A[1]) continued	Yes/No	Comments
9. Does the operator ensure that the degreaser is not exposed to drafts greater than 40 meters per minute (132 feet per minute)?	Yes	Glove box air flow rates based on system design descriptions average between 5 acfm (normal operating) up to 40 acfm maximum for a single glove box.
10. Does the operator ensure that no sponges, fabric, wood or paper products are cleaned in the degreaser?	Yes	

Notification Requirements: If any of the boxes were checked with "No", please contact Air Quality Compliance Personnel at 665-1338.

Comments:

Form completed by:

Signature	Name (print)	Z number	Date
Arsenio Salazar	Arsenio Salazar	163479	11/29/18

The permit section or condition noted at the end of each requirement is from the following reference:

[1] Title V Operating Permit No: P100-R2

All required documentation must be kept for a minimum of 5 years from the date it was gathered or from the date of the operating permit issuance (February 27, 2015).

<u>At the end of each assessment period this form must be filed as an official record.</u>

MONTHLY WORK PRACTICE CHECK LIST
TA-55-DG-1 DEGREASER

R 04/20/2015

Date of Action: 12/21/18	Location of Source : (TA/BLDG/Room) TA-55-PF4-319

Monitoring Requirements(A1007.A[1]):	Yes/No	Comments
1. Does the operator monitor and record the amount of solvent added to the degreaser?	Yes	
Recordkeeping Requirements (A1007.A[1])	**Yes/No**	**Comments**
1. Are the actual emissions rate (pounds/month) of VOC and HAPS based on the quantity of solvent lost to evaporation calculated on a monthly basis?	Yes	Emissions are calculated using the Degreaser Compliance Database by air quality compliance personnel.
2. Are the semi-annual emissions rate (tons/year) calculated for this source category and added to the facility-wide emissions rates in Table 106.B (Facility-wide Allowable Emissions)?	Yes	Emissions are calculated using the Degreaser Compliance Database by air quality compliance personnel.
3. Does the operator maintain records of the degreaser solvent content?	Yes	
4. Does the operator maintain work practice checklists?	Yes	
5. Does the operator maintain records in accordance with Section B109, General Recordkeeping Requirements?	Yes	
Operational Requirements (A1007.A[1])	**Yes/No**	**Comments**
1. Does the operator ensure the degreaser is closed with a tight fitting cover whenever not in use?	Yes	
2. Does the operator maintain a freeboard ratio of 0.75 or greater?	Yes	Glove box is included in freeboard ratio determination.
3. Does the operator ensure that all collected and stored waste solvent and wipe rags are placed in closed containers?	Yes	
4. Does the operator ensure that flushing is performed only within the freeboard area only?	Yes	All rinsing is performed within the freeboard area.
5. Does the operator allow cleaned parts to drip for 15 seconds or until dripping stops (whichever is longer)?	Yes	
6. Does the operator ensure that the solvent level does not exceed the fill line on the solvent level?	Yes	
7. Does the operator ensure that all spills are wiped up immediately?	Yes	
8. Does the operator ensure that there is no creation of observable splashing with agitation device?	N/A	An air or pump agitated solvent bath is not used.

MONTHLY WORK PRACTICE CHECK LIST
TA-55-DG-1 DEGREASER

R 04/20/2015

Operational Requirements (A1007.A[1]) continued	Yes/No	Comments
9. Does the operator ensure that the degreaser is not exposed to drafts greater than 40 meters per minute (132 feet per minute)?	yes	Glove box air flow rates based on system design descriptions average between 5 acfm (normal operating) up to 40 acfm maximum for a single glove box.
10. Does the operator ensure that no sponges, fabric, wood or paper products are cleaned in the degreaser?	yes	

Notification Requirements: If any of the boxes were checked with "No", please contact Air Quality Compliance Personnel at 665-1338.

Comments:

Form completed by:

Signature	Name (print)	Z number	Date
[illegible]	Arsenio Salazar	163479	12/21/18

The permit section or condition noted at the end of each requirement is from the following reference:

[1] Title V Operating Permit No: P100-R2

All required documentation must be kept for a minimum of 5 years from the date it was gathered or from the date of the operating permit issuance (February 27, 2015).

<u>At the end of each assessment period this form must be filed as an official record.</u>

ATTACHMENT A1104.A.

Internal Combustion

TA-33-G-1-P Daily Operating Logs

Daily TA-33-G-1-P Cummins/ONAN/DFHD 1000 kW Generator Hour Log

This generator has the following air quality permit requirements:

This generator engine is authorized to operate **no more than eight (8) hours per day**.

This unit can **operate only between the hours of 7:00 AM and 5:00 PM**

The permittee shall monitor the time(s) of operation each day.

The permittee shall monitor and keep records of the time(s) of operation each day, and the daily, monthly, and the monthly rolling 12-month total hours of operation of the genset (LANL EPC-CP will maintain this)

Date	Time of operation		Hour Meter Reading		Hours of operation	Purpose	Operator/User Name
	Start Time	End Time	Start Reading	End Reading			
9/17/2018	1:00	1:30	696.2	696.7	0.5	Exercise	Randy Griego
9/18/2018	11:00	3:00	696.7	700.6	4.0	Maintenance	Randy Griego
9/19/2018	11:00	3:00	700.6	704.6	4.0	Maintenance	Randy Griego
9/20/2018	11:00	5:25	704.6	711.0	6.25	Maintenance	Randy Griego
10/18/2018	9:00	10:30	711.0	712.4	1.5	Maintenance	Randy Griego

Version January 2019 | Air Quality Permit P100-R2M2 & P100-R2M3, Section A1104

Asked operators to note time of operation.

Contact: Paul Sanchez, 505-231-4342

ATTACHMENT A1104.B.

Internal Combustion

Permitted Generator Hours

YEAR **2018**

Permitted Generators

Permit ID	Location	ID #	Engine Make	Engine Model	Engine Serial #	gen kWe	engine kWm	Reading 2nd half of previous year		First Half: 6 Month Reading Date	First Half: Reading	First Half: Hours Run	Second Half: 12 Month Reading Date	Second Half: Reading	Second Half: Hours Run	* Total Run Hours
TA-33-G-1P	33-Port	G-0053	Cummins	QST30-G5	37199764	1000	1111.5	Dec-17	694.7	Jun-18	696.1	1.4	Dec-18	712.4	16.3	17.7
TA-33-G-2	33-209	G-0008	Kohler/Yanmar	4TNE84T	52993	20	25	Dec-17	468.9	Jun-18	469.0	0.1	Dec-18	469.0	0.0	0.1
TA-33-G-3	33-280	G-0010	Kohler/Yanmar	4TNE84T	52992	20	25	Dec-17	233.9	Jun-18	233.9	0.0	Dec-18	233.9	0.0	0.0
TA-33-G-4	33-151	G-0007	Caterpillar	3306	8JJ00615	225	281.25	Dec-17	3766.0	Jun-18	3770.0	4.0	Dec-18	3787.0	17.0	21.0
RLUOB-GEN-1	55-585	G-0058	Cummins	KTA50G9	25314401	1500	1656.1	Dec-17	221.9	Jun-18	221.9	0.0	Dec-18	222.0	0.1	0.1
RLUOB-GEN-2	55-584	G-0059	Cummins	KTA50G9	25314399	1500	1656.1	Dec-17	172.7	Jun-18	215.7	43.0	Dec-18	225.2	9.5	52.5
RLUOB-GEN-3	55-583	G-0060	Cummins	KTA50G9	33165566	1500	1656.1	Dec-17	159.4	Jun-18	172.9	13.5	Dec-18	185.9	13.0	26.5
TA-48-GEN-1	TA-48-1	G-0067	Cummins	QSB7-G3 NR3	73176927	150	186	Dec-17	0.0	Jun-18	0.0	0.0	Dec-18	0.0	0.0	0.0
TA-55-GEN-1	TA-55-PF10	G-0065	Isuzu	BZ-4LE2T	4LE2-298868	30	40.2	Dec-17	15.0	Jun-18	15.0	0.0	Dec-18	15.0	0.0	0.0
TA-55-GEN-2	TA-55-PF11	G-0066	Isuzu	BZ-4LE2T	4LE2-299432	30	40.2	Dec-17	14.0	Jun-18	14.0	0.0	Dec-18	14.0	0.0	0.0
TA-55-GEN-3	TA-55-371	G-0064	Caterpillar	C32	SYCO5263	900	1335	Dec-17	91.7	Jun-18	98.6	6.9	Dec-18	102.8	4.2	11.1

Note: TA-33-G-1 has been removed and no longer on site. TA-48-GEN-1 has not started up as of December 2018.

The TA-33 225 kW & two 20 kW generators have limits of 500 hrs/yr.

RLUOB-GENs, TA-48 GEN, TA-55-GENs are subject to NSPS IIII regulation; nonemergency operation limited to 100 hrs/yr.

ATTACHMENT A1106.A.

Internal Combustion

Method 9 Opacity Reports

Opacity measurements were not required or conducted during this monitoring period.

ATTACHMENT A1107.A.

Internal Combustion

Operating Records for RLUOB Generators

Cummins Generator	Cummins Serial # 1060976810 Gen A					Model DFLE 5754172
Authorized Worker	Date	Start Time	End Time	Run Time	Run Time Accumulative	Reason/Notes
Michael Dominguez	8/22/16	1405	1530	1.5	209.7	Monthly PM
Michael [illegible]	9-20-16	1300	1530	2.5	212.8	Monthly PM
Michael Dominguez	10/13/16	0800	1100	2.0	214.8	Monthly PM
Michael Dominguez	11-3-16	1400	1530	1.5	216.3	Monthly PM
Michael Dominguez	12-7-16	0950	1302	1.8	218.1	Monthly PM
Michael Dominguez	6-13-17	0800	0830	0.7	218.8	Gen OS hours used are for TS/Repair
Michael Dominguez	7-6-17	0945	1100	1.3	220.1	Monthly PM
Michael Dominguez	9/14/17	0930	1130	1.8	221.9	Monthly PM / Troubleshooting
[illegible]	9/14/17					Gen A is placed Out of Service
RAY MARTINEZ	6-14-18	—	—	—	221.9	OUT OF SERVICE
JOHN SANCHEZ	8-2-18	—	—	—	221.9	" "
Ray Martinez	9-5-18	—	—	—	221.9	" " "
Brandon Salazar	11-7-18				221.9	Monthly
RAY MARTINEZ	12-6-18				222.0	MONTHLY (DID NOT RUN)

Cummins Generator	Cummins Serial # 1060976811 Gen B				Model DFLE 5754172	
Authorized Worker	Date	Start Time	End Time	Run Time	Run Time Accumulative	Reason/Notes
Michael Dominguez	9.20.16	8:15	1120	3.4	160.2	Monthly PM
Michael Dominguez	10/13/16	12:50	1520	2.5	162.7	Monthly PM
Michael Dominguez	11.3.16	8:30	11:00	2.3	165.0	Monthly PM
Michael Dominguez	12.7.16	1005	1315	2.0	167.0	Monthly PM
Michael Dominguez	2.7.17	1200	1300	0.7	167.7	Monthly PM
Michael Dominguez	6.13.17	08:30	0849	0.1	167.8	Gen OS hours used for TS/Repair
Michael Dominguez	7.6.17	—	—	0	167.8	Monthly PM
Michael Dominguez	9/14/17	0930	1400	3.7	171.0	Monthly PM
Michael Dominguez	10/26/17	1005	1415	1.7	172.7	Monthly PM
Michael Dominguez	11/7/17	0935	1330	1.9	174.6	Monthly PM
Michael Dominguez	12/5/17	1015	1400	2.1	176.7	Monthly PM
[illegible]	01/21/17	0930	1130	1.8	178.5	Annual Gen B PM
[illegible]	02/8/18	0945	1400	4.2	182.7	Monthly PM
[illegible]	3/8/18	1000	1345	3.2	185.9	Monthly PM
[illegible]	4/4/18	1100	2000	24.2	210.1	Monthly PM / Test ATS-F
[illegible]	5/2/18	8:40	1300	3.3	213.4	Monthly PM
Dominguez	6/4/18	0945	1330	2.3	215.7	Monthly PM
Ray Martinez	6.14.18	2:15	3:15	1.0	216.3	~~Single~~ Monthly ~~Parallel~~
Ray Martinez	7-3-18	1:30	2:30	1.0	219.4	Monthly PM
Paul Sanchez	8-2-18	1330	1440	1.2	223.5	Monthly pm
Ray Martinez	9-5-18	10:18	11:18	1.0	225.2	Monthly PM
Brandon Salazar	11-7-18	—	—	—	225.2	Monthly PM
Ray Martinez	12.6.18				225.2	Monthly (DID NOT RUN)

Cummins Generator	Cummins Serial # 1060976812 Gen C					Model DFLE 5754172
Authorized Worker	Date	Start Time	End Time	Run Time	Run Time Accumulative	Reason/Notes
FRED SEYBERT	11-19-15	0900	1500	1.6	132.3	MONTHLY PM
FRED SEYBERT	12-17-15	0845	1513	1.6	133.9	MONTHLY PM
FRED SEYBERT	12-29-15	0814	0838	0.4	134.3	VOLTAGE GLITCH
FRED SEYBERT	1-27-16	0845	1530	1.7	136.0	MONTHLY PM
FRED SEYBERT	1-15-16	0951	1016	0.4	136.4	1YR/5YR PM
FRED SEYBERT	2-18-16	0860	1330	1.5	137.9	MONTHLY PM
FRED SEYBERT	3-2-16	0915	1515	1.5	139.4	MONTHLY LOAD TEST
FRED SEYBERT	3-28-16	1130	1215	0.4	139.8	MONTHLY ATS TEST
Michael Dominguez	4.28.16	935	1047	1.6	141.4	Monthly PM
Michael Dominguez	5.5.16	9:30	11:00	1.6	143.0	Monthly PM
Michael Dominguez	6.23.16	9:35	10:35	0.5	143.5	Monthly PM
Michael Dominguez	7.7.16	9:48	11:00	1.7	146.9	Monthly PM
[illegible]	8/4/16	2000	2010	.2	147.1	Power Prob
Michael Dominguez	8/22/16	1400	1500	0.9	148.0	Monthly PM
Michael [illegible]	9.20.16	1300	1530	3.2	151.2	Monthly PM
Michael Dominguez	10.13.16	12:50	15:20	2.2	153.4	Monthly PM
Michael Dominguez	11.3.16	8:30	11:00	1.9	155.3	Monthly PM
Michael Dominguez	12.7.16	1035	1345	1.6	156.9	Monthly PM
Michael Dominguez	2.7.17	12:00	13:00	0.4	157.3	Monthly PM
Michael Dominguez	6.13.17	1000	1200	1.8	159.1	Gen OS hours used for TS/Repair
Michael Dominguez	7-6-17	—	—	0	159.1	Monthly PM
Michael Dominguez	9/14/17	9:30	10:00	0.3	159.4	Monthly PM
Michael Dominguez	10/26/17	10:00	1500	1.7	161.1	Monthly PM
[illegible]	10/26/17					Gen C Placed Out of Service
[illegible]	2/8/18	0900	1150	1.5	162.6	Monthly PM
Michael [illegible]	3/8/18	0950	1230	1.6	164.2	Monthly PM
Michael Dominguez	4/4/18	11:30	2000	5.5	169.7	Monthly PM / Testing ATS-F
Michael Dominguez	5/2/18	8:40	12:00	1.4	171.1	Monthly PM
[illegible]	6/4/18	0945	1300	1.8	172.9	Monthly PM
RAY MARTINEZ	6-14-18	2:15	3:15	1.0	174.3	Monthly ~~PM~~ Single
RAY MARTINEZ	7-3-18	1:30	2:30	1.0	175.8	Monthly

Cummins Generator	Cummins Serial # 1060976812 Gen C				Model DFLE 5754172	
Authorized Worker	Date	Start Time	End Time	Run Time	Run Time Accumulative	Reason/Notes
Ray Martinez	9-5-18	10:03	2:20	2.0	180.3	Monthly Single / Parallel
Brandon Salazar	11-7-18	1:25	2:25	1.0	182.8	Monthly
Ray Martinez	12.6.18	1:00	2:00	1.0	185.	Monthly

AI 856 | Los Alamos National Laboratory

Operating Permit P100-R2M2 & P100-R2M3

Monitoring Period July 1 – December 31, 2018

Attachment A1107.B. Generators – Operating records

TA-48-GEN-1 has been installed, but is not yet operating.

See Attachment A1104.B. for TA-55-GEN-1, TA-55-GEN-2 and TA-55-GEN-3 records.

ATTACHMENT A1207.A.

Data Disintegrator

Operating Logs

2018 TA-52 Data Disintegrator (EQPT 89)

Month	Data Entry Boxes[c] Shredded	Month	Data Entry Boxes[c] Shredded
January	656	July	790
February	734	August	616
March	650	September	701
April	776	October	824
May	870	November	710
June	1561	December	393
6 mo. Total:	5,247	6 mo. Total:	4,034

Annual Boxes: [g]	9,281

ATTACHMENT A1207.B.

Data Disintegrator

Maintenance Performed

There was no maintenance performed on the pollution control equipment for the data disintegrator during this reporting period. Preventive maintenance was completed during the first half of 2018.

ATTACHMENT A1306.A.

TA-03 Power Plant

Opacity for Sources Combusting Natural Gas

No opacity readings were taken for this source while combusting natural gas. Per Section A1306.A – "Use of natural gas fuel meeting the requirement at Condition A1305.A or B constitutes compliance with 20.2.61 NMAC….."

ATTACHMENT A1306.B.

TA-03 Power Plant

Opacity for Sources Combusting No. 2 Fuel Oil

No fuel oil was burned in the TA-3 Power Plant boilers during this reporting period, therefore no opacity readings were taken.

ATTACHMENT A1307.A.

TA-03 Power Plant

Emission Rate Calculations

Monthly Emission Calculation (Natural Gas) 2018

Average Hourly Emissions Rates (pph) for each Emission Unit
(Meets condition A1307.A, monitoring condition 1, of Title V Permit P100-R2M1)

Unit TA-3-22-1 (Boiler 1) pph

	Jan.	Feb.	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Allowable Emissions[a]
NOx	3.69	3.78	3.05	2.44	0.00	0.00	0.00	0.00	0.00	2.13	1.95	1.25	10.2
SOx	0.04	0.04	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.01	1.1
PM	0.48	0.50	0.40	0.32	0.00	0.00	0.00	0.00	0.00	0.28	0.26	0.16	1.3
PM-10	0.48	0.50	0.40	0.32	0.00	0.00	0.00	0.00	0.00	0.28	0.26	0.16	1.3
PM-2.5	0.48	0.50	0.40	0.32	0.00	0.00	0.00	0.00	0.00	0.28	0.26	0.16	1.3
CO	2.55	2.61	2.10	1.69	0.00	0.00	0.00	0.00	0.00	1.47	1.35	0.86	7.0
VOC	0.35	0.36	0.29	0.23	0.00	0.00	0.00	0.00	0.00	0.20	0.19	0.12	1.0

Unit TA-3-22-2 (Boiler 2) pph

	Jan.	Feb.	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Allowable Emissions[a]
NOx	2.37	3.26	2.58	2.19	1.45	1.06	0.99	1.00	1.13	1.38	0.00	0.00	10.2
SOx	0.02	0.03	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00	1.1
PM	0.31	0.43	0.34	0.29	0.19	0.14	0.13	0.13	0.15	0.18	0.00	0.00	1.3
PM-10	0.31	0.43	0.34	0.29	0.19	0.14	0.13	0.13	0.15	0.18	0.00	0.00	1.3
PM-2.5	0.31	0.43	0.34	0.29	0.19	0.14	0.13	0.13	0.15	0.18	0.00	0.00	1.3
CO	1.63	2.25	1.78	1.51	1.00	0.73	0.68	0.69	0.78	0.95	0.00	0.00	7.0
VOC	0.22	0.31	0.24	0.21	0.14	0.10	0.09	0.10	0.11	0.13	0.00	0.00	1.0

Unit TA-3-22-3 (Boiler 3) pph

	Jan.	Feb.	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Allowable Emissions[a]
NOx	3.04	2.88	1.87	0.00	0.00	0.00	0.00	0.00	0.00	2.51	2.61	2.92	10.2
SOx	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	1.1
PM	0.40	0.38	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.34	0.38	1.3
PM-10	0.40	0.38	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.34	0.38	1.3
PM-2.5	0.40	0.38	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.34	0.38	1.3
CO	2.09	1.98	1.29	0.00	0.00	0.00	0.00	0.00	0.00	1.73	1.80	2.01	7.0
VOC	0.29	0.27	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.25	0.28	1.0

(a) Allowable Emissions are from table A1302A of Permit P100-R2M1.
Condition A1307.A, monitoring condition 3, can't be calculated because the units are based on the emission factor. The emission factor for NOx is in lbs/MMscf, which is converted to lbs/MMBtu by dividing by 1020 (standard number of MMBtu in a MMscf). The NOx emission rate will always be 0.057 lbs/MMBtu unless the Btu value of the fuel changes significantly. The average Btu value for natural gas can be found in the GHG emission calculations in this spreadsheet.

Monthly Emission Calculation (Fuel Oil) 2018

Average Hourly Emissions Rates (pph) for each Emission Unit

(Meets condition A1307.A, monitoring condition 1, of Title V Permit P100-R2M1)

Unit TA-3-22-1 (Boiler 1)

	Jan.	Feb.	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Allowable Emissions[a] Oil
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.3
SOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.6
PM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.3
PM-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.0
PM-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.0
CO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.5
VOC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.3

Unit TA-3-22-2 (Boiler 2)

	Jan.	Feb.	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Allowable Emissions[a] Oil
NOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.3
SOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.6
PM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.3
PM-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.0
PM-2.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.0
CO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.5
VOC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.3

Unit TA-3-22-3 (Boiler 3)

	Jan.	Feb.	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Allowable Emissions[a] Oil
NOx	0.00	0.00	10.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.3
SOx	0.00	0.00	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.6
PM	0.00	0.00	3.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.3
PM-10	0.00	0.00	2.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.0
PM-2.5	0.00	0.00	1.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.0
CO	0.00	0.00	5.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.5
VOC	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.3

12 Month Rolling Emissions 2018 (Tons)
All Three Boilers Combined

Pollutant	TSP	PM10	NOx	CO	VOC	SO_2
Permit Limit (tons/yr) 12-Month Rolling Total	**8.4**	**8.2**	**60.2**	**41.3**	**5.6**	**7.9**
January	1.277	1.276	9.733	6.711	0.922	0.106
February	1.288	1.287	9.815	6.768	0.930	0.107
March	1.311	1.310	9.991	6.889	0.947	0.109
April	1.302	1.301	9.920	6.841	0.940	0.108
May	1.275	1.274	9.717	6.701	0.921	0.106
June	1.260	1.259	9.603	6.622	0.910	0.105
July	1.250	1.249	9.526	6.569	0.903	0.103
August	1.241	1.241	9.464	6.526	0.897	0.102
September	1.234	1.234	9.410	6.489	0.892	0.101
October	1.246	1.245	9.496	6.549	0.900	0.102
November	1.293	1.293	9.862	6.801	0.935	0.106
December	1.328	1.328	10.130	6.986	0.960	0.106

Meets permit condition A1307.A, Monitoring Condition 2.

Monthly Emission Totals (Tons)

Pollutant	TSP	PM10	NOx	CO	VOC	SO_2
January	0.183	0.183	1.394	0.961	0.132	0.014
February	0.149	0.149	1.139	0.785	0.108	0.012
March	0.148	0.148	1.125	0.775	0.107	0.013
April	0.107	0.107	0.818	0.564	0.078	0.008
May	0.071	0.071	0.541	0.373	0.051	0.006
June	0.050	0.050	0.380	0.262	0.036	0.004
July	0.048	0.048	0.369	0.254	0.035	0.004
August	0.049	0.049	0.373	0.257	0.035	0.004
September	0.053	0.053	0.406	0.280	0.038	0.004
October	0.107	0.107	0.814	0.562	0.077	0.008
November	0.164	0.164	1.248	0.861	0.118	0.013
December	0.200	0.200	1.524	1.051	0.144	0.016
Annual Totals	1.328	1.328	10.130	6.986	0.960	0.106

ATTACHMENT A1307.B.

TA-03 Power Plant

Boiler Fuel Use and Hours of Operation

TA-3 Power Plant Fuel Use Totals 2018 (Data Entry)

	DATA ENTRY							
	TA-3-22 Power Plant[b] Boiler # 1 (Edgemoor Iron Works, 210 mmBtu/hr)		TA-3-22 Power Plant[b] Boiler # 2 (Edgemoor Iron Works, 210 mmBtu/hr)		TA-3-22 Power Plant[b] Boiler # 3 (Union Iron Works, 210 mmBtu/hr)		Monthly Totals	
Month	Natural Gas (mscf)[a]	Fuel Oil (gallons)[a]	Natural Gas (mscf)[a]	Fuel Oil (gallons)[a]	Natural Gas (mscf)[a]	Fuel Oil (gallons)[a]	Natural Gas (mmscf)[a]	Fuel Oil (gallons)[a]
January	46,473	0	176	0	1,419	0	48.068	0
February	19,517	0	15,017	0	4,725	0	39.259	0
March	35,770	0	2,822	0	135	371	38.726	371
April	9,159	0	19,040	0	1	0	28.199	0
May	5	0	18,636	0	3	0	18.644	0
June	0	0	13,112	0	0	0	13.112	0
July	0	0	12,717	0	0	0	12.717	0
August	0.1	0	12,865	0	0	0	12.865	0
September	0.3	0	13,995	0	0.6	0	13.996	0
October	6,913	0	5,898	0	15,269	0	28.081	0
November	21,587	0	0	0	21,443	0	43.030	0
December	15,178	0	0	0	37,365	0	52.543	0
Annual Totals:	154,602	0	114,276	0	80,361	371	349.239	371
Jan. - June	110,923	0	68,802	0	6,283	371	186.008	371
July - Dec.	43,678	0	45,475	0	74,077	0	163.231	0

TA-3 Power Plant Rolling Totals Fuel Use and Hours of Operation

Month	12-Mo. Rolling Total Natural Gas (mmscf)	12-Mo. Rolling Total Fuel Oil (gallons)	Hours of Operation Nat Gas Boiler 1	Hours of Operation Nat Gas Boiler 2	Hours of Operation Nat Gas Boiler 3	Hours of Operation Fuel Oil Boiler 1	Hours of Operation Fuel Oil Boiler 2	Hours of Operation Fuel Oil Boiler 3	12-Month Rolling Total Hours (All Boilers)
January	335.4	1,469	729.5	4.3	27.1	0.0	0.0	0.0	8788.9
February	338.2	1,469	299.4	267.0	95.3	0.0	0.0	0.0	8775.4
March	344.3	1,562	680.3	63.5	4.2	0.0	0.0	0.3	8776.3
April	341.8	1,562	217.3	503.6	0.0	0.0	0.0	0.0	8778.4
May	334.8	1,562	0.0	743.9	0.0	0.0	0.0	0.0	8776.8
June	330.9	1,513	0.0	719.7	0.0	0.0	0.0	0.0	8776.5
July	328.3	1,335	0.0	743.9	0.0	0.0	0.0	0.0	8776.5
August	326.2	1,122	0.0	744.0	0.0	0.0	0.0	0.0	8776.4
September	324.3	1,122	0.0	720.0	0.0	0.0	0.0	0.0	8776.4
October	327.3	1,122	187.9	248.5	352.5	0.0	0.0	0.0	8821.3
November	339.9	1,122	641.1	0.0	476.1	0.0	0.0	0.0	9217.5
December	349.2	371	702.8	0.0	742.9	0.0	0.0	0.0	9915.1
Permit Limits:	1000 MMscf	500,000 gal							

TA-3 Power Plant Boilers

12 Month Rolling Fuel Totals For Each TA-3 Power Plant Boiler - 2018

	Boiler 1		Boiler 2		Boiler 3	
Month	Natural Gas (mmscf)	Fuel Oil (gal.)	Natural Gas (mmscf)	Fuel Oil (gal.)	Natural Gas (mmscf)	Fuel Oil (gal.)
January	86	0	168	0	82	1,469
February	105	0	146	0	86	1,469
March	141	0	117	0	86	1,562
April	142	0	119	0	80	1,562
May	122	0	138	0	75	1,562
June	121	0	151	0	59	1,513
July	116	0	164	0	49	1,335
August	116	0	177	0	34	1,122
September	112	0	188	0	24	1,122
October	119	0	169	0	40	1,122
November	141	0	138	0	61	1,122
December	155	0	114	0	80	371

ATTACHMENT A1307.C.

TA-03 Power Plant

Turbine Fuel Use and Hours of Operation

CY2018 Daily Turbine Gas Use (Mscf), 12 Month Rolling Total Gas Use, & Hours of Operation

Day	Jan		Feb		Mar		Apr		May		Jun		July		Aug		Sept		Oct		Nov		Dec	
	Gas Use	Hrs	Gas Use	Hrs	Gas Use	Hrs	Gas Use	Hrs	Gas Use	Hrs	Gas Use	Hrs	Gas Use	Hrs	Gas Use	Hrs	Gas Use	Hrs	Gas Use	Hrs	Gas Use	Hrs	Gas Use	Hrs
1	0	0.0	2007	8.0	2139	8.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2531	21.0
2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5175	17.0	0	0.0	0	0.0	0	0.0	0	0.0
3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	250	7.0	0	0.0	0	0.0	0	0.0	0	0.0
4	2106	8.0	0	0.0	0	0.0	0	0.0	1041	4.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	0	0.0	0	0.0	0	0.0	2193	8.0	0	0.0	0	0.0	0	0.0	0	0.0	3	0.0	0	0.0	0	0.0	0	0.0
6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2100	8.0
7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	916	4.0	0	0.0	0	0.0	42	0.2	0	0.0	0	0.0	0	0.0
8	0	0.0	2064	8.0	2057	7.0	0	0.0	0	0.0	54	0.2	0	0.0	0	0.0	0	0.0	0	0.0	1994	8.0	0	0.0
9	0	0.0	0	0.0	0	0.0	1553	6.5	0	0.0	0	0.0	0	0.0	544	8.0	0	0.0	0	0.0	0	0.0	0	0.0
10	0	0.0	0	0.0	0	0.0	4610	16.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	292	1.0	0	0.0	0	0.0
11	2109	8.0	0	0.0	0	0.0	5175	20.0	25	0.5	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	0	0.0	0	0.0	0	0.0	5341	23.5	0	0.0	0	0.0	0	0.0	0	0.0	13	0.0	0	0.0	0	0.0	0	0.0
13	0	0.0	0	0.0	0	0.0	6165	24.0	0	0.0	0	0.0	0	0.0	0	0.0	2030	9.0	0	0.0	0	0.0	2178	7.0
14	0	0.0	6	0.02	0	0.0	6093	24.0	14	0.3	29	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	0	0.0	82	0.3	837	3.0	5707	24.0	16	0.4	111	0.5	0	0.0	21	0.0	0	0.0	0	0.0	2085	8.0	0	0.0
16	0	0.0	0	0.0	0	0.0	5647	24.0	0	0.0	0	0.0	0	0.0	1807	8.0	0	0.0	4	0.1	0	0.0	0	0.0
17	0	0.0	0	0.0	0	0.0	5881	24.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	0.1	0	0.0	0	0.0
18	1982	8.0	0	0.0	0	0.0	5985	24.0	0	0.0	0	0.0	92	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0
19	0	0.0	0	0.0	0	0.0	6415	24.0	0	0.0	21	0.1	1887	9.0	0	0.0	0	0.0	0	0.0	0	0.0	20	0.1
20	0	0.0	0	0.0	0	0.0	5595	24.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2119	8.0
21	0	0.0	0	0.0	0	0.0	5897	24.0	0	0.0	345	1.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	763	3.0	0	0.0	1960	8.0	4912	21.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0
23	0	0.0	0	0.0	0	0.0	5739	24.0	0	0.0	0	0.0	267	1.3	1832	8.0	2	0.0	11	0.1	0	0.0	0	0.0
24	0	0.0	0	0.0	0	0.0	5823	24.0	1337	6.0	0	0.0	0	0.0	0	0.0	0	0.0	13	0.1	0	0.0	0	0.0
25	2060	8.0	0	0.0	0	0.0	5887	24.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	34	0.1	0	0.0	0	0.0
26	0	0.0	0	0.0	0	0.0	3966	24.0	0	0.0	0	0.0	0	0.0	27	0.0	0	0.0	0	0.0	0	0.0	0	0.0
27	0	0.0	0	0.0	0	0.0	2419	8.5	0	0.0	0	0.0	253	1.0	0	0.0	125	0.5	0	0.0	0	0.0	0	0.0
28	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1458	7.0	0	0.0	0	0.0	0	0.0	0	0.0	26	0.1	0	0.0
29	0	0.0			550	3.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6026	17.0	0	0.0
30	0	0.0			0	0.0	0		0	0.0	0	0.0	225	1.0	1734	8.0	0	0.0	1	0.1	7339	24.0	0	0.0
31	0	0.0			0	0.0			1773	8.0			0	0.0	0	0.0			0	0.0			0	0.0
SUM	9020	35	4159	16.32	7543	29	101003	416	4206	19.2	2937	13.5	2724	12.3	11390	56	2215	9.7	361	1.8	17470	57.1	8948	44.1
12 Mo. Rolling Gas Mscf	51,729		51,536		54,845		149,967		148,493		145,870		146,658		150,837		153,002		149,435		165,253		171,976	
12 Mo. Rolling Gas MMscf	**51.7**		**51.5**		**54.8**		**150.0**		**148.5**		**145.9**		**146.7**		**150.8**		**153.0**		**149.4**		**165.3**		**172.0**	
12 Mo. Rolling Hours Hrs.	210		210		222		614		609		599		603		627		636		622		674		709	

First Half Gas Use: **128.87** **MMscf** | **Second Half Gas Use:** **43.1** **MMscf** | **Annual Gas Use:** **171.98** **MMscf**

Permit Limit (12 mo rolling): **1400** **MMscf**

High Heat Value (HHV) for natural gas[k] = **1030** MMBtu/MMscf

Total Annual Hours: **709.4** **Hour**

Reviewed by/date: _____

ATTACHMENT A1307.D.

TA-03 Power Plant

Turbine Operating Logs

Date: 7-18-18

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1413

Time of Turbine Online (Brkr Closed): N/A

Time Turbine Offline (Brkr Open): N/A

Time No Gas Flow: 16:06

Notes: Test Gas Compressor, CGTG Starter

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	v																											
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v																											
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120																								
4	Instrument Temperature	TI-001	deg C		20	50																								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120																								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL																								
9	Coolant Return Differential from GG	FI-001	In WC		60	80																								
10	Coolant Return Differential from	FI-002	In WC		37	50																								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85																								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%																								
15	WECC Log			Operational?																										
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)																								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)																								
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%																								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v																											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200																								
23	Mw Output		MW			27																								
24	80% Base Load Minimum		MW																											
25	Running Hours (unit overview)																													
26	Ambient Temperature	T1 inlet																												
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 7-18-18 Signature: A. Wa

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	1255																												
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2ndStage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 7-18-18

SIGNATURE A. Wear

Mid Shift

Days Shift

Notes

UI-LOG-033-R2
January 4 2018

Date: 7-19-18

MST (MDT) circle one)

Time Gas Introduced (Turbine Rolling): 0712

Time of Turbine Online (Brkr Closed): 0754

CGTG HOURLY READING LOG

Time Turbine Offline (Brkr Open): 1659

Time No Gas Flow: 1705

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√											√	√	√	√	√	√	√	√	√								
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√											√	√	√	√	√	√	√	√	√								
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								106	112	113	110	112	113	110	112	108								
4	Instrument Temperature	TI-001	deg C		20	50								29	30	30	30	30	30	29	30	34								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19.2	19.2	19.2	19.2	19.2	19.2	19	19	19								
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								102	102	101	103	107	103	100	101	108								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3								
9	Coolant Return Differential from GG	FI-001	In WC		60	80								60	60	64	65	65	64	64	62	65								
10	Coolant Return Differential from	FI-002	In WC		37	50								37	36	38	39	40	39	36	36	40								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85								71	71	71	71	73	74	75	75	76								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0	0	0	0	0	0	0	0	0								
15	WECC Log			Operational?																										
16	Operation of PSS/ on at 6.3MW		Yes (Y)			No (N)								Yes	Yes	Yes	yes	Yes	Yes	Yes	Yes	Yes								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								Yes	Yes	Yes	Yes	Yes	yes	Yes	Yes	Yes								
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								11	11	10	10	10	10	10	10	10								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%								0	0	0	0	0	0	0	0	0								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√											√	√	√	√	√	√	√	√	√								
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1200								874	878	855	853	835	845	870	861	815								
23	Mw Output		MW			27								20.2	20.4	20.1	19.7	19.4	19.7	20.4	20.1	18.7								
24	80% Base Load Minimum		MW											17.6	17.3	17.0	16.9	16.6	16.8	17.2	17.0	16.3								
25	Running Hours (unit overview)													3778	3779	3780	3781	3782	3783	3784	3785	3786								
26	Ambient Temperature	T1 Inlet												75	79	82	84	87	85	81	81	91								
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								40	39	39	39	42	43	45	43	44								
28	Total Fuel Flow		Mscf/h											206	205	202	200	197	198	202	200	198								

Date: 7-19-18 Signature: A Wlar

UI-LOG-033-R2
January 4 2018

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	0656																												
Combustible Gas Detector	AAH-303	%		0%	20%								NA																
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B	B	B								
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E	E								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2								
Oil Day Tank Level	LI-1562	GAL	10		FULL								50	50	50	50	50	50	50	50	50								
Lubricator Bulls eye		LEVEL	1/2	FULL									3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4								
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E	E								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E	E								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B	B	B								
1st Stage Inlet Press.	PI-2100	psig		88	140								82	82	82	82	82	82	82	82	82								
Stage Disch. Press	PI-2101	psig		238	285								250	250	251	251	251	250	252	252	253								
2nd Stage Inlet Press	PI-2200	psig		267	285								247	246	247	247	248	249	249	249	250								
2nd Stage Disch. Press	PI-2201	psig		575	600								578	578	578	578	579	578	578	579	579								
Final Discharge Pressure	PI-2108	psig		575	600								574	575	574	575	575	575	574	575	575								
Lube Oil Pressure	PI-1572	psig	40	60									60	59	59	59	58	58	59	60	59								
Lube Oil Temp	TE-1584	deg		150	170								163	164	164	167	169	168	164	164	168								
Final Discharge Temp	TE-2120	deg		110	150								116	117	120	123	126	124	118	121	129								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								237	238	241	243	248	246	243	241	248								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283								243	244	248	251	256	255	250	250	259								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								235	236	239	241	245	244	240	239	245								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								243	244	248	251	255	255	250	250	259								
Motor Frame Vibration	VT-1015	IPS			0.15								.04	.03	.04	.04	.04	.04	.04	.04	.04								
Compresser Frame Vibration	VT-1512	IPS			0.35								.05	.05	.05	.05	.05	.05	.05	.06	.05								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.													575																
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								571																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								562																

DATE	7-19-18
SIGNATURE	
Mid Shift	
Days Shift	A Wan
Notes	

Date: 7-23-18

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1240

Time of Turbine Online (Srkr Closed): 1254

Time Turbine Offline (Brkr Open): 14:11

Time No Gas Flow: 14:18

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√																✓	✓										
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√																✓	✓										
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120													108	106										
4	Instrument Temperature	TI-001	deg C		20	50													35	34										
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25														19.4	19.4										
7	Coolant PLC Temperature	TI-002	deg F	100	110	120													105	105										
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL													1/2	1/2										
9	Coolant Return Differential from GG	FI-001	in WC		60	80													63	63										
10	Coolant Return Differential from	FI-002	in WC		37	50													37	3[illegible]										
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85													74	74										
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%													0	0										
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)													Yes	Yes										
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)													Yes	Yes										
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%													10	9										
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%													0	0										
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√																✓	✓										
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200													823	833										
23	Mw Output		MW			27													19.3	19.4										
24	80% Base Load Minimum		MW																16.6	16.6										
25	Running Hours (unit overview)																		3787	3788										
26	Ambient Temperature	T1 inlet																	86	86										
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%													44%	44%										
28	Total Fuel Flow		Mscf/h																196	198										

Date: 7-23-18 Signature: A. Wo[illegible]

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	1154																												
Combustible Gas Detector	AAH-303	%		0%	20%													005											
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK														B											
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY													E											
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL												Y2	~~3/4~~											
Oil Day Tank Level	LI-1562	GAL	10		FULL													49											
Lubricator Bulls eye		LEVEL	1/2	FULL														3/4											
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY													E											
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY													E											
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK														B											
1st Stage Inlet Press.	PI-2100	psig		88	140													82											
Stage Disch. Press	PI-2101	psig		238	285													252											
2nd Stage Inlet Press	PI-2200	psig		267	285													248											
2nd Stage Disch. Press	PI-2201	psig		575	600													579											
Final Discharge Pressure	PI-2108	psig		575	600													575											
Lube Oil Pressure	PI-1572	psig	40	60														59											
Lube Oil Temp	TE-1584	deg		150	170													165											
Final Discharge Temp	TE-2120	deg		110	150													126											
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297													256											
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283													260											
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297													248											
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283													259											
Motor Frame Vibration	VT-1015	IPS			0.15													.03											
Compresser Frame Vibration	VT-1512	IPS			0.35													.05											
Take Once per Shift / at Full Load		psig		Max psid	When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																								
Natural Gas Comp.Discharge Press.																		575											
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8													571											
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20													562											

DATE 7-23-18

SIGNATURE

Mid Shift

Days Shift A Wa

Notes

Date: 07-27-2018

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 14:32

Time of Turbine Online (Brkr Closed): 14:54

Time Turbine Offline (Brkr Open): 15:59

Time No Gas Flow: 16:05

Notes: Run CGTG after wash.

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√																		✓									
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√																		✓									
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120															106									
4	Instrument Temperature	TI-001	deg C		20	50															26									
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																19.2									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120															104									
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL															1/2									
9	Coolant Return Differential from GG	FI-001	In WC		60	80															60									
10	Coolant Return Differential from	FI-002	In WC		37	50															35									
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85															76									
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%															0									
15	WECC Log			Operational?																										
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)															Yes									
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)															Yes									
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%															11%									
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%															0%									
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√																		✓									
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200															929									
23	Mw Output		MW			27															22.1									
24	80% Base Load Minimum		MW																		18.5									
25	Running Hours (unit overview)																				3789									
26	Ambient Temperature	T1 inlet																			64									
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%															45%									
28	Total Fuel Flow		Mscf/h																		214.1									

Date: Signature:

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	14:11																												
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL															1/2									
Oil Day Tank Level	LI-1562	GAL	10		FULL															48									
Lubricator Bulls eye		LEVEL	1/2	FULL																3/4									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY															E									
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY															E									
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																B									
1st Stage Inlet Press.	PI-2100	psig		88	140															82									
Stage Disch. Press	PI-2101	psig		238	285															250									
2nd Stage Inlet Press	PI-2200	psig		267	285															24									
2nd Stage Disch. Press	PI-2201	psig		575	600															579									
Final Discharge Pressure	PI-2108	psig		575	600															575									
Lube Oil Pressure	PI-1572	psig	40	60																60									
Lube Oil Temp	TE-1584	deg		150	170															161									
Final Discharge Temp	TE-2120	deg		110	150															106									
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297															234									
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283															237									
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297															234									
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283															238									
Motor Frame Vibration	VT-1015	IPS			0.15															.04									
Compresser Frame Vibration	VT-1512	IPS			0.35															.05									
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Date: 07-30-2018

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 14:48

Time of Turbine Online (Brkr Closed): 15:00

Time Turbine Offline (Brkr Open): 16:04 ~~14:04 PM~~ 7-30-18

Time No Gas Flow: 16:10

Notes: Run for 1 hour After wash.

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√																		✓									
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√																		✓									
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120															~~108~~									
4	Instrument Temperature	TI-001	deg C		20	50															108									
5	Fin Fan Cooler		Units	Low	Norm	Max															32									
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120															194									
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL															106									
9	Coolant Return Differential from GG	FI-001	in WC		60	80															42									
10	Coolant Return Differential from	FI-002	in WC		37	50															67									
11	Control Room		Units	Low	Norm	Max															37									
12	Room Temperature		deg F		72	85															79									
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%															0									
15	WECC Log			Operational?																										
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)															Yes									
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)															Yes									
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%															11									
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%															0									
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√																		✓									
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1200															851									
23	Mw Output		MW			27															20.1									
24	80% Base Load Minimum		MW																		17.1									
25	Running Hours (unit overview)																				3790									
26	Ambient Temperature	T1 inlet																			81°F									
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%															45%									
28	Total Fuel Flow		Mscf/h																		2026									

Date: Signature:

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME																			1434										
Combustible Gas Detector	AAH-303	%		0%	20%														005										
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK															B										
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY														E										
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL														1/2										
Oil Day Tank Level	LI-1562	GAL	10		FULL														49										
Lubricator Bulls eye		LEVEL	1/2	FULL															2/3										
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY														E										
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY														E										
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK															B										
1st Stage Inlet Press.	PI-2100	psig		88	140														82										
Stage Disch. Press	PI-2101	psig		238	285														251										
2nd Stage Inlet Press	PI-2200	psig		267	285														247										
2nd Stage Disch. Press	PI-2201	psig		575	600														578										
Final Discharge Pressure	PI-2108	psig		575	600														575										
Lube Oil Pressure	PI-1572	psig	40	60															60										
Lube Oil Temp	TE-1584	deg		150	170														161										
Final Discharge Temp	TE-2120	deg		110	150														119										
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297														245										
2ndStage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283														252										
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297														247										
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283														252										
Motor Frame Vibration	VT-1015	IPS			0.15														.04										
Compresser Frame Vibration	VT-1512	IPS			0.35														.05										
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	
SIGNATURE	
Mid Shift	
Days Shift	
Notes	

Date: 8-2-18

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 0711

Time of Turbine Online (Brkr Closed): 0723

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

CGTG HOURLY READING LOG

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√											√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√											√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								113	108	107	107	108	110	113	108	112	108	107	108	107	108	107	108	110
4	Instrument Temperature	TI-001	deg C		20	50								26	25	26	26	28	28	29	29	30	32	32	30	29	26	24	23	23
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								104	105	101	102	101	100	107	105	100	103	101	106	104	106	108	107	100
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3
9	Coolant Return Differential from GG	FI-001	in WC		60	80								60	60	60	63	64	64	63	64	64	64	64	62	61	61	61	61	61
10	Coolant Return Differential from	FI-002	in WC		37	50								36	36	36	37	37	38	38	38	38	39	39	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max								73																
12	Room Temperature		deg F		72	85								73	73	74	74	75	75	75	76	76	76	76	76	76	76	76	75	75
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)								Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes	yes	yes	yes	yes
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								Yes	yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes	yes	yes	yes	yes	yes
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								13	13	13	13	12	12	12	12	12	12	12	11	11	12	12	12	12
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGO ST-01	psig	25	20																									
21	Acknowledge Alarms Hourly		√											√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1200								939	940	922	919	883	879	870	870	855	844	845	883	929	926	941	950	945
23	Mw Output		MW			27								22.1	22.1	21.7	21.4	20.7	20.4	20.4	20.4	19.7	19.7	19.7	20.7	21.7	21.7	22.2	22.4	22.3
24	80% Base Load Minimum		MW											18.5	18.2	17.9	17.8	17.4	17.2	17.3	17.4	17.1	16.8	17.0	17.6	18.3	18.3	18.5	18.7	18.6
25	Running Hours (unit overview)													3792	3793	3794	3795	3796	3797	3798	3799	3800	3801	3802	3803	3804	3805	3806	3807	3808
26	Ambient Temperature	T1 Inlet												65.8	68.5	71.8	72.5	78.4	81.0	79.0	78.4	81.0	84.2	83.3	75.0	67.5	67.5	64.2	63.3	64.2
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								47	46	45	45	45	45	45	46	46	46	46	46	47	42	48	48	48
28	Total Fuel Flow		Mscf/h											218	216	212	212	205	203	203	203	199	197	197	206	213	215	217	219	218

Date: 8-2-18 Signature: A. Lalar

Bob Long

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	[illegible]																												
Combustible Gas Detector	AAH-303	%		0%	20%								NA																
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL								50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	49
Lubricator Bulls eye		LEVEL	1/2	FULL									3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140								82	82	82	82	82	82	82	82	82	82	82	82	82	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285								249	249	249	249	251	251	252	251	252	253	254	252	251	251	252	252	251
2nd Stage Inlet Press	PI-2200	psig		267	285								248	249	245	246	247	248	248	248	249	249	249	249	248	248	247	247	247
2nd Stage Disch. Press	PI-2201	psig		575	600								578	578	579	579	579	579	579	579	579	579	579	579	579	579	579	579	579
Final Discharge Pressure	PI-2108	psig		575	600								575	575	575	575	575	575	575	575	575	575	575	575	575	575	575	575	575
Lube Oil Pressure	PI-1572	psig	40	60									60	59	59	59	59	59	59	59	59	59	59	59	59	60	59	59	59
Lube Oil Temp	TE-1584	deg		150	170								163	164	164	165	166	166	166	165	165	165	165	164	163	162	162	162	164
Final Discharge Temp	TE-2120	deg		110	150								104	107	108	111	117	119	118	117	117	123	124	117	110	105	103	101	102
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								239	241	242	243	245	246	244	243	244	246	246	243	240	235	235	235	235
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283							240	237	240	242	244	251	252	251	249	249	255	254	249	240	236	235	235	235
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								237	239	240	241	243	243	241	241	242	243	243	240	236	233	235	235	235
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								238	241	242	245	251	252	251	250	249	255	254	250	241	237	236	236	236
Motor Frame Vibration	VT-1015	IPS			0.15								.04	.04	.04	.03	.04	.03	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35								.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								570																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								559																

DATE 8-2-18

TE-2062A 0900 hrs 240

SIGNATURE

Mid Shift [illegible] Gray

Days Shift [illegible] Wlow

Notes

Date: 8-3-2018

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

CGTG HOURLY READING LOG

Time Turbine Offline (Brkr Open): 0800

Time No Gas Flow: 0806

Notes: Run hrs @ end of RUN – 3816.58
GAS READING END OF RUN – 777154

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√				✓	✓	✓	✓	✓	✓	✓																	
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√				✓	✓	✓	✓	✓	✓	✓																	
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	108	106	106	104	100	108	107																	
4	Instrument Temperature	TI-001	deg C		20	50	23	23	23	23	23	24	23																	
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	19																	
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	106	104	108	103	108	102	102																	
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL	2/3	2/3	2/3	2/3	2/3	2/3	2/3																	
9	Coolant Return Differential from GG	FI-001	in WC		50	80	61	61	61	61	61	61	60																	
10	Coolant Return Differential from	FI-002	in WC		37	50	36	36	36	36	36	36	36																	
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	75	75	75	75	75	75	72																	
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%	0	0	0	0	0	0	0																	
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	yes	yes	yes	yes	yes	yes	yes																	
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	yes	yes	yes	yes	yes	yes	yes																	
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%	12	13	13	13	13	13	13																	
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	0	0	0																	
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGO ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓																	
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1200	939	936	926	925	923	926	948																	
23	Mw Output		MW			27	22.0	22.0	21.7	21.7	21.7	21.7	22.0																	
24	80% Base Load Minimum		MW				18.5	18.5	18.4	18.37	18.37	18.37	18.6																	
25	Running Hours (unit overview)						3809	3810	3811	3812	3813	3814	3815																	
26	Ambient Temperature	T1 inlet					64.4	64.9	66.7	66.7	66.7	67.5	64.2																	
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	48	48	48	48	47	47	47																	
28	Total Fuel Flow		Mscf/h				217	215	212	211	212	212	216																	

Date: 8-3-2018 Signature: [illegible]

CGTG TURBINE UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME																													
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK		B	B	B	B	B	B	B																	
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY	E	E	E	E	E	E	E																	
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	1/2	1/2	1/2	1/2	1/2	1/2	1/2																	
Oil Day Tank Level	LI-1562	GAL	10		FULL	49	49	49	49	49	49	49																	
Lubricator Bulls eye		LEVEL	1/2	FULL		3/4	3/4	3/4	3/4	3/4	3/4	F																	
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	E	E	E	E	E	E	E																	
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY	E	E	E	E	E	E	E																	
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		B	B	B	B	B	B	B																	
1st Stage Inlet Press.	PI-2100	psig		88	140	83	83	83	83	83	83	83																	
Stage Disch. Press	PI-2101	psig		238	285	251	251	251	251	251	251	250																	
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	247	247	247	248	247																	
2nd Stage Disch. Press	PI-2201	psig		575	600	579	579	579	579	579	579	579																	
Final Discharge Pressure	PI-2108	psig		575	600	575	575	575	575	575	575	575																	
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	60	60																	
Lube Oil Temp	TE-1584	deg		150	170	163	164	164	164	164	164	164																	
Final Discharge Temp	TE-2120	deg		110	150	102	103	103	106	106	105	102																	
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	235	235	235	235	235	235	234																	
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	235	236	236	237	237	236	234																	
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	233	233	233	233	233	233	232																	
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	236	237	237	238	238	236	235																	
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03																	
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05																	
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8	570																							
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20	559																							

DATE 8-3-2018

SIGNATURE

Mid Shift [signature]

Days Shift M Paul

Notes

UI-LOG-034-R1
February 9, 2017

Date: 8-9-2018

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 0655

Time of Turbine Online (Brkr Closed): 0753

Time Turbine Offline (Brkr Open): 1558

Time No Gas Flow: 1605

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	✓											✓	✓	✓	✓	✓	✓	✓	✓									
2	Blowdown Wet Receiver Tank Hourly	BVT-007	✓											✓	✓	✓	✓	✓	✓	✓	✓									
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								106	106	107	108	104	106	107	108									
4	Instrument Temperature	TI-001	deg C		20	50								25	24	26	27	28	29	30	30									
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19	19	19	19	19	19	19	19									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								107	102	109	106	103	104	106	102									
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3									
9	Coolant Return Differential from GG	FI-001	In WC		60	80								61	61	61	61	61	61	61	62									
10	Coolant Return Differential from	FI-002	In WC		37	50								36	36	36	36	36	36	36	36									
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85								74.5	75.5	74.5	74.5	74.5	75.0	76.0	76.0									
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0	0	0	0	0	0	0	0									
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)								yes	yes	yes	yes	yes	yes	yes	yes									
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								yes	yes	yes	yes	yes	yes	yes	yes									
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								15	15	15	15	15	15	15	14									
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%								0	0	0	0	0	0	0	0									
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A53GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		✓											✓	✓	✓	✓	✓	✓	✓	✓									
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1200								932	934	911	891	882	874	871	875									
23	Mw Output		MW			27								21.9	21.8	21.1	20.7	20.4	20.1	20.4	20.1									
24	80% Base Load Minimum		MW											18.58	18.37	17.87	17.59	17.51	17.23	17.26	17.44									
25	Running Hours (unit overview)													3817	3818	3819	3820	3821	3822	3823	3824									
26	Ambient Temperature	T1 Inlet												64.2	67.1	72.5	75.9	77.5	79.5	81.0	78.4									
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								48	47	47	47	47	47	47	48									
28	Total Fuel Flow		Mscf/h											214	213	207	203	203	200	199	201									

Date: 8-9-2018 Signature: Bob Gray

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	0633																												
Combustible Gas Detector	AAH-303	%		0%	20%								N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A									
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B	B									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2									
Oil Day Tank Level	LI-1562	GAL	10		FULL								46	46	46	46	46	46	45	45									
Lubricator Bulls eye		LEVEL	1/2	FULL									3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B	B									
1st Stage Inlet Press.	PI-2100	psig		88	140								83	83	83	83	83	83	83	83									
Stage Disch. Press	PI-2101	psig		238	285								249	249	250	251	251	251	252	252									
2nd Stage Inlet Press	PI-2200	psig		267	285								245	245	247	248	248	248	249	249									
2nd Stage Disch. Press	PI-2201	psig		575	600								579	578	579	579	579	579	579	579									
Final Discharge Pressure	PI-2108	psig		575	600								575	574	575	575	575	575	575	575									
Lube Oil Pressure	PI-1572	psig	40	60									60	59	59	59	59	59	59	59									
Lube Oil Temp	TE-1584	deg		150	170								164	164	164	165	164	164	165	164									
Final Discharge Temp	TE-2120	deg		110	150								102	104	112	115	115	116	120	117									
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								238	239	242	244	244	244	245	245									
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283								235	237	245	248	250	251	252	250									
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								236	237	240	241	241	241	242	241									
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								235	238	245	248	250	250	252	251									
Motor Frame Vibration	VT-1015	IPS			0.15								.04	.04	.04	.04	.04	.04	.04	.04									
Compresser Frame Vibration	VT-1512	IPS			0.35								.05	.05	.05	.05	.05	.05	.05	.05									
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8													571-[illegible]	[illegible]	[illegible]									
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20													572-[illegible]	[illegible]	[illegible]									

DATE 8-9-2018

SIGNATURE

Mid Shift

Days Shift [illegible]

Notes

CGTG HOURLY READING LOG

Date: 8-15-2018

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1406

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow: 1431

Notes:

	Instrument Air Compressor	LD	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	V																											
2	Blowdown Wet Receiver Tank Hourly	BVT-007	V																											
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120																								
4	Instrument Temperature	TI-001	deg C		20	50																								
5	Ro Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120																								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL																								
9	Coolant Return Differential from GG	FI-001	in WC		60	80																								
10	Coolant Return Differential from	FI-002	in WC		37	50																								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85																								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%																								
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)																								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)																								
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%																								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		V																											
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1200																								
23	Mw Output		MW			27																								
24	80% Base Load Minimum		MW																											
25	Running Hours (unit overview)																													
26	Ambient Temperature	T1 Inlet																												
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 8-15-18 Signature: Josh Clark

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	1338																	1338											
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 8-15-18	
SIGNATURE	
Mid Shift	
Days Shift	
Notes	

Date: 8-16-2018

CGTG HOURLY READING LOG

MST / ~~MDT~~ (circle one)

Time Gas Introduced (Turbine Rolling): 0704

Time of Turbine Online (Brkr Closed): ~~0800~~ 0754

Time Turbine Offline (Brkr Open): 1559

Time No Gas Flow: 1605

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	✓											✓	✓	✓	✓	✓	✓	✓	✓									
2	Blowdown Wet Receiver Tank Hourly	BVT-007	✓											✓	✓	✓	✓	✓	✓	✓	✓									
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								112	114	110	112	108	108	106	110									
4	Instrument Temperature	TI-001	deg C		20	50								24	24	24	27	28	26	26	26									
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19.5	19.5	19.4	19.4	19.4	19	19.4	19.6									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								101	111	105	101	100	100	104	104									
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3									
9	Coolant Return Differential from GG	FI-001	In WC		60	80								62	63	63	64	61	64	64	62									
10	Coolant Return Differential from	FI-002	In WC		37	50								35	35	37	37	37	39	36	37									
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85								74	73	73	74	74	74	74	75									
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0	0	0	0	0	0	0	0									
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)								yes	yes	yes	yes	yes	yes	yes	yes									
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								yes	yes	yes	yes	yes	yes	yes	yes									
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								22	22	22	22	22	21	21	22									
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%								0	0	0	0	0	0	0	0									
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGO ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		✓											✓	✓	✓	✓	✓	✓	✓	✓									
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200								918	927	923	897	913	913	927	911									
23	Mw Output		MW			27								21.5	21.4	21.1	20.7	21.1	20.9	21.4	21.1									
24	80% Base Load Minimum		MW											18.4	18.1	17.9	17.5	17.8	17.5	18.0	17.8									
25	Running Hours (unit overview)													3827	3828	3829	3830	3831	3832	3833	3834									
26	Ambient Temperature	T1 Inlet												66.7	70	72.5	76.6	73.4	74.3	70.5	72.5									
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								49	48	47	47	46	48	48	48									
28	Total Fuel Flow		Mscf/h											214	211	210	206	208	207	211	208									

Date: 8-16-2018 Signature: Josh Alcott

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	0638										638																		
Combustible Gas Detector	AAH-303	%		0%	20%								MA																
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B	B									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2									
Oil Day Tank Level	LI-1562	GAL	10		FULL								445	45	45	45	45	445	445	445									
Lubricator Bulls eye		LEVEL	1/2	FULL									3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B	B									
1st Stage Inlet Press.	PI-2100	psig		88	140								82	82	82	82	82	82	82	82									
Stage Disch. Press	PI-2101	psig		238	285								249	250	250	250	250	250	251	251									
2nd Stage Inlet Press	PI-2200	psig		267	285								246	246	247	247	247	247	247	248									
2nd Stage Disch. Press	PI-2201	psig		575	600								578	579	579	579	579	578	579	578									
Final Discharge Pressure	PI-2108	psig		575	600								575	575	575	575	575	578	575	575									
Lube Oil Pressure	PI-1572	psig	40	60									60	59	59	59	59	59	60	60									
Lube Oil Temp	TE-1584	deg		150	170								164	164	164	165	166	164	163	164									
Final Discharge Temp	TE-2120	deg		110	150								105	108	110	114	114	111	109	110									
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								238	239	241	247	242	246	237	238									
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283								238	241	244	248	245	244	241	243									
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								236	237	239	241	240	236	235	236									
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								238	241	244	248	245	244	241	243									
Motor Frame Vibration	VT-1015	IPS			0.15								.03	.03	.03	.04	.04	.03	.03	.03									
Compresser Frame Vibration	VT-1512	IPS			0.35								.03	.05	.05	.05	.05	.05	.05	.05									
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.														575															
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8									570															
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20									559															

DATE	8-16-2018
SIGNATURE	
Mid Shift	
Days Shift	Josh Arnold
Notes	

Date: 8-23-2018

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 0650

Time of Turbine Online (Brkr Closed): 0753

Time Turbine Offline (Brkr Open): 1533

Time No Gas Flow: 1606

Notes:

CGTG HOURLY READING LOG

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	✓											✓	✓	✓	✓	✓	✓	✓	✓									
2	Blowdown Wet Receiver Tank Hourly	BVT-007	✓											✓	✓	✓	✓	✓	✓	✓	✓									
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								104	105	103	110	108	105	105	110									
4	Instrument Temperature	TI-001	deg C		20	50								21	21	22	23	23	23	23	25									
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19	19.5	19.5	19.5	19.5	19.5	19.5	19.5									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								103	101	103	109	106	105	102	110									
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2									
9	Coolant Return Differential from GG	FI-001	in WC		60	80								63	61	63	63	62	61	62	63									
10	Coolant Return Differential from	FI-002	in WC		37	50								35	35	36	35	35	36	36	36									
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85								72.5	72	73	73	73	73	73	74									
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0%	0%	0%	0%	0%	0%	0%	0%									
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)								Y	Y	Y	Y	Y	Y	Y	Y									
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								Y	Y	Y	Y	Y	Y	Y	Y									
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								23%	23	23	22	22	23	22	22									
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%								0%	0%	0%	0%	0%	0%	0%	0%									
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		✓											✓	✓	✓	✓	✓	✓	✓	✓									
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1200								969	950	933	921	911	907	898	893									
23	Mw Output		MW			27								22.4	22.4	21.7	21.7	21.1	21.1	20.7	20.7									
24	80% Base Load Minimum		MW											18.7	18.6	18.2	18.1	18.0	17.7	17.5	17.6									
25	Running Hours (unit overview)													3836	3837	3838	3839	3840	3841	3842	3843									
26	Ambient Temperature	T1 inlet												61.7	64.2	68.4	70.0	71.8	74.1	74.8	75.7									
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								49%																
28	Total Fuel Flow		Mscf/h											219.4																

Date: 8-23-2018 Signature: Randy Kiel

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	0630																												
Combustible Gas Detector	AAH-303	%		0%	20%								n/a																
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B	B									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2									
Oil Day Tank Level	LI-1562	GAL	10		FULL								43	43	43	44	44	44	44	44									
Lubricator Bulls eye		LEVEL	1/2	FULL									3/4	3/4	3/4	7/8	7/8	7/8	7/8	7/8									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B	B									
1st Stage Inlet Press.	PI-2100	psig		88	140								82	82	82	82	82	82	82	82									
Stage Disch. Press	PI-2101	psig		238	285								248	248	250	249	250	251	251	251									
2nd Stage Inlet Press	PI-2200	psig		267	285								245	245	245	246	246	247	246	248									
2nd Stage Disch. Press	PI-2201	psig		575	600								579	579	579	579	579	579	579	579									
Final Discharge Pressure	PI-2108	psig		575	600								574	575	575	575	575	575	575	575									
Lube Oil Pressure	PI-1572	psig	40	60									59	59	59	59	59	59	59	59									
Lube Oil Temp	TE-1584	deg		150	170								164	164	164	165	164	165	165	165									
Final Discharge Temp	TE-2120	deg		110	150								100	101	102	107	111	113	113	114									
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								236	238	238	239	240	241	242	242									
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283								233	235	233	239	244	245	245	246									
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								234	236	235	237	238	239	239	239									
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								234	235	235	240	244	245	245	247									
Motor Frame Vibration	VT-1015	IPS			0.15								.04	.04	.04	.04	.04	.04	.04	.04									
Compresser Frame Vibration	VT-1512	IPS			0.35								.05	.05	.05	.05	.05	.05	.05	.05									
Take Once per Shift / at Full Load		psig		Max psid	When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																								
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								573																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								568																
													558																

DATE 08-23-2018

SIGNATURE

Mid Shift

Days Shift

Notes

Date: 8-30-2018

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 0658

Time of Turbine Online (Brkr Closed): 0754

CGTG HOURLY READING LOG

Time Turbine Offline (Brkr Open): 1559

Time No Gas Flow: 1605

Notes:

	Instrument Air Compressor	LD	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√											Y	✓	✓	✓	✓	✓	✓	✓									
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√											Y	✓	✓	✓	✓	✓	✓	✓									
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								106	110	112	112	108	104	114	106									
4	Instrument Temperature	TI-001	deg C		20	50								24	24	27	28	30	30	32	32									
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								105	106	102	105	100	107	102	103									
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3									
9	Coolant Return Differential from GG	FI-001	in WC		60	80								60	60	60	60	62	62	64	62									
10	Coolant Return Differential from	FI-002	in WC		37	50								35	35	35	36	37	36	39	38									
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85								73	73	74	74	74	75	75	75									
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0	0	0	0	0	0	0	0									
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)								Y	Y	Y	Y	Y	Y	Y	Y									
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								Y	Y	Y	Y	Y	Y	Y	Y									
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								23	23	23	23	23	23	22	22									
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%								0	0	0	0	0	0	0	0									
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	AE3GGD 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√											✓	✓	✓	✓	✓	✓	✓	✓									
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1200								913	904	880	878	863	853	848	843									
23	Mw Output		MW			27								21.4	21.1	20.4	20.4	20.1	19.7	19.4	19.3									
24	80% Base Load Minimum		MW											18.4	17.9	17.5	17.4	17.2	17.[illegible]	16.9	16.8									
25	Running Hours (unit overview)													3845	3846	3847	3848	3849	3850	3851	3852									
26	Ambient Temperature	T1 Inlet												66.7	71.8	76.6	77.5	81.0	81.7	84.2	85.1									
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								49	47	46	46	45	46	46	46									
28	Total Fuel Flow		Mscf/h											214.5	211.4	208.7	206.4	204.1	200.9	198.2	198.1									

Date: 8-30-2018 Signature: [illegible]

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME											651																		
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B	B									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2									
Oil Day Tank Level	LI-1562	GAL	10		FULL								40	40	40	40	40	40	40	40									
Lubricator Bulls eye		LEVEL	1/2	FULL									3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B	B									
1st Stage Inlet Press.	PI-2100	psig		88	140								82.8	92.8	92.8	82.8	92.7	92.7	92.7	92.7									
Stage Disch. Press	PI-2101	psig		238	285								249	250	250	251	251	251	252	252									
2nd Stage Inlet Press	PI-2200	psig		267	285								246	246	247	247	248	248	248	249									
2nd Stage Disch. Press	PI-2201	psig		575	600								579	579	578	579	579	579	579	579									
Final Discharge Pressure	PI-2108	psig		575	600								575	575	575	575	575	575	575	575									
Lube Oil Pressure	PI-1572	psig	40	60									60.1	59.9	59.7	59.7	59.4	59.3	59.3	59.3									
Lube Oil Temp	TE-1584	deg		150	170								163	164	164	165	166	166	166	166									
Final Discharge Temp	TE-2120	deg		110	150								105	109	114	117	120	120	123	125									
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								236	237	240	240	242	243	243	244									
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283								237	239	245	247	250	251	253	254									
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								234	235	237	238	240	240	241	241									
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								237	240	245	247	250	251	253	254									
Motor Frame Vibration	VT-1015	IPS			0.15								.04	.04	.05	.04	.04	.04	.04	.04									
Compresser Frame Vibration	VT-1512	IPS			0.35								.05	.05	.06	.05	.05	.05	.05	.05									
Take Once per Shift / at Full Load		psig		Max psid	When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																								
Natural Gas Comp.Discharge Press.														575															
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8									571															
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20									561															

DATE 8-30-2018

SIGNATURE

Mid Shift

Days Shift

Notes

Date: 9-6-2018

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

CGTG HOURLY READING LOG

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes: CGTG failed to start due to gas values

	Instrument Air Compressor	LD	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√																											
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√																											
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120																								
4	Instrument Temperature	TI-001	deg C		20	50																								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120																								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL																								
9	Coolant Return Differential from GG	FI-001	In WC		60	80																								
10	Coolant Return Differential from	FI-002	In WC		37	50																								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85																								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%																								
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)																								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)																								
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%																								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A53GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√																											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200																								
23	Mw Output		MW			27																								
24	80% Base Load Minimum		MW																											
25	Running Hours (unit overview)																													
26	Ambient Temperature	T1 Inlet																												
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 9-6-2018 Signature: [illegible]

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME											0634																		
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 9-6-2018

SIGNATURE

Mid Shift

Days Shift [signature]

Notes gas Compressor off at 0728

Date: 9-7-2018

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1414

Time of Turbine Online (Brkr Closed): 1432

Time Turbine Offline (Brkr Open): 1443

Time No Gas Flow: 1449

CGTG HOURLY READING LOG

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	✓																											
2	Blowdown Wet Receiver Tank Hourly	BVT-007	✓																											
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120																								
4	Instrument Temperature	TI-001	deg C		20	50																								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120																								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL																								
9	Coolant Return Differential from GG	FI-001	In WC		60	80																								
10	Coolant Return Differential from	FI-002	In WC		37	50																								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85																								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%																								
15	WECC Log			Operational?																										
16	Operation of PSS/ on at 6.3MW		Yes (Y)			No (N)																								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)																								
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%																								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		✓																											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200																								
23	Mw Output		MW			27																								
24	90% Base Load Minimum		MW																											
25	Running Hours (unit overview)																													
26	Ambient Temperature	T1 inlet																												
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 9-7-2018 Signature:

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME																			1458										
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 9-7-2015

SIGNATURE

Mid Shift

Days Shift

Notes

Date: 9-12-2018

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1650

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow: 1709

Notes: TEST FOR JOE B AFTER PM. COMPLETE - TURBINE DIDN GO ON LINE JUST TO WARM UP.

	Instrument Air Compressor	LD	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	v																											
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v																											
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120																								
4	Instrument Temperature	TI-001	deg C		20	50																								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120																								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL																								
9	Coolant Return Differential from GG	FI-001	In WC		60	80																								
10	Coolant Return Differential from	FI-002	In WC		37	50																								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85																								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%																								
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)																								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)																								
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%																								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v																											
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1200																								
23	Mw Output		MW			27																								
24	80% Base Load Minimum		MW																											
25	Running Hours (unit overview)																													
26	Ambient Temperature	T1 inlet																												
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 09-12-18 Signature: [signature]

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	1445																												
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 09-12-2018

SIGNATURE [illegible]

Mid Shift

Days Shift

Notes TEST FOR JOE B. AFTR P.M. COMPLETE

Date: 09-13-18

MST (MDT) (circle one)

Time Gas Introduced (Turbine Rolling): 0700

Time of Turbine Online (Brkr Closed): 0751

Time Turbine Offline (Brkr Open): 1658

Time No Gas Flow: 1659

CGTG HOURLY READING LOG

Notes: COOLANT PLC TEMP STAYED 100°F

	Instrument Air Compressor	LD	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√											✓	✓	✓	✓	✓	✓	✓	✓	✓								
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√											✓	✓	✓	✓	✓	✓	✓	✓	✓								
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								110	110	105	108	100	106	110	105	100								
4	Instrument Temperature	TI-001	deg C		20	50								25°C	25	25	27	28	29	29	30	31								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19	19	19	19	19	19	17	19	19								
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								103	101	105	105	103	109	100	100	100								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2								
9	Coolant Return Differential from GG	FI-001	in WC		60	80								63	63	63	63	63	63	64	64	63								
10	Coolant Return Differential from	FI-002	in WC		37	50								35	36	36	36	36	36	37	36	37								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85								72°F	72	72	73	73	73	73	73	73								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0%	0%	0%	0%	0%	0%	0%	0%	0%								
15	WECC Log			Operational?																										
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)								Y	Y	Y	Y	Y	Y	Y	Y	Y								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								Y	Y	Y	Y	Y	Y	Y	Y	Y								
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								41%	41%	41%	41%	41%	41%	41%	41%	40%								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%								0%	0%	0%	0%	0%	0%	0%	0%	0%								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√											✓	✓	✓	✓	✓	✓	✓	✓	✓								
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200								933	922	898	888	883	884	865	862	862								
23	Mw Output		MW			27								21.7	21.4	20.7	20.4	20.4	20.4	19.8	19.7	19.7								
24	80% Base Load Minimum		MW											18.4	18.0	17.8	17.5	17.4	17.4	17.3	17.1	17.1								
25	Running Hours (unit overview)													3855	3856	3857	3858	3859	3860	3861	3862	3863								
26	Ambient Temperature	T1 inlet												65.8	70.5	74.3	75.9	77.5	78.4	79.9	81.0	81.5								
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								51%	50%	49%	48%	48%	48%	49%	49%	50%								
28	Total Fuel Flow		Mscf/h											219	210	206	206	203	202	199	201	200								

Date: 09-13-2018 Signature: Ravy Usi

1239 48 6:8 59.6 62.5 1766627005

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	0645																												
Combustible Gas Detector	AAH-303	%		0%	20%								4																
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B	B	B								
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E	E								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2								
Oil Day Tank Level	LI-1562	GAL	10		FULL								40	40	40	40	40	40	40	40	40								
Lubricator Bulls eye		LEVEL	1/2	FULL									3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4								
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E	E								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E	E								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B	B	B								
1st Stage Inlet Press.	PI-2100	psig		88	140								83	82	82	82	87	82	82	82	82								
Stage Disch. Press	PI-2101	psig		238	285								250	251	252	251	252	252	252	253	253								
2nd Stage Inlet Press	PI-2200	psig		267	285								247	247	247	248	248	248	249	249	249								
2nd Stage Disch. Press	PI-2201	psig		575	600								578	579	579	579	579	579	579	579	579								
Final Discharge Pressure	PI-2108	psig		575	600								574	575	575	575	575	575	575	575	575								
Lube Oil Pressure	PI-1572	psig	40	60									60	60	59	59	59	59	59	59	59								
Lube Oil Temp	TE-1584	deg		150	170								164	163	164	165	165	166	166	166	166								
Final Discharge Temp	TE-2120	deg		110	150								105	109	111	115	115	116	117	119	119								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								239	241	242	243	243	244	244	244	244								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283								239	243	245	247	248	250	251	254	251								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								237	238	239	241	241	242	242	242	241								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								239	243	247	247	248	250	249	252	251								
Motor Frame Vibration	VT-1015	IPS			0.15								.05	.05	.05	.05	.05	.04	.04	.04	.04								
Compresser Frame Vibration	VT-1512	IPS			0.35								.05	.05	.05	.05	.05	.05	.05	.05	.05								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.													575																
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								570																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								559																

DATE 09-13-2018

SIGNATURE Randy Vigil

Mid Shift

Days Shift

Notes

Date: 09-27-18

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1307

Time of Turbine Online (Brkr Closed): 1351

Time Turbine Offline (Brkr Open): 1419

Time No Gas Flow: 1425

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	v																	✓										
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v																	✓										
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120														105										
4	Instrument Temperature	TI-001	deg C		20	50														23										
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25															19										
7	Coolant PLC Temperature	TI-002	deg F	100	110	120														104										
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL														1/2										
9	Coolant Return Differential from GG	FI-001	in WC		60	80														63										
10	Coolant Return Differential from	FI-002	in WC		37	50														39										
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85														72										
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%														0%										
15	WECC Log			Operational?																										
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)														Y										
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)														Y										
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%														41%										
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%														0%										
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v																	✓										
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200														874										
23	Mw Output		MW			27														20.4										
24	80% Base Load Minimum		MW																	17.8										
25	Running Hours (unit overview)																			3565										
26	Ambient Temperature	T1 inlet																		73.4										
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%														45%										
28	Total Fuel Flow		Mscf/h																	203										

Date: 09-27-18 Signature: [signature]

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	1250																		UA										
Combustible Gas Detector	AAH-303	%		0%	20%														4%										
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK															B										
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY														E										
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL														3/4										
Oil Day Tank Level	LI-1562	GAL	10		FULL														38										
Lubricator Bulls eye		LEVEL	1/2	FULL															1/2										
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY														E										
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY														E										
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK															B										
1st Stage Inlet Press.	PI-2100	psig		88	140														82										
Stage Disch. Press	PI-2101	psig		238	285														250										
2nd Stage Inlet Press	PI-2200	psig		267	285														246										
2nd Stage Disch. Press	PI-2201	psig		575	600														578										
Final Discharge Pressure	PI-2108	psig		575	600														575										
Lube Oil Pressure	PI-1572	psig	40	60															59										
Lube Oil Temp	TE-1584	deg		150	170														164										
Final Discharge Temp	TE-2120	deg		110	150														111										
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297														239										
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283														244										
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297														237										
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283														243										
Motor Frame Vibration	VT-1015	IPS			0.15														.09										
Compresser Frame Vibration	VT-1512	IPS			0.35														.05										
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																			560										
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8														556										
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20														546										

DATE 09-27-2018

SIGNATURE [illegible]

Mid Shift

Days Shift

Notes

Date: 10-10-2018

MST (MDT) (circle one)

Time Gas Introduced (Turbine Rolling): 1208

Time of Turbine Online (Brkr Closed): 1255

Time Turbine Offline (Brkr Open): 1400

Time No Gas Flow: 1406

CGTG HOURLY READING LOG

Notes: RUNNING HOURS COUNTER HAS RESET TO ZERO. ROLLS ROYCE WILL RESET. FOR NOW, LOG HOURS AS IS PER BLAINE COLLINS.

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	v																✓											
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v																✓											
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120													106											
4	Instrument Temperature	TI-001	deg C		20	50													20											
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25														19											
7	Coolant PLC Temperature	TI-002	deg F	100	110	120													104											
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL													1/2											
9	Coolant Return Differential from GG	FI-001	In WC		60	80													63											
10	Coolant Return Differential from	FI-002	In WC		37	50													36											
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85													70											
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%													0											
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)													Y											
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)													Y											
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%													43											
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%													0											
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v																✓											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200													988											
23	Mw Output		MW			27													23.5											
24	80% Base Load Minimum		MW																19.5											
25	Running Hours (unit overview)																		1*											
26	Ambient Temperature	T1 inlet																	52.5											
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%													52											
28	Total Fuel Flow		Mscf/h																225.5											

Date: 10-10-2018 Signature: GOMEZ

* SEE NOTES ABOVE

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	1149																												
Combustible Gas Detector	AAH-303	%		0%	20%													00S											
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK														B											
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY													E											
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL													1/2											
Oil Day Tank Level	LI-1562	GAL	10		FULL													37											
Lubricator Bulls eye		LEVEL	1/2	FULL														F											
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY													E											
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY													E											
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK														B											
1st Stage Inlet Press.	PI-2100	psig		88	140													82											
Stage Disch. Press	PI-2101	psig		238	285													246											
2nd Stage Inlet Press	PI-2200	psig		267	285													242											
2nd Stage Disch. Press	PI-2201	psig		575	600													579											
Final Discharge Pressure	PI-2108	psig		575	600													575											
Lube Oil Pressure	PI-1572	psig	40	60														60											
Lube Oil Temp	TE-1584	deg		150	170													166											
Final Discharge Temp	TE-2120	deg		110	150													89											
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297													231											
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283													226											
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297													229											
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283													227											
Motor Frame Vibration	VT-1015	IPS			0.15													.03											
Compresser Frame Vibration	VT-1512	IPS			0.35													.04											
Take Once per Shift / at Full Load		psig		Max psid	When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																								
Natural Gas Comp.Discharge Press.																		575											
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8													570											
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20													558											

DATE 10-10-2018

SIGNATURE [signature] GOMEZ

Mid Shift

Days Shift

Notes

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME																													
Combustible Gas Detector	AAH-303	%		0%	20%									0.0															
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid	When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																								
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 10-16-18

SIGNATURE Paul A Martey

Mid Shift

Days Shift

Notes 10-16-18 - Start up Gas Compressor for testing GGTG Gas Valve.

Date: 10-17-18

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1438

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow: 1441

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√																											
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√																											
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120																								
4	Instrument Temperature	TI-001	deg C		20	50																								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120																								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL																								
9	Coolant Return Differential from GG	FI-001	in WC		60	80																								
10	Coolant Return Differential from	FI-002	in WC		37	50																								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85																								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%																								
15	WECC Log			Operational?																										
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)																								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)																								
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%																								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√																											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200																								
23	Mw Output		MW			27																								
24	80% Base Load Minimum		MW																											
25	Running Hours (unit overview)																													
26	Ambient Temperature	T1 inlet																												
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 10-17-18 Signature:

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME																			11:00										
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 10-17-2018

SIGNATURE Paul A Matey

Mid Shift

Days Shift

Notes START GAS COMPRESSOR for UNIT TEST OF GAS VALVE

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	0841																												
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 10-18-2018

SIGNATURE GOMEZ

Mid Shift

Days Shift

Notes GAS COMPRESSOR START AT 0841. CGTG FAILED TO START DUE TO GAS VALVE STAYING SHUT

CGTG HOURLY READING LOG

Date: 10-22-2018

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1556

Time of Turbine Online (Brkr Closed): 1541

Time Turbine Offline (Brkr Open):

Time No Gas Flow: 1542 1557

Notes:

		I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	Instrument Air Compressor																													
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√																											
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√																											
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120																								
4	Instrument Temperature	TI-001	deg C		20	50																								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120																								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL																								
9	Coolant Return Differential from GG	FI-001	In WC		60	80																								
10	Coolant Return Differential from	FI-002	In WC		37	50																								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85																								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%																								
15	WECC Log		Operational?																											
16	Operation of PSS/on at 5.3MW		Yes (Y)			No (N)																								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)																								
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%																								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	AS3GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√																											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200																								
23	Mw Output		MW			27																								
24	80% Base Load Minimum		MW																											
25	Running Hours (unit overview)																													
26	Ambient Temperature	T1 inlet																												
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 10-22-2018 Signature: Josh Arnett

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME																				1509									
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 10-22-18

SIGNATURE [illegible]

Mid Shift

Days Shift

Notes ~~[illegible]~~ 785635
785636

UI-LOG-033-R2
January 4 2018

Date: 10-23-18

MST/~~EDT~~ (circle one)

Time Gas Introduced (Turbine Rolling): 1311

Time of Turbine Online (Brkr Closed):

CGTG HOURLY READING LOG

Time Turbine Offline (Brkr Open):

Time No Gas Flow: 1325

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√																											
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√																											
3	Wet Receiver Air Pressure	PI-002	psig	50	105	120																								
4	Instrument Temperature	TI-001	deg C		20	50																								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120																								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL																								
9	Coolant Return Differential from GG	FI-001	In WC		60	80																								
10	Coolant Return Differential from	FI-002	In WC		37	50																								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85																								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%																								
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)																								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)																								
	Entronic Control System		Units	Low	Norm	Max																								
	(16-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%																								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A53GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√																											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200																								
23	Mw Output		MW			27																								
24	80% Base Load Minimum		MW																											
25	Running Hours (unit overview)																													
26	Ambient Temperature	T1 inlet																												
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 10-23-18

Signature: [signature]

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME																	1250												
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 10-23-14

SIGNATURE

Mid Shift

Days Shift

Notes 785636
785647

1335 off

Date: 10-24-18

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1511

Time of Turbine Online (Brkr Closed):

CGTG HOURLY READING LOG

Time Turbine Offline (Brkr Open):

Time No Gas Flow: 1529

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-019	y																											
2	Blowdown Wet Receiver Tank Hourly	BVT-007	y																											
3	Wet Receiver Air Pressure	PI-002	psig	95	105	120																								
4	Instrument Temperature	TI-001	deg C		20	50																								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120																								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL																								
9	Coolant Return Differential from GG	FI-001	in WC		60	80																								
10	Coolant Return Differential from	FI-002	in WC		37	50																								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85																								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%																								
15	WECC Log		Operational?																											
16	Operation of PSS/ce at 5.3MW		Yes (Y)			No (N)																								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)																								
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%																								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	AS3GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		y																											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200																								
23	Mw Output		MW			27																								
24	80% Base Load Minimum		MW																											
25	Running Hours (unit overview)																													
26	Ambient Temperature	T1 Inlet																												
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 10-24-18 Signature: Josh Ar

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME																			1455										
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 10-24-18

SIGNATURE

Mid Shift

Days Shift [signature]

Notes #1536

785660

UI-LOG-034-R1
February 9, 2017

Date: 10-25-18

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1409

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow: 1451

CGTG HOURLY READING LOG

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-015	√																											
2	Blowdowe Wet Receiver Tank Hourly	BVT-007	√																											
3	Wet Receiver Air Pressure	PI-002	psig	50	105	120																								
4	Instrument Temperature	TI-001	deg C		20	50																								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120																								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL																								
9	Coolant Return Differential from GG	PI-001	in WC		60	80																								
10	Coolant Return Differential from	PI-002	in WC		37	50																								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85																								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%																								
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)																								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)																								
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%																								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on Time trip)	A53GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√																											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200																								
23	Mw Output		MW			27																								
24	80% Base Load Minimum		MW																											
25	Running Hours (unit overview)																													
26	Ambient Temperature	T1 Inlet																												
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 10-25-18 Signature:

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME																		1352											
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 10-25-18

SIGNATURE

Mid Shift

Days Shift

Notes 1500 [illegible]
785694

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME															10:15														
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 10-30-2018

SIGNATURE [illegible]

Mid Shift

Days Shift

Notes Gas Compressor start + for warm up per Joe Baughman, RAN for 15-20 min.

Date: 11-8-18

(MST) MDT (circle one)

Time Gas Introduced (Turbine Rolling): 0704

Time of Turbine Online (Brkr Closed): 0758

Time Turbine Offline (Brkr Open): 1602

Time No Gas Flow: 1606

Notes:

CGTG HOURLY READING LOG

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	v											✓	✓	✓	✓	✓	✓	✓	✓									
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v											✓	✓	✓	✓	✓	✓	✓	✓									
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								112	110	110	108	110	108	108	110									
4	Instrument Temperature	TI-001	deg C		20	50								22	22	23	23	22	21	21	21									
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19.7	19.2	19.2	19.3	19.2	19.4	19.4	19.4									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								98	98	102	99	102	98	100	108									
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								3/4	3/4	3/4	3/4	3/4	5/8	3/4	3/4									
9	Coolant Return Differential from GG	FI-001	In WC		60	80								60 ~~49.2~~	60	62	62	62	64	64	62									
10	Coolant Return Differential from	FI-002	In WC		37	50								36	37	36	37	37	37	37	36									
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85								69	70	70	70	71	72	72	72									
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0	0	0	0	0	0	0	0									
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)								Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes									
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes									
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								62	62	62	62	61	61	61	61									
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%								0	0	0	0	0	0	0	0									
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	AS3GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v											✓	✓	✓	✓	✓	✓	✓	✓									
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200								1026	1026	1025	1027	1026	1013	1001	1010									
23	Mw Output		MW			27								24	24.1	23.8	23.7	24.1	23.8	23.5	23.8									
24	80% Base Load Minimum		MW											19.9	19.7	19.6	19.6	19.7	19.5	19.4	19.5									
25	Running Hours (unit overview)													3880	3881	3882	3883	3884	3885	3886	3887									
26	Ambient Temperature	T1 Inlet												46.6	49	50	51	49	52	53	51									
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								54	52	51	51	52	52.9	52	52									
28	Total Fuel Flow		Mscf/h											231.6	230	230	231	228	226	226	227									

Date: 11-8-18 Signature: A [illegible]

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	0645																												
Combustible Gas Detector	AAH-303	%		0%	20%								N/A	N/A	N/A	N/A	N/A	–	–	–									
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B	B									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2									
Oil Day Tank Level	LI-1562	GAL	10		FULL								37	37	37	37	36	35	35	35									
Lubricator Bulls eye		LEVEL	1/2	FULL									F	F	F	F	F	90%	F	F									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B	B									
1st Stage Inlet Press.	PI-2100	psig		88	140								82	82	82	82	83	82	82	82									
Stage Disch. Press	PI-2101	psig		238	285								247	248	249	250	249	249	249	249									
2nd Stage Inlet Press	PI-2200	psig		267	285								243	244	245	246	246	245	245	246									
2nd Stage Disch. Press	PI-2201	psig		575	600								579	578	579	579	579	579	579	579									
Final Discharge Pressure	PI-2108	psig		575	600								574	574	575	575	575	574	574	574									
Lube Oil Pressure	PI-1572	psig	40	60									59	58	58	58	58	58	58	58									
Lube Oil Temp	TE-1584	deg		150	170								169	170	169	170	169	169	168	168									
Final Discharge Temp	TE-2120	deg		110	150								83	86	88	88	87	88	89	87									
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								221	221	221	222	217	217	218	216									
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283								218	220	222	224	218	220	222	219									
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								219	219	220	220	215	216	216	215									
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								219	221	222	223	218	221	222	219									
Motor Frame Vibration	VT-1015	IPS			0.15								.03	.03	.04	.03	.04	.04	.04	.04									
Compressor Frame Vibration	VT-1512	IPS			0.35								.05	.05	.05	.05	.05	.05	.05	.05									
Take Once per Shift / at Full Load		psig		Max psid	When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																								
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								565																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								554																

DATE 11-8-18

SIGNATURE

Mid Shift

Days Shift A Uber

Notes

Date: 11-15-2018

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 06:47

Time of Turbine Online (Brkr Closed): 07:55

Time Turbine Offline (Brkr Open): 16:00

Time No Gas Flow: 16:06

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	✓											✓	✓	✓	✓	✓	✓	✓	✓									
2	Blowdown Wet Receiver Tank Hourly	BVT-007	✓											✓	✓	✓	✓	✓	✓	✓	✓									
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								106	112	100	106	110	108	108	112									
4	Instrument Temperature	TI-001	deg C		20	50								18	19	20	20	20	22	23	23									
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								102	111	101	101	98	102	109	105									
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								5/8	5/8	5/8	1/2	1/2	1/2	1/2	1/2									
9	Coolant Return Differential from GG	FI-001	in WC		60	80								60	60	62	63	63	63	63	63									
10	Coolant Return Differential from	FI-002	in WC		37	50								35	35	35	37	36	38	38	38									
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85								72	72	72	74	74	74	74	74									
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0	0	0	0	0	0	0	0									
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)								Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes									
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes									
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								62	62	62	61	61	61	61	61									
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%								0	0	0	0	0	0	0	0									
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		✓											✓	✓	✓	✓	✓	✓	✓	✓									
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200								1082	1072	1061	1039	1026	1018	1017	1009									
23	Mw Output		MW			27								25.8	25.5	25.0	24.4	24.1	24.1	24.1	24.0									
24	80% Base Load Minimum		MW											20.7	20.4	20.2	19.9	19.7	19.6	19.6	19.6									
25	Running Hours (unit overview)													3889	3890	3891	3892	3893	3894	3895	3896									
26	Ambient Temperature	T1 Inlet												36	39	43	46	48	50	50	50									
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								53	52	51	51	51	52	53	53									
28	Total Fuel Flow		Mscf/h											242	240	237	235	233	230	230	230									

Date: 11-15-2018 Signature: Paul A. Montoya

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME											06:30																		
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B	B									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2									
Oil Day Tank Level	LI-1562	GAL	10		FULL								33	33	33	33	33	33	33	33									
Lubricator Bulls eye		LEVEL	1/2	FULL									1/2	3/4	3/4	3/4	3/4	3/4	3/4	3/4									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B	B									
1st Stage Inlet Press.	PI-2100	psig		88	140								81	82	82	82	82	82	82	82									
Stage Disch. Press	PI-2101	psig		238	285								246	246	248	248	249	250	250	251									
2nd Stage Inlet Press	PI-2200	psig		267	285								242	242	244	244	245	246	246	247									
2nd Stage Disch. Press	PI-2201	psig		575	600								578	579	579	579	579	579	579	579									
Final Discharge Pressure	PI-2108	psig		575	600								574	574	574	575	575	575	574	575									
Lube Oil Pressure	PI-1572	psig	40	60									57	57	57	57	58	58	58	58									
Lube Oil Temp	TE-1584	deg		150	170								169	170	171	171	169	169	169	169									
Final Discharge Temp	TE-2120	deg		110	150								73	75	80	82	86	86	87	87									
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								212	213	213	214	214	214	214	213									
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283								208	209	214	216	218	219	218	218									
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								211	211	212	212	213	213	212	212									
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								208	210	219	216	219	220	219	219									
Motor Frame Vibration	VT-1015	IPS			0.15								.03	.03	.04	.03	.04	.04	.04	.04									
Compresser Frame Vibration	VT-1512	IPS			0.35								.05	.05	.05	.05	.05	.05	.05	.05									
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.														575															
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8									570															
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20									556															

DATE	
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Date: 11-28-18

MST / MDT (circle one)

CGTG HOURLY READING LOG

Time Gas Introduced (Turbine Rolling): 1326

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow: 1358

Notes: CGTG started for Joe Baughman to get oil sampler + testing of starter

	Instrument Air Compressor	LD	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√																											
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√																											
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120																								
4	Instrument Temperature	TI-001	deg C		20	50																								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120																								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL																								
9	Coolant Return Differential from GG	FI-001	In WC		60	80																								
10	Coolant Return Differential from	FI-002	In WC		37	50																								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85																								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%																								
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)																								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)																								
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%																								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√																											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200																								
23	Mw Output		MW			27																								
24	80% Base Load Minimum		MW																											
25	Running Hours (unit overview)																													
26	Ambient Temperature	T1 Inlet																												
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 11-28-18

Signature: [signature]

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME																		1309											
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 11-28-18

SIGNATURE [signature]

Mid Shift

~~Days Shift~~

Notes starting CGTG for Jane Baughman to collect oil samples + testing of starter

789774

Date: 11-29-18

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 0643

Time of Turbine Online (Brkr Closed): 0748

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

CGTG HOURLY READING LOG

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	✓											✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	✓											✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								110	105	110	107	109	108	110	106	105	105	105	110	108	112	110	106	108
4	Instrument Temperature	TI-001	deg C		20	50								19	19	20	19	20	20	20	20	20	19	19	20	20	19	19	19	19
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19	19.5	19.5	19	19	19	19	19	19	19	19	19.5	19.5	19.5	19.5	19.5	19.5
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								104	105	99	99	100	100	103	108	102	100	99	103	101	110	107	108	100
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4	3/4
9	Coolant Return Differential from GG	FI-001	In WC		60	80								61	61	61	63	63	63	63	62	63	63	63	62	62	62	62	60	62
10	Coolant Return Differential from	FI-002	In WC		37	50								35	35	35	35	35	35	35	35	35	35	34	35	35	35	35	35	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85								71	71	71	71	72	72	72	72	73	74	74	74	74	74	73	73	74
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0%	0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)								Yes	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Yes	Yes	Yes	Yes	Yes	Yes
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								Yes	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Yes	Yes	Yes	Yes	Yes	Yes
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								61%	61%	61%	61	61	61	61	61	61	61	61	61	61	61	61	61	61
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%								0%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGO ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		✓											✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200								1048	1035	1044	1036	997	997	982	1011	1017	1035	1038	1057	1046	1052	1038	1048	1047
23	Mw Output		MW			27								24.8	24.4	24.5	24.4	23.5	23.5	22.5	23.8	23.8	24.4	24.4	24.8	24.8	24.8	24.9	24.8	24.8
24	80% Base Load Minimum		MW											20.3	20.8	20.7	20.6	19.6	19.5	18.5	19.6	19.7	20.4	20.1	20.4	20.3	20.4	20.2	20.3	20.3
25	Running Hours (unit overview)													3899	3900	3901	3902	3903	3904	3905	3906	3907	3908	3909	3910	3911	3912	3913	3914	3915
26	Ambient Temperature	T1 inlet												41.5	45.0	44.1	45.0	50.9	51.6	50.3	50	48.4	45.0	44.1	40.8	41.5	39.9	42.4	40.8	40.8
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								55%	54	53%	54	53%	53%	53	54	54	54	54	55	55	55	55	55	53
28	Total Fuel Flow		Mscf/h											236.2	234	234.3	233	227	227	229	228	231	232	231	236	237	236	234	236	235

Date: 11-29-2018 Signature: (Randy Uil)

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	0630																												
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL								33	33	33	33	33	33	33	33	33	33	33	33	32	32	31	31	31
Lubricator Bulls eye		LEVEL	1/2	FULL									5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	3/4	3/4	3/4	3/4	3/4	3/4
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140								82	82	82	82	82	82	82	82	82	82	82	83	83	82	82	82	83
Stage Disch. Press	PI-2101	psig		238	285								249	249	249	250	251	251	251	252	252	251	250	250	251	251	250	250	251
2nd Stage Inlet Press	PI-2200	psig		267	285								245	245	245	246	247	247	246	248	248	246	246	246	246	247	246	246	247
2nd Stage Disch. Press	PI-2201	psig		575	600								578	578	579	579	579	579	579	579	578	579	578	579	578	578	579	579	579
Final Discharge Pressure	PI-2108	psig		575	600								574	574	575	574	574	575	575	575	575	575	575	575	575	574	574	574	574
Lube Oil Pressure	PI-1572	psig	40	60									58	57	56	58	58	58	58	58	58	58	58	57	57	57	57	57	57
Lube Oil Temp	TE-1584	deg		150	170								170	170	170	170	169	169	169	169	169	169	169	171	170	171	171	171	170
Final Discharge Temp	TE-2120	deg		110	150								82	82	82	84	87	88	88	86	86	82	82	79	79	79	78	77	79
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								214	214	212	212	214	214	214	212	213	210	210	208	208	208	208	207	207
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283								216	214	216	218	220	219	219	218	218	215	215	211	210	211	211	210	211
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								212	212	210	211	213	213	213	211	210	209	208	207	207	206	207	206	206
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								217	217	217	218	221	220	221	219	219	215	215	212	211	212	212	211	212
Motor Frame Vibration	VT-1015	IPS			0.15								.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.03	.04	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35								.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
Take Once per Shift / at Full Load		psig		Max psid	When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																								
Natural Gas Comp.Discharge Press.													575																
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								570																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								558																

DATE 11.29-18

SIGNATURE Randy Vinil

Mid Shift A Wolf

Days Shift

Notes Need Lighting in Cgtg Gas Comp Encloser. Lighting Stays on like 5 Seconds. 1 Light works At Random on outside

Date: 11-30-18

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

CGTG HOURLY READING LOG

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	112	108	107	112	110	105	110	106	110	110	100	103	110	100	105	100	100	106	110	108	111	110	104
4	Instrument Temperature	TI-001	deg C		20	50	19	20	20	19	19	19	19	20	19	19	19	19	19	19	19	19	19	19	18	18	18	18	18	18
5	Rn Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19.5	19.5	19.5	19.5	19.5	19.5	19	19	19	19	19	19	19	19	19	19	19	19	19.5	19.5	19.5	19.5	19.5	19.5
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	108	104	110	111	109	106	98	100	109	99	105	106	100	105	107	108	101	99	104	108	108	106	110	106
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL	3/4	3/4	3/4	3/4	3/4	3/4	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	5/8	5/8	5/8	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	In WC		60	80	67	62	62	62	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	61	61	60	61
10	Coolant Return Differential from	PI-002	In WC		37	50	36	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	34	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	73	74	74	74	74	74	74	74	74	73	74	74	74	74	74	74	74	74	74	74	72	71	71	71
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	WECC Log			Operational?																										
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	Yes	Yes	Yes	Yes	Yes	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Yes	Yes	Yes	Yes	Yes	Yes
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	Yes	Yes	Yes	Yes	Yes	Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Yes	Yes	Yes	Yes	Yes	Yes
	Eatronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1200	1052	1055	1054	1059	1056	1057	1059	1069	1047	1050	1054	1055	1062	1061	1065	1045	1046	1068	1074	1072	1074	1073	1072	1070
23	Mw Output		MW			27	24.8	24.8	24.8	24.8	24.8	24.8	24.8	25.1	24.8	24.8	24.8	24.8	24.9	25.0	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1
24	80% Base Load Minimum		MW				20.4	20.4	20.4	20.5	20.4	20.4	20.5	20.7	20.4	20.4	20.4	20.4	20.7	20.7	20.7	20.7	20.8	20.9	20.8	20.8	20.9	20.8	20.9	20.9
25	Running Hours (unit overview)						3916	3917	3918	3919	3920	3921	3922	3923	3924	3925	3926	3927	3928	3929	3930	3931	3932	3933	3934	3935	3936	3937	3938	3939
26	Ambient Temperature	T1 Inlet					39.9	40.1	40.2	38.3	39	39.3	38.3	38.7	48.3	40.8	39.0	39.5	36.7	37.4	35.8	34.9	34.9	34.1	34.9	34.9	34.9	34.9	~~40.8~~ 35	35
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	55	55	55	55	55	55	55	55	54	54	54	54	54	54	54	54	55	55	55	55	55	55	55	55
28	Total Fuel Flow		Mscf/h				235	237	237	237	236	236	237	237	235	235	237	237	237	237	237	237	239	239	239	239	240	240	240	240

Date: 11-30-18 Signature: [illegible]

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME																													
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY	E	E	E	E	E	E	F	E	E	E	E	E	E	F	E	E	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	31	31	31	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	29	29
Lubricator Bulls eye		LEVEL	1/2	FULL		3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	E	E	R	E	E	E	E	E	E	E	E	E
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY	E	E	E	E	E	E	F	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140	83	83	83	82	82	82	83	82	83	83	83	83	83	82	82	82	82	82	82	82	82	82	82	82
Stage Disch. Press	PI-2101	psig		238	285	251	251	250	250	250	251	251	250	250	250	250	250	250	250	250	250	250	249	250	250	250	250	250	250
2nd Stage Inlet Press	PI-2200	psig		267	285	246	247	246	246	246	245	247	247	247	246	246	246	246	246	247	247	246	246	246	246	246	246	246	246
2nd Stage Disch. Press	PI-2201	psig		575	600	579	579	579	579	579	579	579	578	578	579	579	579	579	578	579	579	579	579	579	579	579	579	579	579
Final Discharge Pressure	PI-2108	psig		575	600	574	574	574	574	574	574	574	573	573	574	574	574	575	575	574	574	574	574	574	574	574	574	574	574
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	58	58	57	57	57	57	58	58	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	170	171	170	171	171	171	171	170	171	170	170	170	170	170	170	170	169	169	169	169	169	169	170	170
Final Discharge Temp	TE-2120	deg		110	150	79	79	79	76	77	77	77	77	77	78	77	77	75	77	74	74	73	73	73	73	73	73	73	73
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	207	207	206	206	207	206	205	205	205	206	206	206	205	205	204	204	203	203	203	203	203	204	203	204
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	211	211	210	209	209	209	209	208	208	210	208	208	207	208	205	205	204	204	204	204	205	205	204	204
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	206	206	206	205	205	205	204	204	204	205	204	204	204	204	205	205	202	202	202	202	201	201	201	201
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	211	211	211	210	210	210	210	210	210	210	208	208	207	209	205	205	204	204	205	205	206	206	206	206
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8	570																							
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20	556																							

DATE 11-30-18

SIGNATURE

Mid Shift Awar

Days Shift

Notes Need Lighting in cgtg gas comp Enclosur. Light comes on at Random For about 5 Seconds

Date: 12-1-18

MST MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

CGTG HOURLY READING LOG

Time Turbine Offline (Brkr Open): 2300

Time No Gas Flow: 2202

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	114	112	108	108	110	112	100	103	105	110	105	100	110	105	100	108	101	102	114	112	108			
4	Instrument Temperature	TI-001	deg C		20	50	18	18	18	14	14	14	13	13	14	14	14	14	16	17	17	17	17	17	15	15	15			
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19.5	19.5	19.5	19.5	19.5	19.5	19	19	19	19	19	19	19	19	19	19	19	19	19.5	19.5	19.5			
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	99	104	106	111	108	106	100	107	105	110	103	105	103	100	104	104	97	100	97	102	100			
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8			
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	61	61	61	60	61	61	61	61	61	61	61	61	61	61	61	60	60	60			
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35			
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	71	71	71	71	71	70	70	70	70	70	71	71	71	71	71	71	71	71	71			
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61			
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	85	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200	1081	1083	1090	1097	1091	1095	1093	1085	1073	1076	1073	1065	1056	1054	1061	1068	1090	1093	927	930	926			
23	Mw Output		MW			27	25.5	25.5	25.8	25.8	25.8	25.8	25.8	25.8	25.5	25.2	25.1	25.1	25.1	24.8	25.1	25.1	25.8	25.8	21.7	22	21.7			
24	80% Base Load Minimum		MW				21.01	21.13	21.16	21.31	21.3	21.3	21.6	21.0	20.8	20.7	20.7	20.7	20.0	20.5	20.5	21.5	21.8	21.1	21.2	21.3	21.3			
25	Running Hours (unit overview)						3940	3941	3942	3943	3944	3945	3946	3947	3948	3949	3950	3951	3952	3953	3954	3955	3956	3957	3958	3959	3960			
26	Ambient Temperature	T1 inlet					33.3	32.4	31.6	29.8	30.7	30.3	31.6	32.4	34.9	35.8	35.8	36.7	38.3	38.3	38.3	38.3	32.4	31.6	30.7	29.8	29.8			
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	55	55	55	55	55	55	55	55	55	54	54	54	54	54	55	55	56	56	56	56	56			
28	Total Fuel Flow		Mscf/h				242	243	242	244	244	244	243	242	242	240	241	239	237	236	237	236	243	243	208	207	211			

Date: 12-1-18 Signature: A Wac

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME																													
Combustible Gas Detector	AAH-303	%		0%	20%	NA																							
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E			
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2			
Oil Day Tank Level	LI-1562	GAL	10		FULL	28	28	28	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26			
Lubricator Bulls eye		LEVEL	1/2	FULL		3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4			
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E			
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E			
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
1st Stage Inlet Press.	PI-2100	psig		88	140	83	83	83	83	83	83	82	82	82	82	82	82	82	82	82	82	83	82	83	83	83			
Stage Disch. Press	PI-2101	psig		238	285	251	249	248	249	250	250	250	250	250	250	251	250	250	250	250	250	251	254	250	251	252			
2nd Stage Inlet Press	PI-2200	psig		267	285	247	245	245	245	246	246	246	246	246	246	246	246	246	246	246	246	247	247	248	248	248			
2nd Stage Disch. Press	PI-2201	psig		575	600	579	578	578	579	579	579	579	579	579	579	579	579	579	579	579	579	579	579	579	579	579			
Final Discharge Pressure	PI-2108	psig		575	600	574	574	574	574	574	574	573	574	574	574	574	575	575	575	575	575	574	574	575	575	575			
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	58	58	58	58	58	58	58	58	58	57	57	57	57	58			
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	169	169	169	169	169	169	168	168	169	169	169	169	169	160	160	169	169	168			
Final Discharge Temp	TE-2120	deg		110	150	70	70	70	70	70	70	70	70	70	72	72	73	75	75	75	75	70	70	70	70	70			
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	202	203	203	201	202	201	202	201	201	203	203	204	204	204	204	204	202	202	200	201	200			
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	203	203	202	200	202	201	201	202	202	205	205	206	206	206	206	206	202	202	200	200	201			
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	201	201	201	200	200	200	200	200	200	202	202	202	203	203	203	203	201	201	199	199	199			
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	203	203	203	201	202	202	203	202	202	205	205	206	207	207	207	203	203	203	201	201	201			
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03			
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05			
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.													575																
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								570											571					
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								561											561					

DATE 12-1-18

SIGNATURE

Mid Shift A Wan

Days Shift

Notes

Date: 12-6-18

MDT (circle one)

Time Gas Introduced (Turbine Rolling): 0707

Time of Turbine Online (Brkr Closed): 0754

Time Turbine Offline (Brkr Open): 1600

Time No Gas Flow: 1606

CGTG HOURLY READING LOG

UI-LOG-033-R2
January 4 2018

Notes:

	Instrument Air Compressor	ID	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	✓											✓	✓	✓	✓	✓	✓	✓	✓									
2	Blowdown Wet Receiver Tank Hourly	BVT-007	✓											✓	✓	✓	✓	✓	✓	✓	✓									
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								116	104	110	108	110	112	110	110									
4	Instrument Temperature	TI-001	deg C		20	50								14	15	16	17	18	19	17	17									
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19.2	19.4	19.4	19.4	19.4	19.6	19.4	19.4									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								108	103	98	98	102	101	103	111									
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3									
9	Coolant Return Differential from GG	PI-001	in WC		60	80								60	60	60	64	64	64	62	62									
10	Coolant Return Differential from	PI-002	in WC		37	50								35	36	36	36	35	36	36	35									
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85								75	75	75	75	75	75	74	74									
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0	0	0	0	0	0	0	0									
15	WECC Log		Operational?																											
16	Operation of PSS/co at 6.3MW		Yes (Y)			No (N)								yes	yes	yes	yes	yes	yes	yes	yes									
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								yes	yes	yes	yes	yes	yes	yes	yes									
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								62	62	62	62	61	61	61	61									
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%								0	0	0	0	0	0	0	0									
20	Record on hard S/D trip over 4500 rpm N1 Compressor (on line trip)	AE3GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		✓											✓	✓	✓	✓	✓	✓	✓	✓									
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200								1091	1086	1066	1064	1073	1066	1064	1061									
23	Mw Output		MW			27								25.8	25.5	25.1	25.1	25.1	25.1	25.1	25.1									
24	80% Base Load Minimum		MW											21.0	20.7	20.4	20.3	20.4	20.4	20.4	20.3									
25	Running Hours (unit overview)													3962	3963	3964	3965	3966	3967	3968	3969									
26	Ambient Temperature	T1 inlet												32.4	36.7	39.9	41.5	39.9	39.9	39.9	40.8									
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								55	54	53	53	53	54	54	54									
28	Total Fuel Flow		Mscf/h											244.1	242.2	239.2	238.0	239.2	239.9	238.1	238.1									

Date: 12-6-18 Signature:

UI-LOG-033-R2
January 4 2018

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME											0630																		
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B	B									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2									
Oil Day Tank Level	LI-1562	GAL	10		FULL								25	25	25	25	25	25	25	25									
Lubricator Bulls eye		LEVEL	1/2	FULL									3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B	B									
1st Stage Inlet Press.	PI-2100	psig		88	140								823	828	829	829	829	829	827	821									
Stage Disch. Press	PI-2101	psig		238	285								247	248	249	250	251	251	251	251									
2nd Stage Inlet Press	PI-2200	psig		267	285								243	244	245	246	247	247	247	247									
2nd Stage Disch. Press	PI-2201	psig		575	600								579	579	579	579	579	579	579	579									
Final Discharge Pressure	PI-2108	psig		575	600								574	574	575	575	574	575	574	275									
Lube Oil Pressure	PI-1572	psig	40	60									57.8	57.8	57.9	57.8	57.8	57.9	58.0	58.0									
Lube Oil Temp	TE-1584	deg		150	170								168	170	171	170	170	170	170	170									
Final Discharge Temp	TE-2120	deg		110	150								72.2	74.5	77.9	78.1	77.7	78.1	78.5	79.0									
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								207	206	207	206	206.8	206	205	205									
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283								205	207	209	210	210	210	210	211									
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								205	205	205	205	205	204	203	203									
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								206	207	210	210	211	211	211	211									
Motor Frame Vibration	VT-1015	IPS			0.15								.03	.03	.03	.04	.04	.04	.04	.04									
Compressor Frame Vibration	VT-1512	IPS			0.35								.05	.05	.05	.05	.05	.05	.05	.05									
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.														575															
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8									570															
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20									556															

DATE 12-6-18

SIGNATURE

Mid Shift

Days Shift

Notes

Date: 12-13-18

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 0655

Time of Turbine Online (Srkr Closed): 0750

Time Turbine Offline (Srkr Open): 16:00

Time No Gas Flow: 16:06

Notes:

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	✓											✓	✓	✓	✓	✓	✓	✓										
2	Blowdown Wet Receiver Tank Hourly	BVT-007	✓											✓	✓	✓	✓	✓	✓	✓										
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								104	105	100	105	100	105	104										
4	Instrument Temperature	TI-001	deg C		20	50								13	13	14	14	14	15	15										
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19	19	19	19	19	19	19										
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								105	104	100	106	99	104	98										
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2										
9	Coolant Return Differential from GG	FI-001	in WC		60	80								60	60	61	61	63	63	61										
10	Coolant Return Differential from	FI-002	in WC		37	50								34	34	34	34	35	35	36										
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85								70	72	72	72	71	71	72										
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0%	0%	0%	0%	0%	0%	0%										
15	WECC Log			Operational?																										
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)								Yes	Yes	Yes	Yes	Yes	Yes	Yes										
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								Yes	Yes	Yes	Yes	Yes	Yes	Yes										
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								61%	61	61	62	63	62	62%										
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%								0%	0%	0%	0%	0%	0%	0%										
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A63GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		✓											Yes	Yes	Yes	Yes	Yes	Yes	Yes										
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1200								1113	1128	1115	1113	1121	1109	1104										
23	Mw Output		MW			27								26.1	26.4	26.1	26.2	26.0	25.8	25.4										
24	80% Base Load Minimum		MW											21.3	21.3	21.2	21.2	21.0	20.8	20.7										
25	Running Hours (unit overview)													3971	3972	3973	3974	3975	3976	3977										
26	Ambient Temperature	T1 Inlet												29.1	29.1	30.2	31.7	33.3	35.8	36.0										
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								55%	54%	54	54	53%	53%	54%										
28	Total Fuel Flow		Mscf/h											247	249	242	247	246	242	241										

Date: 12-13-18 Signature: [illegible]

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	0640																												
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B										
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E										
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2										
Oil Day Tank Level	LI-1562	GAL	10		FULL								23	23	23	23	23	23	23										
Lubricator Bulls eye		LEVEL	1/2	FULL									3/4	3/4	3/4	3/4	3/4	3/4	3/4										
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E										
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E										
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B										
1st Stage Inlet Press.	PI-2100	psig		88	140								82	82	82	82	82	82	82										
Stage Disch. Press	PI-2101	psig		238	285								247	247	248	248	248	248	249										
2nd Stage Inlet Press	PI-2200	psig		267	285								243	243	244	244	244	244	245										
2nd Stage Disch. Press	PI-2201	psig		575	600								578	578	579	579	579	578	579										
Final Discharge Pressure	PI-2108	psig		575	600								575	575	574	574	575	575	575										
Lube Oil Pressure	PI-1572	psig	40	60									57	57	57	57	57	57	57										
Lube Oil Temp	TE-1584	deg		150	170								168	168	168	168	169	169	170										
Final Discharge Temp	TE-2120	deg		110	150								69	69	69	70	70	70	73										
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								205	205	207	207	204	204	204										
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283								203	203	203	203	204	204	205										
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								203	203	203	204	202	202	203										
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								203	203	204	204	204	204	205										
Motor Frame Vibration	VT-1015	IPS			0.15								.04	.04	.04	.03	.03	.03	.03										
Compresser Frame Vibration	VT-1512	IPS			0.35								.05	.05	.05	.05	.05	.05	.05										
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.													575																
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								570																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								558																

DATE 12-15-2018

SIGNATURE (Randy [illegible])

Mid Shift

Days Shift

Notes

Date: 12-19-18

CGTG HOURLY READING LOG

~~MST~~ / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 0932

Time of Turbine Online (Brkr Closed): 0914

Time Turbine Offline (Brkr Open):

Time No Gas Flow: 0917 0958

Notes: testing for Joe Bayhman after R.M. 3979

	Instrument Air Compressor	LD	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-013	√																											
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√																											
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120																								
4	Instrument Temperature	TI-001	deg C		20	50																								
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25																									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120																								
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL																								
9	Coolant Return Differential from GG	FI-001	in WC		60	80																								
10	Coolant Return Differential from	FI-002	in WC		37	50																								
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85																								
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%																								
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)																								
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)																								
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%																								
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																								
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A53GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√																											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200																								
23	Mw Output		MW			27																								
24	80% Base Load Minimum		MW																											
25	Running Hours (unit overview)																													
26	Ambient Temperature	T1 Inlet																												
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 12-19-18

Signature: [signature]

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	0837																												
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																								
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																								
Oil Day Tank Level	LI-1562	GAL	10		FULL																								
Lubricator Bulls eye		LEVEL	1/2	FULL																									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY																								
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY																								
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																									
1st Stage Inlet Press.	PI-2100	psig		88	140																								
Stage Disch. Press	PI-2101	psig		238	285																								
2nd Stage Inlet Press	PI-2200	psig		267	285																								
2nd Stage Disch. Press	PI-2201	psig		575	600																								
Final Discharge Pressure	PI-2108	psig		575	600																								
Lube Oil Pressure	PI-1572	psig	40	60																									
Lube Oil Temp	TE-1584	deg		150	170																								
Final Discharge Temp	TE-2120	deg		110	150																								
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																								
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																								
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																								
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																								
Motor Frame Vibration	VT-1015	IPS			0.15																								
Compresser Frame Vibration	VT-1512	IPS			0.35																								
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 12-19-18

SIGNATURE

Mid Shift

Days Shift [signature]

Notes testing for fuel Bauphase after P.M.

809924

1017 off

809994

Date: 12-20-18

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 0653

Time of Turbine Online (Brkr Closed): 0754

Time Turbine Offline (Brkr Open): 1600

Time No Gas Flow: 1606

Notes:

CGTG HOURLY READING LOG

UI-LOG-033-R2
January 4 2018

	Instrument Air Compressor	I.D	Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Blowdown Dry Receiver Tank Hourly	BVT-019	v											✓	✓	/	✓	✓	✓	✓	✓									
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v											✓	✓	/	✓	✓	✓	✓	✓									
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120								104	106	106	108	110	112	112	106									
4	Instrument Temperature	TI-001	deg C		20	50								14	15	16	17	17	18	18	19									
5	Pin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25									19.4	19.4	19.4	19.6	19.2	19.4	19.4	19.2									
7	Coolant PLC Temperature	TI-002	deg F	100	110	120								104	105	104	98	105	103	98	100									
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2									
9	Coolant Return Differential from GG	FI-001	in WC		60	80								60	60	62	62	63	64	64	64									
10	Coolant Return Differential from	FI-002	in WC		37	50								34	35	35	36	36	38	38	38									
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85								73	72	73	72	72	72	73	73									
13	Combustible Gas Detector Monitor		% LEL	0%	0%	20%								0	0	0	0	0	0	0	0									
15	WECC Log				Operational?																									
16	Operation of PSS/on at 5.3MW		Yes (Y)			No (N)								yes	yes	YES	yes	yes	yes	yes	yes									
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)								yes	yes	YES	yes	yes	yes	yes	yes									
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%								62	62	62	62	62	61	61	61									
19	13 gal gas TG Drain Tank (Air Diagram page)	LI-233	%			70%								0	0	0	0	0	0	0	0									
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	AS3GGO ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v											✓	✓	/	✓	✓	✓	✓	✓									
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1200								1117	1111	1103	1099	1082	1083	1070	1068									
23	Mw Output		MW			27								26.1	26.1	25.8	25.5	25.1	25.1	24.8	24.8									
24	80% Base Load Minimum		MW											21.2	21.0	20.7	20.6	20.4	20.2	20.1	20.0									
25	Running Hours (unit overview)													3981	3982	3983	3984	3984	3985	3986	3987									
26	Ambient Temperature	T1 Inlet												30.7	34.2	36	37.4	39.9	42.4	45.6	45.0									
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%								54	58	57	57	56	56	57	58									
28	Total Fuel Flow		Mscf/h											247.2	244.8	243.4	242.1	239.2	238.3	238.4	234.9									

Date: 12-20-18 Signature: Josh Ar

UI-LOG-033-R2
January 4 2018

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor		Units	Low	Norm	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
GAS COMPRESSOR START TIME	0615																												
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK									B	B	B	B	B	B	B	B									
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL								1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2									
Oil Day Tank Level	LI-1562	GAL	10		FULL								50	50	50	50	50	50	50	50									
Lubricator Bulls eye		LEVEL	1/2	FULL									3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4									
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY								E	E	E	E	E	E	E	E									
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK									B	B	B	B	B	B	B	B									
1st Stage Inlet Press.	PI-2100	psig		88	140								82.4	82.1	82	82.3	82.7	82.4	82.3	83.1									
Stage Disch. Press	PI-2101	psig		238	285								246	246	248	248	249	250	250	251									
2nd Stage Inlet Press	PI-2200	psig		267	285								242	242	244	245	245	246	246	248									
2nd Stage Disch. Press	PI-2201	psig		575	600								579	579	579	579	579	579	579	579									
Final Discharge Pressure	PI-2108	psig		575	600								574	574	574	574	574	575	575	574									
Lube Oil Pressure	PI-1572	psig	40	60									57.9	57.8	57	57.7	57.6	57.7	57.9	57.8									
Lube Oil Temp	TE-1584	deg		150	170								169	169	171	171	170	171	171	170									
Final Discharge Temp	TE-2120	deg		110	150								70.1	71.0	73	75	77	77	79.5	81									
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297								206	206	206	205	205	206	206	206									
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283								203	204	205	208	209	210	210	211									
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297								205	205	204	203	203	205	205	204									
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283								203	204	205	207	208	211	212	212									
Motor Frame Vibration	VT-1015	IPS			0.15								.04	.04	.03	.03	.03	.03	.03	.04									
Compresser Frame Vibration	VT-1512	IPS			0.35								.05	.05	.05	.05	.05	.05	.05	.05									
Take Once per Shift / at Full Load		psig		Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.														575															
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8									570															
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20									555															

DATE 12-20-18

SIGNATURE

Mid Shift

Days Shift

Notes

809994

ATTACHMENT A1307.E.

TA-03 Power Plant

FGR Fan Inspection and Maintenance

FGR Maint. July 2018

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 189099 LOPEZ THERESA M
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 07/31/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00610034 01

MASTER

Date: 04/04/2018

Work Order Task Written To

Facility : F08 **Unit** : **Op Sys** :
Room : **Area** : **Sys/Cls** :
Equipment : **Component** :
Location :
Job Type : PM
Tag 1 : **Tag 2** :
Work Item : TA03-0022 FGR **Ops Review Reqd** :

Authorization

Start Permission : Glenn Martinez **Start Date** : 6-25-18
Complete Notice : Glenn Martinez **Complete Date** : 7-3-18

Work Order Task Instructions

DO NOT lubricate the bearings if the FGR fan is NOT in operation or in service so that proper amount of grease can be applied
using headphones
You can hear when grease reaches the bearing rolling element. At this point, stop adding grease to prevent bearing damage from overheating

There are two bearings on the fan, each with its own zerk plug
Remove the shaft guard located in the middle of the drive. The two zerk plugs are located on each of the two bearings

1. Use grease gun with the Ultralube headphones to insert the correct amount of Mobilith SHC 100 grease into zerk fitting
b. Apply grease while fan is running and stop when you hear the grease enter the running bearing

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 189099 LOPEZ THERESA M
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 07/31/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00610034 01

MASTER

Date: 04/04/2018

Lubricated fan bearings on FGR-001,FGR-002 & FGR-003

4. Add grease with a hand-operated pressure gun until new grease enters the running bearing
a. This is accomplished by using the ultrasonic sensor and headphones to hear when the new grease enters the running bearing
b. Stop adding grease when the grease reaches the bearing to limit excess grease from migrating down the motor shaft and into the windings
Note: Be careful when greasing the fan end bearing of the TEFC (Totally (Totally Enclosed Fan Cooled) motors. Some motors have a spring-relief outlet grease fitting on the fan end that is not accessible. This spring-relief fitting normally does not have to be removed when regreasing. When greasing, take care in the amount of pressure you apply and verify relief is working
5. Putting in too much or too little grease can cause overheating of the motors and result in motor failure. Use this rule of thumb when adding grease to a motor that has been lubricated on a regular basis: It is better to use a little grease more often than a lot of grease less often
Note: Watch out for motors that were shipped only with the bearings packed and not the fill tube or even the bearing housing Apply new grease until you can hear it enter the running bearing
6. Now that greasing is complete, leave the relief plug off and run the motor for 10 minutes to expel any excess grease
7. Replace the drain plug and wipe the bearing housing clean
8. Dispose of dirty rags in accordance with Hazardous Waste Guidelines
9. Ensure correct operation of electric motors.

QC Requirements / Comments

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 189099 LOPEZ THERESA M
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 07/31/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00610034 01

MASTER

Date: 04/04/2018

Work Completion Signatures

Name	Function/Dept.	Date
Dennis Gutierrez	LOG-CS	07/03/2018

Comments

(rework?)

Cost Accounting

Cost Center : P2030A **Activity** : 640CL000

Percentage : 100 **Acct No** : XU5000 **Sub Acct** : 7E2P0000

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 189099 LOPEZ THERESA M
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 07/31/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00610034 01

MASTER

Date: 04/04/2018

Form 2101

Los Alamos NATIONAL LABORATORY EST. 1943

Integrated Work Document (IWD) Part 2, FOD Requirements and Approval for Entry and Area Hazards and Controls

Non-Tenant Activity Form

IWD No./Work Request No: _____ Revision #: _____

Facility Operation Director (FOD) must determine the facility entry and coordination requirements and identify the Environment, Safety, Health (ESH)/Security and Safeguards (S&S) hazards and controls associated with the activity location.

FOD	TA	Bldg	Room	Other Location
8	3	22	N/A	Power Plant Bldg - Inside
FOD Designated Facility Point-of-Contact	Name Pablo C de Vaca	Phone 699-8226	Pager N/A	Email pfc@lanl.gov

Entry and Coordination Requirements (*Check one or more of the following*)

- ☐ No Entry/Coordination Requirements
- ☒ Plan of the Day/Plan of the Week (POTD/POTW)
- ☒ Security Clearance Requirements
- ☐ Co-located Hazards/Concerns
- ☒ Check out at End of Work
- ☐ Escort Required
- ☐ Other Bounding Conditions:
- ☐ FOD-designated facility Point-of-Contact must sign IWD Part 3
- ☒ Check in at Start of Work
- ☒ Work must be Scheduled
- ☐ Other Security Requirements (ex.: Cellphone, No Foreign Nationals, etc.)
- ☐ Quality Issues
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)
- ☒ Work-Area Training Required
- ☒ Check in Daily
- ☒ Check out Daily

PIC is responsible to conduct a pre-job brief for work activities to ensure that work conditions and worker communications are adequate. A pre job briefing shall be conducted at the job site. UI-OPS will determine if onsite ESH representation is required during work activities

Additional Comments (refer to Job Hazard Analysis [JHA] Tool Facility Notes)

All work must be approved by the Utilities FOD or UI-OPS. POD/POTW-contact Facility POC. No Smoking around Natural Gas Systems. Evaluate inside floor and housekeeping conditions to safely proceed with activities. Check in with Plant Operations Manager/Specialist or Operations Shift Head for final approval to proceed with tasks. Work around power plant chemical pumps and lines. Inspect for leaks before beginning any work task and pause work and report if a leak is found to operations. All personnel entering area must view the site specific training video in room 116 (Boiler Control Room), one time requirement. Observe safety signs and floor markings in all buildings and areas. No safety shoes required for visitors if escorted by Operations or UI Engineering personnel. The West end front lobby and office areas of Bldg 22 are considered a no hazard area.

Instructions: In the block below, identify work-area hazards that could potentially affect the worker(s) or others. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the site hazards as well as any special training required.

ESH/S&S WORK AREA HAZARDS & CONTROLS

Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
☐ **No Work Area Hazards**				

Ionizing Radiation Work in posted radiological areas, work with radioactive materials, or work on or near radiation producing devices. **Specify Hazard:**	☐ Yes ☒ No			

IWD No./Work Request No: _____ Revision #: _____

ESH/S&S WORK AREA HAZARDS & CONTROLS				
Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
Worker Exposure Working near non-ionizing radiation, beryllium, noise, chemicals, hazardous biological materials, lead, asbestos, temperature/humidity extremes, or high explosives. **Specify Hazards:**	☒ Yes ☐ No	Required PPE: Hard hat, safety shoes, safety glasses. Hearing protection (noise > 85 dba). Avoid hot surfaces and piping. Long sleeve shirt or Ansell sleeves or coveralls. Gloves when operating valves or contacting pipe/fitting openings where there is potential for hot water/steam release. Be aware of encapsulated asbestos Follow LANL Asbestos program/rqmts if PACM identified outside containment Be aware of chemical containers and check labeling. Be aware of piping, associated systems for any leaks. If chemical leak is noticed contact operations manager, IH&S Rep during regular working hrs. Over100 gallons of a chemical spill leave area, and control	P101-6 PPE • P101-23 Asbestos • P101-31 Hearing Conservations/Noise Program	LANL PPE or equivalent • Hearing protection • Site specific training • Asbestos awareness

		access. Call Serf Operators 667-8982 or by Radio Lanl 2 Util 6 For mitigation cleanup process. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation		
Energized and Operative Systems Working near energized electrical parts, pressure systems, steam lines; near unprotected belts, pulleys, chains or rotating equipment; fuel fired equipment other than vehicles; or spark or flame producing operations **Specify Hazards:** Energized/rotating equipment, High Temperature, High Pressure Water and Steam equipment	☒ Yes ☐ No	Stay within established walking areas. Observe safety signage alarm lights and horns. Identify explosive hazards and follow task specific IWD if working on plant equipment or components. Note: All TA3-22 independent verification requirement will be determined by the FOD or FOD designee. If questions consult with UI system engineer, Operation Mgr. Designee, or Safety rep.	P101-13 Electrical Safety P101-3 LOTO P101-34 Pressure, Vacuum, and Cryogenic System.	Site Specific Training video. Electrical Safety LOTO if applicable to task.
Confined Spaces Entry into tanks, manholes, cooling towers, sumps, or any other area with potentially low oxygen concentration or other hazards such as toxic vapors or engulfment. **Specify Hazards:**	☒ Yes ☐ No	Observe confined space signs or markings and follow LANL Confined Space Requirements if task requires confined space entry.	P 101-27 Conf. Space	Confined Space Training
Elevated Work Surface Elevated work when fall protection is not provided by conventional handrail systems or required per P101-20, *Fall Protection Program*	☒ Yes ☐ No	Stay within established walking areas, stairways and paths. Observe safety signage. Follow LANL Fall Protection Requirements if task on roofs or work above 4 feet.	P101-20 Fall Protection	Fall Protection
Environmental Impact Activities conducted in areas containing potential release site, contaminated soil, sensitive species, watercourse wetlands, floodplain, historical/archeological sites, or other work area condition that can be impacted by or can impact the environment.	☐ Yes ☒ No			

Specify Hazards:				
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:** Look-alike Equipment in the vicinity of work site may contain un-controlled hazardous energy	☒ Yes ☒ No	Adequette barriers and controls will be established to prevent unauthorized personnel/workers from entering job site and encounter uncontrolled hazards.	IWD	Pre-job briefing emphasis. Worker confirmation of look-alike potential hazards, locations and barriers set in place to identify those potential hazards.

I have verified that the hazards identified above adequately identify the area hazards and that the IWM process has been applied appropriately.

FOD or Representative (Signature/Z #/Date) **Approval Required** Pablo F. CdeVaca Digitally signed by Pablo F. CdeVaca DN: cn=Pablo F. CdeVaca, o=LANS, ou=UI, email=pfc@lanl.gov, c=US Date: 2017.06.26 11:53:41 -06'00'

Date Approval Expires: 09/30/2020

Worker engagement questions are intended to focus attention on the task and ensure uncertainties are addressed. Examples of worker engagement questions are provided below. Worker engagement questions should be tailored to the situation.

Each of the questions listed below will be discussed at each Pre-Job Brief with all affected personnel.

7/3/2018

Topic 1 MO. FGR FAN Lubrication PM	Completed (X)
What permits, permissions, or support are required to safely start this work?	X
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	X
What can cause us to go beyond the scope of the work?	X
What hazards in the work area may not have been considered during planning of this job?	X

FGR Maint. Aug 2018

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 08/31/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00612515 01

MASTER

Date: 05/15/2018

Work Order Task Written To

Facility : F08 **Unit** : **Op Sys** :
Room : **Area** : **Sys/Cls** :
Equipment : **Component** :
Location :
Job Type : PM
Tag 1 : **Tag 2** :
Work Item : TA03-0022 FGR **Ops Review Reqd** :

Authorization

Start Permission : Glenn Martinez **Start Date** : 7-25-18

Complete Notice : Glenn Martinez **Complete Date** : 8-27-18

Work Order Task Instructions

DO NOT lubricate the bearings if the FGR fan is NOT in operation or in service so that proper amount of grease can be applied
using headphones
You can hear when grease reaches the bearing rolling element. At this point, stop adding grease to prevent bearing damage from overheating

There are two bearings on the fan, each with its own zerk plug
Remove the shaft guard located in the middle of the drive. The two zerk plugs are located on each of the two bearings

1. Use grease gun with the Ultralube headphones to insert the correct amount of Mobilith SHC 100 grease into zerk fitting
b. Apply grease while fan is running and stop when you hear the grease enter the running bearing

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 08/31/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00612515 01

MASTER

Date: 05/15/2018

Lubricated fan bearings on FGR-001,FGR-002 & FGR-003

4. Add grease with a hand-operated pressure gun until new grease enters the running bearing
a. This is accomplished by using the ultrasonic sensor and headphones to hear when the new grease enters the running bearing
b. Stop adding grease when the grease reaches the bearing to limit excess grease from migrating down the motor shaft and into the windings
Note: Be careful when greasing the fan end bearing of the TEFC (Totally (Totally Enclosed Fan Cooled) motors. Some motors have a spring-relief outlet grease fitting on the fan end that is not accessible. This spring-relief fitting normally does not have to be removed when regreasing. When greasing, take care in the amount of pressure you apply and verify relief is working
5. Putting in too much or too little grease can cause overheating of the motors and result in motor failure. Use this rule of thumb when adding grease to a motor that has been lubricated on a regular basis: It is better to use a little grease more often than a lot of grease less often
Note: Watch out for motors that were shipped only with the bearings packed and not the fill tube or even the bearing housing Apply new grease until you can hear it enter the running bearing
6. Now that greasing is complete, leave the relief plug off and run the motor for 10 minutes to expel any excess grease
7. Replace the drain plug and wipe the bearing housing clean
8. Dispose of dirty rags in accordance with Hazardous Waste Guidelines
9. Ensure correct operation of electric motors.

QC Requirements / Comments

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 08/31/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00612515 01

MASTER

Date: 05/15/2018

Work Completion Signatures

Name	Function/Dept.	Date
Chris Salazar	LOG-CS/PP MAINT.....	08/23/2018

Comments

(rework?)

Cost Accounting

Cost Center : P2030A **Activity** : 640CL000

Percentage : 100 **Acct No** : XU5000 **Sub Acct** : 7E2P0000

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 08/31/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00612515 01

MASTER

Date: 05/15/2018

Los Alamos NATIONAL LABORATORY EST. 1943

AP-WORK-004: Attachment 1
Maintenance & Site Services
Worker Engagement Questions

Worker engagement questions are intended to focus attention on the task and ensure uncertainties are addressed. Examples of worker engagement questions are provided below. Worker engagement questions should be tailored to the situation.

Each of the questions listed below will be discussed at each Pre-Job Brief with all affected personnel.

8/24/18

Topic FGR FANS LUBRICATION	Completed (X)
What permits, permissions, or support are required to safely start this work?	X
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	X
What can cause us to go beyond the scope of the work?	X
What hazards in the work area may not have been considered during planning of this job	X

Form 2101

Los Alamos NATIONAL LABORATORY EST. 1943

Integrated Work Document (IWD) Part 2, FOD Requirements and Approval for Entry and Area Hazards and Controls

Non-Tenant Activity Form

IWD No./Work Request No: ____ Revision #: ____

Facility Operation Director (FOD) must determine the facility entry and coordination requirements and identify the Environment, Safety, Health (ESH)/Security and Safeguards (S&S) hazards and controls associated with the activity location.

FOD	TA	Bldg.	Room	Other Location
8	3	22-24	N/A	Power Plant Bldg - Inside
FOD Designated Facility Point-of-Contact	Name Pablo C de Vaca	Phone 699-8226	Pager N/A	Email pfc@lanl.gov

Entry and Coordination Requirements (*Check one or more of the following*)

- ☐ No Entry/Coordination Requirements
- ☒ Plan of the Day/Plan of the Week (POTD/POTW)
- ☒ Security Clearance Requirements
- ☐ Co-located Hazards/Concerns
- ☒ Check out at End of Work
- ☐ Escort Required
- ☐ Other Bounding Conditions:
- ☐ FOD-designated facility Point-of-Contact must sign IWD Part 3
- ☒ Check in at Start of Work
- ☒ Work must be Scheduled
- ☐ Other Security Requirements (ex.: Cellphone, No Foreign Nationals, etc.)
- ☐ Quality Issues
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)
- ☒ Work-Area Training Required
- ☒ Check in Daily
- ☒ Check out Daily

PIC is responsible to conduct a pre-job brief for work activities to ensure that work conditions and worker communications are adequate. A pre job briefing shall be conducted at the job site. UI-OPS will determine if onsite ESH representation is required during work activities

Additional Comments (refer to Job Hazard Analysis [JHA] Tool Facility Notes)

All work must be approved by the Utilities FOD or UI-OPS. POD/POTW-contact Facility POC. No Smoking around Natural Gas Systems. Evaluate inside floor and housekeeping conditions to safely proceed with activities. Check in with Plant Operations Manager/Specialist or Operations Shift Head for final approval to proceed with tasks. Work around power plant chemical pumps and lines. Inspect for leaks before beginning any work task and pause work and report if a leak is found to operations. All personnel entering area must view the site specific training video in room 116 (Boiler Control Room), one time requirement. Observe safety signs and floor markings in all buildings and areas.No safety shoes required for visitors if escorted by Operations or UI Engineering personnel. The West end front lobby and office areas of Bldg 22 are considered a no hazard area.

Instructions: In the block below, identify work-area hazards that could potentially affect the worker(s) or others. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the site hazards as well as any special training required.

ESH/S&S WORK AREA HAZARDS & CONTROLS

Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
☐ **No Work Area Hazards**				

Ionizing Radiation Work in posted radiological areas, work with radioactive materials, or work on or near radiation producing devices. **Specify Hazard:**	☐ Yes ☒ No			

IWD No./Work Request No: _____ Revision #: _____

ESH/S&S WORK AREA HAZARDS & CONTROLS				
Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
Worker Exposure Working near non-ionizing radiation, beryllium, noise, chemicals, hazardous biological materials, lead, asbestos, temperature/humidity extremes, or high explosives. **Specify Hazards:**	☒ Yes ☐ No	Required PPE: Hard hat, safety shoes, safety glasses. Hearing protection (noise > 85 dba). Avoid hot surfaces and piping. Long sleeve shirt or Ansell sleeves or coveralls. Gloves when operating valves or contacting pipe/fitting openings where there is potential for hot water/steam release. Be aware of encapsulated asbestos. Follow LANL Asbestos program/rqmts if PACM identified outside containment. Be aware of chemical containers and check labeling. Be aware of piping, associated systems for any leaks. If chemical leak is noticed contact operations manager, IH&S Rep during regular working hrs. Over100 gallons of a chemical spill leave area, and control	P101-6 PPE • P101-23 Asbestos • P101-31 Hearing Conservations/Noise Program	LANL PPE or equivalent • Hearing protection • Site specific training • Asbestos awareness

		access. Call Serf Operators 667-8982 or by Radio Lanl 2 Util 6 For mitigation cleanup process. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation		
Energized and Operative Systems Working near energized electrical parts, pressure systems, steam lines; near unprotected belts, pulleys, chains or rotating equipment; fuel fired equipment other than vehicles; or spark or flame producing operations. **Specify Hazards:** Energized/rotating equipment, High Temperature, High Pressure Water and Steam equipment.	☒ Yes ☐ No	Stay within established walking areas. Observe safety signage alarm lights and horns. Identify explosive hazards and follow task specific IWD if working on plant equipment or components. Note: All TA3-22 independent verification requirement will be determined by the FOD or FOD designee. If questions consult with UI system engineer, Operation Mgr. Designee, or Safety rep.	P101-13 Electrical Safety P101-3 LOTO P101-34 Pressure, Vacuum, and Cryogenic System.	Site Specific Training video. Electrical Safety LOTO if applicable to task.
Confined Spaces Entry into tanks, manholes, cooling towers, sumps, or any other area with potentially low oxygen concentration or other hazards such as toxic vapors or engulfment. **Specify Hazards:**	☒ Yes ☐ No	Observe confined space signs or markings and follow LANL Confined Space Requirements if task requires confined space entry.	P 101-27 Conf. Space	Confined Space Training
Elevated Work Surface Elevated work when fall protection is not provided by conventional handrail systems or required per P101-20, *Fall Protection Program*	☒ Yes ☐ No	Stay within established walking areas, stairways and paths. Observe safety signage. Follow LANL Fall Protection Requirements if task on roofs or work above 4 feet.	P101-20 Fall Protection	Fall Protection
Environmental Impact Activities conducted in areas containing potential release site, contaminated soil, sensitive species, watercourse wetlands, floodplain, historical/archeological sites, or other work area condition that can be impacted by or can impact the environment.	☐ Yes ☒ No			

Specify Hazards:				
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:** Look-alike Equipment in the vicinity of work site may contain un-controlled hazardous energy	☒ Yes ☐ No	Adequette barriers and controls will be established to prevent unauthorized personnel/workers from entering job site and encounter uncontrolled hazards.	IWD	Pre-job briefing emphasis. Worker confirmation of look-alike potential hazards, locations and barriers set in place to identify those potential hazards.

I have verified that the hazards identified above adequately identify the area hazards and that the IWM process has been applied appropriately.

FOD or Representative (Signature/Z #/Date) **Approval Required** Pablo F. CdeVaca

Date Approval Expires: 09/30/2020

FGR Maint. Sept. 2018

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 09/30/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00614910 01

MASTER

Date: 06/12/2018

Work Order Task Written To

Facility : F08 **Unit** : **Op Sys** :
Room : **Area** : **Sys/Cls** :
Equipment : **Component** :
Location :
Job Type : PM
Tag 1 : **Tag 2** :
Work Item : TA03-0022 FGR **Ops Review Reqd** :

Authorization

Start Permission : Glenn Martinez **Start Date** : 8-20-18
Complete Notice : Glenn Martinez **Complete Date** : 9-26-18

Work Order Task Instructions

DO NOT lubricate the bearings if the FGR fan is NOT in operation or in service so that proper amount of grease can be applied
using headphones
You can hear when grease reaches the bearing rolling element. At this point, stop adding grease to prevent bearing damage from overheating

There are two bearings on the fan, each with its own zerk plug
Remove the shaft guard located in the middle of the drive. The two zerk plugs are located on each of the two bearings

1. Use grease gun with the Ultralube headphones to insert the correct amount of Mobilith SHC 100 grease into zerk fitting
b. Apply grease while fan is running and stop when you hear the grease enter the running bearing

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 09/30/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00614910 01

MASTER

Date: 06/12/2018

Lubricated fan bearings on FGR-001,FGR-002 & FGR-003

4. Add grease with a hand-operated pressure gun until new grease enters the running bearing
a. This is accomplished by using the ultrasonic sensor and headphones to hear when the new grease enters the running bearing
b. Stop adding grease when the grease reaches the bearing to limit excess grease from migrating down the motor shaft and into the windings
Note: Be careful when greasing the fan end bearing of the TEFC (Totally (Totally Enclosed Fan Cooled) motors. Some motors have a spring-relief outlet grease fitting on the fan end that is not accessible. This spring-relief fitting normally does not have to be removed when regreasing. When greasing, take care in the amount of pressure you apply and verify relief is working
5. Putting in too much or too little grease can cause overheating of the motors and result in motor failure. Use this rule of thumb when adding grease to a motor that has been lubricated on a regular basis: It is better to use a little grease more often than a lot of grease less often
Note: Watch out for motors that were shipped only with the bearings packed and not the fill tube or even the bearing housing Apply new grease until you can hear it enter the running bearing
6. Now that greasing is complete, leave the relief plug off and run the motor for 10 minutes to expel any excess grease
7. Replace the drain plug and wipe the bearing housing clean
8. Dispose of dirty rags in accordance with Hazardous Waste Guidelines
9. Ensure correct operation of electric motors.

QC Requirements / Comments

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 09/30/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00614910 01

MASTER

Date: 06/12/2018

Work Completion Signatures

Name	Function/Dept.	Date
John M. Miller	Maint.Foreman/LOG-CS	9/26/18

Comments

(rework?)

Cost Accounting

Cost Center : P2030A **Activity** : 640CL000

Percentage : 100 **Acct No** : XU5000 **Sub Acct** : 7E2P0000

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 09/30/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00614910 01

MASTER

Date: 06/12/2018

Worker engagement questions are intended to focus attention on the task and ensure uncertainties are addressed. Examples of worker engagement questions are provided below. Worker engagement questions should be tailored to the situation.

Each of the questions listed below will be discussed at each Pre-Job Brief with all affected personnel.

Topic: MO. TA3-22 FGR Shaft Bearings Lubrication	Completed (X)
What permits, permissions, or support are required to safely start this work?	X
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	X
What can cause us to go beyond the scope of the work?	X
What hazards in the work area may not have been considered during planning of this job	X

Form 2101

Los Alamos NATIONAL LABORATORY EST. 1943

Integrated Work Document (IWD) Part 2, FOD Requirements and Approval for Entry and Area Hazards and Controls

Non-Tenant Activity Form

IWD No./Work Request No: _____ Revision #: _____

Facility Operation Director (FOD) must determine the facility entry and coordination requirements and identify the Environment, Safety, Health (ESH)/Security and Safeguards (S&S) hazards and controls associated with the activity location.

FOD	TA	Bldg.	Room	Other Location
8	3	22-24	N/A	Power Plant Bldg - Inside
FOD Designated Facility Point-of-Contact	Name Pablo C de Vaca	Phone 699-8226	Pager N/A	Email pfc@lanl.gov

Entry and Coordination Requirements (*Check one or more of the following*)

- ☐ No Entry/Coordination Requirements
- ☒ Plan of the Day/Plan of the Week (POTD/POTW)
- ☒ Security Clearance Requirements
- ☐ Co-located Hazards/Concerns
- ☒ Check out at End of Work
- ☐ Escort Required
- ☐ Other Bounding Conditions:
- ☐ FOD-designated facility Point-of-Contact must sign IWD Part 3
- ☒ Check in at Start of Work
- ☒ Work-Area Training Required
- ☒ Work must be Scheduled
- ☒ Check in Daily
- ☐ Other Security Requirements (ex : Cellphone, No Foreign Nationals, etc)
- ☐ Quality Issues
- ☒ Check out Daily
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)

PIC is responsible to conduct a pre-job brief for work activities to ensure that work conditions and worker communications are adequate. A pre job briefing shall be conducted at the job site. UI-OPS will determine if onsite ESH representation is required during work activities

Additional Comments (refer to Job Hazard Analysis [JHA] Tool Facility Notes)

All work must be approved by the Utilities FOD or UI-OPS. POD/POTW-contact Facility POC. No Smoking around Natural Gas Systems. Evaluate inside floor and housekeeping conditions to safely proceed with activities. Check in with Plant Operations Manager/Specialist or Operations Shift Head for final approval to proceed with tasks. Work around power plant chemical pumps and lines. Inspect for leaks before beginning any work task and pause work and report if a leak is found to operations. All personnel entering area must view the site specific training video in room 116 (Boiler Control Room), one time requirement. Observe safety signs and floor markings in all buildings and areas. No safety shoes required for visitors if escorted by Operations or UI Engineering personnel. The West end front lobby and office areas of Bldg 22 are considered a no hazard area.

Instructions: In the block below, identify work-area hazards that could potentially affect the worker(s) or others. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the site hazards as well as any special training required.

ESH/S&S WORK AREA HAZARDS & CONTROLS

Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
☐ **No Work Area Hazards**				

Ionizing Radiation Work in posted radiological areas, work with radioactive materials, or work on or near radiation producing devices. **Specify Hazard:**	☐ Yes ☒ No			

IWD No./Work Request No: _____ Revision #: _____

ESH/S&S WORK AREA HAZARDS & CONTROLS				
Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
Worker Exposure Working near non-ionizing radiation, beryllium, noise, chemicals, hazardous biological materials, lead, asbestos, temperature/humidity extremes, or high explosives. **Specify Hazards:**	☒ Yes ☐ No	Required PPE: Hard hat, safety shoes, safety glasses. Hearing protection (noise > 85 dba). Avoid hot surfaces and piping. Long sleeve shirt or Ansell sleeves or coveralls. Gloves when operating valves or contacting pipe/fitting openings where there is potential for hot water/steam release. Be aware of encapsulated asbestos. Follow LANL Asbestos program/rqmts if PACM identified outside containment. Be aware of chemical containers and check labeling. Be aware of piping, associated systems for any leaks. If chemical leak is noticed contact operations manager, IH&S Rep during regular working hrs. Over100 gallons of a chemical spill leave area, and control	P101-6 PPE • P101-23 Asbestos • P101-31 Hearing Conservations/Noise Program	LANL PPE or equivalent • Hearing protection • Site specific training • Asbestos awareness

		access. Call Serf Operators 667-8982 or by Radio Lanl 2 Util 6 For mitigation cleanup process. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation		
Energized and Operative Systems Working near energized electrical parts, pressure systems, steam lines; near unprotected belts, pulleys, chains or rotating equipment; fuel fired equipment other than vehicles; or spark or flame producing operations. **Specify Hazards:** Energized/rotating equipment, High Temperature, High Pressure Water and Steam equipment	☒ Yes ☐ No	Stay within established walking areas. Observe safety signage alarm lights and horns. Identify explosive hazards and follow task specific IWD if working on plant equipment or components. Note: All TA3-22 independent verification requirement will be determined by the FOD or FOD designee. If questions consult with UI system engineer, Operation Mgr, Designee, or Safety rep.	P101-13 Electrical Safety P101-3 LOTO P101-34 Pressure, Vacuum, and Cryogenic System.	Site Specific Training video. Electrical Safety LOTO if applicable to task.
Confined Spaces Entry into tanks, manholes, cooling towers, sumps, or any other area with potentially low oxygen concentration or other hazards such as toxic vapors or engulfment. **Specify Hazards:**	☒ Yes ☐ No	Observe confined space signs or markings and follow LANL Confined Space Requirements if task requires confined space entry.	P 101-27 Conf. Space	Confined Space Training
Elevated Work Surface Elevated work when fall protection is not provided by conventional handrail systems or required per P101-20, *Fall Protection Program*	☒ Yes ☐ No	Stay within established walking areas, stairways and paths. Observe safety signage. Follow LANL Fall Protection Requirements if task on roofs or work above 4 feet.	P101-20 Fall Protection	Fall Protection
Environmental Impact Activities conducted in areas containing potential release site, contaminated soil, sensitive species, watercourse wetlands, floodplain, historical/archeological sites, or other work area condition that can be impacted by or can impact the environment	☐ Yes ☒ No			

Specify Hazards:				
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:** Look-alike Equipment in the vicinity of work site may contain un-controlled hazardous energy	☒ Yes ☐ No	Adequette barriers and controls will be established to prevent unauthorized personnel/workers from entering job site and encounter uncontrolled hazards.	IWD	Pre-job briefing emphasis. Worker confirmation of look-alike potential hazards, locations and barriers set in place to identify those potential hazards.

I have verified that the hazards identified above adequately identify the area hazards and that the IWM process has been applied appropriately.

FOD or Representative (Signature/Z #/Date) **Approval Required** Pablo F. CdeVaca Digitally signed by Pablo F. CdeVaca DN: cn=Pablo F. CdeVaca, o=LANL, ou=LB, email=pfc@lanl.gov, c=US Date: 2019.11.01 07:28:54 -06'00'

Date Approval Expires: 09/30/2020

FGR Maint. Oct. 2018

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 10/31/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00617834 01

MASTER

Date: 07/26/2018

Work Order Task Written To

Facility : F08 **Unit** : **Op Sys** :
Room : **Area** : **Sys/Cls** :
Equipment : **Component** :
Location :
Job Type : PM
Tag 1 : **Tag 2** :
Work Item : TA03-0022 FGR **Ops Review Reqd** :

Authorization

Start Permission : Glenn Martinez **Start Date** : 9-19-18

Complete Notice : Glenn Martinez **Complete Date** : 10-11-18

Work Order Task Instructions

DO NOT lubricate the bearings if the FGR fan is NOT in operation or in service so that proper amount of grease can be applied
using headphones
You can hear when grease reaches the bearing rolling element. At this point, stop adding grease to prevent bearing damage from overheating

There are two bearings on the fan, each with its own zerk plug
Remove the shaft guard located in the middle of the drive. The two zerk plugs are located on each of the two bearings

1. Use grease gun with the Ultralube headphones to insert the correct amount of Mobilith SHC 100 grease into zerk fitting
b. Apply grease while fan is running and stop when you hear the grease enter the running bearing

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 10/31/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00617834 01

MASTER

Date: 07/26/2018

Lubricated fan bearings on FGR-001,FGR-002 & FGR-003

4. Add grease with a hand-operated pressure gun until new grease enters the running bearing
a. This is accomplished by using the ultrasonic sensor and headphones to hear when the new grease enters the running bearing
b. Stop adding grease when the grease reaches the bearing to limit excess grease from migrating down the motor shaft and into the windings
Note: Be careful when greasing the fan end bearing of the TEFC (Totally (Totally Enclosed Fan Cooled) motors. Some motors have a spring-relief outlet grease fitting on the fan end that is not accessible. This spring-relief fitting normally does not have to be removed when regreasing. When greasing, take care in the amount of pressure you apply and verify relief is working
5. Putting in too much or too little grease can cause overheating of the motors and result in motor failure. Use this rule of thumb when adding grease to a motor that has been lubricated on a regular basis: It is better to use a little grease more often than a lot of grease less often
Note: Watch out for motors that were shipped only with the bearings packed and not the fill tube or even the bearing housing Apply new grease until you can hear it enter the running bearing
6. Now that greasing is complete, leave the relief plug off and run the motor for 10 minutes to expel any excess grease
7. Replace the drain plug and wipe the bearing housing clean
8. Dispose of dirty rags in accordance with Hazardous Waste Guidelines
9. Ensure correct operation of electric motors.

QC Requirements / Comments

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 10/31/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00617834 01

MASTER

Date: 07/26/2018

Work Completion Signatures

Name	Function/Dept.	Date
Chris Salazar	LOG-CS/PP MAINT.....	10/09/2018

Comments

(rework?)

Cost Accounting

Cost Center : P2030A **Activity** : 640CL000

Percentage : 100 **Acct No** : XU5000 **Sub Acct** : 7E2P0000

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 10/31/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00617834 01

MASTER

Date: 07/26/2018

Worker engagement questions are intended to focus attention on the task and ensure uncertainties are addressed. Examples of worker engagement questions are provided below. Worker engagement questions should be tailored to the situation.

Each of the questions listed below will be discussed at each Pre-Job Brief with all affected personnel.

Topic FGR Shaft Bearing Lubrication	**Completed (X)**
What permits, permissions, or support are required to safely start this work?	X
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	X
What can cause us to go beyond the scope of the work?	X
What hazards in the work area may not have been considered during planning of this job	X

Form 2101

Los Alamos NATIONAL LABORATORY EST. 1943

Integrated Work Document (IWD) Part 2, FOD Requirements and Approval for Entry and Area Hazards and Controls

Non-Tenant Activity Form

IWD No /Work Request No: ____ Revision #: ____

Facility Operation Director (FOD) must determine the facility entry and coordination requirements and identify the Environment, Safety, Health (ESH)/Security and Safeguards (S&S) hazards and controls associated with the activity location.

FOD	TA	Bldg	Room	Other Location
8	3	22-24	N/A	Power Plant Bldg - Inside
FOD Designated Facility Point-of-Contact	Name Pablo C de Vaca	Phone 699-8226	Pager N/A	Email pfc@lanl.gov

Entry and Coordination Requirements (*Check one or more of the following*)

- ☐ No Entry/Coordination Requirements
- ☒ Plan of the Day/Plan of the Week (POTD/POTW)
- ☒ Security Clearance Requirements
- ☐ Co-located Hazards/Concerns
- ☒ Check out at End of Work
- ☐ Escort Required
- ☐ Other Bounding Conditions:
- ☐ FOD-designated facility Point-of-Contact must sign IWD Part 3
- ☒ Check in at Start of Work
- ☒ Work must be Scheduled
- ☐ Other Security Requirements (ex.: Cellphone, No Foreign Nationals, etc.)
- ☐ Quality Issues
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)
- ☒ Work-Area Training Required
- ☒ Check in Daily
- ☒ Check out Daily

PIC is responsible to conduct a pre-job brief for work activities to ensure that work conditions and worker communications are adequate. A pre job briefing shall be conducted at the job site. UI-OPS will determine if onsite ESH representation is required during work activities

Additional Comments (refer to Job Hazard Analysis [JHA] Tool Facility Notes)

All work must be approved by the Utilities FOD or UI-OPS. POD/POTW-contact Facility POC. No Smoking around Natural Gas Systems. Evaluate inside floor and housekeeping conditions to safely proceed with activities. Check in with Plant Operations Manager/Specialist or Operations Shift Head for final approval to proceed with tasks. Work around power plant chemical pumps and lines. Inspect for leaks before beginning any work task and pause work and report if a leak is found to operations. All personnel entering area must view the site specific training video in room 116 (Boiler Control Room), one time requirement. Observe safety signs and floor markings in all buildings and areas. No safety shoes required for visitors if escorted by Operations or UI Engineering personnel. The West end front lobby and office areas of Bldg 22 are considered a no hazard area.

Instructions: In the block below, identify work-area hazards that could potentially affect the worker(s) or others. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the site hazards as well as any special training required.

ESH/S&S WORK AREA HAZARDS & CONTROLS

Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
☐ **No Work Area Hazards**				

Ionizing Radiation Work in posted radiological areas, work with radioactive materials, or work on or near radiation producing devices. **Specify Hazard:**	☐ Yes ☒ No			

IWD No./Work Request No: ____ Revision #: ____

ESH/S&S WORK AREA HAZARDS & CONTROLS				
Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
Worker Exposure Working near non-ionizing radiation, beryllium, noise, chemicals, hazardous biological materials, lead, asbestos, temperature/humidity extremes, or high explosives. **Specify Hazards:**	☒ Yes ☐ No	Required PPE: Hard hat, safety shoes, safety glasses. Hearing protection (noise > 85 dba). Avoid hot surfaces and piping. Long sleeve shirt or Ansell sleeves or coveralls. Gloves when operating valves or contacting pipe/fitting openings where there is potential for hot water/steam release. Be aware of encapsulated asbestos. Follow LANL Asbestos program/rqmts if PACM identified outside containment. Be aware of chemical containers and check labeling. Be aware of piping, associated systems for any leaks. If chemical leak is noticed contact operations manager, IH&S Rep during regular working hrs. Over100 gallons of a chemical spill leave area, and control	P101-6 PPE • P101-23 Asbestos • P101-31 Hearing Conservations/Noise Program	LANL PPE or equivalent • Hearing protection • Site specific training • Asbestos awareness

		access. Call Serf Operators 667-8982 or by Radio Lanl 2 Util 6 For mitigation cleanup process. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation		
Energized and Operative Systems Working near energized electrical parts, pressure systems, steam lines; near unprotected belts, pulleys, chains or rotating equipment; fuel fired equipment other than vehicles; or spark or flame producing operations. **Specify Hazards:** Energized/rotating equipment, High Temperature, High Pressure Water and Steam equipment.	☒ Yes ☐ No	Stay within established walking areas. Observe safety signage alarm lights and horns. Identify explosive hazards and follow task specific IWD if working on plant equipment or components. Note: All TA3-22 independent verification requirement will be determined by the FOD or FOD designee. If questions consult with UI system engineer, Operation Mgr. Designee, or Safety rep.	P101-13 Electrical Safety P101-3 LOTO P101-34 Pressure, Vacuum, and Cryogenic System	Site Specific Training video. Electrical Safety LOTO if applicable to task.
Confined Spaces Entry into tanks, manholes, cooling towers, sumps, or any other area with potentially low oxygen concentration or other hazards such as toxic vapors or engulfment. **Specify Hazards:**	☒ Yes ☐ No	Observe confined space signs or markings and follow LANL Confined Space Requirements if task requires confined space entry.	P 101-27 Conf. Space	Confined Space Training
Elevated Work Surface Elevated work when fall protection is not provided by conventional handrail systems or required per P101-20, *Fall Protection Program*	☒ Yes ☐ No	Stay within established walking areas, stairways and paths. Observe safety signage. Follow LANL Fall Protection Requirements if task on roofs or work above 4 feet.	P101-20 Fall Protection	Fall Protection
Environmental Impact Activities conducted in areas containing potential release site, contaminated soil, sensitive species, watercourse wetlands, floodplain, historical/archeological sites, or other work area condition that can be impacted by or can impact the environment.	☐ Yes ☒ No			

Specify Hazards:				
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:** Look-alike Equipment in the vicinity of work site may contain un-controlled hazardous energy	☒ Yes ☐ No	Adequette barriers and controls will be established to prevent unauthorized personnel/workers from entering job site and encounter uncontrolled hazards.	IWD	Pre-job briefing emphasis. Worker confirmation of look-alike potential hazards, locations and barriers set in place to identify those potential hazards.

I have verified that the hazards identified above adequately identify the area hazards and that the IWM process has been applied appropriately.

FOD or Representative (Signature/Z #/Date) **Approval Required** Pablo F. CdeVaca

Date Approval Expires: 09/30/2020

FGR Maint. Nov. 2018

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 11/30/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00620059 01

MASTER

Date: 08/20/2018

Work Order Task Written To

Facility : F08 **Unit** : **Op Sys** :
Room : **Area** : **Sys/Cls** :
Equipment : **Component** :
Location :
Job Type : PM
Tag 1 : **Tag 2** :
Work Item : TA03-0022 FGR **Ops Review Reqd** :

Authorization

Start Permission : Glenn Martinez **Start Date** : 10-25-18

Complete Notice : Glenn Martinez **Complete Date** : 11-14-18

Work Order Task Instructions

DO NOT lubricate the bearings if the FGR fan is NOT in operation or in service so that proper amount of grease can be applied
using headphones
You can hear when grease reaches the bearing rolling element. At this point, stop adding grease to prevent bearing damage from overheating

There are two bearings on the fan, each with its own zerk plug
Remove the shaft guard located in the middle of the drive. The two zerk plugs are located on each of the two bearings

1. Use grease gun with the Ultralube headphones to insert the correct amount of Mobilith SHC 100 grease into zerk fitting
b. Apply grease while fan is running and stop when you hear the grease enter the running bearing

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 11/30/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00620059 01

MASTER

Date: 08/20/2018

Lubricated fan bearings on FGR-001,FGR-002 & FGR-003

4. Add grease with a hand-operated pressure gun until new grease enters the running bearing
a. This is accomplished by using the ultrasonic sensor and headphones to hear when the new grease enters the running bearing
b. Stop adding grease when the grease reaches the bearing to limit excess grease from migrating down the motor shaft and into the windings
Note: Be careful when greasing the fan end bearing of the TEFC (Totally (Totally Enclosed Fan Cooled) motors. Some motors have a spring-relief outlet grease fitting on the fan end that is not accessible. This spring-relief fitting normally does not have to be removed when regreasing. When greasing, take care in the amount of pressure you apply and verify relief is working
5. Putting in too much or too little grease can cause overheating of the motors and result in motor failure. Use this rule of thumb when adding grease to a motor that has been lubricated on a regular basis: It is better to use a little grease more often than a lot of grease less often
Note: Watch out for motors that were shipped only with the bearings packed and not the fill tube or even the bearing housing Apply new grease until you can hear it enter the running bearing
6. Now that greasing is complete, leave the relief plug off and run the motor for 10 minutes to expel any excess grease
7. Replace the drain plug and wipe the bearing housing clean
8. Dispose of dirty rags in accordance with Hazardous Waste Guidelines
9. Ensure correct operation of electric motors.

QC Requirements / Comments

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 11/30/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00620059 01

MASTER

Date: 08/20/2018

Work Completion Signatures

Name	Function/Dept.	Date
Chris Salazar	LOG-CS/PP MAINT.....	11/14/2018

Comments

(rework?)

Cost Accounting

Cost Center : P2030A **Activity** : 640CL000

Percentage : 100 **Acct No** : XU5000 **Sub Acct** : 7E2P0000

Facility : F08 **Unit** : **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 11/30/2018
Superintendant :
Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00620059 01

MASTER

Date: 08/20/2018

Worker engagement questions are intended to focus attention on the task and ensure uncertainties are addressed. Examples of worker engagement questions are provided below. Worker engagement questions should be tailored to the situation.

Each of the questions listed below will be discussed at each Pre-Job Brief with all affected personnel.

11/14/18 JMM

Topic: EGR LUBRICATION	Completed (X)
What permits, permissions, or support are required to safely start this work?	X
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	X
What can cause us to go beyond the scope of the work?	X
What hazards in the work area may not have been considered during planning of this job	X

Form 2101

Los Alamos NATIONAL LABORATORY EST. 1943

Integrated Work Document (IWD) Part 2, FOD Requirements and Approval for Entry and Area Hazards and Controls

Non-Tenant Activity Form

IWD No /Work Request No: _____ Revision #: _____

Facility Operation Director (FOD) must determine the facility entry and coordination requirements and identify the Environment, Safety, Health (ESH)/Security and Safeguards (S&S) hazards and controls associated with the activity location.

FOD	TA	Bldg.	Room	Other Location
8	3	22-24	N/A	Power Plant Bldg - Inside
FOD Designated Facility Point-of-Contact	Name Pablo C de Vaca	Phone 699-8226	Pager N/A	Email pfc@lanl.gov

Entry and Coordination Requirements (*Check one or more of the following*)

- ☐ No Entry/Coordination Requirements
- ☒ Plan of the Day/Plan of the Week (POTD/POTW)
- ☒ Security Clearance Requirements
- ☐ Co-located Hazards/Concerns
- ☒ Check out at End of Work
- ☐ Escort Required
- ☐ Other Bounding Conditions:
- ☐ FOD-designated facility Point-of-Contact must sign IWD Part 3
- ☒ Check in at Start of Work
- ☒ Work must be Scheduled
- ☐ Other Security Requirements (ex.: Cellphone, No Foreign Nationals, etc.)
- ☐ Quality Issues
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)
- ☒ Work-Area Training Required
- ☒ Check in Daily
- ☒ Check out Daily

PIC is responsible to conduct a pre-job brief for work activities to ensure that work conditions and worker communications are adequate. A pre job briefing shall be conducted at the job site. UI-OPS will determine if onsite ESH representation is required during work activities.

Additional Comments (refer to Job Hazard Analysis [JHA] Tool Facility Notes)

All work must be approved by the Utilities FOD or UI-OPS. POD/POTW-contact Facility POC. No Smoking around Natural Gas Systems. Evaluate inside floor and housekeeping conditions to safely proceed with activities. Check in with Plant Operations Manager/Specialist or Operations Shift Head for final approval to proceed with tasks. Work around power plant chemical pumps and lines. Inspect for leaks before beginning any work task and pause work and report if a leak is found to operations. All personnel entering area must view the site specific training video in room 116 (Boiler Control Room), one time requirement. Observe safety signs and floor markings in all buildings and areas.No safety shoes required for visitors if escorted by Operations or UI Engineering personnel. The West end front lobby and office areas of Bldg 22 are considered a no hazard area.

Instructions: In the block below, identify work-area hazards that could potentially affect the worker(s) or others. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the site hazards as well as any special training required.

ESH/S&S WORK AREA HAZARDS & CONTROLS

Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
☐ **No Work Area Hazards**				

Ionizing Radiation Work in posted radiological areas, work with radioactive materials, or work on or near radiation producing devices. **Specify Hazard:**	☐ Yes ☒ No			

IWD No./Work Request No: ____ Revision #: ____

ESH/S&S WORK AREA HAZARDS & CONTROLS				
Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
Worker Exposure Working near non-ionizing radiation, beryllium, noise, chemicals, hazardous biological materials, lead, asbestos, temperature/humidity extremes, or high explosives. **Specify Hazards:**	☒ Yes ☐ No	Required PPE: Hard hat, safety shoes, safety glasses. Hearing protection (noise > 85 dba). Avoid hot surfaces and piping. Long sleeve shirt or Ansell sleeves or coveralls. Gloves when operating valves or contacting pipe/fitting openings where there is potential for hot water/steam release. Be aware of encapsulated asbestos. Follow LANL Asbestos program/rqmts if PACM identified outside containment Be aware of chemical containers and check labeling. Be aware of piping, associated systems for any leaks. If chemical leak is noticed contact operations manager, IH&S Rep during regular working hrs. Over100 gallons of a chemical spill leave area, and control	P101-6 PPE • P101-23 Asbestos • P101-31 Hearing Conservations/Noise Program	LANL PPE or equivalent • Hearing protection • Site specific training • Asbestos awareness

		access. Call Serf Operators 667-8982 or by Radio Lanl 2 Util 6 For mitigation cleanup process. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation		
Energized and Operative Systems Working near energized electrical parts, pressure systems, steam lines; near unprotected belts, pulleys, chains or rotating equipment; fuel fired equipment other than vehicles; or spark or flame producing operations. **Specify Hazards:** Energized/rotating equipment, High Temperature, High Pressure Water and Steam equipment.	☒ Yes ☐ No	Stay within established walking areas. Observe safety signage alarm lights and horns. Identify explosive hazards and follow task specific IWD if working on plant equipment or components. Note: All TA3-22 independent verification requirement will be determined by the FOD or FOD designee. If questions consult with UI system engineer, Operation Mgr. Designee, or Safety rep.	P101-13 Electrical Safety P101-3 LOTO P101-34 Pressure, Vacuum, and Cryogenic System.	Site Specific Training video. Electrical Safety LOTO if applicable to task.
Confined Spaces Entry into tanks, manholes, cooling towers, sumps, or any other area with potentially low oxygen concentration or other hazards such as toxic vapors or engulfment. **Specify Hazards:**	☒ Yes ☐ No	Observe confined space signs or markings and follow LANL Confined Space Requirements if task requires confined space entry.	P 101-27 Conf. Space	Confined Space Training
Elevated Work Surface Elevated work when fall protection is not provided by conventional handrail systems or required per P101-20, *Fall Protection Program*	☒ Yes ☐ No	Stay within established walking areas, stairways and paths. Observe safety signage. Follow LANL Fall Protection Requirements if task on roofs or work above 4 feet.	P101-20 Fall Protection	Fall Protection
Environmental Impact Activities conducted in areas containing potential release site, contaminated soil, sensitive species, watercourse wetlands, floodplain, historical/archeological sites, or other work area condition that can be impacted by or can impact the environment.	☐ Yes ☒ No			

Specify Hazards:				
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:** Look-alike Equipment in the vicinity of work site may contain un-controlled hazardous energy	☒ Yes ☐ No	Adequette barriers and controls will be established to prevent unauthorized personnel/workers from entering job site and encounter uncontrolled hazards.	IWD	Pre-job briefing emphasis. Worker confirmation of look-alike potential hazards, locations and barriers set in place to identify those potential hazards.

I have verified that the hazards identified above adequately identify the area hazards and that the IWM process has been applied appropriately.

FOD or Representative (Signature/Z #/Date) **Approval Required** Pablo F. CdeVaca

Date Approval Expires: 09/30/2020

FGR Maint. Dec. 2018

Facility : F08 **Unit** : 030022 **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 12/31/2018
Superintendant :

Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00622697 01

MASTER

Date:
10/02/2018

Work Order Task Written To

Facility : F08 **Unit** : 030022 **Op Sys** :
Room : **Area** : **Sys/Cls** :
Equipment : **Component** :
Location :
Job Type : PM
Tag 1 : **Tag 2** :
Work Item : TA03-0022 FGR **Ops Review Reqd** :

Authorization

Start Permission : Glenn Martinez **Start Date** : 11-27-18

Complete Notice : Glenn martinez **Complete Date** : 12-13-18

Work Order Task Instructions

DO NOT lubricate the bearings if the FGR fan is NOT in operation or in service so that proper amount of grease can be applied
using headphones
You can hear when grease reaches the bearing rolling element. At this point, stop adding grease to prevent bearing damage from overheating

There are two bearings on the fan, each with its own zerk plug
Remove the shaft guard located in the middle of the drive. The two zerk plugs are located on each of the two bearings

1. Use grease gun with the Ultralube headphones to insert the correct amount of Mobilith SHC 100 grease into zerk fitting

Facility : F08 **Unit** : 030022 **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 12/31/2018
Superintendant :

Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00622697 01

MASTER

Date:
10/02/2018

b. Apply grease while fan is running and stop when you hear the grease enter the running bearing

Lubricated fan bearings on FGR-001,FGR-002 & FGR-003

4. Add grease with a hand-operated pressure gun until new grease enters the running bearing
a. This is accomplished by using the ultrasonic sensor and headphones to hear when the new grease enters the running bearing
b. Stop adding grease when the grease reaches the bearing to limit excess grease from migrating down the motor shaft and into the windings
Note: Be careful when greasing the fan end bearing of the TEFC (Totally (Totally Enclosed Fan Cooled) motors. Some motors have a spring-relief outlet grease fitting on the fan end that is not accessible. This spring-relief fitting normally does not have to be removed when regreasing. When greasing, take care in the amount of pressure you apply and verify relief is working
5. Putting in too much or too little grease can cause overheating of the motors and result in motor failure. Use this rule of thumb when adding grease to a motor that has been lubricated on a regular basis: It is better to use a little grease more often than a lot of grease less often
Note: Watch out for motors that were shipped only with the bearings packed and not the fill tube or even the bearing housing Apply new grease until you can hear it enter the running bearing
6. Now that greasing is complete, leave the relief plug off and run the motor for 10 minutes to expel any excess grease
7. Replace the drain plug and wipe the bearing housing clean
8. Dispose of dirty rags in accordance with Hazardous Waste Guidelines
9. Ensure correct operation of electric motors.

Facility : F08 **Unit** : 030022 **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 12/31/2018
Superintendant :

Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00622697 01

MASTER

Date:
10/02/2018

QC Requirements / Comments

Work Completion Signatures

Name	Function/Dept.	Date
John Miller	LOG/ cs Maintenance	12-12-18

Comments

(rework?)

Cost Accounting

Cost Center : P2030A **Activity** : 640CL000

Percentage : 100 **Acct No** : XU5000 **Sub Acct** : 7E2P0000

Facility : F08 **Unit** : 030022 **Proj** :
Task Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
W/O Type : PM **W/O Group** : UTIL **Task Priority** : 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : PP 1M TA3-22 FGR BEARINGS, LUBRICATE
Written To : TA03-0022 FAN, FLUE GAS RECIRCULING (FGR-001, FGR-002, FGR-003)
Task Dspln : **Due Date** : 12/31/2018
Superintendant :

Hazard : LOW **IWD Reqmt** : N/A LOW HZRD

Work Order Task

00622697 01

MASTER

Date:
10/02/2018

Worker engagement questions are intended to focus attention on the task and ensure uncertainties are addressed. Examples of worker engagement questions are provided below. Worker engagement questions should be tailored to the situation.

Each of the questions listed below will be discussed at each Pre-Job Brief with all affected personnel.

Topic 1 MO. FGR BEARINGS LUBRICATION	**Completed (X)**
What permits, permissions, or support are required to safely start this work?	X
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	X
What can cause us to go beyond the scope of the work?	X
What hazards in the work area may not have been considered during planning of this job	X

Form 2101

Los Alamos NATIONAL LABORATORY EST. 1943

Integrated Work Document (IWD) Part 2, FOD Requirements and Approval for Entry and Area Hazards and Controls

Non-Tenant Activity Form

IWD No /Work Request No: _____ Revision #: _____

Facility Operation Director (FOD) must determine the facility entry and coordination requirements and identify the Environment, Safety, Health (ESH)/Security and Safeguards (S&S) hazards and controls associated with the activity location.

FOD	TA	Bldg.	Room	Other Location
8	3	22-24	N/A	Power Plant Bldg - Inside
FOD Designated Facility Point-of-Contact	Name Pablo C de Vaca	Phone 699-8226	Pager N/A	Email pfc@lanl gov

Entry and Coordination Requirements (*Check one or more of the following*)

- ☐ No Entry/Coordination Requirements
- ☒ Plan of the Day/Plan of the Week (POTD/POTW)
- ☒ Security Clearance Requirements
- ☐ Co-located Hazards/Concerns
- ☒ Check out at End of Work
- ☐ Escort Required
- ☐ Other Bounding Conditions:
- ☐ FOD-designated facility Point-of-Contact must sign IWD Part 3
- ☒ Check in at Start of Work
- ☒ Work-Area Training Required
- ☒ Work must be Scheduled
- ☒ Check in Daily
- ☐ Other Security Requirements (ex : Cellphone, No Foreign Nationals, etc.)
- ☐ Quality Issues
- ☒ Check out Daily
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)

PIC is responsible to conduct a pre-job brief for work activities to ensure that work conditions and worker communications are adequate. A pre job briefing shall be conducted at the job site. UI-OPS will determine if onsite ESH representation is required during work activities

Additional Comments (refer to Job Hazard Analysis [JHA] Tool Facility Notes)

All work must be approved by the Utilities FOD or UI-OPS. POD/POTW-contact Facility POC. No Smoking around Natural Gas Systems. Evaluate inside floor and housekeeping conditions to safely proceed with activities. Check in with Plant Operations Manager/Specialist or Operations Shift Head for final approval to proceed with tasks. Work around power plant chemical pumps and lines. Inspect for leaks before beginning any work task and pause work and report if a leak is found to operations. All personnel entering area must view the site specific training video in room 116 (Boiler Control Room), one time requirement. Observe safety signs and floor markings in all buildings and areas.No safety shoes required for visitors if escorted by Operations or UI Engineering personnel. The West end front lobby and office areas of Bldg 22 are considered a no hazard area.

Instructions: In the block below, identify work-area hazards that could potentially affect the worker(s) or others. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the site hazards as well as any special training required.

ESH/S&S WORK AREA HAZARDS & CONTROLS

Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
☐ **No Work Area Hazards**				

Ionizing Radiation Work in posted radiological areas, work with radioactive materials, or work on or near radiation producing devices. **Specify Hazard:**	☐ Yes ☒ No			

IWD No./Work Request No: _____ Revision #: _____

ESH/S&S WORK AREA HAZARDS & CONTROLS				
Work Area Hazards/Concerns Identify site hazards and concerns that could potentially affect the worker(s) or others.	**Work Area Hazard Present**	**Facility Controls/ Preventive Measures/ Bounding Conditions** Specify preventive measures, controls and bounding conditions for each site hazard	**Reference Documents** List permits, operating manuals, and other reference procedures	**Training and Qualification** List training requirements (P300, Integretated Work Management, Section 6.1)
Worker Exposure Working near non-ionizing radiation, beryllium, noise, chemicals, hazardous biological materials, lead, asbestos, temperature/humidity extremes, or high explosives. **Specify Hazards:**	☒ Yes ☐ No	Required PPE: Hard hat, safety shoes, safety glasses. Hearing protection (noise > 85 dba). Avoid hot surfaces and piping. Long sleeve shirt or Ansell sleeves or coveralls. Gloves when operating valves or contacting pipe/fitting openings where there is potential for hot water/steam release. Be aware of encapsulated asbestos. Follow LANL Asbestos program/rqmts if PACM identified outside containment. Be aware of chemical containers and check labeling. Be aware of piping, associated systems for any leaks. If chemical leak is noticed contact operations manager, IH&S Rep during regular working hrs. Over100 gallons of a chemical spill leave area, and control	P101-6 PPE • P101-23 Asbestos • P101-31 Hearing Conservations/Noise Program	LANL PPE or equivalent • Hearing protection • Site specific training • Asbestos awareness

		access. Call Serf Operators 667-8982 or by Radio Lani 2 Util 6 For mitigation cleanup process. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation		
Energized and Operative Systems Working near energized electrical parts, pressure systems, steam lines; near unprotected belts, pulleys, chains or rotating equipment; fuel fired equipment other than vehicles; or spark or flame producing operations. **Specify Hazards:** Energized/rotating equipment, High Temperature, High Pressure Water and Steam equipment.	☒ Yes ☐ No	Stay within established walking areas. Observe safety signage alarm lights and horns. Identify explosive hazards and follow task specific IWD if working on plant equipment or components. Note: All TA3-22 independent verification requirement will be determined by the FOD or FOD designee. If questions consult with UI system engineer, Operation Mgr. Designee, or Safety rep.	P101-13 Electrical Safety P101-3 LOTO P101-34 Pressure, Vacuum, and Cryogenic System	Site Specific Training video. Electrical Safety LOTO if applicable to task.
Confined Spaces Entry into tanks, manholes, cooling towers, sumps, or any other area with potentially low oxygen concentration or other hazards such as toxic vapors or engulfment. **Specify Hazards:**	☒ Yes ☐ No	Observe confined space signs or markings and follow LANL Confined Space Requirements if task requires confined space entry.	P 101-27 Conf. Space	Confined Space Training
Elevated Work Surface Elevated work when fall protection is not provided by conventional handrail systems or required per P101-20, *Fall Protection Program*	☒ Yes ☐ No	Stay within established walking areas, stairways and paths. Observe safety signage. Follow LANL Fall Protection Requirements if task on roofs or work above 4 feet.	P101-20 Fall Protection	Fall Protection
Environmental Impact Activities conducted in areas containing potential release site, contaminated soil, sensitive species, watercourse wetlands, floodplain, historical/archeological sites, or other work area condition that can be impacted by or can impact the environment.	☐ Yes ☒ No			

Specify Hazards:				
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:** Look-alike Equipment in the vicinity of work site may contain un-controlled hazardous energy	☒ Yes ☐ No	Adequette barriers and controls will be established to prevent unauthorized personnel/workers from entering job site and encounter uncontrolled hazards.	IWD	Pre-job briefing emphasis. Worker confirmation of look-alike potential hazards, locations and barriers set in place to identify those potential hazards.

I have verified that the hazards identified above adequately identify the area hazards and that the IWM process has been applied appropriately.

FOD or Representative (Signature/Z #/Date) **Approval Required** Pablo F. CdeVaca

Date Approval Expires: 09/30/2020

ATTACHMENT A1307.H.

TA-03 Power Plant

Combustion Turbine Emission Stack Test Report

An emission stack test was not conducted during this reporting period.

The next emission stack test for the combustion turbine is scheduled for January 10, 2019.

Attachment A1407.A. – Open Burning

There was no open burning conducted during this reporting period.

ATTACHMENT A1507.A.a

Evaporative Sprayers

2018 Analytical Data for Basin Water

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

June 29, 2018

Ms. Nita Patel
Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico 87545

Re: LANL- Discharge Permits
Work Order: 453084
SDG: 2018-2760

Dear Ms. Patel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on June 22, 2018, and analyzed for Explosives by LCMSMS, GC Semivolatile PCB, GC Semivolatile Pesticide, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

B Luthman

Brielle Luthman for
Valerie Davis
Project Manager

Chain of Custody: 2018-2760
Enclosures

ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- Discharge Permits
Workorder #: 453084
SDG # : 2018-2760

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....5

Data Review Qualifier Flag Definition Sheet.....14

Volatile Analysis.....17

Case Narrative.....18

Sample Data Summary.....21

Quality Control Summary.....28

Quality Control Data.....40

Semi-Volatile Analysis.....49

Case Narrative.....50

Sample Data Summary.....55

Quality Control Summary.....60

Quality Control Data.....69

Perchlorates by LCMSMS Analysis.....78

Case Narrative.....79

Sample Data Summary.....82

Quality Control Summary.....85

Quality Control Data.....90

Explosives by LCMSMS Analysis.....96

Case Narrative.....97

Sample Data Summary.....101
Quality Control Summary.....104
Quality Control Data.....108
Pesticide Analysis.....119
Case Narrative.....120
Sample Data Summary.....125
Quality Control Summary.....128
Quality Control Data.....135
PCB Analysis.....141
Case Narrative.....142
Sample Data Summary.....147
Quality Control Summary.....150
Quality Control Data.....156
Metals Analysis.....160
Case Narrative.....161
Sample Data Summary.....166
Quality Control Summary.....171
General Chem Analysis.....186
Case Narrative.....187
Sample Data Summary.....192
Quality Control Summary.....195

Radiological Analysis.....199

Case Narrative.....200

Sample Data Summary.....204

Quality Control Summary.....207

Case Narrative

Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- Discharge Permits
Workorder #: 453084
SDG # : 2018-2760

June 29, 2018

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on June 22, 2018 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperatures were checked, documented, and within specifications. Shipping container temperature was within specification (0 - 6C). Both VOA vials for sample IDs WSTMO-18-155067 and WSTMO-18-155068 were received with headspace. Client was notified and lab proceeded with analysis*453084008(WSTMO-18-155067), 453084012(WSTMO-18-155068)*.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
453084001	WSTMO-18-155070
453084002	WSTMO-18-155057
453084003	WSTMO-18-155058
453084004	WSTMO-18-155062
453084005	WSTMO-18-155063
453084006	WSTMO-18-155067
453084007	WSTMO-18-155067
453084008	WSTMO-18-155067
453084009	WSTMO-18-155067
453084010	WSTMO-18-155068
453084011	WSTMO-18-155068
453084012	WSTMO-18-155068
453084013	WSTMO-18-155068

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Explosives by LCMSMS, GC Semivolatile PCB, GC Semivolatile Pesticide, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

B Luthman

Brielle Luthman for
Valerie Davis
Project Manager

List of current GEL Certifications as of 29 June 2018

State	Certification
Alaska	17−018
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA180011
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122018−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−18−13
Utah NELAP	SC000122018−26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation

453084

General Engineering

Charleston SC

Chain of Custody/Analysis Request

COC/Lab Request #: 2018-2760

Page 1 of 1

Client Contact:

Lab Agreement #:

Project Number: ~~ADESH~~ LANL

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐

7 Days - ☒

14 Days - ☐

21 Days - ☐

28 Days - ☐

Site Name: Los Alamos National Laboratory

Rad Screening Info: Similar locations identify no DOT hazard

Lab Reporting Limit Type: Method Detection Limit

Field Sample ID	Sample Date	Sample Time	Sample Matrix	~~8260B Trip Blank~~ DP-TP-8260	DP-8082	DP-ClO4	DP-CN(TOTAL)	DP-F+SO4	DP-Hg	DP-Metals	DP-NO3NO2	DP-Ra226+228	DP-TP-8081	DP-TP-8260	DP-TP-8270	DP-TP-8330
WSTMO-18-155070	Jun 20 2018	8:35	W	1												
WSTMO-18-155057	Jun 20 2018	10:30	W				1	1		1	1	4				
WSTMO-18-155058	Jun 20 2018	8:35	W				1	1		1	1	4				
WSTMO-18-155062	Jun 20 2018	10:30	W						1							
WSTMO-18-155063	Jun 20 2018	8:35	W						1							
WSTMO-18-155067	Jun 20 2018	10:30	W		3	1							3	2	2	3
WSTMO-18-155068	Jun 20 2018	8:35	W		3	1							3	2	2	3

Special Instructions:

Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Sherwood	Sherwood	6/21/18 3pm		Zac Norsham	6/22/18 9:00
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ESHC	**SDG/AR/COC/Work Order:** 453084
Received By: ZKW	**Date Received:** 6/22/18
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other See Attached

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr **Classified as: Rad 1 Rad 2 Rad 3**
Is package, COC, and/or Samples marked HAZ?		✓	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: See Attached
4	Daily check performed and passed on IR temperature gun?	✓			**Temperature Device Serial #:** IR3-18 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?			✓	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) One PCB Cont. for CALA-18-113 Rec'd Broken
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?	✓			If Yes, Are Encores or Soil Kits present? Yes___ No✓ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes✓ No___ N/A___ (If unknown, select No) VOA vials free of headspace? Yes___ No✓ N/A___ Sample ID's and containers affected: See Below
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			

Comments (Use Continuation Form if needed):

Both Vials for WSTM0-18-155067 & -068, Plus the Vials for CALA-18-111 & -114 Rec'd w/ Headspace.

PM (or PMA) review: Initials TMC Date 6/25/18 Page 1 of 2

GL-CHL-SR-001 Rev 5

CEL | Laboratories LLC SAMPLE RECEIPT & REVIEW CONTINUATION FORM

Client: ESHL Received By: Zaw Date Received: 6/22/18 SDG/AR/COC/Work Order: 453084

Tracking #'s and Temps:

4412 7834 1995 -3°c
4412 7834 1940 -3°c
4412 7834 1951 -2°c
4401 2166 1162 -2°c
4401 2166 1184 -3°c
4412 7834 1984 -2°c
4401 2166 1173 -3°c
4412 7834 1929 -3°c
4412 7834 1930 -6°c
4412 7834 1973 -12°c (Rchem)
4412 7834 1962 - 14°c Rchem

PM (or PMA) review: Initials TMC Date 6/25/18 Page 2 of 2

Subject: Samples received at GEL 6/22/18
From: Taylor Cannon <taylor.cannon@gel.com>
Date: 6/25/2018 10:01 AM
To: npatel@lanl.gov, sean.sandborgh@em-la.doe.gov
CC: "team.davis" <team.davis@gel.com>

Good morning,

Please note the following regarding the samples received 6/22/18:

One PCB container for sample ID CALA-18-113 (N3B-2018-2770) was received broken. We will narrate and use the remaining containers for analysis.

Both vials for sample IDs WSTMO-18-155067 and WSTMO-18-155068 (2018-2760), and the vials for CALA-18-111 and CALA-18-114 (N3B-2018-27700) were received with headspace.

Thanks,

Taylor

--

Taylor Cannon
Project Manager Assistant

GEL Laboratories LLC

2040 Savage Road, Charleston, SC 29407 | PO Box 30712, Charleston, SC 29417
Office Direct: 843.556.8171 ext. 4708 | Office Main: 843.556.8171 | Fax: 843.766.1178
E-Mail: taylor.cannon@gel.com | Website: www.gel.com
Analytical Testing | Environmental | Engineering | Surveying

CONFIDENTIALITY NOTICE: This e-mail and any files transmitted with it are the property of The GEL Group, Inc. and its affiliates. All rights, including without limitation copyright, are reserved. The proprietary information contained in this e-mail message, and any files transmitted with it, is intended for the use of the recipient(s) named above. If the reader of this e-mail is not the intended recipient, you are hereby notified that you have received this e-mail in error and that any review, distribution or copying of this e-mail or any files transmitted with it is strictly prohibited. If you have received this e-mail in error, please notify the sender immediately and delete the original message and any files transmitted. The unauthorized use of this e-mail or any files transmitted with it is prohibited and disclaimed by The GEL Group, Inc. and its affiliates.
http://www.gellaboratories.com

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 43.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

14°C
Rchem

FedEx Express

546C2/93DF/53C1

J171016102001uv

2 of 3
MPS# 0263 4412 7834 1962
Mstr# 4412 7834 1951 0201

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 49.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3C

FedEx Express

546C2/93DF/53C1

J171016102001uv

TRK# 0201 4412 7834 1995

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 1501486V-434 RIT2 EXP 02/18 **

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 46.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3C

FedEx Express

546C2/93DF/53C1

J171016102001uv

3 of 3
MPS# 0263 4412 7834 1940
Mstr# 4412 7834 1929 0201

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 1501486V-434 RIT2 EXP 02/18 **

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 45.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

2c

54GC2/93DF/53C1

FedEx Express

J171016102001uv

1 of 3

TRK# 0201 4412 7834 1951

MASTER

X7 RBWA

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

29407
SC-US CHS

Part # 156148-434 RIT2 EXP 02/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 48.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

2c

54GC1/48E5/53C1

FedEx Express

J171016102001uv

2 of 3

MPS# 0263 4401 2166 1162

Mstr# 4401 2166 1151 0201

X7 RBWA

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 62.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

3c

54GC1/48E5/53C1

FedEx Express

J171016102001uv

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

TRK# 0201 4401 2166 1184

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 42.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

2c

546C2/93DF/53C1

FedEx Express

J171016102001uv

TRK# 0201 4412 7834 1984

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148V-434 RITZ EXP 02/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP O5U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 50.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

3c

546C1/4BE5/53C1

FedEx Express

J171016102001uv

3 of 3
MPS# 0263 4401 2166 1173
Mstr# 4401 2166 1151 0201

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RITZ EXP 04/18

546C2/93DF/53C1

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 53.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3c

FedEx Express

J171016102001uv

1 of 3
TRK# 0201 4412 7834 1929
MASTER

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148V-434 RITZ EXP 02/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 51.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

6°C

FedEx Express

J171016102001uv

2 of 3
MPS# 0263 4412 7834 1930
Mstr# 4412 7834 1929
0201

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156149V-434 RIT2 EXP 02/18

Do Not Lift Using This Tag

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 49.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

12°C
echem

546C2/93DF/53C1

FedEx Express

J171016102001uv

3 of 3
MPS# 0263 4412 7834 1973
Mstr# 4412 7834 1951
0201

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156149V-434 RIT2 EXP 02/18

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference. For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Volatile Analysis

Case Narrative

GC/MS Volatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2760
Work Order #: 453084

Product: **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method: SW-846:8260B
Analytical Procedure: GL-OA-E-038 REV# 26
Analytical Batch: 1776921

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453084001	WSTMO-18-155070
453084008	WSTMO-18-155067
453084012	WSTMO-18-155068
1204057542	Method Blank (MB)
1204057544	Laboratory Control Sample (LCS)
1204057546	452586001(NonSDG) Post Spike (PS)
1204057547	452586001(NonSDG) Post Spike Duplicate (PSD)
1204058808	Method Blank (MB)
1204058809	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Miscellaneous Information

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples 453084001 (WSTMO-18-155070), 453084008 (WSTMO-18-155067) and 453084012 (WSTMO-18-155068) in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, were included on the Sample Data Summary (Form 1) and included with the sample raw data.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2760 GEL Work Order: 453084

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name: Erin Haubert**

Date: 28 JUN 2018 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 08:35**	**Matrix:**	**W**
Lab Sample ID:	**453084001**	**Date Received:**	**06/22/2018 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155070**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 13:18**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/27/2018 13:18**				
Data File:	**062718V4\4O310.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)	U	0.300	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	50.9	50.0	ug/L	102	(71%-134%)
Bromofluorobenzene	54.2	50.0	ug/L	108	(70%-131%)
Toluene-d8	45.7	50.0	ug/L	91	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 08:35**	**Matrix:**	**W**
Lab Sample ID:	**453084001**	**Date Received:**	**06/22/2018 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155070**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 13:18**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/27/2018 13:18**				
Data File:	**062718V4\4O310.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	4.309	36.9	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**453084008**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155067**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 13:47**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/27/2018 13:47**				
Data File:	**062718V4\4O311.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)	U	0.300	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	60.3	50.0	ug/L	121	(71%-134%)
Bromofluorobenzene	49.4	50.0	ug/L	99	(70%-131%)
Toluene-d8	40.9	50.0	ug/L	82	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**453084008**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155067**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 13:47**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/27/2018 13:47**				
Data File:	**062718V4\4O311.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	4.27	121	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 08:35**	**Matrix:**	**W**
Lab Sample ID:	**453084012**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155068**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 14:17**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/27/2018 14:17**				
Data File:	**062718V4\4O312.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)	U	0.300	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	63.4	50.0	ug/L	127	(71%-134%)
Bromofluorobenzene	51.3	50.0	ug/L	103	(70%-131%)
Toluene-d8	42.6	50.0	ug/L	85	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 08:35**	**Matrix:**	**W**
Lab Sample ID:	**453084012**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155068**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 14:17**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/27/2018 14:17**				
Data File:	**062718V4\4O312.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	4.246	150	ug/L	0	J
000075-18-3	Dimethyl sulfide	7.114	8.98	ug/L	91	NJ

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2018-2760

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1204057544	LCS for batch 1776921	103	90	104
1204057542	MB for batch 1776921	104	92	106
1204057546	CAPU-18-77PS	121	92	106
1204057547	CAPU-18-77PSD	115	91	107
1204058809	LCS for batch 1776921	102	88	105
1204058808	MB for batch 1776921	100	91	107
453084001	WSTMO-18-155070	102	91	108
453084008	WSTMO-18-155067	121	82	99
453084012	WSTMO-18-155068	127	85	103

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(71%-134%)
TOL	= Toluene-d8	(74%-124%)
BFB	= Bromofluorobenzene	(70%-131%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **LCS for batch 1776921**
Lab Sample ID **1204057544**
Instrument: **VOA4.I**
Analyst: **MXL2**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/26/2018 10:48**
Dilution: 1
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
542-75-6	LCS	1,3-Dichloropropylene(total) *1,3-Dichloropropylene*	100	0.0	97.7	98	78-134
179601-23-1	LCS	m,p-Xylenes	100	0.0	92.2	92	71-127
1330-20-7	LCS	Xylenes (total)	150	0.0	138	92	73-125
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	62.6	125	40-160
74-87-3	LCS	Chloromethane	50.0	0.0	49.8	100	58-135
75-01-4	LCS	Vinyl chloride	50.0	0.0	55.3	111	65-137
74-83-9	LCS	Bromomethane	50.0	0.0	52.9	106	63-137
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	57.6	115	69-138
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	54.7	109	66-126
75-09-2	LCS	Methylene chloride	50.0	0.0	49.3	99	68-119
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	48.9	98	76-128
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	50.8	102	71-124
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	49.3	99	73-123
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	49.3	99	75-123
67-66-3	LCS	Chloroform	50.0	0.0	52.6	105	76-123
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	57.0	114	74-136
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	59.4	119	72-140
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	53.1	106	74-122
71-43-2	LCS	Benzene	50.0	0.0	48.3	97	72-121
79-01-6	LCS	Trichloroethylene	50.0	0.0	51.6	103	74-125
75-27-4	LCS	Bromodichloromethane	50.0	0.0	52.1	104	77-131
108-88-3	LCS	Toluene	50.0	0.0	45.0	90	71-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **LCS for batch 1776921**
Lab Sample ID **1204057544**
Instrument: **VOA4.I**
Analyst: **MXL2**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/26/2018 10:48**
Dilution: 1
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	43.0	86	74-118
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	49.5	99	69-129
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	47.1	94	78-122
108-90-7	LCS	Chlorobenzene	50.0	0.0	46.6	93	74-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	47.5	95	73-125
95-47-6	LCS	o-Xylene	50.0	0.0	46.0	92	74-126
75-25-2	LCS	Bromoform	50.0	0.0	48.8	98	72-136
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	45.2	90	70-126
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	46.8	94	71-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **CAPU-18-77PS**
Lab Sample ID **1204057546**
Instrument: **VOA4.I**
Analyst: **MXL2**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **06/26/2018 19:08**
Dilution: 1
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	80.5	81	59-132
542-75-6	PS	1,3-Dichloropropylene(total) *1,3-Dichloropropylene*	100			95.0	95	89-125
1330-20-7	PS	Xylenes (total)	150			123	82	60-131
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	57.1	114	33-164
74-87-3	PS	Chloromethane	50.0	0.00	U	39.4	79	53-139
75-01-4	PS	Vinyl chloride	50.0	0.00	U	43.1	86	58-140
74-83-9	PS	Bromomethane	50.0	0.00	U	45.9	92	59-146
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	55.5	111	65-141
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	49.3	99	59-130
75-09-2	PS	Methylene chloride	50.0	0.00	U	45.4	91	62-123
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	48.5	97	69-132
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	46.4	93	65-127
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	45.6	91	67-127
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	44.3	89	69-127
67-66-3	PS	Chloroform	50.0	0.00	U	51.6	103	71-129
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	54.1	108	69-139
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	56.0	112	66-143
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	57.7	115	69-130
71-43-2	PS	Benzene	50.0	0.00	U	42.7	85	66-125
79-01-6	PS	Trichloroethylene	50.0	0.00	U	46.8	94	65-131
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	53.3	107	70-138
108-88-3	PS	Toluene	50.0	0.00	U	39.3	79	60-126

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **CAPU-18-77PS**
Lab Sample ID **1204057546**
Instrument: **VOA4.I**
Analyst: **MXL2**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **06/26/2018 19:08**
Dilution: 1
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	41.7	83	66-125
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	41.7	83	60-130
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	45.3	91	71-127
108-90-7	PS	Chlorobenzene	50.0	0.00	U	42.0	84	64-124
100-41-4	PS	Ethylbenzene	50.0	0.00	U	41.8	84	61-130
95-47-6	PS	o-Xylene	50.0	0.00	U	42.6	85	62-131
75-25-2	PS	Bromoform	50.0	0.00	U	45.3	91	64-138
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	40.2	80	62-129
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	40.6	81	55-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **CAPU-18-77PSD**
Lab Sample ID **1204057547**
Instrument: **VOA4.I**
Analyst: **MXL2**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **06/26/2018 19:37**
Dilution: 1
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	81.8	82	59-132	2	0-20
542-75-6	PSD	1,3-Dichloropropylene(total) *1,3-Dichloropropylene*	100			93.7	94	89-125	1	0-20
1330-20-7	PSD	Xylenes (total)	150			125	83	60-131	1	0-20
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	56.7	113	33-164	1	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	42.7	85	53-139	8	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	46.1	92	58-140	7	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	46.9	94	59-146	2	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	54.6	109	65-141	2	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	49.0	98	59-130	1	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	46.5	93	62-123	2	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	48.1	96	69-132	1	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	46.0	92	65-127	1	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	45.3	91	67-127	1	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	44.8	90	69-127	1	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	50.8	102	71-129	2	0-20
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	53.5	107	69-139	1	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	55.2	110	66-143	1	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	55.5	111	69-130	4	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	43.1	86	66-125	1	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	46.9	94	65-131	0	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	51.3	103	70-138	4	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	39.8	80	60-126	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **CAPU-18-77PSD**
Lab Sample ID **1204057547**
Instrument: **VOA4.I**
Analyst: **MXL2**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **06/26/2018 19:37**
Dilution: 1
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	42.1	84	66-125	1	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	42.3	85	60-130	1	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	45.3	91	71-127	0	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	42.1	84	64-124	0	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	42.2	84	61-130	1	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	42.9	86	62-131	1	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	45.5	91	64-138	0	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	41.8	84	62-129	4	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	41.5	83	55-125	2	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **LCS for batch 1776921**
Lab Sample ID **1204058809**
Instrument: **VOA4.I**
Analyst: **MXL2**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/27/2018 09:53**
Dilution: 1
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
542-75-6	LCS	1,3-Dichloropropylene(total) *1,3-Dichloropropylene*	100	0.0	88.6	89	78-134
179601-23-1	LCS	m,p-Xylenes	100	0.0	83.2	83	71-127
1330-20-7	LCS	Xylenes (total)	150	0.0	126	84	73-125
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	54.0	108	40-160
74-87-3	LCS	Chloromethane	50.0	0.0	42.4	85	58-135
75-01-4	LCS	Vinyl chloride	50.0	0.0	47.4	95	65-137
74-83-9	LCS	Bromomethane	50.0	0.0	46.3	93	63-137
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	54.4	109	69-138
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	49.3	99	66-126
75-09-2	LCS	Methylene chloride	50.0	0.0	44.9	90	68-119
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	42.6	85	76-128
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	46.4	93	71-124
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	45.4	91	73-123
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	44.5	89	75-123
67-66-3	LCS	Chloroform	50.0	0.0	48.8	98	76-123
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	52.5	105	74-136
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	55.5	111	72-140
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	50.6	101	74-122
71-43-2	LCS	Benzene	50.0	0.0	43.1	86	72-121
79-01-6	LCS	Trichloroethylene	50.0	0.0	47.5	95	74-125
75-27-4	LCS	Bromodichloromethane	50.0	0.0	48.5	97	77-131
108-88-3	LCS	Toluene	50.0	0.0	40.5	81	71-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1776921**
Matrix: **WATER**
Lab Sample ID **1204058809**
Instrument: **VOA4.I**
Analysis Date: **06/27/2018 09:53**
Dilution: 1
Analyst: **MXL2**
Purge Vol: **5 mL**
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	38.4	77	74-118
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	44.5	89	69-129
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	41.7	83	78-122
108-90-7	LCS	Chlorobenzene	50.0	0.0	42.2	84	74-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	43.2	86	73-125
95-47-6	LCS	o-Xylene	50.0	0.0	42.5	85	74-126
75-25-2	LCS	Bromoform	50.0	0.0	42.0	84	72-136
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	38.5	77	70-126
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	43.6	87	71-120

Method Blank Summary

SDG Number:	**2018-2760**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1776921**	**Instrument ID:**	**VOA4.I**	**Data File:**	**062618V4\4O206A.D**
Lab Sample ID:	**1204057542**	**Prep Date:**	**06/26/2018 12:16**	**Analyzed:**	**06/26/18 12:16**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1776921	1204057544	062618V4\4O203A.D	06/26/18	1048
02 CAPU-18-77PS	1204057546	062618V4\4O220.D	06/26/18	1908
03 CAPU-18-77PSD	1204057547	062618V4\4O221.D	06/26/18	1937

Method Blank Summary

SDG Number:	**2018-2760**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1776921**	**Instrument ID:**	**VOA4.I**	**Data File:**	**062718V4\4O308A.D**
Lab Sample ID:	**1204058808**	**Prep Date:**	**06/27/2018 12:19**	**Analyzed:**	**06/27/18 12:19**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
05 LCS for batch 1776921	1204058809	062718V4\4O303A.D	06/27/18	0953
06 WSTMO-18-155070	453084001	062718V4\4O310.D	06/27/18	1318
07 WSTMO-18-155067	453084008	062718V4\4O311.D	06/27/18	1347
08 WSTMO-18-155068	453084012	062718V4\4O312.D	06/27/18	1417

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204057542**				
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776921**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 12:16**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 12:16**				
Data File:	**062618V4\4O206A.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)	U	0.300	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.0	50.0	ug/L	104	(71%-134%)
Bromofluorobenzene	53.1	50.0	ug/L	106	(70%-131%)
Toluene-d8	46.2	50.0	ug/L	92	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204057542**				
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776921**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 12:16**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 12:16**				
Data File:	**062618V4\4O206A.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	4.293	18.7	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204057544**				
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776921**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 10:48**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 10:48**				
Data File:	**062618V4\4O203A.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		57.0	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		45.2	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		43.0	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		49.3	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		54.7	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		47.1	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		53.1	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)		97.7	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene		46.8	ug/L	0.300	1.00
71-43-2	Benzene		48.3	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		52.1	ug/L	0.300	1.00
75-25-2	Bromoform		48.8	ug/L	0.300	1.00
74-83-9	Bromomethane		52.9	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride		59.4	ug/L	0.300	1.00
108-90-7	Chlorobenzene		46.6	ug/L	0.300	1.00
67-66-3	Chloroform		52.6	ug/L	0.300	1.00
74-87-3	Chloromethane		49.8	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		62.6	ug/L	0.300	1.00
100-41-4	Ethylbenzene		47.5	ug/L	0.300	1.00
75-09-2	Methylene chloride		49.3	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene		49.5	ug/L	0.300	1.00
108-88-3	Toluene		45.0	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.6	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		57.6	ug/L	0.300	1.00
75-01-4	Vinyl chloride		55.3	ug/L	0.300	1.00
1330-20-7	Xylenes (total)		138	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		49.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		92.2	ug/L	0.300	2.00
95-47-6	o-Xylene		46.0	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether		48.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		50.8	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.4	50.0	ug/L	103	(71%-134%)
Bromofluorobenzene	51.9	50.0	ug/L	104	(70%-131%)
Toluene-d8	45.1	50.0	ug/L	90	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/12/2018 12:33**	**Matrix:**	**W**
Lab Sample ID:	**1204057546**	**Date Received:**	**06/15/2018 09:05**		
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAPU-18-77PS**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 19:08**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 19:08**				
Data File:	**062618V4\4O220.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		54.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		40.2	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		41.7	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		45.6	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		49.3	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		45.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		57.7	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)		95.0	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene		40.6	ug/L	0.300	1.00
71-43-2	Benzene		42.7	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.3	ug/L	0.300	1.00
75-25-2	Bromoform		45.3	ug/L	0.300	1.00
74-83-9	Bromomethane		45.9	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride		56.0	ug/L	0.300	1.00
108-90-7	Chlorobenzene		42.0	ug/L	0.300	1.00
67-66-3	Chloroform		51.6	ug/L	0.300	1.00
74-87-3	Chloromethane		39.4	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		57.1	ug/L	0.300	1.00
100-41-4	Ethylbenzene		41.8	ug/L	0.300	1.00
75-09-2	Methylene chloride		45.4	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene		41.7	ug/L	0.300	1.00
108-88-3	Toluene		39.3	ug/L	0.300	1.00
79-01-6	Trichloroethylene		46.8	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		55.5	ug/L	0.300	1.00
75-01-4	Vinyl chloride		43.1	ug/L	0.300	1.00
1330-20-7	Xylenes (total)		123	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		44.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		80.5	ug/L	0.300	2.00
95-47-6	o-Xylene		42.6	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether		48.5	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		46.4	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	60.4	50.0	ug/L	121	(71%-134%)
Bromofluorobenzene	53.0	50.0	ug/L	106	(70%-131%)
Toluene-d8	45.8	50.0	ug/L	92	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/12/2018 12:33**	**Matrix:**	**W**
Lab Sample ID:	**1204057547**	**Date Received:**	**06/15/2018 09:05**		
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAPU-18-77PSD**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 19:37**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 19:37**				
Data File:	**062618V4\4O221.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		53.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		41.8	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		42.1	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		45.3	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		49.0	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		45.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		55.5	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)		93.7	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene		41.5	ug/L	0.300	1.00
71-43-2	Benzene		43.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		51.3	ug/L	0.300	1.00
75-25-2	Bromoform		45.5	ug/L	0.300	1.00
74-83-9	Bromomethane		46.9	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride		55.2	ug/L	0.300	1.00
108-90-7	Chlorobenzene		42.1	ug/L	0.300	1.00
67-66-3	Chloroform		50.8	ug/L	0.300	1.00
74-87-3	Chloromethane		42.7	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		56.7	ug/L	0.300	1.00
100-41-4	Ethylbenzene		42.2	ug/L	0.300	1.00
75-09-2	Methylene chloride		46.5	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene		42.3	ug/L	0.300	1.00
108-88-3	Toluene		39.8	ug/L	0.300	1.00
79-01-6	Trichloroethylene		46.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		54.6	ug/L	0.300	1.00
75-01-4	Vinyl chloride		46.1	ug/L	0.300	1.00
1330-20-7	Xylenes (total)		125	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		44.8	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		81.8	ug/L	0.300	2.00
95-47-6	o-Xylene		42.9	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether		48.1	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		46.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	57.4	50.0	ug/L	115	(71%-134%)
Bromofluorobenzene	53.3	50.0	ug/L	107	(70%-131%)
Toluene-d8	45.6	50.0	ug/L	91	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204058808**				
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776921**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 12:19**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/27/2018 12:19**				
Data File:	**062718V4\4O308A.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)	U	0.300	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	50.0	50.0	ug/L	100	(71%-134%)
Bromofluorobenzene	53.4	50.0	ug/L	107	(70%-131%)
Toluene-d8	45.4	50.0	ug/L	91	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204058808**				
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776921**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 12:19**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/27/2018 12:19**				
Data File:	**062718V4\4O308A.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	4.301	18.9	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204058809**				
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776921**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 09:53**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/27/2018 09:53**				
Data File:	**062718V4\4O303A.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		52.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		38.5	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		38.4	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		45.4	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		49.3	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		41.7	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		50.6	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)		88.6	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene		43.6	ug/L	0.300	1.00
71-43-2	Benzene		43.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		48.5	ug/L	0.300	1.00
75-25-2	Bromoform		42.0	ug/L	0.300	1.00
74-83-9	Bromomethane		46.3	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride		55.5	ug/L	0.300	1.00
108-90-7	Chlorobenzene		42.2	ug/L	0.300	1.00
67-66-3	Chloroform		48.8	ug/L	0.300	1.00
74-87-3	Chloromethane		42.4	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		54.0	ug/L	0.300	1.00
100-41-4	Ethylbenzene		43.2	ug/L	0.300	1.00
75-09-2	Methylene chloride		44.9	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene		44.5	ug/L	0.300	1.00
108-88-3	Toluene		40.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		47.5	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		54.4	ug/L	0.300	1.00
75-01-4	Vinyl chloride		47.4	ug/L	0.300	1.00
1330-20-7	Xylenes (total)		126	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		44.5	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		83.2	ug/L	0.300	2.00
95-47-6	o-Xylene		42.5	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether		42.6	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		46.4	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.0	50.0	ug/L	102	(71%-134%)
Bromofluorobenzene	52.5	50.0	ug/L	105	(70%-131%)
Toluene-d8	44.0	50.0	ug/L	88	(74%-124%)

Semi-Volatile Analysis

Case Narrative

GC/MS Semivolatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2760
Work Order #: 453084

Product: **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method: SW846 3510C/8270D
Analytical Procedure: GL-OA-E-009 REV# 40
Analytical Batch: 1776478

Preparation Method: SW846 3510C
Preparation Procedure: GL-OA-E-013 REV# 32
Preparation Batch: 1776477

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453084008	WSTMO-18-155067
453084012	WSTMO-18-155068
1204056372	Method Blank (MB)
1204056373	Laboratory Control Sample (LCS)
1204056374	453084008(WSTMO-18-155067) Matrix Spike (MS)
1204056375	453084008(WSTMO-18-155067) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

CCV Requirements
All Calibration Verification Standards (CCV) did not meet the acceptance criteria as outlined in Method 8270D for samples and the associated QC. However, the method allows for a designated number of outliers dependent on the requested analyte list. This SDG satisfied the 8270D outlier acceptance criteria. If required, a CRDL was analyzed after the CCVs to demonstrate that there is adequate sensitivity to detect the failed compounds at the applicable lower quantitation limit.

Quality Control (QC) Information

Surrogate Recoveries
Sample (See Below) did not meet surrogate recovery acceptance criteria. The surrogate failure was confirmed by re-extraction and analysis. The original extraction results have been reported.

Sample	Analyte	Value
453084012 (WSTMO-18-155068)	2, 4, 6-Tribromophenol	1* (32%-124%)
	2-Fluorobiphenyl	2* (32%-112%)

	2-Fluorophenol	1* (15%-88%)
	Nitrobenzene-d5	2* (36%-115%)
	Phenol-d5	1* (15%-91%)
	p-Terphenyl-d14	2* (36%-121%)

Samples (See Below) did not meet surrogate recovery acceptance criteria. Since the parent sample and associated MS/MSD pair displayed similar recoveries, the failures were attributed to matrix interference and the data results are reported.

Sample	Analyte	Value
1204056374 (WSTMO-18-155067MS)	2, 4, 6-Tribromophenol	28* (32%-124%)
	2-Fluorobiphenyl	31* (32%-112%)
	Nitrobenzene-d5	23* (36%-115%)
	p-Terphenyl-d14	29* (36%-121%)
1204056375 (WSTMO-18-155067MSD)	2, 4, 6-Tribromophenol	5* (32%-124%)
	2-Fluorobiphenyl	12* (32%-112%)
	2-Fluorophenol	12* (15%-88%)
	Nitrobenzene-d5	4* (36%-115%)
	p-Terphenyl-d14	15* (36%-121%)
453084008 (WSTMO-18-155067)	2, 4, 6-Tribromophenol	6* (32%-124%)
	2-Fluorobiphenyl	8* (32%-112%)
	2-Fluorophenol	7* (15%-88%)
	Nitrobenzene-d5	5* (36%-115%)
	Phenol-d5	7* (15%-91%)
	p-Terphenyl-d14	8* (36%-121%)

Spike Recovery Statement
The MS or MSD (See Below) recovered spiked analytes outside of the established acceptance limits. As similar recoveries were displayed in the MS and MSD, the failures were attributed to sample matrix interference and the data were reported.

Sample	Analyte	Value
1204056374 (WSTMO-18-155067MS)	Several	See applicable report
1204056375 (WSTMO-18-155067MSD)	Several	See applicable report

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent differences (RPD) for the MS and MSD, (See Below), were not within the acceptance limits. The failures were attributed to matrix interference. The data were reported.

Sample	Analyte	Value
1204056374MS and 1204056375MSD (WSTMO-18-155067)	Several	See applicable report

Miscellaneous Information

TIC Comment
Tentatively identified compounds (TIC) were requested for samples 453084008 (WSTMO-18-155067) and 453084012 (WSTMO-18-155068) in this SDG in this batch.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2760 GEL Work Order: 453084

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Cameron Bearden **Name: Cameron Bearden**

Date: 28 JUN 2018 **Title: Group Leader**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**453084008**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155067**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776478**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 17:43**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:32**	**Aliquot:**	**750 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.B\s1f2516.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	4.00	ug/L	4.00	13.3
122-66-7	1,2-Diphenylhydrazine	U	4.00	ug/L	4.00	13.3
90-12-0	1-Methylnaphthalene	U	0.400	ug/L	0.400	1.33
95-95-4	2,4,5-Trichlorophenol	U	4.00	ug/L	4.00	13.3
88-06-2	2,4,6-Trichlorophenol	U	4.00	ug/L	4.00	13.3
120-83-2	2,4-Dichlorophenol	U	4.00	ug/L	4.00	13.3
51-28-5	2,4-Dinitrophenol	U	6.67	ug/L	6.67	26.7
121-14-2	2,4-Dinitrotoluene	U	4.00	ug/L	4.00	13.3
606-20-2	2,6-Dinitrotoluene	U	4.00	ug/L	4.00	13.3
534-52-1	2-Methyl-4,6-dinitrophenol	U	4.00	ug/L	4.00	13.3
91-57-6	2-Methylnaphthalene	U	0.400	ug/L	0.400	1.33
91-94-1	3,3'-Dichlorobenzidine	U	4.00	ug/L	4.00	13.3
120-12-7	Anthracene	U	0.400	ug/L	0.400	1.33
92-87-5	Benzidine	U	5.20	ug/L	5.20	13.3
50-32-8	Benzo(a)pyrene	U	0.400	ug/L	0.400	1.33
205-99-2	Benzo(b)fluoranthene	U	0.400	ug/L	0.400	1.33
207-08-9	Benzo(k)fluoranthene	U	0.400	ug/L	0.400	1.33
84-74-2	Di-n-butylphthalate	U	0.400	ug/L	0.400	13.3
84-66-2	Diethylphthalate	U	0.400	ug/L	0.400	13.3
131-11-3	Dimethylphthalate	U	0.400	ug/L	0.400	13.3
122-39-4	Diphenylamine	U	4.00	ug/L	4.00	13.3
206-44-0	Fluoranthene	U	0.400	ug/L	0.400	1.33
86-73-7	Fluorene	U	0.400	ug/L	0.400	1.33
118-74-1	Hexachlorobenzene	U	4.00	ug/L	4.00	13.3
87-68-3	Hexachlorobutadiene	U	4.00	ug/L	4.00	13.3
77-47-4	Hexachlorocyclopentadiene	U	4.00	ug/L	4.00	13.3
67-72-1	Hexachloroethane	U	4.00	ug/L	4.00	13.3
78-59-1	Isophorone	U	4.67	ug/L	4.67	13.3
62-75-9	N-Methyl-N-nitrosomethylamine	U	4.00	ug/L	4.00	13.3
924-16-3	N-Nitrosodi-n-butylamine	U	4.00	ug/L	4.00	13.3
55-18-5	N-Nitrosodiethylamine	U	4.00	ug/L	4.00	13.3
930-55-2	N-Nitrosopyrrolidine	U	4.00	ug/L	4.00	13.3
91-20-3	Naphthalene	U	0.400	ug/L	0.400	1.33
98-95-3	Nitrobenzene	U	4.00	ug/L	4.00	13.3
	PAHs(total naphthalene plus monomethylnaphthalenes)	U		ug/L		
608-93-5	Pentachlorobenzene	U	4.00	ug/L	4.00	13.3
87-86-5	Pentachlorophenol	U	4.00	ug/L	4.00	13.3
85-01-8	Phenanthrene	U	0.400	ug/L	0.400	1.33

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**453084008**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155067**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776478**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 17:43**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:32**	**Aliquot:**	**750 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.B\s1f2516.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol	U	4.00	ug/L	4.00	13.3
129-00-0	Pyrene	U	0.400	ug/L	0.400	1.33
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	4.00	ug/L	4.00	13.3
111-44-4	bis(2-Chloroethyl) ether	U	4.00	ug/L	4.00	13.3
117-81-7	bis(2-Ethylhexyl)phthalate	U	0.400	ug/L	0.400	1.33

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
2,4,6-Tribromophenol	13.3	133	ug/L	6	*	(32%-124%)
2-Fluorobiphenyl	13.3	66.7	ug/L	8	*	(32%-112%)
2-Fluorophenol	13.3	133	ug/L	7	*	(15%-88%)
Nitrobenzene-d5	13.3	66.7	ug/L	5	*	(36%-115%)
Phenol-d5	13.3	133	ug/L	7	*	(15%-91%)
p-Terphenyl-d14	13.3	66.7	ug/L	8	*	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-71-0	Dimethyl sulfone	4.623	8.59	ug/L	90	NJ
	unknown	4.692	7.47	ug/L	0	J
	unknown	6.04	5.84	ug/L	0	J
	unknown	10.565	8.19	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 08:35**	**Matrix:**	**W**
Lab Sample ID:	**453084012**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155068**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776478**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 05:52**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:32**	**Aliquot:**	**910 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.B\s1f2533.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.30	ug/L	3.30	11.0
122-66-7	1,2-Diphenylhydrazine	U	3.30	ug/L	3.30	11.0
90-12-0	1-Methylnaphthalene	U	0.330	ug/L	0.330	1.10
95-95-4	2,4,5-Trichlorophenol	U	3.30	ug/L	3.30	11.0
88-06-2	2,4,6-Trichlorophenol	U	3.30	ug/L	3.30	11.0
120-83-2	2,4-Dichlorophenol	U	3.30	ug/L	3.30	11.0
51-28-5	2,4-Dinitrophenol	U	5.49	ug/L	5.49	22.0
121-14-2	2,4-Dinitrotoluene	U	3.30	ug/L	3.30	11.0
606-20-2	2,6-Dinitrotoluene	U	3.30	ug/L	3.30	11.0
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.30	ug/L	3.30	11.0
91-57-6	2-Methylnaphthalene	U	0.330	ug/L	0.330	1.10
91-94-1	3,3'-Dichlorobenzidine	U	3.30	ug/L	3.30	11.0
120-12-7	Anthracene	U	0.330	ug/L	0.330	1.10
92-87-5	Benzidine	U	4.29	ug/L	4.29	11.0
50-32-8	Benzo(a)pyrene	U	0.330	ug/L	0.330	1.10
205-99-2	Benzo(b)fluoranthene	U	0.330	ug/L	0.330	1.10
207-08-9	Benzo(k)fluoranthene	U	0.330	ug/L	0.330	1.10
84-74-2	Di-n-butylphthalate	U	0.330	ug/L	0.330	11.0
84-66-2	Diethylphthalate	U	0.330	ug/L	0.330	11.0
131-11-3	Dimethylphthalate	U	0.330	ug/L	0.330	11.0
122-39-4	Diphenylamine	U	3.30	ug/L	3.30	11.0
206-44-0	Fluoranthene	U	0.330	ug/L	0.330	1.10
86-73-7	Fluorene	U	0.330	ug/L	0.330	1.10
118-74-1	Hexachlorobenzene	U	3.30	ug/L	3.30	11.0
87-68-3	Hexachlorobutadiene	U	3.30	ug/L	3.30	11.0
77-47-4	Hexachlorocyclopentadiene	U	3.30	ug/L	3.30	11.0
67-72-1	Hexachloroethane	U	3.30	ug/L	3.30	11.0
78-59-1	Isophorone	U	3.85	ug/L	3.85	11.0
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.30	ug/L	3.30	11.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.30	ug/L	3.30	11.0
55-18-5	N-Nitrosodiethylamine	U	3.30	ug/L	3.30	11.0
930-55-2	N-Nitrosopyrrolidine	U	3.30	ug/L	3.30	11.0
91-20-3	Naphthalene	U	0.330	ug/L	0.330	1.10
98-95-3	Nitrobenzene	U	3.30	ug/L	3.30	11.0
	PAHs(total naphthalene plus monomethylnaphthalenes)	U		ug/L		
608-93-5	Pentachlorobenzene	U	3.30	ug/L	3.30	11.0
87-86-5	Pentachlorophenol	U	3.30	ug/L	3.30	11.0
85-01-8	Phenanthrene	U	0.330	ug/L	0.330	1.10

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 08:35**	**Matrix:**	**W**
Lab Sample ID:	**453084012**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155068**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776478**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 05:52**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:32**	**Aliquot:**	**910 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.B\s1f2533.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol	U	3.30	ug/L	3.30	11.0
129-00-0	Pyrene	U	0.330	ug/L	0.330	1.10
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.30	ug/L	3.30	11.0
111-44-4	bis(2-Chloroethyl) ether	U	3.30	ug/L	3.30	11.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	0.330	ug/L	0.330	1.10

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
2,4,6-Tribromophenol	11.0	110	ug/L	1	*	(32%-124%)
2-Fluorobiphenyl	11.0	54.9	ug/L	2	*	(32%-112%)
2-Fluorophenol	11.0	110	ug/L	1	*	(15%-88%)
Nitrobenzene-d5	11.0	54.9	ug/L	2	*	(36%-115%)
Phenol-d5	11.0	110	ug/L	1	*	(15%-91%)
p-Terphenyl-d14	11.0	54.9	ug/L	2	*	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-71-0	Dimethyl sulfone	4.623	5.58	ug/L	91	NJ

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2018-2760

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1204056372	MB for batch 1776477	40	23	77	75	73	74
1204056373	LCS for batch 1776477	47	28	77	75	91	82
453084008	WSTMO-18-155067	7 *	7 *	5 *	8 *	6 *	8 *
1204056374	WSTMO-18-155067MS	29	31	23 *	31 *	28 *	29 *
1204056375	WSTMO-18-155067MSD	12 *	16	4 *	12 *	5 *	15 *
453084012	WSTMO-18-155068	1 *	1 *	2 *	2 *	1 *	2 *

Surrogate		Acceptance Limits
2FP	= 2-Fluorophenol	(15%-88%)
PHL	= Phenol-d5	(15%-91%)
NBZ	= Nitrobenzene-d5	(36%-115%)
FBP	= 2-Fluorobiphenyl	(32%-112%)
TBP	= 2,4,6-Tribromophenol	(32%-124%)
TPH	= p-Terphenyl-d14	(36%-121%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **LCS for batch 1776477**
Lab Sample ID **1204056373**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/25/2018 15:40**
Dilution: 1
Prep Batch ID: **1776477**
Batch ID: **1776478**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylamine	50.0	0.0	22.3	45	30-88
108-95-2	LCS	Phenol	50.0	0.0	14.7	29	16-82
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	37.8	76	51-111
108-60-1	LCS	bis(2-Chloro-1-methylethyl)ether	50.0	0.0	35.4	71	44-123
67-72-1	LCS	Hexachloroethane	50.0	0.0	30.3	61	36-96
98-95-3	LCS	Nitrobenzene	50.0	0.0	41.3	83	53-115
78-59-1	LCS	Isophorone	50.0	0.0	36.4	73	56-117
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	41.9	84	53-109
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	31.1	62	35-98
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	33.5	67	42-103
91-20-3	LCS	Naphthalene	50.0	0.0	34.2	68	44-102
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	37.4	75	45-108
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	24.2	48	34-89
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	42.3	85	55-120
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	42.6	85	55-116
131-11-3	LCS	Dimethylphthalate	50.0	0.0	45.9	92	60-122
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	47.2	94	59-122
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	48.7	97	57-124
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	47.0	94	34-122
84-66-2	LCS	Diethylphthalate	50.0	0.0	46.6	93	57-122
86-73-7	LCS	Fluorene	50.0	0.0	41.1	82	52-114
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	47.9	96	45-124

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **LCS for batch 1776477**
Lab Sample ID **1204056373**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/25/2018 15:40**
Prep Batch ID: **1776477**
Batch ID: **1776478**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
122-39-4	LCS	Diphenylamine	50.0	0.0	37.0	74	55-113
122-66-7	LCS	1,2-Diphenylhydrazine	50.0	0.0	37.1	74	53-115
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	39.1	78	54-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	47.9	96	41-116
85-01-8	LCS	Phenanthrene	50.0	0.0	40.3	81	55-110
120-12-7	LCS	Anthracene	50.0	0.0	40.0	80	56-112
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	45.6	91	57-123
206-44-0	LCS	Fluoranthene	50.0	0.0	44.9	90	54-118
129-00-0	LCS	Pyrene	50.0	0.0	34.1	68	49-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	43.8	88	52-125
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	40.1	80	41-118
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	40.3	81	42-121
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	41.0	82	40-118
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	40.4	81	54-113
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	38.5	77	44-102
92-87-5	LCS	Benzidine	100	0.0	115	115	20-144
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	58.3	117	43-127

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **WSTMO-18-155067MS**
Lab Sample ID **1204056374**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **06/25/2018 18:14**
Prep Batch ID: **1776477**
Batch ID: **1776478**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylamine	133	0.00	U	49.1	37	25-106
108-95-2	MS	Phenol	133	0.00	U	46.3	35	23-82
111-44-4	MS	bis(2-Chloroethyl) ether	133	0.00	U	27.3	20 *	39-114
108-60-1	MS	bis(2-Chloro-1-methylethyl)ether	133	0.00	U	27.9	21 *	32-127
67-72-1	MS	Hexachloroethane	133	0.00	U	27.1	20 *	29-94
98-95-3	MS	Nitrobenzene	133	0.00	U	42.1	32 *	38-123
78-59-1	MS	Isophorone	133	0.00	U	26.4	20 *	43-120
120-83-2	MS	2,4-Dichlorophenol	133	0.00	U	32.2	24 *	40-111
87-68-3	MS	Hexachlorobutadiene	133	0.00	U	37.1	28	26-98
91-57-6	MS	2-Methylnaphthalene	133	0.00	U	29.2	22 *	29-109
91-20-3	MS	Naphthalene	133	0.00	U	27.0	20 *	31-108
90-12-0	MS	1-Methylnaphthalene	133	0.00	U	33.1	25 *	33-112
77-47-4	MS	Hexachlorocyclopentadiene	133	0.00	U	12.1	9 *	26-79
88-06-2	MS	2,4,6-Trichlorophenol	133	0.00	U	31.6	24 *	39-124
95-95-4	MS	2,4,5-Trichlorophenol	133	0.00	U	35.4	27 *	42-120
131-11-3	MS	Dimethylphthalate	133	0.00	U	35.7	27 *	45-128
606-20-2	MS	2,6-Dinitrotoluene	133	0.00	U	36.8	28 *	46-124
121-14-2	MS	2,4-Dinitrotoluene	133	0.00	U	39.2	29 *	45-125
51-28-5	MS	2,4-Dinitrophenol	133	0.00	U	0.00	0 *	27-122
84-66-2	MS	Diethylphthalate	133	0.00	U	38.2	29 *	43-127
86-73-7	MS	Fluorene	133	0.00	U	42.8	32 *	39-117
534-52-1	MS	2-Methyl-4,6-dinitrophenol	133	0.00	U	38.1	29 *	32-126

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **WSTMO-18-155067MS**
Lab Sample ID **1204056374**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **06/25/2018 18:14**
Prep Batch ID: **1776477**
Batch ID: **1776478**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
122-39-4	MS	Diphenylamine	133	0.00	U	32.6	24 *	37-118
122-66-7	MS	1,2-Diphenylhydrazine	133	0.00	U	40.7	31 *	38-120
118-74-1	MS	Hexachlorobenzene	133	0.00	U	37.1	28 *	40-118
87-86-5	MS	Pentachlorophenol	133	0.00	U	43.0	32 *	35-121
85-01-8	MS	Phenanthrene	133	0.00	U	42.7	32 *	40-115
120-12-7	MS	Anthracene	133	0.00	U	42.7	32 *	38-120
84-74-2	MS	Di-n-butylphthalate	133	0.00	U	36.1	27 *	41-128
206-44-0	MS	Fluoranthene	133	0.00	U	43.1	32 *	41-119
129-00-0	MS	Pyrene	133	0.00	U	29.8	22 *	35-128
117-81-7	MS	bis(2-Ethylhexyl)phthalate	133	0.00	U	36.4	27 *	38-131
205-99-2	MS	Benzo(b)fluoranthene	133	0.00	U	33.4	25 *	31-122
207-08-9	MS	Benzo(k)fluoranthene	133	0.00	U	35.0	26 *	33-123
50-32-8	MS	Benzo(a)pyrene	133	0.00	U	34.6	26 *	32-118
930-55-2	MS	N-Nitrosopyrrolidine	133	0.00	U	47.5	36 *	47-119
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	133	0.00	U	40.7	31 *	32-101
92-87-5	MS	Benzidine	267	0.00	U	0.00	0 *	15-130
91-94-1	MS	3,3'-Dichlorobenzidine	133	0.00	U	0.00	0 *	34-124

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **WSTMO-18-155067MSD**
Lab Sample ID **1204056375**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **06/25/2018 18:45**
Prep Batch ID: **1776477**
Batch ID: **1776478**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylamine	133	0.00	U	32.2	24 *	25-106	42 *	0-30
108-95-2	MSD	Phenol	133	0.00	U	22.6	17 *	23-82	69 *	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	133	0.00	U	0.00	0 *	39-114	200 *	0-30
108-60-1	MSD	bis(2-Chloro-1-methylethyl)ether	133	0.00	U	0.00	0 *	32-127	200 *	0-30
67-72-1	MSD	Hexachloroethane	133	0.00	U	0.00	0 *	29-94	200 *	0-30
98-95-3	MSD	Nitrobenzene	133	0.00	U	16.5	12 *	38-123	87 *	0-30
78-59-1	MSD	Isophorone	133	0.00	U	0.00	0 *	43-120	200 *	0-30
120-83-2	MSD	2,4-Dichlorophenol	133	0.00	U	0.00	0 *	40-111	200 *	0-30
87-68-3	MSD	Hexachlorobutadiene	133	0.00	U	15.3	11 *	26-98	84 *	0-30
91-57-6	MSD	2-Methylnaphthalene	133	0.00	U	7.68	6 *	29-109	117 *	0-30
91-20-3	MSD	Naphthalene	133	0.00	U	4.99	4 *	31-108	138 *	0-30
90-12-0	MSD	1-Methylnaphthalene	133	0.00	U	8.40	6 *	33-112	119 *	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	133	0.00	U	0.00	0 *	26-79	200 *	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	133	0.00	U	0.00	0 *	39-124	200 *	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	133	0.00	U	0.00	0 *	42-120	200 *	0-30
131-11-3	MSD	Dimethylphthalate	133	0.00	U	5.97	4 *	45-128	143 *	0-30
606-20-2	MSD	2,6-Dinitrotoluene	133	0.00	U	0.00	0 *	46-124	200 *	0-30
121-14-2	MSD	2,4-Dinitrotoluene	133	0.00	U	0.00	0 *	45-125	200 *	0-30
51-28-5	MSD	2,4-Dinitrophenol	133	0.00	U	0.00	0 *	27-122	0	0-30
84-66-2	MSD	Diethylphthalate	133	0.00	U	6.29	5 *	43-127	143 *	0-30
86-73-7	MSD	Fluorene	133	0.00	U	15.5	12 *	39-117	94 *	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	133	0.00	U	0.00	0 *	32-126	200 *	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **WSTMO-18-155067MSD**
Lab Sample ID **1204056375**
Instrument: **MSD1.I**
Analyst: **JMB3**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **06/25/2018 18:45**
Prep Batch ID: **1776477**
Batch ID: **1776478**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
122-39-4	MSD	Diphenylamine	133	0.00	U	0.00	0 *	37-118	200 *	0-30
122-66-7	MSD	1,2-Diphenylhydrazine	133	0.00	U	15.1	11 *	38-120	92 *	0-30
118-74-1	MSD	Hexachlorobenzene	133	0.00	U	11.8	9 *	40-118	103 *	0-30
87-86-5	MSD	Pentachlorophenol	133	0.00	U	11.9	9 *	35-121	113 *	0-30
85-01-8	MSD	Phenanthrene	133	0.00	U	16.9	13 *	40-115	87 *	0-30
120-12-7	MSD	Anthracene	133	0.00	U	15.2	11 *	38-120	95 *	0-30
84-74-2	MSD	Di-n-butylphthalate	133	0.00	U	12.7	10 *	41-128	96 *	0-30
206-44-0	MSD	Fluoranthene	133	0.00	U	15.4	12 *	41-119	95 *	0-30
129-00-0	MSD	Pyrene	133	0.00	U	11.8	9 *	35-128	87 *	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	133	0.00	U	8.29	6 *	38-131	126 *	0-30
205-99-2	MSD	Benzo(b)fluoranthene	133	0.00	U	7.28	5 *	31-122	128 *	0-30
207-08-9	MSD	Benzo(k)fluoranthene	133	0.00	U	8.56	6 *	33-123	121 *	0-30
50-32-8	MSD	Benzo(a)pyrene	133	0.00	U	7.95	6 *	32-118	125 *	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	133	0.00	U	21.8	16 *	47-119	74 *	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	133	0.00	U	14.2	11 *	32-101	97 *	0-30
92-87-5	MSD	Benzidine	267	0.00	U	24.8	9 *	15-130	200 *	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	133	0.00	U	0.00	0 *	34-124	0	0-30

Method Blank Summary

SDG Number:	**2018-2760**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1776477**	**Instrument ID:**	**MSD1.I**	**Data File:**	**s062518.B\s1f2511.D**
Lab Sample ID:	**1204056372**	**Prep Date:**	**06/25/2018 09:32**	**Analyzed:**	**06/25/18 15:09**
Column:	**25x.20x.33**				

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 1776477	1204056373	s062518.B\s1f2512.D	06/25/18	1540
02	WSTMO-18-155067	453084008	s062518.B\s1f2516.D	06/25/18	1743
03	WSTMO-18-155067MS	1204056374	s062518.B\s1f2517.D	06/25/18	1814
04	WSTMO-18-155067MSD	1204056375	s062518.B\s1f2518.D	06/25/18	1845
05	WSTMO-18-155068	453084012	s062518.B\s1f2533.D	06/26/18	0552

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204056372**				
Client Sample:	**QC for batch 1776477**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776477**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776478**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 15:09**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:32**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.B\s1f2511.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.00	ug/L	3.00	10.0
122-66-7	1,2-Diphenylhydrazine	U	3.00	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
95-95-4	2,4,5-Trichlorophenol	U	3.00	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	3.00	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	3.00	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol	U	5.00	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.00	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
91-94-1	3,3'-Dichlorobenzidine	U	3.00	ug/L	3.00	10.0
120-12-7	Anthracene	U	0.300	ug/L	0.300	1.00
92-87-5	Benzidine	U	3.90	ug/L	3.90	10.0
50-32-8	Benzo(a)pyrene	U	0.300	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene	U	0.300	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	0.300	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	0.300	ug/L	0.300	10.0
84-66-2	Diethylphthalate	U	0.300	ug/L	0.300	10.0
131-11-3	Dimethylphthalate	U	0.300	ug/L	0.300	10.0
122-39-4	Diphenylamine	U	3.00	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	0.300	ug/L	0.300	1.00
86-73-7	Fluorene	U	0.300	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene	U	3.00	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	3.00	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene	U	3.00	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	3.00	ug/L	3.00	10.0
78-59-1	Isophorone	U	3.50	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.00	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	3.00	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	3.00	ug/L	3.00	10.0
91-20-3	Naphthalene	U	0.300	ug/L	0.300	1.00
98-95-3	Nitrobenzene	U	3.00	ug/L	3.00	10.0
	PAHs(total naphthalene plus monomethylnaphthalenes)	U		ug/L		
608-93-5	Pentachlorobenzene	U	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	3.00	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	0.300	ug/L	0.300	1.00

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204056372**				
Client Sample:	**QC for batch 1776477**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776477**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776478**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 15:09**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:32**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.B\s1f2511.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol	U	3.00	ug/L	3.00	10.0
129-00-0	Pyrene	U	0.300	ug/L	0.300	1.00
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.00	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	3.00	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	72.6	100	ug/L	73	(32%-124%)
2-Fluorobiphenyl	37.4	50.0	ug/L	75	(32%-112%)
2-Fluorophenol	39.5	100	ug/L	40	(15%-88%)
Nitrobenzene-d5	38.4	50.0	ug/L	77	(36%-115%)
Phenol-d5	23.1	100	ug/L	23	(15%-91%)
p-Terphenyl-d14	37.0	50.0	ug/L	74	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204056373**				
Client Sample:	**QC for batch 1776477**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776477**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776478**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 15:40**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:32**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.B\s1f2512.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		38.5	ug/L	3.00	10.0
122-66-7	1,2-Diphenylhydrazine		37.1	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene		37.4	ug/L	0.300	1.00
95-95-4	2,4,5-Trichlorophenol		42.6	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		42.3	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		41.9	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol		47.0	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene		48.7	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		47.2	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol		47.9	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		33.5	ug/L	0.300	1.00
91-94-1	3,3'-Dichlorobenzidine		58.3	ug/L	3.00	10.0
120-12-7	Anthracene		40.0	ug/L	0.300	1.00
92-87-5	Benzidine		115	ug/L	3.90	10.0
50-32-8	Benzo(a)pyrene		41.0	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene		40.1	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		40.3	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		45.6	ug/L	0.300	10.0
84-66-2	Diethylphthalate		46.6	ug/L	0.300	10.0
131-11-3	Dimethylphthalate		45.9	ug/L	0.300	10.0
122-39-4	Diphenylamine		37.0	ug/L	3.00	10.0
206-44-0	Fluoranthene		44.9	ug/L	0.300	1.00
86-73-7	Fluorene		41.1	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene		39.1	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		31.1	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene		24.2	ug/L	3.00	10.0
67-72-1	Hexachloroethane		30.3	ug/L	3.00	10.0
78-59-1	Isophorone		36.4	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine		22.3	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	3.00	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		40.4	ug/L	3.00	10.0
91-20-3	Naphthalene		34.2	ug/L	0.300	1.00
98-95-3	Nitrobenzene		41.3	ug/L	3.00	10.0
	PAHs(total naphthalene plus monomethylnaphthalenes)		386	ug/L		
608-93-5	Pentachlorobenzene	U	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		47.9	ug/L	3.00	10.0
85-01-8	Phenanthrene		40.3	ug/L	0.300	1.00

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204056373**				
Client Sample:	**QC for batch 1776477**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776477**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776478**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 15:40**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:32**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.B\s1f2512.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol		14.7	ug/L	3.00	10.0
129-00-0	Pyrene		34.1	ug/L	0.300	1.00
108-60-1	bis(2-Chloro-1-methylethyl)ether		35.4	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		37.8	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		43.8	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	90.7	100	ug/L	91	(32%-124%)
2-Fluorobiphenyl	37.6	50.0	ug/L	75	(32%-112%)
2-Fluorophenol	46.6	100	ug/L	47	(15%-88%)
Nitrobenzene-d5	38.6	50.0	ug/L	77	(36%-115%)
Phenol-d5	27.7	100	ug/L	28	(15%-91%)
p-Terphenyl-d14	40.9	50.0	ug/L	82	(36%-121%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1204056374**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**QC for batch 1776477**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155067MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776478**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 18:14**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:32**	**Aliquot:**	**375 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.B\s1f2517.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		40.7	ug/L	8.00	26.7
122-66-7	1,2-Diphenylhydrazine		40.7	ug/L	8.00	26.7
90-12-0	1-Methylnaphthalene		33.1	ug/L	0.800	2.67
95-95-4	2,4,5-Trichlorophenol		35.4	ug/L	8.00	26.7
88-06-2	2,4,6-Trichlorophenol		31.6	ug/L	8.00	26.7
120-83-2	2,4-Dichlorophenol		32.2	ug/L	8.00	26.7
51-28-5	2,4-Dinitrophenol	U	13.3	ug/L	13.3	53.3
121-14-2	2,4-Dinitrotoluene		39.2	ug/L	8.00	26.7
606-20-2	2,6-Dinitrotoluene		36.8	ug/L	8.00	26.7
534-52-1	2-Methyl-4,6-dinitrophenol		38.1	ug/L	8.00	26.7
91-57-6	2-Methylnaphthalene		29.2	ug/L	0.800	2.67
91-94-1	3,3'-Dichlorobenzidine	U	8.00	ug/L	8.00	26.7
120-12-7	Anthracene		42.7	ug/L	0.800	2.67
92-87-5	Benzidine	U	10.4	ug/L	10.4	26.7
50-32-8	Benzo(a)pyrene		34.6	ug/L	0.800	2.67
205-99-2	Benzo(b)fluoranthene		33.4	ug/L	0.800	2.67
207-08-9	Benzo(k)fluoranthene		35.0	ug/L	0.800	2.67
84-74-2	Di-n-butylphthalate		36.1	ug/L	0.800	26.7
84-66-2	Diethylphthalate		38.2	ug/L	0.800	26.7
131-11-3	Dimethylphthalate		35.7	ug/L	0.800	26.7
122-39-4	Diphenylamine		32.6	ug/L	8.00	26.7
206-44-0	Fluoranthene		43.1	ug/L	0.800	2.67
86-73-7	Fluorene		42.8	ug/L	0.800	2.67
118-74-1	Hexachlorobenzene		37.1	ug/L	8.00	26.7
87-68-3	Hexachlorobutadiene		37.1	ug/L	8.00	26.7
77-47-4	Hexachlorocyclopentadiene	J	12.1	ug/L	8.00	26.7
67-72-1	Hexachloroethane		27.1	ug/L	8.00	26.7
78-59-1	Isophorone	J	26.4	ug/L	9.33	26.7
62-75-9	N-Methyl-N-nitrosomethylamine		49.1	ug/L	8.00	26.7
924-16-3	N-Nitrosodi-n-butylamine	U	8.00	ug/L	8.00	26.7
55-18-5	N-Nitrosodiethylamine	U	8.00	ug/L	8.00	26.7
930-55-2	N-Nitrosopyrrolidine		47.5	ug/L	8.00	26.7
91-20-3	Naphthalene		27.0	ug/L	0.800	2.67
98-95-3	Nitrobenzene		42.1	ug/L	8.00	26.7
	PAHs(total naphthalene plus monomethylnaphthalenes)		359	ug/L		
608-93-5	Pentachlorobenzene	U	8.00	ug/L	8.00	26.7
87-86-5	Pentachlorophenol		43.0	ug/L	8.00	26.7
85-01-8	Phenanthrene		42.7	ug/L	0.800	2.67

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1204056374**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**QC for batch 1776477**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155067MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776478**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 18:14**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:32**	**Aliquot:**	**375 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.B\s1f2517.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol		46.3	ug/L	8.00	26.7
129-00-0	Pyrene		29.8	ug/L	0.800	2.67
108-60-1	bis(2-Chloro-1-methylethyl)ether		27.9	ug/L	8.00	26.7
111-44-4	bis(2-Chloroethyl) ether		27.3	ug/L	8.00	26.7
117-81-7	bis(2-Ethylhexyl)phthalate		36.4	ug/L	0.800	2.67

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
2,4,6-Tribromophenol	75.9	267	ug/L	28	*	(32%-124%)
2-Fluorobiphenyl	41.0	133	ug/L	31	*	(32%-112%)
2-Fluorophenol	76.5	267	ug/L	29		(15%-88%)
Nitrobenzene-d5	31.1	133	ug/L	23	*	(36%-115%)
Phenol-d5	83.2	267	ug/L	31		(15%-91%)
p-Terphenyl-d14	39.0	133	ug/L	29	*	(36%-121%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1204056375**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**QC for batch 1776477**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155067MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776478**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 18:45**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:32**	**Aliquot:**	**375 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.B\s1f2518.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	J	14.2	ug/L	8.00	26.7
122-66-7	1,2-Diphenylhydrazine	J	15.1	ug/L	8.00	26.7
90-12-0	1-Methylnaphthalene		8.40	ug/L	0.800	2.67
95-95-4	2,4,5-Trichlorophenol	U	8.00	ug/L	8.00	26.7
88-06-2	2,4,6-Trichlorophenol	U	8.00	ug/L	8.00	26.7
120-83-2	2,4-Dichlorophenol	U	8.00	ug/L	8.00	26.7
51-28-5	2,4-Dinitrophenol	U	13.3	ug/L	13.3	53.3
121-14-2	2,4-Dinitrotoluene	U	8.00	ug/L	8.00	26.7
606-20-2	2,6-Dinitrotoluene	U	8.00	ug/L	8.00	26.7
534-52-1	2-Methyl-4,6-dinitrophenol	U	8.00	ug/L	8.00	26.7
91-57-6	2-Methylnaphthalene		7.68	ug/L	0.800	2.67
91-94-1	3,3'-Dichlorobenzidine	U	8.00	ug/L	8.00	26.7
120-12-7	Anthracene		15.2	ug/L	0.800	2.67
92-87-5	Benzidine	J	24.8	ug/L	10.4	26.7
50-32-8	Benzo(a)pyrene		7.95	ug/L	0.800	2.67
205-99-2	Benzo(b)fluoranthene		7.28	ug/L	0.800	2.67
207-08-9	Benzo(k)fluoranthene		8.56	ug/L	0.800	2.67
84-74-2	Di-n-butylphthalate	J	12.7	ug/L	0.800	26.7
84-66-2	Diethylphthalate	J	6.29	ug/L	0.800	26.7
131-11-3	Dimethylphthalate	J	5.97	ug/L	0.800	26.7
122-39-4	Diphenylamine	U	8.00	ug/L	8.00	26.7
206-44-0	Fluoranthene		15.4	ug/L	0.800	2.67
86-73-7	Fluorene		15.5	ug/L	0.800	2.67
118-74-1	Hexachlorobenzene	J	11.8	ug/L	8.00	26.7
87-68-3	Hexachlorobutadiene	J	15.3	ug/L	8.00	26.7
77-47-4	Hexachlorocyclopentadiene	U	8.00	ug/L	8.00	26.7
67-72-1	Hexachloroethane	U	8.00	ug/L	8.00	26.7
78-59-1	Isophorone	U	9.33	ug/L	9.33	26.7
62-75-9	N-Methyl-N-nitrosomethylamine		32.2	ug/L	8.00	26.7
924-16-3	N-Nitrosodi-n-butylamine	U	8.00	ug/L	8.00	26.7
55-18-5	N-Nitrosodiethylamine	U	8.00	ug/L	8.00	26.7
930-55-2	N-Nitrosopyrrolidine	J	21.8	ug/L	8.00	26.7
91-20-3	Naphthalene		4.99	ug/L	0.800	2.67
98-95-3	Nitrobenzene	J	16.5	ug/L	8.00	26.7
	PAHs(total naphthalene plus monomethylnaphthalenes)		112	ug/L		
608-93-5	Pentachlorobenzene	U	8.00	ug/L	8.00	26.7
87-86-5	Pentachlorophenol	J	11.9	ug/L	8.00	26.7
85-01-8	Phenanthrene		16.9	ug/L	0.800	2.67

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1204056375**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**QC for batch 1776477**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155067MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776478**	**Inst:**	**MSD1.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 18:45**	**Analyst:**	**JMB3**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:32**	**Aliquot:**	**375 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.B\s1f2518.D**	**Column:**	**25x.20x.33**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol	J	22.6	ug/L	8.00	26.7
129-00-0	Pyrene		11.8	ug/L	0.800	2.67
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	8.00	ug/L	8.00	26.7
111-44-4	bis(2-Chloroethyl) ether	U	8.00	ug/L	8.00	26.7
117-81-7	bis(2-Ethylhexyl)phthalate		8.29	ug/L	0.800	2.67

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
2,4,6-Tribromophenol	26.7	267	ug/L	5	*	(32%-124%)
2-Fluorobiphenyl	26.7	133	ug/L	12	*	(32%-112%)
2-Fluorophenol	31.9	267	ug/L	12	*	(15%-88%)
Nitrobenzene-d5	26.7	133	ug/L	4	*	(36%-115%)
Phenol-d5	43.7	267	ug/L	16		(15%-91%)
p-Terphenyl-d14	26.7	133	ug/L	15	*	(36%-121%)

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorates by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2760
Work Order #: 453084

Product: **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method: SW-846:6850
Analytical Procedure: GL-OA-E-067 REV# 14
Analytical Batches: 1776420 and 1776413

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453084006	WSTMO-18-155067
453084010	WSTMO-18-155068
1204056226	Method Blank (MB)
1204056227	Laboratory Control Sample (LCS)
1204056228	452995006(WSTMO-18-155066) Matrix Spike (MS)
1204056229	452995006(WSTMO-18-155066) Matrix Spike Duplicate (MSD)
1204056230	Interference Check Sample (ICS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Matrix Spike (MS) Recovery Statement
In sample 1204056228 (MS) there was a 194% recovery for Perchlorate and 177% recovery for Perchlorate-101. In sample 1204056299 (MSD) there was a 186% recovery for Perchlorate and 376% recovery for Perchlorate-101. The acceptance range is 75-125%. The failure in the matrix spike was due to the background concentration in the parent sample, 2018-2748 (WSTMO-18-155066) and the need to dilute the sample at a 1:5 ratio. The LCS and ICS were within the acceptance ranges. 1204056228 (WSTMO-18-155066MS) and 1204056229 (WSTMO-18-155066MSD).

Technical Information

Sample Dilutions
Samples 1204056228 (WSTMO-18-155066MS), 1204056229 (WSTMO-18-155066MSD), 453084006 (WSTMO-18-155067) and 453084010 (WSTMO-18-155068) were diluted to bring the over range concentrations within the calibration range.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2760 GEL Work Order: 453084

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Charles W. Wilson Jr. **Name: Charles Wilson**

Date: 27 JUN 2018 **Title: Analyst II**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
WSTMO-18-155067

Date Received: 22-JUN-18

GEL Job No (SDG): 2018-2760

GEL Sample ID: 453084006

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.5	2	10.1	ug/L		10	26-JUN-18 19:30	per0626020a
	Perchlorate Isotope Ratio			3.03			10	26-JUN-18 19:30	per0626020a
14797-73-0	Perchlorate-101	.5	2	10.0	ug/L		10	26-JUN-18 19:30	per0626020a
	Perchlorate-O(18)			4.18	ug/L		10	26-JUN-18 19:30	per0626020a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
WSTMO-18-155068

Date Received: 22-JUN-18

GEL Job No (SDG): 2018-2760

GEL Sample ID: 453084010

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.1	.4	3.05	ug/L		2	26-JUN-18 19:40	per0626021a
	Perchlorate Isotope Ratio			3.04			2	26-JUN-18 19:40	per0626021a
14797-73-0	Perchlorate-101	.1	.4	3.02	ug/L		2	26-JUN-18 19:40	per0626021a
	Perchlorate-O(18)			0.704	ug/L		2	26-JUN-18 19:40	per0626021a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2018-2760

Extract Batch Code: 1776413

Date Filtered: 22-JUN-18

Matrix: WATER

Sample ID: 1204056227

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.2	ug/L	100		85 - 115
Perchlorate Isotope Ratio		3.11				-
Perchlorate-101	0.200	.193	ug/L	97		85 - 115
Perchlorate-O(18)		.505	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Interference Check Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2018-2760

Extract Batch Code: 1776413

Date Filtered: 22-JUN-18

Matrix: WATER

Sample ID: 1204056230

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.201	ug/L	100		70 - 130
Perchlorate Isotope Ratio		2.95				
Perchlorate-101	0.200	.204	ug/L	102		70 - 130
Perchlorate-O(18)		.512	ug/L			

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2018-2760

Extract Batch Code: 1776413

Date Extracted: 22-JUN-18

GEL MS/PS ID: 1204056228

Client ID: WSTMO-18-155066

GEL MSD/PSD ID: 1204056229

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Recovery Limit
Perchlorate	0.200	6.25	ug/L	6.64	194	*	6.62	186	*	0		30	75 - 125
Perchlorate Isotope Ratio	0	3.17		3.18			2.98			6			-
Perchlorate-101	0.200	5.92	ug/L	6.28	177	*	6.67	376	*	6		30	75 - 125
Perchlorate-O(18)	0	2.29	ug/L	2.03			2.13			5			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate RT And Area Summary

Lab Name: General Engineering Laboratories
Lab Code: GEL
HPLC Column: Dionex IonPac AG16
GEL Job No.(SDG): 2018-2760
Instrument : LCMSMS2

Initial Calibration:

DataFile	Run Dates	Area
per0626003a	26-JUN-18 16:41	6821.99
per0626004a	26-JUN-18 16:51	6877.45
per0626005a	26-JUN-18 17:01	7069.14
per0626006a	26-JUN-18 17:11	6613.31
per0626007a	26-JUN-18 17:21	6817.66
per0626008a	26-JUN-18 17:31	6696.58

Initial Calibration Average Area: **6816.02**
Lower Area Limit: **3408.01**
Upper Area Limit: **10224.03**

Sample ID	Sample DataFile	Sample Run Date	Area	RT	RT CLO4	RRT	Q 0.98-1.02
1204056226	per0626013a	26-JUN-18 18:21	7026.53	3.45			
1204056227	per0626014a	26-JUN-18 18:31	6885.42	3.45	3.48183	1.009	
1204056230	per0626015a	26-JUN-18 18:41	6978.67	3.45	3.48183	1.009	
1204056228	per0626017a	26-JUN-18 19:00	5534.73	3.43	3.45418	1.007	
1204056229	per0626018a	26-JUN-18 19:10	5796.56	3.4	3.42667	1.008	
453084006	per0626020a	26-JUN-18 19:30	5695.4	3.43	3.45418	1.007	
453084010	per0626021a	26-JUN-18 19:40	4797.53	3.21	3.23352	1.007	

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 22-JUN-18

GEL Job No (SDG): 2018-2760

GEL Sample ID: 1204056226

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	26-JUN-18 18:21	per0626013a
	Perchlorate Isotope Ratio						1	26-JUN-18 18:21	per0626013a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	26-JUN-18 18:21	per0626013a
	Perchlorate-O(18)			0.515	ug/L		1	26-JUN-18 18:21	per0626013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 22-JUN-18

GEL Job No (SDG): 2018-2760

GEL Sample ID: 1204056227

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.200	ug/L	J	1	26-JUN-18 18:31	per0626014a
	Perchlorate Isotope Ratio			3.11			1	26-JUN-18 18:31	per0626014a
14797-73-0	Perchlorate-101	.05	.2	0.193	ug/L	J	1	26-JUN-18 18:31	per0626014a
	Perchlorate-O(18)			0.505	ug/L		1	26-JUN-18 18:31	per0626014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2018-2760

GEL Sample ID: 1204056230

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.201	ug/L		1	26-JUN-18 18:41	per0626015a
	Perchlorate Isotope Ratio			2.95			1	26-JUN-18 18:41	per0626015a
14797-73-0	Perchlorate-101	.05	.2	0.204	ug/L		1	26-JUN-18 18:41	per0626015a
	Perchlorate-O(18)			0.512	ug/L		1	26-JUN-18 18:41	per0626015a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
WSTMO-18-155066MS

Date Received: 21-JUN-18

GEL Job No (SDG): 2018-2760

GEL Sample ID: 1204056228

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.25	1	6.64	ug/L		5	26-JUN-18 19:00	per0626017a
	Perchlorate Isotope Ratio			3.18			5	26-JUN-18 19:00	per0626017a
14797-73-0	Perchlorate-101	.25	1	6.28	ug/L		5	26-JUN-18 19:00	per0626017a
	Perchlorate-O(18)			2.03	ug/L		5	26-JUN-18 19:00	per0626017a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
WSTMO-18-155066MSD

Date Received: 21-JUN-18

GEL Job No (SDG): 2018-2760

GEL Sample ID: 1204056229

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.25	1	6.62	ug/L		5	26-JUN-18 19:10	per0626018a
	Perchlorate Isotope Ratio			2.98			5	26-JUN-18 19:10	per0626018a
14797-73-0	Perchlorate-101	.25	1	6.67	ug/L		5	26-JUN-18 19:10	per0626018a
	Perchlorate-O(18)			2.13	ug/L		5	26-JUN-18 19:10	per0626018a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Explosives by LCMSMS Analysis

Case Narrative

Explosives by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2760
Work Order #: 453084

Product: **The Processing, Extraction, and Analysis of Nitroaromatics, Nitroamines, and Nitrate Esters by SW-846 8330B**
Analytical Method: SW846 3535A/8330B
Analytical Procedure: GL-OA-E-068 REV# 7
Analytical Batch: 1776332

Preparation Method: SW846 3535A
Preparation Procedure: GL-OA-E-033 REV# 23
Preparation Batch: 1776330

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453084009	WSTMO-18-155067
453084013	WSTMO-18-155068
1204056038	Method Blank (MB)
1204056039	Laboratory Control Sample (LCS)
1204056040	452995013(WSTMO-18-155069) Matrix Spike (MS)
1204056041	452995013(WSTMO-18-155069) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Surrogate Recoveries
(See Below) did not meet surrogate recovery limits. While the Surrogate exhibited a high bias, target analytes were not detected in the associated sample. The data are reported.

Sample	Analyte	Value
453084013 (WSTMO-18-155068)	3, 4-Dinitrotoluene	117* (55%-115%)

Technical Information

Sample Dilutions
In accordance with GEL SOP GL-OA-056, all sample and QC extracts are diluted 1:1 v/v with LC reagent grade Water.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2760 GEL Work Order: 453084

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jannie Shaw - Busby **Name: Jannie Shaw-Busby**

Date: 08 JUL 2018 **Title: Senior Chemist**

Sample Data Summary

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: WSTMO-18-155067

Lab Code: GEL

GEL Job No (SDG) 2018-2760

Matrix: WATER

GEL Sample ID: 453084009

Sample Amount 870 mL

Date Received: 22-JUN-18

Moisture:

Extraction Batch ID: 1776330

Extraction Type Sol Exchange

Date Extracted: 22-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629052.wiff

Date Analyzed: 01-JUL-18 03:29

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.092	U	0.092	0.287
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	.092	U	0.092	0.287
121-82-4	*RDX*				
2691-41-0	HMX	.092	U	0.092	0.287
2691-41-0	*HMX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: WSTMO-18-155068

Lab Code: GEL

GEL Job No (SDG) 2018-2760

Matrix: WATER

GEL Sample ID: 453084013

Sample Amount 500 mL

Date Received: 22-JUN-18

Moisture:

Extraction Batch ID: 1776330

Extraction Type Sol Exchange

Date Extracted: 22-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629081.wiff

Date Analyzed: 01-JUL-18 20:40

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.16	U	0.160	0.500
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	.16	U	0.160	0.500
121-82-4	*RDX*				
2691-41-0	HMX	.16	U	0.160	0.500
2691-41-0	*HMX*				

Quality Control Summary

High Explosives Surrogate Recovery Summary

Lab Name: GEL Laboratories LLC **GEL Job No (SDG):** 2018-2760

Lab Code: GEL **HPLC Column:** Ultracarb Phenomenex 5u ODS (20)

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
453084009	WSTMO-18-155067	103	55 - 115	
453084013	WSTMO-18-155068	117	55 - 115	*
1204056038	MB for batch 1776330	108	55 - 115	
1204056039	LCS for batch 1776330	96	55 - 115	
1204056040	WSTMO-18-155069MS	104	55 - 115	
1204056041	WSTMO-18-155069MSD	109	55 - 115	

DNT = 3,4-Dinitrotoluene

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 2018-2760

Extract Batch Code: 1776330

Date Extracted: 22-JUN-18

GEL LCS ID: 1204056039

GEL LCSDUP ID:

Analysis Date/Time: 30-JUN-18 23:56

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec	#	LCSD Conc	LCSD Rec	#	RPD	#	RPD	Recovery Limits
2,4,6-Trinitrotoluene	5	4.33	87								69 - 113
HMX	5	4.85	97								58 - 113
RDX	5	4.67	93								64 - 117

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: WSTMO-18-155069

Lab Code: GEL

GEL Job No (SDG) 2018-2760

Extract Batch Code: 1776330

Date Extracted: 22-JUN-18

GEL Spike ID: 1204056040

GEL SpikeDup ID: 1204056041

Analysis Date/Time: 01-JUL-18 01:42

MSD Analysis Date/Time: 01-JUL-18 02:18

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Rec Limits
2,4,6-Trinitrotoluene	5.49451	0	4.39	80		5.06	92		14		30	66 - 112
HMX	5.49451	.0618	5.59	101		5.66	102		1		30	44 - 128
RDX	5.49451	0	4.24	77		5.42	99		25		30	57 - 125

#Column to be used to flag recovery and RPD values with an asterisk

Quality Control Data

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1776330

Lab Code: GEL

GEL Job No (SDG) 2018-2760

Matrix: WATER

GEL Sample ID: 1204056038

Sample Amount 1000 mL

Date Received: 22-JUN-18

Moisture:

Extraction Batch ID: 1776330

Extraction Type Sol Exchange

Date Extracted: 22-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629045.wiff

Date Analyzed: 30-JUN-18 23:20

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.08	U	0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	.08	U	0.080	0.250
121-82-4	*RDX*				
2691-41-0	HMX	.08	U	0.080	0.250
2691-41-0	*HMX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1776330

Lab Code: GEL

GEL Job No (SDG) 2018-2760

Matrix: WATER

GEL Sample ID: 1204056039

Sample Amount 1000 mL

Date Received: 22-JUN-18

Moisture:

Extraction Batch ID: 1776330

Extraction Type Sol Exchange

Date Extracted: 22-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629046.wiff

Date Analyzed: 30-JUN-18 23:56

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	4.33		0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	4.67		0.080	0.250
121-82-4	*RDX*				
2691-41-0	HMX	4.85		0.080	0.250
2691-41-0	*HMX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: WSTMO-18-155069(452995013MS)MS

Lab Code: GEL

GEL Job No (SDG) 2018-2760

Matrix: WATER

GEL Sample ID: 1204056040

Sample Amount 910 mL

Date Received: 22-JUN-18

Moisture:

Extraction Batch ID: 1776330

Extraction Type Sol Exchange

Date Extracted: 22-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629049.wiff

Date Analyzed: 01-JUL-18 01:42

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	4.24		0.0879	0.275
121-82-4	*RDX*				
118-96-7	2,4,6-Trinitrotoluene	4.39		0.0879	0.275
118-96-7	*2,4,6-Trinitrotoluene*				
2691-41-0	HMX	5.59		0.0879	0.275
2691-41-0	*HMX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: WSTMO-18-155069(452995013MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2018-2760

Matrix: WATER

GEL Sample ID: 1204056041

Sample Amount 910 mL

Date Received: 22-JUN-18

Moisture:

Extraction Batch ID: 1776330

Extraction Type Sol Exchange

Date Extracted: 22-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0629050.wiff

Date Analyzed: 01-JUL-18 02:18

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	5.06		0.0879	0.275
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	5.42		0.0879	0.275
121-82-4	*RDX*				
2691-41-0	HMX	5.66		0.0879	0.275
2691-41-0	*HMX*				

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2760

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 30-JUN-18 02:36

GEL Data File: EXP0629010.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2760

Lab Code: GEL

Lab Sample ID: XIBLK11

Analysis Date: 30-JUN-18 22:09

GEL Data File: EXP0629043.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2760

Lab Code: GEL

Lab Sample ID: XIBLK14

Analysis Date: 01-JUL-18 05:51

GEL Data File: EXP0629056.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2760

Lab Code: GEL

Lab Sample ID: XIBLK17

Analysis Date: 01-JUL-18 12:22

GEL Data File: EXP0629067.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2760

Lab Code: GEL

Lab Sample ID: XIBLK19

Analysis Date: 01-JUL-18 17:42

GEL Data File: EXP0629076.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2760

Lab Code: GEL

Lab Sample ID: XIBLK22

Analysis Date: 02-JUL-18 01:24

GEL Data File: EXP0629089.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

Pesticide Analysis

Case Narrative

GC Semivolatile Pesticide
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2760
Work Order #: 453084

Product: **Organochlorine Pesticides and Chlorinated Hydrocarbons**
Analytical Method: SW846 3535A/8081B
Analytical Procedure: GL-OA-E-041 REV# 19
Analytical Batch: 1776509

Preparation Method: SW846 3535A
Preparation Procedure: GL-OA-E-070 REV# 10
Preparation Batch: 1776506

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453084007	WSTMO-18-155067
453084011	WSTMO-18-155068
1204056441	Method Blank (MB)
1204056442	Laboratory Control Sample (LCS)
1204056443	453084007(WSTMO-18-155067) Matrix Spike (MS)
1204056444	453084007(WSTMO-18-155067) Matrix Spike Duplicate (MSD)
1204058467	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

Continuing Calibration Verification (CCV) Requirements
Calibration verification standards (ICV or CCV) requirements have not been met for samples 1204056443 (WSTMO-18-155067MS), 1204056444 (WSTMO-18-155067MSD), 453084007 (WSTMO-18-155067) and 453084011 (WSTMO-18-155068) in this batch in this SDG. The bracketing standard failed with a negative or positive bias for one or more target analytes. The affected samples were re-analyzed. The bracketing standard failed in a similar manner; therefore, the standard failure was attributed to sample matrix interference and the re-analyzed bracket was reported.

Quality Control (QC) Information

Surrogate Recoveries
Samples (See Below) failed to meet acceptance criteria for surrogate recovery. The same samples for PCB analysis failed surrogate recovery in the same manner; therefore, the failure is attributed to sample matrix interference.

Sample	Analyte	Value

453084011 (WSTMO-18-155068)	4cmx	19* (34%-109%)
	4cmx	29* (34%-109%)
	Decachlorobiphenyl	17* (34%-133%)
	Decachlorobiphenyl	26* (34%-133%)

Sample (See Below) failed to meet acceptance criteria for surrogate recovery. Since the MS/MSD and the parent sample displayed similar surrogate recovery, this failure was attributed to sample matrix interference.

Sample	Analyte	Value
1204056443 (WSTMO-18-155067MS)	Decachlorobiphenyl	31* (34%-133%)
1204056444 (WSTMO-18-155067MSD)	4cmx	20* (34%-109%)
	4cmx	30* (34%-109%)
	Decachlorobiphenyl	18* (34%-133%)
	Decachlorobiphenyl	22* (34%-133%)
453084007 (WSTMO-18-155067)	Decachlorobiphenyl	28* (34%-133%)

Matrix Spike (MS/MSD) Recovery Statement
The MS/MSD (See Below) did not meet spike recovery acceptance criteria. Methoxychlor failed low in both the MS and MSD, indicating possible matrix interference. The MSD failed multiple other compounds and may have been the result of a poor extraction or a heterogeneous matrix effect. The LCS passed the lab's SPC limits and the other MS/MSD pair extracted with the batch passed recovery limits.

Sample	Analyte	Value
1204056444 (WSTMO-18-155067MSD)	4, 4'-DDT	15* (24%-139%)
	Dieldrin	30* (40%-134%)
	Heptachlor	17* (27%-131%)
	trans-Chlordane	29* (33%-138%)

MS/MSD Relative Percent Difference (RPD) Statement
The MS/MSD (See Below) did not meet spike recovery acceptance criteria. Methoxychlor failed low in both the MS and MSD, indicating possible matrix interference. The MSD failed multiple other compounds and may have been the result of a poor extraction or a heterogeneous matrix effect. The LCS passed the lab's SPC limits and the other MS/MSD pair extracted with the batch passed recovery limits.

Sample	Analyte	Value
1204056443MS and 1204056444MSD (WSTMO-18-155067)	Several	See applicable report

<u>Technical Information</u>

Sample Dilutions
Samples 1204056443 (WSTMO-18-155067MS), 1204056444 (WSTMO-18-155067MSD), 453084007 (WSTMO-18-155067) and 453084011 (WSTMO-18-155068) were diluted due to high concentrations of non-target analytes within the retention time window of interest.

Miscellaneous Information

Manual Integrations
Samples (See Below) required manual integration to correctly position the baseline as set in the calibration standard injections.

Sample	Analyte	Value
1204056443 (WSTMO-18-155067MS)	Several	See applicable report
1204056444 (WSTMO-18-155067MSD)	Several	See applicable report
453084007 (WSTMO-18-155067)	Several	See applicable report
453084011 (WSTMO-18-155068)	Several	See applicable report

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2760 GEL Work Order: 453084

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Cameron Bearden **Name: Cameron Bearden**

Date: 28 JUN 2018 **Title: Group Leader**

Sample Data Summary

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**453084007**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**8081**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155067**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**2**
Run Date:	**06/27/2018 19:31**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**950 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62743.D**	**Column:**	**1 CLP**		
	062718B\E62743.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT	U	0.0211	ug/L	0.0211	0.0842	1
309-00-2	Aldrin	U	0.014	ug/L	0.014	0.0421	1
57-74-9	Chlordane	U	0.161	ug/L	0.161	0.526	1
60-57-1	Dieldrin	U	0.0211	ug/L	0.0211	0.0842	1
959-98-8	Endosulfan I	U	0.014	ug/L	0.014	0.0421	1
33213-65-9	Endosulfan II	U	0.0211	ug/L	0.0211	0.0842	1
72-20-8	Endrin	U	0.0211	ug/L	0.0211	0.0842	1
76-44-8	Heptachlor	U	0.014	ug/L	0.014	0.0421	1
8001-35-2	Toxaphene	U	0.316	ug/L	0.316	1.05	1
319-84-6	alpha-BHC	U	0.014	ug/L	0.014	0.0421	1
319-85-7	beta-BHC	U	0.014	ug/L	0.014	0.0421	1
5103-71-9	cis-Chlordane	U	0.014	ug/L	0.014	0.0421	1
58-89-9	gamma-BHC (Lindane)	U	0.014	ug/L	0.014	0.0421	1
5103-74-2	trans-Chlordane	U	0.014	ug/L	0.014	0.0421	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.426	1.05	ug/L	40		(34%-109%)
Decachlorobiphenyl	0.299	1.05	ug/L	28	*	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 08:35**	**Matrix:**	**W**
Lab Sample ID:	**453084011**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**8081**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155068**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**2**
Run Date:	**06/27/2018 20:28**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**820 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62746.D**	**Column:**	**1 CLP**		
	062718B\E62746.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT	U	0.0244	ug/L	0.0244	0.0976	1
309-00-2	Aldrin	U	0.0162	ug/L	0.0162	0.0488	1
57-74-9	Chlordane	U	0.187	ug/L	0.187	0.610	1
60-57-1	Dieldrin	U	0.0244	ug/L	0.0244	0.0976	1
959-98-8	Endosulfan I	U	0.0162	ug/L	0.0162	0.0488	1
33213-65-9	Endosulfan II	U	0.0244	ug/L	0.0244	0.0976	1
72-20-8	Endrin	U	0.0244	ug/L	0.0244	0.0976	1
76-44-8	Heptachlor	U	0.0162	ug/L	0.0162	0.0488	1
8001-35-2	Toxaphene	U	0.366	ug/L	0.366	1.22	1
319-84-6	alpha-BHC	U	0.0162	ug/L	0.0162	0.0488	1
319-85-7	beta-BHC	U	0.0162	ug/L	0.0162	0.0488	1
5103-71-9	cis-Chlordane	U	0.0162	ug/L	0.0162	0.0488	1
58-89-9	gamma-BHC (Lindane)	U	0.0162	ug/L	0.0162	0.0488	1
5103-74-2	trans-Chlordane	U	0.0162	ug/L	0.0162	0.0488	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.230	1.22	ug/L	19	*	(34%-109%)
Decachlorobiphenyl	0.210	1.22	ug/L	17	*	(34%-133%)

Quality Control Summary

Pesticide

Surrogate Recovery Report

SDG Number: 2018-2760

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC	#	4CMX 2 %REC	#	DCB 1 %REC	#	DCB 2 %REC	#
1204056441	MB for batch 1776506	64		67		69		76	
1204056442	LCS for batch 1776506	63		66		69		75	
1204058467	LCS for batch 1776506	58		61		61		67	
453084007	WSTMO-18-155067	40	D	50	D	28 *	D	36	D
1204056443	WSTMO-18-155067MS	66	D	64	D	31 *	D	38	D
1204056444	WSTMO-18-155067MSD	20 *	D	30 *	D	18 *	D	22 *	D
453084011	WSTMO-18-155068	19 *	D	29 *	D	17 *	D	26 *	D

Surrogate		Acceptance Limits
4CMX	= 4cmx	(34%-109%)
DCB	= Decachlorobiphenyl	(34%-133%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

Pesticide

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **LCS for batch 1776506**
Lab Sample ID **1204056442**
Instrument: **ECD6A.I**
Analyst: **RXE1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/27/2018 19:01**
Dilution: 1
Prep Batch ID: **1776506**
Batch ID: **1776509**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
319-84-6	LCS	alpha-BHC	0.500	0.0	0.436	87	46-122
58-89-9	LCS	gamma-BHC (Lindane)	0.500	0.0	0.440	88	46-125
76-44-8	LCS	Heptachlor	0.500	0.0	0.398	80	43-122
309-00-2	LCS	Aldrin	0.500	0.0	0.344	69	20-115
319-85-7	LCS	beta-BHC	0.500	0.0	0.402	80	43-131
5103-74-2	LCS	trans-Chlordane	0.500	0.0	0.380	76	50-129
5103-71-9	LCS	cis-Chlordane	0.500	0.0	0.445	89	48-120
959-98-8	LCS	Endosulfan I	0.500	0.0	0.420	84	43-120
60-57-1	LCS	Dieldrin	1.25	0.0	1.08	86	52-130
72-20-8	LCS	Endrin	1.25	0.0	1.16	93	33-145
33213-65-9	LCS	Endosulfan II	1.25	0.0	1.08	86	37-127
50-29-3	LCS	4,4'-DDT	1.25	0.0	1.04	83	36-125

Pesticide

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **WSTMO-18-155067MS**
Lab Sample ID **1204056443**
Instrument: **ECD6A.I**
Analyst: **RXE1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **06/27/2018 19:50**
Prep Batch ID: **1776506**
Batch ID: **1776509**
Dilution: 2

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
319-84-6	MS	alpha-BHC	0.581	0.00	U	0.466	80	30-133
58-89-9	MS	gamma-BHC (Lindane)	0.581	0.00	U	0.378	65	35-131
76-44-8	MS	Heptachlor	0.581	0.00	U	0.198	34	27-131
309-00-2	MS	Aldrin	0.581	0.00	U	0.266	46	15-128
319-85-7	MS	beta-BHC	0.581	0.00	U	0.758	130	29-138
5103-74-2	MS	trans-Chlordane	0.581	0.00	U	0.282	49	33-138
5103-71-9	MS	cis-Chlordane	0.581	0.00	U	0.389	67	34-128
959-98-8	MS	Endosulfan I	0.581	0.00	U	0.275	47	26-133
60-57-1	MS	Dieldrin	1.45	0.00	U	0.748	51	40-134
72-20-8	MS	Endrin	1.45	0.00	U	1.02	70	15-151
33213-65-9	MS	Endosulfan II	1.45	0.00	U	0.675	46	29-133
50-29-3	MS	4,4'-DDT	1.45	0.00	U	0.420	29	24-139

Pesticide

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **WSTMO-18-155067MSD**
Lab Sample ID **1204056444**
Instrument: **ECD6A.I**
Analyst: **RXE1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **06/27/2018 20:09**
Prep Batch ID: **1776506**
Batch ID: **1776509**
Dilution: **2**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
319-84-6	MSD	alpha-BHC	0.581	0.00	U	0.245	42	30-133	62 *	0-30
58-89-9	MSD	gamma-BHC (Lindane)	0.581	0.00	U	0.206	35	35-131	59 *	0-30
76-44-8	MSD	Heptachlor	0.581	0.00	U	0.0993	17 *	27-131	67 *	0-30
309-00-2	MSD	Aldrin	0.581	0.00	U	0.166	29	15-128	46 *	0-30
319-85-7	MSD	beta-BHC	0.581	0.00	U	0.374	64	29-138	68 *	0-30
5103-74-2	MSD	trans-Chlordane	0.581	0.00	U	0.167	29 *	33-138	51 *	0-30
5103-71-9	MSD	cis-Chlordane	0.581	0.00	U	0.221	38	34-128	55 *	0-30
959-98-8	MSD	Endosulfan I	0.581	0.00	U	0.180	31	26-133	42 *	0-30
60-57-1	MSD	Dieldrin	1.45	0.00	U	0.430	30 *	40-134	54 *	0-30
72-20-8	MSD	Endrin	1.45	0.00	U	0.572	39	15-151	56 *	0-30
33213-65-9	MSD	Endosulfan II	1.45	0.00	U	0.423	29	29-133	46 *	0-30
50-29-3	MSD	4,4'-DDT	1.45	0.00	U	0.222	15 *	24-139	62 *	0-30

Pesticide

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **LCS for batch 1776506**
Lab Sample ID **1204058467**
Instrument: **ECD6A.I**
Analyst: **RXE1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/27/2018 19:15**
Dilution: 1
Prep Batch ID: **1776506**
Batch ID: **1776509**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
8001-35-2	LCS	Toxaphene	4.00	0.0	2.97	74	52-105

Method Blank Summary

SDG Number:	**2018-2760**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1776506**	**Instrument ID:**	**ECD6A.I_1** **ECD6A.I_2**	**Data File:**	**062718B\E62740.D** **062718B\E62740.D**
Lab Sample ID:	**1204056441**				
Column:	**CLP** **CLP2**	**Prep Date:**	**06/27/2018 08:38**	**Analyzed:**	**06/27/18 18:46**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1776506	1204056442	062718B\E62741.D	06/27/18	1901
02 LCS for batch 1776506	1204058467	062718B\E62742.D 062718B\E62742.D	06/27/18	1915
03 WSTMO-18-155067	453084007	062718B\E62743.D	06/27/18	1931
04 WSTMO-18-155067MS	1204056443	062718B\E62744.D	06/27/18	1950
05 WSTMO-18-155067MSD	1204056444	062718B\E62745.D	06/27/18	2009
06 WSTMO-18-155068	453084011	062718B\E62746.D	06/27/18	2028

Quality Control Data

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204056441**				
Client Sample:	**QC for batch 1776506**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776506**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 18:46**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**1000 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62740.D**	**Column:**	**1 CLP**		
	062718B\E62740.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT	U	0.010	ug/L	0.010	0.040	1
309-00-2	Aldrin	U	0.00665	ug/L	0.00665	0.020	1
57-74-9	Chlordane	U	0.0765	ug/L	0.0765	0.250	1
60-57-1	Dieldrin	U	0.010	ug/L	0.010	0.040	1
959-98-8	Endosulfan I	U	0.00665	ug/L	0.00665	0.020	1
33213-65-9	Endosulfan II	U	0.010	ug/L	0.010	0.040	1
72-20-8	Endrin	U	0.010	ug/L	0.010	0.040	1
76-44-8	Heptachlor	U	0.00665	ug/L	0.00665	0.020	1
8001-35-2	Toxaphene	U	0.150	ug/L	0.150	0.500	1
319-84-6	alpha-BHC	U	0.00665	ug/L	0.00665	0.020	1
319-85-7	beta-BHC	U	0.00665	ug/L	0.00665	0.020	1
5103-71-9	cis-Chlordane	U	0.00665	ug/L	0.00665	0.020	1
58-89-9	gamma-BHC (Lindane)	U	0.00665	ug/L	0.00665	0.020	1
5103-74-2	trans-Chlordane	U	0.00665	ug/L	0.00665	0.020	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.639	1.00	ug/L	64	(34%-109%)
Decachlorobiphenyl	0.692	1.00	ug/L	69	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204056442**				
Client Sample:	**QC for batch 1776506**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776506**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 19:01**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**1000 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62741.D**	**Column:**	**1 CLP**		
	062718B\E62741.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT		1.04	ug/L	0.010	0.040	1
309-00-2	Aldrin		0.344	ug/L	0.00665	0.020	1
57-74-9	Chlordane	U	0.0765	ug/L	0.0765	0.250	1
60-57-1	Dieldrin		1.08	ug/L	0.010	0.040	1
959-98-8	Endosulfan I		0.420	ug/L	0.00665	0.020	1
33213-65-9	Endosulfan II		1.08	ug/L	0.010	0.040	1
72-20-8	Endrin		1.16	ug/L	0.010	0.040	1
76-44-8	Heptachlor		0.398	ug/L	0.00665	0.020	1
8001-35-2	Toxaphene	U	0.150	ug/L	0.150	0.500	1
319-84-6	alpha-BHC		0.436	ug/L	0.00665	0.020	1
319-85-7	beta-BHC		0.402	ug/L	0.00665	0.020	1
5103-71-9	cis-Chlordane		0.445	ug/L	0.00665	0.020	1
58-89-9	gamma-BHC (Lindane)		0.440	ug/L	0.00665	0.020	1
5103-74-2	trans-Chlordane		0.380	ug/L	0.00665	0.020	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.631	1.00	ug/L	63	(34%-109%)
Decachlorobiphenyl	0.689	1.00	ug/L	69	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1204056443**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**QC for batch 1776506**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155067MS**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**2**
Run Date:	**06/27/2018 19:50**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**860 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62744.D**	**Column:**	**1 CLP**		
	062718B\E62744.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT		0.420	ug/L	0.0233	0.093	1
309-00-2	Aldrin		0.266	ug/L	0.0155	0.0465	1
57-74-9	Chlordane	U	0.178	ug/L	0.178	0.581	1
60-57-1	Dieldrin		0.748	ug/L	0.0233	0.093	1
959-98-8	Endosulfan I		0.275	ug/L	0.0155	0.0465	1
33213-65-9	Endosulfan II		0.675	ug/L	0.0233	0.093	1
72-20-8	Endrin		1.02	ug/L	0.0233	0.093	1
76-44-8	Heptachlor	P	0.198	ug/L	0.0155	0.0465	1
8001-35-2	Toxaphene	U	0.349	ug/L	0.349	1.16	1
319-84-6	alpha-BHC		0.466	ug/L	0.0155	0.0465	1
319-85-7	beta-BHC		0.758	ug/L	0.0155	0.0465	1
5103-71-9	cis-Chlordane		0.389	ug/L	0.0155	0.0465	1
58-89-9	gamma-BHC (Lindane)		0.378	ug/L	0.0155	0.0465	1
5103-74-2	trans-Chlordane		0.282	ug/L	0.0155	0.0465	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.767	1.16	ug/L	66		(34%-109%)
Decachlorobiphenyl	0.364	1.16	ug/L	31	*	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1204056444**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**QC for batch 1776506**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155067MSD**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**2**
Run Date:	**06/27/2018 20:09**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**860 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62745.D**	**Column:**	**1 CLP**		
	062718B\E62745.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT		0.222	ug/L	0.0233	0.093	1
309-00-2	Aldrin		0.166	ug/L	0.0155	0.0465	1
57-74-9	Chlordane	U	0.178	ug/L	0.178	0.581	1
60-57-1	Dieldrin		0.430	ug/L	0.0233	0.093	1
959-98-8	Endosulfan I		0.180	ug/L	0.0155	0.0465	1
33213-65-9	Endosulfan II		0.423	ug/L	0.0233	0.093	1
72-20-8	Endrin		0.572	ug/L	0.0233	0.093	1
76-44-8	Heptachlor	P	0.0993	ug/L	0.0155	0.0465	1
8001-35-2	Toxaphene	U	0.349	ug/L	0.349	1.16	1
319-84-6	alpha-BHC		0.245	ug/L	0.0155	0.0465	1
319-85-7	beta-BHC		0.374	ug/L	0.0155	0.0465	1
5103-71-9	cis-Chlordane		0.221	ug/L	0.0155	0.0465	1
58-89-9	gamma-BHC (Lindane)		0.206	ug/L	0.0155	0.0465	1
5103-74-2	trans-Chlordane		0.167	ug/L	0.0155	0.0465	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.238	1.16	ug/L	20	*	(34%-109%)
Decachlorobiphenyl	0.211	1.16	ug/L	18	*	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204058467**				
Client Sample:	**QC for batch 1776506**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776506**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 19:15**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**1000 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62742.D**	**Column:**	**1 CLP**		
	062718B\E62742.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT	U	0.010	ug/L	0.010	0.040	1
309-00-2	Aldrin	U	0.00665	ug/L	0.00665	0.020	1
57-74-9	Chlordane	U	0.0765	ug/L	0.0765	0.250	1
60-57-1	Dieldrin	U	0.010	ug/L	0.010	0.040	1
959-98-8	Endosulfan I	U	0.00665	ug/L	0.00665	0.020	1
33213-65-9	Endosulfan II	U	0.010	ug/L	0.010	0.040	1
72-20-8	Endrin	U	0.010	ug/L	0.010	0.040	1
76-44-8	Heptachlor	U	0.00665	ug/L	0.00665	0.020	1
8001-35-2	Toxaphene		2.97	ug/L	0.150	0.500	2
319-84-6	alpha-BHC	U	0.00665	ug/L	0.00665	0.020	1
319-85-7	beta-BHC	U	0.00665	ug/L	0.00665	0.020	1
5103-71-9	cis-Chlordane	U	0.00665	ug/L	0.00665	0.020	1
58-89-9	gamma-BHC (Lindane)	U	0.00665	ug/L	0.00665	0.020	1
5103-74-2	trans-Chlordane	U	0.00665	ug/L	0.00665	0.020	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.580	1.00	ug/L	58	(34%-109%)
Decachlorobiphenyl	0.610	1.00	ug/L	61	(34%-133%)

PCB Analysis

Case Narrative

GC Semivolatile PCB
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2760
Work Order #: 453084

Product: **Analysis of The Analysis of Polychlorinated Biphenyls by GC/ECD by ECD**
Analytical Method: SW846 3535A/8082A
Analytical Procedure: GL-OA-E-040 REV# 25
Analytical Batch: 1776547

Preparation Method: SW846 3535A
Preparation Procedure: GL-OA-E-037 REV# 7
Preparation Batch: 1776546

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453084006	WSTMO-18-155067
453084010	WSTMO-18-155068
1204056513	Method Blank (MB)
1204056514	Laboratory Control Sample (LCS)
1204056515	453084010(WSTMO-18-155068) Matrix Spike (MS)
1204056516	453084010(WSTMO-18-155068) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Surrogate Recoveries
Samples (See Below) failed to meet acceptance criteria for surrogate recovery. The same samples for the pesticides analysis failed surrogate recovery in a similar manner; therefore, the failure was attributed to sample matrix interference.

Sample	Analyte	Value
453084006 (WSTMO-18-155067)	Decachlorobiphenyl	19* (35%-138%)
	Decachlorobiphenyl	20* (35%-138%)

Samples (See Below) failed to meet acceptance criteria for surrogate recovery. Since the sample and the associated MS/MSD displayed similar surrogate recovery, the failures were attributed to sample matrix interference.

Sample	Analyte	Value

1204056515 (WSTMO-18-155068MS)	4cmx	10* (33%-122%)
	4cmx	11* (33%-122%)
	Decachlorobiphenyl	10* (35%-138%)
1204056516 (WSTMO-18-155068MSD)	4cmx	15* (33%-122%)
	Decachlorobiphenyl	15* (35%-138%)
	Decachlorobiphenyl	16* (35%-138%)
453084010 (WSTMO-18-155068)	4cmx	11* (33%-122%)
	4cmx	12* (33%-122%)
	Decachlorobiphenyl	10* (35%-138%)

Matrix Spike (MS/MSD) Recovery Statement
The MS and/or MSD (See Below) did not meet spike recovery acceptance limits due to sample matrix interference as the MS and MSD displayed similar spike recovery.

Sample	Analyte	Value
1204056515 (WSTMO-18-155068MS)	Aroclor-1016	15* (26%-110%)
	Aroclor-1260	12* (30%-127%)
1204056516 (WSTMO-18-155068MSD)	Aroclor-1016	22* (26%-110%)
	Aroclor-1260	13* (30%-127%)

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent difference (RPD) between the MS and MSD (See Below) was not within the required acceptance limits due to sample matrix interference.

Sample	Analyte	Value
1204056515MS and 1204056516MSD (WSTMO-18-155068)	Aroclor-1016	RPD 36* (0%-27%)

Technical Information

Preparation/Analytical Method Verification
All samples and QC in this batch were cleaned using alumina in order to remove oil and other high molecular weight interferences. All samples and QC in this batch were cleaned with activated copper in order to remove sulfur. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns.

Miscellaneous Information

Manual integrations
Samples (See Below) required manual integration to correctly position the baseline as set in the calibration standard injections and to properly identify one or more peaks.

Sample	Analyte	Value
1204056516 (WSTMO-18-155068MSD)	Aroclor-1016	Result 0.285ug/L
	Aroclor-1260	Result 0.172ug/L

Additional Comments
The lower results from either column have been chosen and reported in the data package for the client samples, MB and LCS. The data reported for the MS/MSD are from the same analytical column as the parent sample.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2760 GEL Work Order: 453084

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Cameron Bearden **Name: Cameron Bearden**

Date: 28 JUN 2018 **Title: Group Leader**

Sample Data Summary

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**453084006**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**8082/ClO4**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155067**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1776547**	**Inst:**	**ECD9A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 09:41**	**Analyst:**	**YS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:48**	**Aliquot:**	**910 mL**	**Final Volume:**	**1 mL**
Data File:	**062618.S\E9f2321.D**	**Column:**	**1 RTX-CLPEST 1**		
	062618.S\E9f2321.D		**2 RTX-CLPEST 2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.0366	ug/L	0.0366	0.110	1
11104-28-2	Aroclor-1221	U	0.0366	ug/L	0.0366	0.110	1
11141-16-5	Aroclor-1232	U	0.0366	ug/L	0.0366	0.110	1
53469-21-9	Aroclor-1242	U	0.0366	ug/L	0.0366	0.110	1
12672-29-6	Aroclor-1248	U	0.0366	ug/L	0.0366	0.110	1
11097-69-1	Aroclor-1254	U	0.0366	ug/L	0.0366	0.110	1
11096-82-5	Aroclor-1260	U	0.0366	ug/L	0.0366	0.110	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
Decachlorobiphenyl	0.0417	0.220	ug/L	19	*	(35%-138%)
4cmx	0.0734	0.220	ug/L	33		(33%-122%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 08:35**	**Matrix:**	**W**
Lab Sample ID:	**453084010**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**8082/ClO4**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155068**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1776547**	**Inst:**	**ECD9A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 09:54**	**Analyst:**	**YS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:48**	**Aliquot:**	**900 mL**	**Final Volume:**	**1 mL**
Data File:	**062618.S\E9f2322.D**	**Column:**	**1 RTX-CLPEST 1**		
	062618.S\E9f2322.D		**2 RTX-CLPEST 2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.037	ug/L	0.037	0.111	1
11104-28-2	Aroclor-1221	U	0.037	ug/L	0.037	0.111	1
11141-16-5	Aroclor-1232	U	0.037	ug/L	0.037	0.111	1
53469-21-9	Aroclor-1242	U	0.037	ug/L	0.037	0.111	1
12672-29-6	Aroclor-1248	U	0.037	ug/L	0.037	0.111	1
11097-69-1	Aroclor-1254	U	0.037	ug/L	0.037	0.111	1
11096-82-5	Aroclor-1260	U	0.037	ug/L	0.037	0.111	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.0246	0.222	ug/L	11	*	(33%-122%)
Decachlorobiphenyl	0.0222	0.222	ug/L	10	*	(35%-138%)

Quality Control Summary

PCB

Surrogate Recovery Report

SDG Number: 2018-2760

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC #	4CMX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #
1204056513	MB for batch 1776546	68	70	78	74
1204056514	LCS for batch 1776546	74	70	85	83
453084006	WSTMO-18-155067	33	33	19 *	20 *
453084010	WSTMO-18-155068	11 *	12 *	10 *	10 *
1204056515	WSTMO-18-155068MS	10 *	11 *	10 *	10 *
1204056516	WSTMO-18-155068MSD	15 *	15 *	15 *	16 *

Surrogate		Acceptance Limits
4CMX	= 4cmx	(33%-122%)
DCB	= Decachlorobiphenyl	(35%-138%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **LCS for batch 1776546**
Lab Sample ID **1204056514**
Instrument: **ECD9A.I**
Analyst: **YS1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/26/2018 09:04**
Dilution: 1
Prep Batch ID: **1776546**
Batch ID: **1776547**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	LCS	Aroclor-1016	1.00	0.0	0.748	75	45-101
11096-82-5	LCS	Aroclor-1260	1.00	0.0	0.854	85	52-113

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **WSTMO-18-155068MS**
Lab Sample ID **1204056515**
Instrument: **ECD9A.I**
Analyst: **YS1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **06/26/2018 10:07**
Prep Batch ID: **1776546**
Batch ID: **1776547**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	MS	Aroclor-1016	1.29	0.00	U	0.198	15 *	26-110
11096-82-5	MS	Aroclor-1260	1.29	0.00	U	0.154	12 *	30-127

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2760**
Client ID: **WSTMO-18-155068MSD**
Lab Sample ID **1204056516**
Instrument: **ECD9A.I**
Analyst: **YS1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **06/26/2018 10:20**
Dilution: 1
Prep Batch ID: **1776546**
Batch ID: **1776547**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
12674-11-2	MSD	Aroclor-1016	1.29	0.00	U	0.285	22 *	26-110	36 *	0-27
11096-82-5	MSD	Aroclor-1260	1.29	0.00	U	0.172	13 *	30-127	11	0-29

Method Blank Summary

SDG Number:	**2018-2760**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1776546**	**Instrument ID:**	**ECD9A.I_1** **ECD9A.I_2**	**Data File:**	**062618.S\E9f2317.D** **062618.S\E9f2317.D**
Lab Sample ID:	**1204056513**				
Column:	**RTX-CLPEST 1** **RTX-CLPEST 2**	**Prep Date:**	**06/25/2018 09:48**	**Analyzed:**	**06/26/18 08:53**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1776546	**1204056514**	**062618.S\E9f2318.D** **062618.S\E9f2318.D**	**06/26/18**	**0904**
02 WSTMO-18-155067	**453084006**	**062618.S\E9f2321.D** **062618.S\E9f2321.D**	**06/26/18**	**0941**
03 WSTMO-18-155068	**453084010**	**062618.S\E9f2322.D** **062618.S\E9f2322.D**	**06/26/18**	**0954**
04 WSTMO-18-155068MS	**1204056515**	**062618.S\E9f2323.D** **062618.S\E9f2323.D**	**06/26/18**	**1007**
05 WSTMO-18-155068MSD	**1204056516**	**062618.S\E9f2324.D** **062618.S\E9f2324.D**	**06/26/18**	**1020**

Quality Control Data

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**			**Matrix:**	**WATER**
Lab Sample ID:	**1204056513**				
Client Sample:	**QC for batch 1776546**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776546**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1776547**	**Inst:**	**ECD9A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 08:53**	**Analyst:**	**YS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:48**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**062618.S\E9f2317.D**	**Column:**	**1 RTX-CLPEST 1**		
	062618.S\E9f2317.D		**2 RTX-CLPEST 2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.0333	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.0333	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.0333	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.0333	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.0333	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.0333	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.0333	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.136	0.200	ug/L	68	(33%-122%)
Decachlorobiphenyl	0.147	0.200	ug/L	74	(35%-138%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 08:35**	**Matrix:**	**W**
Lab Sample ID:	**1204056515**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**QC for batch 1776546**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155068MS**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1776547**	**Inst:**	**ECD9A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 10:07**	**Analyst:**	**YS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:48**	**Aliquot:**	**775 mL**	**Final Volume:**	**1 mL**
Data File:	**062618.S\E9f2323.D**	**Column:**	**1 RTX-CLPEST 1**		
	062618.S\E9f2323.D		**2 RTX-CLPEST 2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.198	ug/L	0.043	0.129	1
11104-28-2	Aroclor-1221	U	0.043	ug/L	0.043	0.129	1
11141-16-5	Aroclor-1232	U	0.043	ug/L	0.043	0.129	1
53469-21-9	Aroclor-1242	U	0.043	ug/L	0.043	0.129	1
12672-29-6	Aroclor-1248	U	0.043	ug/L	0.043	0.129	1
11097-69-1	Aroclor-1254	U	0.043	ug/L	0.043	0.129	1
11096-82-5	Aroclor-1260		0.154	ug/L	0.043	0.129	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.0254	0.258	ug/L	10	*	(33%-122%)
Decachlorobiphenyl	0.0263	0.258	ug/L	10	*	(35%-138%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2760**	**Date Collected:**	**06/20/2018 08:35**	**Matrix:**	**W**
Lab Sample ID:	**1204056516**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**QC for batch 1776546**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155068MSD**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1776547**	**Inst:**	**ECD9A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 10:20**	**Analyst:**	**YS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:48**	**Aliquot:**	**775 mL**	**Final Volume:**	**1 mL**
Data File:	**062618.S\E9f2324.D**	**Column:**	**1 RTX-CLPEST 1**		
	062618.S\E9f2324.D		**2 RTX-CLPEST 2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.285	ug/L	0.043	0.129	1
11104-28-2	Aroclor-1221	U	0.043	ug/L	0.043	0.129	1
11141-16-5	Aroclor-1232	U	0.043	ug/L	0.043	0.129	1
53469-21-9	Aroclor-1242	U	0.043	ug/L	0.043	0.129	1
12672-29-6	Aroclor-1248	U	0.043	ug/L	0.043	0.129	1
11097-69-1	Aroclor-1254	U	0.043	ug/L	0.043	0.129	1
11096-82-5	Aroclor-1260		0.172	ug/L	0.043	0.129	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.0389	0.258	ug/L	15	*	(33%-122%)
Decachlorobiphenyl	0.0425	0.258	ug/L	16	*	(35%-138%)

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2760
Work Order #: 453084

Product: **Determination of Metals by ICP**
Analytical Method: EPA 200.7 4.4 1994
Analytical Procedure: GL-MA-E-013 REV# 30
Analytical Batch: 1776367

Product: **Determination of Metals by ICP-MS**
Analytical Method: EPA 200.8 5.4 1994
Analytical Procedure: GL-MA-E-014 REV# 32
Analytical Batch: 1776384

Product: **Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer**
Analytical Method: EPA 245.2 1974
Analytical Procedure: GL-MA-E-010 REV# 36
Analytical Batch: 1776821

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 18
Preparation Batches: 1776365 and 1776383

Preparation Method: EPA 245.1/245.2 Prep
Preparation Procedure: GL-MA-E-010 REV# 36
Preparation Batch: 1776810

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453084002	WSTMO-18-155057
453084003	WSTMO-18-155058
453084004	WSTMO-18-155062
453084005	WSTMO-18-155063
1204056120	Method Blank (MB)**ICP**
1204056121	Laboratory Control Sample (LCS)
1204056124	453084002(WSTMO-18-155057L) Serial Dilution (SD)
1204056122	453084002(WSTMO-18-155057D) Sample Duplicate (DUP)
1204056123	453084002(WSTMO-18-155057S) Matrix Spike (MS)
1204056161	Method Blank (MB)**ICP-MS**
1204056162	Laboratory Control Sample (LCS)
1204056165	453084002(WSTMO-18-155057L) Serial Dilution (SD)
1204056163	453084002(WSTMO-18-155057D) Sample Duplicate (DUP)
1204056164	453084002(WSTMO-18-155057S) Matrix Spike (MS)
1204057274	Method Blank (MB)**CVAA**
1204057275	Laboratory Control Sample (LCS)
1204057280	453084002(WSTMO-18-155057L) Serial Dilution (SD)
1204057276	453084002(WSTMO-18-155057D) Sample Duplicate (DUP)
1204057278	453084002(WSTMO-18-155057S) Matrix Spike (MS)
1204057294	453084002(WSTMO-18-155057PS) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

ICSA/ICSAB Statement
For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Quality Control (QC) Information

Matrix Spike (MS/MSD) Recovery Statement
The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analytes.

Sample	Analyte	Value
1204056123 (WSTMO-18-155057MS)	Iron	72.3* (75%-125%)
	Manganese	72.8* (75%-125%)
1204056164 (WSTMO-18-155057MS)	Cadmium	73.7* (75%-125%)
	Copper, Nickel	65.6* (75%-125%)
	Silver	71.5* (75%-125%)

The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike also did not meet the required control limits; thus, confirming matrix interferences and/or sample non-homogeneity.

Sample	Analyte	Value
1204057278 (WSTMO-18-155057MS)	Mercury	22.1* (75%-125%)

Post Spike (PS) Recovery Statement
The percent recoveries (%R) obtained from the PS analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The PS did not meet the recommended quality control acceptance criteria for percent recoveries for all applicable analytes and verifies the presence of matrix interferences.

Sample	Analyte	Value
1204057294 (WSTMO-18-155057PS)	Mercury	25* (80%-120%)

Technical Information

Sample Dilutions

Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range. Samples required dilution for boron after repeated attempts to analyze undiluted resulted in instrument QC failures. 453084002 (WSTMO-18-155057) and 453084003 (WSTMO-18-155058)-ICP. Samples 453084002 (WSTMO-18-155057) and 453084003 (WSTMO-18-155058)-ICP-MS were diluted to ensure that the analyte concentrations were within the linear calibration range of the instrument. Per the SOP, samples ICP-MS were diluted due to internal standard recoveries outside the acceptable control limits.

Analyte	**453084**	
	002	**003**
Aluminum	5X	5X
Arsenic	10X	10X
Barium	5X	5X
Boron	5X	5X
Cadmium	10X	10X
Chromium	5X	5X
Cobalt	5X	5X
Copper	5X	5X
Lead	5X	5X
Molybdenum	10X	10X
Nickel	5X	5X
Selenium	10X	10X
Silver	10X	10X
Uranium	5X	5X

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2760 GEL Work Order: 453084

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
J Value is estimated
N Metals--The Matrix spike sample recovery is not within specified control limits
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Nik-Cole A. Elmore **Name: Nik-Cole Elmore**

Date: 28 JUN 2018 **Title: Data Validator**

Sample Data Summary

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018−2760 **CONTRACT:** ESHL00118 **METHOD TYPE:** EPA

SAMPLE ID: 453084002 **BASIS:** As Received **DATE COLLECTED** 20−JUN−18

CLIENT ID: WSTMO−18−155057 **LEVEL:** Low **DATE RECEIVED** 22−JUN−18

MATRIX: W **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	96.5	ug/L	U	96.5	250	250	5	MS	SKJ	06/26/18 14:30	180626−3	1776384
7440−38−2	Arsenic	29.4	ug/L	J	20	50	50	10	MS	SKJ	06/26/18 15:14	180626−3	1776384
7440−39−3	Barium	22.5	ug/L		3.35	10	10	5	MS	SKJ	06/26/18 14:30	180626−3	1776384
7440−42−8	Boron	2860	ug/L		75	250	250	5	P	HSC	06/26/18 06:54	062618−2	1776367
7440−43−9	Cadmium	3	ug/L	UN	3	10	10	10	MS	SKJ	06/26/18 15:14	180626−3	1776384
7440−47−3	Chromium	15	ug/L	U	15	50	50	5	MS	SKJ	06/26/18 14:30	180626−3	1776384
7440−48−4	Cobalt	1.66	ug/L	J	1.5	5	5	5	MS	SKJ	06/26/18 14:30	180626−3	1776384
7440−50−8	Copper	3.94	ug/L	JN	1.5	5	5	5	MS	SKJ	06/26/18 14:30	180626−3	1776384
7439−89−6	Iron	30	ug/L	UN	30	100	100	1	P	HSC	06/25/18 16:08	062518−1	1776367
7439−92−1	Lead	2.5	ug/L	U	2.5	10	10	5	MS	SKJ	06/26/18 14:30	180626−3	1776384
7439−96−5	Manganese	7.19	ug/L	JN	2	10	10	1	P	HSC	06/25/18 16:08	062518−1	1776367
7439−97−6	Mercury	0.097	ug/L	JN	0.067	0.2	0.2	1	AV	MTM1	06/26/18 10:28	062618W2−4	1776821
7439−98−7	Molybdenum	720	ug/L		2	5	5	10	MS	SKJ	06/26/18 15:14	180626−3	1776384
7440−02−0	Nickel	18.4	ug/L	N	3	10	10	5	MS	SKJ	06/26/18 14:30	180626−3	1776384
7782−49−2	Selenium	21.9	ug/L	J	20	50	50	10	MS	SKJ	06/26/18 15:14	180626−3	1776384
7440−22−4	Silver	3	ug/L	UN	3	10	10	10	MS	SKJ	06/26/18 15:14	180626−3	1776384
7440−61−1	Uranium	0.460	ug/L	J	0.335	1	1	5	MS	SKJ	06/26/18 14:30	180626−3	1776384
7440−66−6	Zinc	3.3	ug/L	U	3.3	10	10	1	P	HSC	06/25/18 16:08	062518−1	1776367

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1776367	1776365	EPA 200.2	50	mL	50	mL	06/22/18	JXM8
1776384	1776383	EPA 200.2	50	mL	50	mL	06/22/18	JXM8
1776821	1776810	EPA 245.1/245.2 Prep	20	mL	20	mL	06/25/18	AXS5

***Analytical Methods:**

MS **EPA 200.8 5.4 1994**
P **EPA 200.7 4.4 1994**
AV **EPA 245.2 1974**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018−2760 **CONTRACT:** ESHL00118 **METHOD TYPE:** EPA

SAMPLE ID: 453084003 **BASIS:** As Received **DATE COLLECTED** 20−JUN−18

CLIENT ID: WSTMO−18−155058 **LEVEL:** Low **DATE RECEIVED** 22−JUN−18

MATRIX: W **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	96.5	ug/L	U	96.5	250	250	5	MS	SKJ	06/26/18 14:41	180626−3	1776384
7440−38−2	Arsenic	27.9	ug/L	J	20	50	50	10	MS	SKJ	06/26/18 15:25	180626−3	1776384
7440−39−3	Barium	28.3	ug/L		3.35	10	10	5	MS	SKJ	06/26/18 14:41	180626−3	1776384
7440−42−8	Boron	2980	ug/L		75	250	250	5	P	HSC	06/26/18 06:50	062618−2	1776367
7440−43−9	Cadmium	3	ug/L	UN	3	10	10	10	MS	SKJ	06/26/18 15:25	180626−3	1776384
7440−47−3	Chromium	15	ug/L	U	15	50	50	5	MS	SKJ	06/26/18 14:41	180626−3	1776384
7440−48−4	Cobalt	1.5	ug/L	U	1.5	5	5	5	MS	SKJ	06/26/18 14:41	180626−3	1776384
7440−50−8	Copper	3.77	ug/L	JN	1.5	5	5	5	MS	SKJ	06/26/18 14:41	180626−3	1776384
7439−89−6	Iron	37.7	ug/L	JN	30	100	100	1	P	HSC	06/25/18 16:21	062518−1	1776367
7439−92−1	Lead	2.5	ug/L	U	2.5	10	10	5	MS	SKJ	06/26/18 14:41	180626−3	1776384
7439−96−5	Manganese	16.4	ug/L	N	2	10	10	1	P	HSC	06/25/18 16:21	062518−1	1776367
7439−97−6	Mercury	0.117	ug/L	JN	0.067	0.2	0.2	1	AV	MTM1	06/26/18 10:48	062618W2−4	1776821
7439−98−7	Molybdenum	750	ug/L		2	5	5	10	MS	SKJ	06/26/18 15:25	180626−3	1776384
7440−02−0	Nickel	16.9	ug/L	N	3	10	10	5	MS	SKJ	06/26/18 14:41	180626−3	1776384
7782−49−2	Selenium	20	ug/L	U	20	50	50	10	MS	SKJ	06/26/18 15:25	180626−3	1776384
7440−22−4	Silver	3	ug/L	UN	3	10	10	10	MS	SKJ	06/26/18 15:25	180626−3	1776384
7440−61−1	Uranium	0.335	ug/L	U	0.335	1	1	5	MS	SKJ	06/26/18 14:41	180626−3	1776384
7440−66−6	Zinc	8.55	ug/L	J	3.3	10	10	1	P	HSC	06/25/18 16:21	062518−1	1776367

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1776367	1776365	EPA 200.2	50	mL	50	mL	06/22/18	JXM8
1776384	1776383	EPA 200.2	50	mL	50	mL	06/22/18	JXM8
1776821	1776810	EPA 245.1/245.2 Prep	20	mL	20	mL	06/25/18	AXS5

***Analytical Methods:**

MS **EPA 200.8 5.4 1994**
P **EPA 200.7 4.4 1994**
AV **EPA 245.2 1974**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018−2760 **CONTRACT:** ESHL00118 **METHOD TYPE:** EPA

SAMPLE ID: 453084004 **BASIS:** As Received **DATE COLLECTED** 20−JUN−18

CLIENT ID: WSTMO−18−155062 **LEVEL:** Low **DATE RECEIVED** 22−JUN−18

MATRIX: W **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439−97−6	Mercury	0.121	ug/L	JN	0.067	0.2	0.2	1	AV	MTM1	06/26/18 10:50	062618W2−4	1776821

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1776821	1776810	EPA 245.1/245.2 Prep	20	mL	20	mL	06/25/18	AXS5

***Analytical Methods:**

AV **EPA 245.2 1974**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018−2760 **CONTRACT:** ESHL00118 **METHOD TYPE:** EPA

SAMPLE ID: 453084005 **BASIS:** As Received **DATE COLLECTED** 20−JUN−18

CLIENT ID: WSTMO−18−155063 **LEVEL:** Low **DATE RECEIVED** 22−JUN−18

MATRIX: W **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439−97−6	Mercury	0.132	ug/L	JN	0.067	0.2	0.2	1	AV	MTM1	06/26/18 10:52	062618W2−4	1776821

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1776821	1776810	EPA 245.1/245.2 Prep	20	mL	20	mL	06/25/18	AXS5

***Analytical Methods:**

AV **EPA 245.2 1974**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2018−2760

Contract: ESHL00118

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1204056120								
	Boron	15	ug/L	+/−50	U	P	15	50
	Iron	30	ug/L	+/−100	U	P	30	100
	Manganese	2	ug/L	+/−10	U	P	2	10
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
1204056161								
	Aluminum	19.3	ug/L	+/−50	U	MS	19.3	50
	Chromium	3	ug/L	+/−10	U	MS	3	10
	Copper	0.3	ug/L	+/−1	U	MS	0.3	1
	Molybdenum	0.2	ug/L	+/−0.5	U	MS	0.2	0.5
	Selenium	2	ug/L	+/−5	U	MS	2	5
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
	Silver	0.3	ug/L	+/−1	U	MS	0.3	1
	Nickel	0.6	ug/L	+/−2	U	MS	0.6	2
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Cobalt	0.3	ug/L	+/−1	U	MS	0.3	1
	Cadmium	0.3	ug/L	+/−1	U	MS	0.3	1
	Arsenic	2	ug/L	+/−5	U	MS	2	5
	Barium	0.67	ug/L	+/−2	U	MS	0.67	2
1204057274								
	Mercury	0.067	ug/L	+/−0.2	J	AV	0.067	0.2

***Analytical Methods:**

MS	**EPA 200.8 DOE−AL**
P	**EPA 200.7**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2018−2760 **Client ID** WSTMO−18−155057S

Contract: ESHL00118 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 453084002 **Spike ID:** 1204056123

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L		3460		2860		500	120	N/A	P
Iron	ug/L	75−125	3630		30	U	5000	72.3	N	P
Manganese	ug/L	75−125	371		7.19	J	500	72.8	N	P
Zinc	ug/L	75−125	468		3.3	U	500	93.4		P

***Analytical Methods:**

P **EPA 200.7**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2018−2760 **Client ID** WSTMO−18−155057S

Contract: ESHL00118 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 453084002 **Spike ID:** 1204056164

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	1700		96.5	U	2000	84.4		MS
Arsenic	ug/L	75−125	68.7		29.4	J	50	78.6		MS
Barium	ug/L	75−125	62.5		22.5		50	79.9		MS
Cadmium	ug/L	75−125	37		3	U	50	73.7	N	MS
Chromium	ug/L	75−125	41.2	J	15	U	50	79.6		MS
Cobalt	ug/L	75−125	39.1		1.66	J	50	75		MS
Copper	ug/L	75−125	36.8		3.94	J	50	65.6	N	MS
Lead	ug/L	75−125	38.5		2.5	U	50	76.1		MS
Molybdenum	ug/L		714		720		50	−11.2	N/A	MS
Nickel	ug/L	75−125	51.2		18.4		50	65.6	N	MS
Selenium	ug/L	75−125	62.3		21.9	J	50	80.8		MS
Silver	ug/L	75−125	35.8		3	U	50	71.5	N	MS
Uranium	ug/L	75−125	44.3		0.46	J	50	87.7		MS

***Analytical Methods:**

MS **EPA 200.8 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2018−2760 **Client ID** WSTMO−18−155057S

Contract: ESHL00118 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 453084002 **Spike ID:** 1204057278

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	0.538		0.097	J	2	22.1	N	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−5a−

Spike Summary

SDG NO. 2018−2760 **Client ID:** WSTMO−18−155057PS

Contract: ESHL00118 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 453084002 **Spike ID:** 1204057294

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	80−120	0.597		0.097	J	2	25	N	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2018−2760 **Lab Code:** GEL

Contract: ESHL00118 **Client ID:** WSTMO−18−155057D

Matrix: WATER **Level:** Low

Sample ID: 453084002 **Duplicate ID:** 1204056122 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/−20%	2860		2930		2.35		P
Iron	ug/L		30	U	30	U			P
Manganese	ug/L	+/−10	7.19	J	7.32	J	1.88		P
Zinc	ug/L		3.3	U	3.3	U			P

***Analytical Methods:**
P EPA 200.7

Metals
−6−
Duplicate Sample Summary

SDG No.: 2018−2760 **Lab Code:** GEL

Contract: ESHL00118 **Client ID:** WSTMO−18−155057D

Matrix: WATER **Level:** Low

Sample ID: 453084002 **Duplicate ID:** 1204056163 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		96.5	U	96.5	U			MS
Arsenic	ug/L	+/−50	29.4	J	27.4	J	6.73		MS
Barium	ug/L	+/−10	22.5		21		6.99		MS
Cadmium	ug/L		3	U	3	U			MS
Chromium	ug/L		15	U	15	U			MS
Cobalt	ug/L		1.66	J	1.5	U	200		MS
Copper	ug/L	+/−5	3.94	J	4.11	J	4.1		MS
Lead	ug/L		2.5	U	2.5	U			MS
Molybdenum	ug/L	+/−20%	720		654		9.51		MS
Nickel	ug/L	+/−10	18.4		17.2		6.82		MS
Selenium	ug/L	+/−50	21.9	J	22.7	J	3.63		MS
Silver	ug/L		3	U	3	U			MS
Uranium	ug/L	+/−1	0.46	J	0.35	J	27.2		MS

***Analytical Methods:**
MS EPA 200.8 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2018−2760 **Lab Code:** GEL

Contract: ESHL00118 **Client ID:** WSTMO−18−155057D

Matrix: WATER **Level:** Low

Sample ID: 453084002 **Duplicate ID:** 1204057276 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L	+/−.2	0.097	J	0.098	J	1.03		AV

***Analytical Methods:**
AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2018−2760

Contract: ESHL00118

Aqueous LCS Source: Inorganic Ventures **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1204056121								
	Boron	ug/L	500	501		100	85−115	P
	Iron	ug/L	5000	5080		102	85−115	P
	Manganese	ug/L	500	492		98.4	85−115	P
	Zinc	ug/L	500	482		96.5	85−115	P

***Analytical Methods:**

P **EPA 200.7**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2018−2760

Contract: ESHL00118

Aqueous LCS Source: Inorganic Ventures **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1204056162								
	Aluminum	ug/L	2000	1990		99.6	85−115	MS
	Arsenic	ug/L	50	49.1		98.1	85−115	MS
	Barium	ug/L	50	50.2		100	85−115	MS
	Cadmium	ug/L	50	51.3		103	85−115	MS
	Chromium	ug/L	50	51.1		102	85−115	MS
	Cobalt	ug/L	50	52.4		105	85−115	MS
	Copper	ug/L	50	52.1		104	85−115	MS
	Lead	ug/L	50	51.1		102	85−115	MS
	Molybdenum	ug/L	50	52.2		104	85−115	MS
	Nickel	ug/L	50	51.4		103	85−115	MS
	Selenium	ug/L	50	48.7		97.5	85−115	MS
	Silver	ug/L	50	52		104	85−115	MS
	Uranium	ug/L	50	50.4		101	85−115	MS

***Analytical Methods:**

MS **EPA 200.8 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2018−2760

Contract: ESHL00118

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1204057275								
	Mercury	ug/L	2	2.01		101	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2018−2760 **Client ID:** WSTMO−18−155057L

Contract: ESHL00118

Matrix: LIQUID **Level:** Low

Sample ID: 453084002 **Serial Dilution ID:** 1204056124

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	572		600		4.847			P
Iron	30	U	150	U				P
Manganese	7.19	J	10	U	34.747			P
Zinc	3.3	U	16.5	U				P

***Analytical Methods:**

P **EPA 200.7**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2018−2760 **Client ID** WSTMO−18−155057L

Contract: ESHL00118

Matrix: LIQUID **Level:** Low

Sample ID: 453084002 **Serial Dilution ID:** 1204056165

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	19.3	U	96.5	U				MS
Arsenic	2.94	J	10	U	75.298			MS
Barium	4.5		4.75	J	5.532			MS
Cadmium	.3	U	1.5	U				MS
Chromium	3	U	15	U				MS
Cobalt	.331	J	1.5	U	8.761			MS
Copper	.788	J	1.5	U	25.635			MS
Lead	.5	U	2.5	U				MS
Molybdenum	72		71.3		.909		10	MS
Nickel	3.68		4.2	J	14.037			MS
Selenium	2.19	J	10	U	30.882			MS
Silver	.3	U	1.5	U				MS
Uranium	.092	J	.335	U	29.348			MS

***Analytical Methods:**

MS **EPA 200.8 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2018−2760 **Client ID** WSTMO−18−155057L

Contract: ESHL00118

Matrix: LIQUID **Level:** Low

Sample ID: 453084002 **Serial Dilution ID:** 1204057280

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.097	J	.365	J	276.289			AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2760
Work Order #: 453084

Product: **Cyanide, Total**
Analytical Method: EPA 335.4 1993
Analytical Procedure: GL-GC-E-095 REV# 22
Analytical Batches: 1776672 and 1776671

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453084002	WSTMO-18-155057
453084003	WSTMO-18-155058
1204056821	Method Blank (MB)
1204056822	Laboratory Control Sample (LCS)
1204056823	452995002(WSTMO-18-155056) Sample Duplicate (DUP)
1204056824	452995002(WSTMO-18-155056) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Ion Chromatography**
Analytical Method: EPA:300.0
Analytical Procedure: GL-GC-E-086 REV# 25
Analytical Batch: 1776005

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453084002	WSTMO-18-155057
453084003	WSTMO-18-155058
1204055256	Method Blank (MB)
1204055257	Laboratory Control Sample (LCS)
1204055258	452995003(WSTMO-18-155059) Sample Duplicate (DUP)
1204055259	452995003(WSTMO-18-155059) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204055258 (WSTMO-18-155059DUP), 1204055259 (WSTMO-18-155059PS), 453084002 (WSTMO-18-155057) and 453084003 (WSTMO-18-155058) were diluted because target analyte concentrations exceeded the calibration range. The following samples 1204055258 (WSTMO-18-155059DUP), 1204055259 (WSTMO-18-155059PS), 453084002 (WSTMO-18-155057) and 453084003 (WSTMO-18-155058) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453084	
	002	003
Fluoride	100X	100X
Sulfate	500X	500X

Product: **Nitrate Nitrite by Cadmium Reduction**
Analytical Method: EPA:353.2
Analytical Procedure: GL-GC-E-128 REV# 10
Analytical Batch: 1776650

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453084002	WSTMO-18-155057
453084003	WSTMO-18-155058
1204056767	Method Blank (MB)
1204056768	Laboratory Control Sample (LCS)
1204056770	452995002(WSTMO-18-155056) Sample Duplicate (DUP)
1204056772	452995002(WSTMO-18-155056) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204056770 (WSTMO-18-155056DUP), 1204056772 (WSTMO-18-155056PS), 453084002 (WSTMO-18-155057) and 453084003 (WSTMO-18-155058) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453084	
	002	003
Nitrogen, Nitrate/Nitrite	10X	10X

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2760 GEL Work Order: 453084

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
H Analytical holding time was exceeded
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Aubrey Kingsbury**

Date: 28 JUN 2018 **Title: Data Validator**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 28, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- Discharge Permits

Client SDG: 2018-2760

Client Sample ID: WSTMO-18-155057
Sample ID: 453084002
Matrix: W
Collect Date: 20-JUN-18 10:30
Receive Date: 22-JUN-18
Collector: Client

Project: ESHL00118
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
DP-CN(TOTAL) "As Received"												
Cyanide, Total		19.1	1.67	5.00	ug/L	1.00	1	AXH3	06/26/18	1122	1776672	1
Ion Chromatography												
DP-F+SO4 "As Received"												
Sulfate		8370	66.5	200	mg/L		500	JXH5	06/27/18	0003	1776005	2
Fluoride	U	ND	3.30	10.0	mg/L		100	MAR1	06/27/18	1140	1776005	3
Nutrient Analysis												
DP-NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite	U	ND	0.170	0.500	mg/L		10	AXH3	06/25/18	0657	1776650	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	06/26/18	0900	1776671

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 335.4 1993	
2	EPA:300.0	
3	EPA:300.0	
4	EPA:353.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 28, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- Discharge Permits

Client SDG: 2018-2760

Client Sample ID: WSTMO-18-155058
Sample ID: 453084003
Matrix: W
Collect Date: 20-JUN-18 08:35
Receive Date: 22-JUN-18
Collector: Client

Project: ESHL00118
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
DP-CN(TOTAL) "As Received"												
Cyanide, Total	J	1.94	1.67	5.00	ug/L	1.00	1	AXH3	06/26/18	1123	1776672	1
Ion Chromatography												
DP-F+SO4 "As Received"												
Sulfate		9310	66.5	200	mg/L		500	JXH5	06/27/18	0033	1776005	2
Fluoride	U	ND	3.30	10.0	mg/L		100	MAR1	06/27/18	1210	1776005	3
Nutrient Analysis												
DP-NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite	J	0.226	0.170	0.500	mg/L		10	AXH3	06/25/18	0658	1776650	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	06/26/18	0900	1776671

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 335.4 1993	
2	EPA:300.0	
3	EPA:300.0	
4	EPA:353.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: June 28, 2018

Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico

Contact: **Ms. Nita Patel**

Workorder: **453084**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Flow Injection Analysis											
Batch 1776672											
QC1204056823 452995002 DUP											
Cyanide, Total			41.0		40.9	ug/L	0.244		(0%-30%)	AXH3	06/26/18 11:19
QC1204056822 LCS											
Cyanide, Total	50.0				51.7	ug/L		103	(90%-110%)		06/26/18 11:17
QC1204056821 MB											
Cyanide, Total				U	ND	ug/L					06/26/18 11:16
QC1204056824 452995002 MS											
Cyanide, Total	100		41.0		139	ug/L		98	(90%-110%)		06/26/18 11:20
Ion Chromatography											
Batch 1776005											
QC1204055258 452995003 DUP											
Fluoride		U	ND	U	ND	mg/L	N/A			MAR1	06/27/18 14:40
Sulfate			2570		2580	mg/L	0.425		(0%-20%)		06/27/18 15:39
QC1204055257 LCS											
Fluoride	2.50				2.49	mg/L		99.4	(80%-120%)	JXH5	06/26/18 12:35
Sulfate	10.0				9.75	mg/L		97.5	(80%-120%)		
QC1204055256 MB											
Fluoride				U	ND	mg/L					06/26/18 12:06
Sulfate					0.00	mg/L					
QC1204055259 452995003 PS											
Fluoride	2.50	U	ND		2.42	mg/L		96.7	(75%-125%)	MAR1	06/27/18 15:09

QC Summary

Workorder: **453084**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1776005										
Sulfate	10.0	12.8		23.8	mg/L		110	(75%-125%)	MAR1	06/27/18 16:11
Nutrient Analysis										
Batch 1776650										
QC1204056770 452995002 DUP										
Nitrogen, Nitrate/Nitrite		1.44		1.43	mg/L	0.697 ^		(+/-0.500)	AXH3	06/25/18 06:47
QC1204056768 LCS										
Nitrogen, Nitrate/Nitrite	1.00			0.992	mg/L		99.2	(90%-110%)		06/25/18 06:34
QC1204056767 MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					06/25/18 06:32
QC1204056772 452995002 PS										
Nitrogen, Nitrate/Nitrite	1.00	0.144		1.14	mg/L		99.6	(90%-110%)		06/25/18 06:48

Notes:

<	Result is less than value reported
>	Result is greater than value reported
B	The target analyte was detected in the associated blank.
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
H	Analytical holding time was exceeded
J	Value is estimated
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

QC Summary

Workorder: **453084**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
e	5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2760
Work Order #: 453084

Product: **Ra228**
Analytical Method: EPA:904
Analytical Procedure: GL-RAD-A-063 REV# 2
Analytical Batch: 1774516

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453084002	WSTMO-18-155057
453084003	WSTMO-18-155058
1204051724	Method Blank (MB)
1204051725	452592005(NonSDG) Sample Duplicate (DUP)
1204051726	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Blank Information
Aliquots for samples 1204051724 (MB) and 1204051726 (LCS) were changed to 1.0 per client request.

Product: **Ra226**
Analytical Method: EPA:903.1
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 1774512

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453084002	WSTMO-18-155057
453084003	WSTMO-18-155058
1204051711	Method Blank (MB)
1204051712	452592005(NonSDG) Sample Duplicate (DUP)
1204051713	452592005(NonSDG) Matrix Spike (MS)
1204051714	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Blank Information
Aliquots for samples 1204051711 (MB) and 1204051714 (LCS) were changed to 1.0 per client request.

Miscellaneous Information

Additional Comments
The matrix spike, 1204051713 (Non SDG 452592005MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2760 GEL Work Order: 453084

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Heather M. McCarty **Name:** **Heather McCarty**

Date: **27 JUN 2018** **Title:** **Analyst II**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545 Report Date: June 27, 2018

Contact: Ms. Nita Patel
Project: LANL- Discharge Permits

Client Sample ID: WSTMO-18-155057
Sample ID: 453084002
Matrix: W
Collect Date: 20-JUN-18
Receive Date: 22-JUN-18
Collector: Client

Project: ESHL00118
Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting															
Ra228 "As Received"															
Radium-228		0.757	+/-0.221	0.631	0.274	+/-0.245	1.00	pCi/L			JXC9	06/27/18	1039	1774516	1
Rad Radium-226															
Ra226 "As Received"															
Radium-226		0.272	+/-0.107	0.260	0.079	+/-0.109	1.00	pCi/L			PCW	06/26/18	1025	1774512	2

The following Analytical Methods were performed

Method	Description
1	EPA:904
2	EPA:903.1

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	Ra228 "As Received"	1774516	63.2	(50%-105%)

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545 Report Date: June 27, 2018

Contact: Ms. Nita Patel
Project: LANL- Discharge Permits

Client Sample ID: WSTMO-18-155058 Project: ESHL00118
Sample ID: 453084003 Client ID: ARSL004
Matrix: W
Collect Date: 20-JUN-18
Receive Date: 22-JUN-18
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting															
Ra228 "As Received"															
Radium-228	U	0.467	+/-0.204	0.639	0.276	+/-0.215	1.00	pCi/L			JXC9	06/27/18	1039	1774516	1
Rad Radium-226															
Ra226 "As Received"															
Radium-226	U	0.0305	+/-0.0683	0.293	0.100	+/-0.0684	1.00	pCi/L			PCW	06/26/18	1025	1774512	2

The following Analytical Methods were performed

Method	Description
1	EPA:904
2	EPA:903.1

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	Ra228 "As Received"	1774516	58	(50%-105%)

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: June 27, 2018

Client : **Los Alamos National Laboratory**
TA-00, SM1237, Rm104C

Los Alamos, New Mexico

Contact: **Ms. Nita Patel**

Workorder: **453084**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1774516										
QC1204051725 452592005 DUP										
Radium-228	U	-0.248	U	0.276	pCi/L	0.846		(0-1)	JXC9	06/27/18 10:44
	Uncert:	+/-0.136		+/-0.169						
	TPU:	+/-0.136		+/-0.173						
**Barium-133 Tracer	195	176		146	CPM		74.8	(50%-105%)		
QC1204051726 LCS										
Radium-228	5.36			4.58	pCi/L		85.3	(80%-120%)	JXC9	06/27/18 10:44
	Uncert:			+/-0.319						
	TPU:			+/-0.706						
**Barium-133 Tracer	195			162	CPM		83.1	(50%-105%)		
QC1204051724 MB										
Radium-228			U	-0.059	pCi/L				JXC9	06/27/18 10:44
	Uncert:			+/-0.147						
	TPU:			+/-0.147						
**Barium-133 Tracer	195			161	CPM		83	(50%-105%)		
Rad Ra-226										
Batch 1774512										
QC1204051712 452592005 DUP										
Radium-226	U	-0.159	U	0.214	pCi/L	0.888		(0-1)	PCW	06/26/18 11:05
	Uncert:	+/-0.0955		+/-0.113						
	TPU:	+/-0.0955		+/-0.115						
QC1204051714 LCS										
Radium-226	13.0			10.8	pCi/L		83.1	(80%-120%)	PCW	06/26/18 11:05
	Uncert:			+/-0.480						
	TPU:			+/-1.02						
QC1204051711 MB										
Radium-226			U	-0.0331	pCi/L				PCW	06/26/18 11:05
	Uncert:			+/-0.0523						
	TPU:			+/-0.0523						
QC1204051713 452592005 MS										
Radium-226	130 U	-0.159		102	pCi/L		78.8	(75%-125%)	PCW	06/26/18 11:05
	Uncert:	+/-0.0955		+/-4.08						
	TPU:	+/-0.0955		+/-10.1						

Notes:

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

The Qualifiers in this report are defined as follows:

- ** Analyte is a Tracer compound
- < Result is less than value reported
- > Result is greater than value reported

QC Summary

Workorder: **453084**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date	Time

BD	Results are either below the MDC or tracer recovery is low
FA	Failed analysis.
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

June 28, 2018

Ms. Nita Patel
Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico 87545

Re: LANL- Discharge Permits
Work Order: 452995
SDG: 2018-2748

Dear Ms. Patel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on June 21, 2018, and analyzed for Explosives by LCMSMS, GC Semivolatile PCB, GC Semivolatile Pesticide, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

B Luthman

Brielle Luthman for
Valerie Davis
Project Manager

Chain of Custody: 2018-2748
Enclosures

ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- Discharge Permits
Workorder #: 452995
SDG # : 2018-2748

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....5

Data Review Qualifier Flag Definition Sheet.....17

Volatile Analysis.....20

Case Narrative.....21

Sample Data Summary.....24

Quality Control Summary.....31

Quality Control Data.....40

Semi-Volatile Analysis.....46

Case Narrative.....47

Sample Data Summary.....51

Quality Control Summary.....56

Quality Control Data.....66

Perchlorates by LCMSMS Analysis.....76

Case Narrative.....77

Sample Data Summary.....80

Quality Control Summary.....83

Quality Control Data.....88

Explosives by LCMSMS Analysis.....94

Case Narrative.....95

Sample Data Summary.....98
Quality Control Summary.....101
Quality Control Data.....105
Pesticide Analysis.....113
Case Narrative.....114
Sample Data Summary.....119
Quality Control Summary.....122
Quality Control Data.....129
PCB Analysis.....135
Case Narrative.....136
Sample Data Summary.....141
Quality Control Summary.....144
Quality Control Data.....150
Metals Analysis.....155
Case Narrative.....156
Sample Data Summary.....160
Quality Control Summary.....165
General Chem Analysis.....179
Case Narrative.....180
Sample Data Summary.....185
Quality Control Summary.....188

Radiological Analysis.....192

Case Narrative.....193

Sample Data Summary.....197

Quality Control Summary.....200

Case Narrative

Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- Discharge Permits
Workorder #: 452995
SDG # : 2018-2748

June 28, 2018

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on June 21, 2018 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperatures were checked, documented, and within specifications. Shipping container temperature was within specification (0 - 6C). Please see SRR regarding vials received with headspace for *452995008(WSTMO-18-155066), 452995012(WSTMO-18-155069)*.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
452995001	WSTMO-18-155071
452995002	WSTMO-18-155056
452995003	WSTMO-18-155059
452995004	WSTMO-18-155061
452995005	WSTMO-18-155064
452995006	WSTMO-18-155066
452995007	WSTMO-18-155066
452995008	WSTMO-18-155066
452995009	WSTMO-18-155066
452995010	WSTMO-18-155069
452995011	WSTMO-18-155069
452995012	WSTMO-18-155069
452995013	WSTMO-18-155069

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Explosives by LCMSMS,

GC Semivolatile PCB, GC Semivolatile Pesticide, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

B Luthman

Brielle Luthman for
Valerie Davis
Project Manager

List of current GEL Certifications as of 28 June 2018

State	Certification
Alaska	17−018
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA180011
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122018−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−18−13
Utah NELAP	SC000122018−26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation

452995

General Engineering
Charleston SC

Chain of Custody/Analysis Request

COC/Lab Request #: 2018-2748
Page 1 of 1

Client Contact:

Lab Agreement #:

Project Number: ~~[illegible]~~ AVL

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Days - ☒
14 Days - ☐
21 Days - ☐
28 Days - ☐ mm

Site Name: Los Alamos National Laboratory

Rad Screening Info: Less than mo

Lab Reporting Limit Type: Method Detection Limit

Field Sample ID	Sample Date	Sample Time	Sample Matrix	~~82008 Trip Blank~~ DP-TP-8260	DP-8082	DP-ClO4	DP-CN(TOTAL)	DP-F+SO4	DP-Hg	DP-Metals	DP-NO3NO2	DP-Ra226+228	DP-TP-8081	DP-TP-8260	DP-TP-8270	DP-TP-8330
WSTMO-18-155071	Jun 19 2018	8:20	W	1												
WSTMO-18-155056	Jun 19 2018	10:30	W				1	1		1	1	4				
WSTMO-18-155059	Jun 19 2018	8:20	W				1	1		1	1	4				
WSTMO-18-155061	Jun 19 2018	10:30	W						1							
WSTMO-18-155064	Jun 19 2018	8:20	W						1							
WSTMO-18-155066	Jun 19 2018	10:30	W		3	1							3	2	2	3
WSTMO-18-155069	Jun 19 2018	8:20	W		3	1							3	2	2	3

Special Instructions: VOA's have Air Bubbles from Sampling.

Relinquished by:	Print Name: Melissa Martinez	Date/Time: 6/21/18 300	Received by:	Print Name: Zachary Shown	Date/Time: 6/21/18 850
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ESHL	SDG/AR/COC/Work Order: 452995
Received By: ZKW	Date Received: 6/21/18
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other See Attached

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
Is package, COC, and/or Samples marked HAZ?		✓	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: See Attached
4	Daily check performed and passed on IR temperature gun?	✓			**Temperature Device Serial #:** IR3-18 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?			✓	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) One PCB Cont. for CALA-18-139 rec'd busted
6	Samples requiring chemical preservation at proper pH?			✓	Sample ID's and Containers Affected: WST Sample not preserved If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?	✓			If Yes, Are Encores or Soil Kits present? Yes___ No ✓ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes ✓ No___ N/A___ (If unknown, select No) VOA vials free of headspace? Yes___ No ✓ N/A___ Sample ID's and containers affected: See Below
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?			✓	Sample ID's affected: Collect Time for WT-SEP-155167 is 12:44, -155259 is 12:44, and -155349 is 12:41
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			

Comments (Use Continuation Form if needed):

VOA Vials rec'd w/headspace:
CALA-18-67, -60, -123, -137, -140, -144, -128
WSTMO-18-155069 (1 vial), -066 (2 vials), -364 (2 vials), and -945 (2 vials)

PM (or PMA) review: Initials TMC Date 6/22/18 Page 1 of 2

GL-CHL-SR-001 Rev 5

CEL | Laboratories LLC SAMPLE RECEIPT & REVIEW CONTINUATION FORM

Client: ESHL Received By: ZKW Date Received: 6/21/18 SDG/AR/COC/Work Order: 452995

FedEx Tracking #'s and Temps:

4414 1748 1848 - 13°C (Rchem)
4414 1748 1929 - 3°C
4414 1748 1892 - 12°C (Rchem)
4414 1748 1870 - 13°C (Rchem)
4414 1748 1984 - 3°C
4414 1748 1860 - 12°C (Rchem)
4414 1748 1907 - 3°C
4414 1748 1918 - 2°C
4401 2166 1081 - 4°C
4401 2166 1070 - 6°C
4401 2166 1107 - 3°C
4414 1748 1930 - 3°C
4401 2166 1059 - 3°C
4401 2166 1060 - 2°C
4414 1748 1951 - 4°C
4414 1748 1940 - 3°C
4414 1748 1995 - 2°C
4414 1748 1881 - 3°C
4414 1748 1973 - 2°C
4414 1748 1962 - 2°C
4401 2166 1048 - 4°C
4414 1748 1859 - 3°C

PM (or PMA) review: Initials TMC Date 6/22/18 Page 2 of 2

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 54.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: 100.30.003.05.211.0100.001

2c

546C2/93DF/53C1

FedEx Express

J171016102001uv

2 of 2
MPS# 0263 4414 1748 1995
Mstr# 4414 1748 1984

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

0201

X7 RBWA

29407
SC-US CHS

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 49.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: 100.30.003.05.211.0100.001

3c

546C2/93DF/53C1

FedEx Express

J171016102001uv

2 of 3
MPS# 0263 4414 1748 1881
Mstr# 4414 1748 1870

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

0201

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 06/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 52.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: 100.30.003.05.211.0100.001

2c

546C2/93DF/53C1

FedEx Express

J171016102001uv

2 of 2
MPS# 0263 4414 1748 1973
Mstr# 4414 1748 1962

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

0201

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 06/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, OP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 46.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

2c

546C1/48E5/53C1

FedEx Express

J171016102001uv

3 of 3
MPS# 0263 4401 2166 1060
Mstr# 4401 2166 1048

0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/19

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 47.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

4c

546C2/93BF/53C1

FedEx Express

J171016102001uv

3 of 3
MPS# 0263 4414 1748 1951
Mstr# 4414 1748 1930

0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 06/19

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 49.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3c

546C2/93BF/53C1

FedEx Express

J171016102001uv

2 of 3
MPS# 0263 4414 1748 1940
Mstr# 4414 1748 1930

0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 06/19

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 40.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

3c

546C1/48E5/53C1

FedEx Express

J171016102001uv

TRK# 0201 4401 2166 1107

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 54.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3c

546C2/930F/53C1

FedEx Express

J171016102001uv

1 of 3

TRK# 0201 4414 1748 1930
MASTER

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 46.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

3c

546C1/48E5/53C1

FedEx Express

J171016102001uv

2 of 3

MPS# 0263 4401 2166 1059
Mstr# 4401 2166 1048

0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 53.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: 100.30.003.05.211.0100.001

3c

546C2/93DF/53C1

FedEx Express

J171016102001uv

1 of 3

TRK# 0201 4414 1748 1907

MASTER

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 06/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 52.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: 100.30.003.05.211.0100.001

2c

546C2/93DF/53C1

FedEx Express

J171016102001uv

2 of 3

MPS# 0263 4414 1748 1918

Mstr# 4414 1748 1907

0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 06/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP OSU
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 56.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 566-8171
REF: 3N040ADH05000000000

4c

546C1/4BE5/53C1

FedEx Express

J171016102001uv

2 of 2

MPS# 0263 4401 2166 1081

Mstr# 4401 2166 1070

0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 50.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: 100.30.003.05.211.0100.001

3°C

546C2/93DF/53C1

FedEx Express

J17101610200Iuv

2 of 3
MPS# 0263 4414 1748 1859
Mstr# 4414 1748 1848 0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 46.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 566-8171
REF: 8A030AWE6L11570000

4°C

546C1/48E5/53C1

FedEx Express

J17101610200Iuv

1 of 3
TRK# 0201 4401 2166 1048
MASTER

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 48.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: 100.30.003.05.211.0100.001

2°C

546C2/93DF/53C1

FedEx Express

J17101610200Iuv

1 of 2
TRK# 0201 4414 1748 1962
MASTER

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 51.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

13°C
Rchem

546C2/93DF/53C1

FedEx Express

J171016102001uv

1 of 3

TRK# 0201 4414 1748 1870

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

MASTER

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 55.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3°C

546C2/93DF/53C1

FedEx Express

J171016102001uv

1 of 2

TRK# 0201 4414 1748 1984

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

MASTER

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 50.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

12°C
Rchem

546C2/93DF/53C1

FedEx Express

J171016102001uv

3 of 3

MPS# 0263 4414 1748 1860

Mstr# 4414 1748 1848

0201

X7 RBWA

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 50.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

13°C

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

Rchem

546C2/93DF/53C1

FedEx Express

E

J171016102001uv

1 of 3
TRK# 0201 4414 1748 1848
MASTER

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 40.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

3°C

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

546C2/93DF/53C1

E

J171016102001uv

3 of 3
MPS# 0263 4414 1748 1929
Mstr# 4414 1748 1907

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

0201

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

546C2/93DF/53C1

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 44.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

12°C

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

Rchem

FedEx Express

E

J171016102001uv

3 of 3
MPS# 0263 4414 1748 1892
Mstr# 4414 1748 1870

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

0201

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP OSU
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 27.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 3N040ADH0500000000

6c

546C1/4BE5/53C1

FedEx Express

J17101610200 1uv

1 of 2

TRK# 0201 4401 2166 1070

MASTER

X7 RBWA

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference. For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Volatile Analysis

Case Narrative

GC/MS Volatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2748
Work Order #: 452995

Product: **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method: SW-846:8260B
Analytical Procedure: GL-OA-E-038 REV# 26
Analytical Batch: 1776921

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
452995001	WSTMO-18-155071
452995008	WSTMO-18-155066
452995012	WSTMO-18-155069
1204057542	Method Blank (MB)
1204057544	Laboratory Control Sample (LCS)
1204057546	452586001(NonSDG) Post Spike (PS)
1204057547	452586001(NonSDG) Post Spike Duplicate (PSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Preservation and Integrity
Sample 452995008 (WSTMO-18-155066) contained head-space greater than pea size. The Project Manager was notified and the results are reported. Preservation for sample 452995008 (WSTMO-18-155066) was indicated on the vial, however the sample pH value was above 2. The sample was analyzed within 7 days from collection.

Miscellaneous Information

TIC Comment
Tentatively identified compounds (TIC) may be requested for samples 452995001 (WSTMO-18-155071), 452995008 (WSTMO-18-155066) and 452995012 (WSTMO-18-155069) in this delivery group/work order. Please note that non-requested calibrated analytes detected in a client sample may be reported on the Form 1/Certificate of Analysis as TICs. TIC data, if requested, were included on the Sample Data Summary (Form 1) and included with the sample raw data.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2748 GEL Work Order: 452995

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name: Erin Haubert**

Date: 27 JUN 2018 **Title: Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 08:20**	**Matrix:**	**W**
Lab Sample ID:	**452995001**	**Date Received:**	**06/21/2018 08:50**		
		Client:	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155071**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 13:45**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 13:45**				
Data File:	**062618V4\4O209.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)	U	0.300	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	55.6	50.0	ug/L	111	(71%-134%)
Bromofluorobenzene	52.3	50.0	ug/L	105	(70%-131%)
Toluene-d8	46.1	50.0	ug/L	92	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 08:20**	**Matrix:**	**W**
Lab Sample ID:	**452995001**	**Date Received:**	**06/21/2018 08:50**		
		Client:	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155071**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 13:45**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 13:45**				
Data File:	**062618V4\4O209.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	4.301	35.7	ug/L	0	J
	unknown siloxane	12.095	22.1	ug/L	0	J
	unknown siloxane	14.473	29.1	ug/L	0	J
	unknown	16.424	15.1	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**452995008**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155066**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 14:15**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 14:15**				
Data File:	**062618V4\4O210.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)	U	0.300	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	J	0.540	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform		1.16	ug/L	0.300	1.00
74-87-3	Chloromethane	J	0.550	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	58.7	50.0	ug/L	117	(71%-134%)
Bromofluorobenzene	54.0	50.0	ug/L	108	(70%-131%)
Toluene-d8	44.2	50.0	ug/L	88	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**452995008**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155066**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 14:15**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 14:15**				
Data File:	**062618V4\4O210.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	4.246	175	ug/L	0	J
000075-18-3	Dimethyl sulfide	7.108	6.87	ug/L	95	NJ
	unknown	16.423	8.33	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 08:20**	**Matrix:**	**W**
Lab Sample ID:	**452995012**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155069**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 14:44**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 14:44**				
Data File:	**062618V4\4O211.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)	U	0.300	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		2.91	ug/L	0.300	1.00
75-25-2	Bromoform	J	0.510	ug/L	0.300	1.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform		3.61	ug/L	0.300	1.00
74-87-3	Chloromethane		8.31	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	57.5	50.0	ug/L	115	(71%-134%)
Bromofluorobenzene	50.4	50.0	ug/L	101	(70%-131%)
Toluene-d8	41.9	50.0	ug/L	84	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 08:20**	**Matrix:**	**W**
Lab Sample ID:	**452995012**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155069**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 14:44**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 14:44**				
Data File:	**062618V4\4O211.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	4.246	113	ug/L	0	J
	unknown siloxane	14.473	6	ug/L	0	J
	unknown	16.423	8.55	ug/L	0	J

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2018-2748

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1204057544	LCS for batch 1776921	103	90	104
1204057542	MB for batch 1776921	104	92	106
452995001	WSTMO-18-155071	111	92	105
452995008	WSTMO-18-155066	117	88	108
452995012	WSTMO-18-155069	115	84	101
1204057546	CAPU-18-77PS	121	92	106
1204057547	CAPU-18-77PSD	115	91	107

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(71%-134%)
TOL	= Toluene-d8	(74%-124%)
BFB	= Bromofluorobenzene	(70%-131%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **LCS for batch 1776921**
Lab Sample ID **1204057544**
Instrument: **VOA4.I**
Analyst: **MXL2**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/26/2018 10:48**
Dilution: 1
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
542-75-6	LCS	1,3-Dichloropropylene(total) *1,3-Dichloropropylene*	100	0.0	97.7	98	78-134
179601-23-1	LCS	m,p-Xylenes	100	0.0	92.2	92	71-127
1330-20-7	LCS	Xylenes (total)	150	0.0	138	92	73-125
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	62.6	125	40-160
74-87-3	LCS	Chloromethane	50.0	0.0	49.8	100	58-135
75-01-4	LCS	Vinyl chloride	50.0	0.0	55.3	111	65-137
74-83-9	LCS	Bromomethane	50.0	0.0	52.9	106	63-137
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	57.6	115	69-138
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	54.7	109	66-126
75-09-2	LCS	Methylene chloride	50.0	0.0	49.3	99	68-119
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	48.9	98	76-128
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	50.8	102	71-124
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	49.3	99	73-123
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	49.3	99	75-123
67-66-3	LCS	Chloroform	50.0	0.0	52.6	105	76-123
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	57.0	114	74-136
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	59.4	119	72-140
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	53.1	106	74-122
71-43-2	LCS	Benzene	50.0	0.0	48.3	97	72-121
79-01-6	LCS	Trichloroethylene	50.0	0.0	51.6	103	74-125
75-27-4	LCS	Bromodichloromethane	50.0	0.0	52.1	104	77-131
108-88-3	LCS	Toluene	50.0	0.0	45.0	90	71-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Sample Type: **Laboratory Control Sample**
Client ID: **LCS for batch 1776921**
Matrix: **WATER**
Lab Sample ID **1204057544**
Instrument: **VOA4.I**
Analysis Date: **06/26/2018 10:48**
Dilution: 1
Analyst: **MXL2**
Purge Vol: **5 mL**
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	43.0	86	74-118
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	49.5	99	69-129
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	47.1	94	78-122
108-90-7	LCS	Chlorobenzene	50.0	0.0	46.6	93	74-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	47.5	95	73-125
95-47-6	LCS	o-Xylene	50.0	0.0	46.0	92	74-126
75-25-2	LCS	Bromoform	50.0	0.0	48.8	98	72-136
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	45.2	90	70-126
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	46.8	94	71-120

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **CAPU-18-77PS**
Lab Sample ID **1204057546**
Instrument: **VOA4.I**
Analyst: **MXL2**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **06/26/2018 19:08**
Dilution: 1
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	80.5	81	59-132
542-75-6	PS	1,3-Dichloropropylene(total) *1,3-Dichloropropylene*	100			95.0	95	89-125
1330-20-7	PS	Xylenes (total)	150			123	82	60-131
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	57.1	114	33-164
74-87-3	PS	Chloromethane	50.0	0.00	U	39.4	79	53-139
75-01-4	PS	Vinyl chloride	50.0	0.00	U	43.1	86	58-140
74-83-9	PS	Bromomethane	50.0	0.00	U	45.9	92	59-146
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	55.5	111	65-141
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	49.3	99	59-130
75-09-2	PS	Methylene chloride	50.0	0.00	U	45.4	91	62-123
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	48.5	97	69-132
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	46.4	93	65-127
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	45.6	91	67-127
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	44.3	89	69-127
67-66-3	PS	Chloroform	50.0	0.00	U	51.6	103	71-129
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	54.1	108	69-139
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	56.0	112	66-143
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	57.7	115	69-130
71-43-2	PS	Benzene	50.0	0.00	U	42.7	85	66-125
79-01-6	PS	Trichloroethylene	50.0	0.00	U	46.8	94	65-131
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	53.3	107	70-138
108-88-3	PS	Toluene	50.0	0.00	U	39.3	79	60-126

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **CAPU-18-77PS**
Lab Sample ID **1204057546**
Instrument: **VOA4.I**
Analyst: **MXL2**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **06/26/2018 19:08**
Dilution: 1
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	41.7	83	66-125
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	41.7	83	60-130
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	45.3	91	71-127
108-90-7	PS	Chlorobenzene	50.0	0.00	U	42.0	84	64-124
100-41-4	PS	Ethylbenzene	50.0	0.00	U	41.8	84	61-130
95-47-6	PS	o-Xylene	50.0	0.00	U	42.6	85	62-131
75-25-2	PS	Bromoform	50.0	0.00	U	45.3	91	64-138
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	40.2	80	62-129
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	40.6	81	55-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **CAPU-18-77PSD**
Lab Sample ID **1204057547**
Instrument: **VOA4.I**
Analyst: **MXL2**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **06/26/2018 19:37**
Dilution: 1
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	81.8	82	59-132	2	0-20
542-75-6	PSD	1,3-Dichloropropylene(total) *1,3-Dichloropropylene*	100			93.7	94	89-125	1	0-20
1330-20-7	PSD	Xylenes (total)	150			125	83	60-131	1	0-20
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	56.7	113	33-164	1	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	42.7	85	53-139	8	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	46.1	92	58-140	7	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	46.9	94	59-146	2	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	54.6	109	65-141	2	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	49.0	98	59-130	1	0-20
75-09-2	PSD	Methylene chloride	50.0	0.00	U	46.5	93	62-123	2	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	48.1	96	69-132	1	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	46.0	92	65-127	1	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	45.3	91	67-127	1	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	44.8	90	69-127	1	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	50.8	102	71-129	2	0-20
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	53.5	107	69-139	1	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	55.2	110	66-143	1	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	55.5	111	69-130	4	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	43.1	86	66-125	1	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	46.9	94	65-131	0	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	51.3	103	70-138	4	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	39.8	80	60-126	1	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **CAPU-18-77PSD**
Lab Sample ID **1204057547**
Instrument: **VOA4.I**
Analyst: **MXL2**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **06/26/2018 19:37**
Dilution: 1
Batch ID: **1776921**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	42.1	84	66-125	1	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	42.3	85	60-130	1	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	45.3	91	71-127	0	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	42.1	84	64-124	0	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	42.2	84	61-130	1	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	42.9	86	62-131	1	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	45.5	91	64-138	0	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	41.8	84	62-129	4	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	41.5	83	55-125	2	0-20

Method Blank Summary

SDG Number:	**2018-2748**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1776921**	**Instrument ID:**	**VOA4.I**	**Data File:**	**062618V4\4O206A.D**
Lab Sample ID:	**1204057542**	**Prep Date:**	**06/26/2018 12:16**	**Analyzed:**	**06/26/18 12:16**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1776921	1204057544	062618V4\4O203A.D	06/26/18	1048
02 WSTMO-18-155071	452995001	062618V4\4O209.D	06/26/18	1345
03 WSTMO-18-155066	452995008	062618V4\4O210.D	06/26/18	1415
04 WSTMO-18-155069	452995012	062618V4\4O211.D	06/26/18	1444
05 CAPU-18-77PS	1204057546	062618V4\4O220.D	06/26/18	1908
06 CAPU-18-77PSD	1204057547	062618V4\4O221.D	06/26/18	1937

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**WATER**
Lab Sample ID:	**1204057542**				
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776921**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 12:16**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 12:16**				
Data File:	**062618V4\4O206A.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)	U	0.300	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
75-09-2	Methylene chloride	U	1.00	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	52.0	50.0	ug/L	104	(71%-134%)
Bromofluorobenzene	53.1	50.0	ug/L	106	(70%-131%)
Toluene-d8	46.2	50.0	ug/L	92	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**WATER**
Lab Sample ID:	**1204057542**				
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776921**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 12:16**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 12:16**				
Data File:	**062618V4\4O206A.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	4.293	18.7	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**WATER**
Lab Sample ID:	**1204057544**				
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776921**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 10:48**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 10:48**				
Data File:	**062618V4\4O203A.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		57.0	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		45.2	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		43.0	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		49.3	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		54.7	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		47.1	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		53.1	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)		97.7	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene		46.8	ug/L	0.300	1.00
71-43-2	Benzene		48.3	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		52.1	ug/L	0.300	1.00
75-25-2	Bromoform		48.8	ug/L	0.300	1.00
74-83-9	Bromomethane		52.9	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride		59.4	ug/L	0.300	1.00
108-90-7	Chlorobenzene		46.6	ug/L	0.300	1.00
67-66-3	Chloroform		52.6	ug/L	0.300	1.00
74-87-3	Chloromethane		49.8	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		62.6	ug/L	0.300	1.00
100-41-4	Ethylbenzene		47.5	ug/L	0.300	1.00
75-09-2	Methylene chloride		49.3	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene		49.5	ug/L	0.300	1.00
108-88-3	Toluene		45.0	ug/L	0.300	1.00
79-01-6	Trichloroethylene		51.6	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		57.6	ug/L	0.300	1.00
75-01-4	Vinyl chloride		55.3	ug/L	0.300	1.00
1330-20-7	Xylenes (total)		138	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		49.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		92.2	ug/L	0.300	2.00
95-47-6	o-Xylene		46.0	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether		48.9	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		50.8	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	51.4	50.0	ug/L	103	(71%-134%)
Bromofluorobenzene	51.9	50.0	ug/L	104	(70%-131%)
Toluene-d8	45.1	50.0	ug/L	90	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/12/2018 12:33**	**Matrix:**	**W**
Lab Sample ID:	**1204057546**	**Date Received:**	**06/15/2018 09:05**		
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAPU-18-77PS**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 19:08**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 19:08**				
Data File:	**062618V4\4O220.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		54.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		40.2	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		41.7	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		45.6	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		49.3	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		45.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		57.7	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)		95.0	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene		40.6	ug/L	0.300	1.00
71-43-2	Benzene		42.7	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		53.3	ug/L	0.300	1.00
75-25-2	Bromoform		45.3	ug/L	0.300	1.00
74-83-9	Bromomethane		45.9	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride		56.0	ug/L	0.300	1.00
108-90-7	Chlorobenzene		42.0	ug/L	0.300	1.00
67-66-3	Chloroform		51.6	ug/L	0.300	1.00
74-87-3	Chloromethane		39.4	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		57.1	ug/L	0.300	1.00
100-41-4	Ethylbenzene		41.8	ug/L	0.300	1.00
75-09-2	Methylene chloride		45.4	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene		41.7	ug/L	0.300	1.00
108-88-3	Toluene		39.3	ug/L	0.300	1.00
79-01-6	Trichloroethylene		46.8	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		55.5	ug/L	0.300	1.00
75-01-4	Vinyl chloride		43.1	ug/L	0.300	1.00
1330-20-7	Xylenes (total)		123	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		44.3	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		80.5	ug/L	0.300	2.00
95-47-6	o-Xylene		42.6	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether		48.5	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		46.4	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	60.4	50.0	ug/L	121	(71%-134%)
Bromofluorobenzene	53.0	50.0	ug/L	106	(70%-131%)
Toluene-d8	45.8	50.0	ug/L	92	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/12/2018 12:33**	**Matrix:**	**W**
Lab Sample ID:	**1204057547**	**Date Received:**	**06/15/2018 09:05**		
Client Sample:	**QC for batch 1776921**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CAPU-18-77PSD**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1776921**	**Inst:**	**VOA4.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 19:37**	**Analyst:**	**MXL2**	**Purge Vol:**	**5 mL**
Prep Date:	**06/26/2018 19:37**				
Data File:	**062618V4\4O221.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		53.5	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		41.8	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		42.1	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		45.3	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		49.0	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		45.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		55.5	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)		93.7	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene		41.5	ug/L	0.300	1.00
71-43-2	Benzene		43.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		51.3	ug/L	0.300	1.00
75-25-2	Bromoform		45.5	ug/L	0.300	1.00
74-83-9	Bromomethane		46.9	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride		55.2	ug/L	0.300	1.00
108-90-7	Chlorobenzene		42.1	ug/L	0.300	1.00
67-66-3	Chloroform		50.8	ug/L	0.300	1.00
74-87-3	Chloromethane		42.7	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		56.7	ug/L	0.300	1.00
100-41-4	Ethylbenzene		42.2	ug/L	0.300	1.00
75-09-2	Methylene chloride		46.5	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene		42.3	ug/L	0.300	1.00
108-88-3	Toluene		39.8	ug/L	0.300	1.00
79-01-6	Trichloroethylene		46.9	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		54.6	ug/L	0.300	1.00
75-01-4	Vinyl chloride		46.1	ug/L	0.300	1.00
1330-20-7	Xylenes (total)		125	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		44.8	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		81.8	ug/L	0.300	2.00
95-47-6	o-Xylene		42.9	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether		48.1	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		46.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	57.4	50.0	ug/L	115	(71%-134%)
Bromofluorobenzene	53.3	50.0	ug/L	107	(70%-131%)
Toluene-d8	45.6	50.0	ug/L	91	(74%-124%)

Semi-Volatile Analysis

Case Narrative

GC/MS Semivolatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2748
Work Order #: 452995

Product: **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method: SW846 3510C/8270D
Analytical Procedure: GL-OA-E-009 REV# 40
Analytical Batch: 1776093

Preparation Method: SW846 3510C
Preparation Procedure: GL-OA-E-013 REV# 32
Preparation Batch: 1776091

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
452995008	WSTMO-18-155066
452995012	WSTMO-18-155069
1204055490	Method Blank (MB)
1204055491	Laboratory Control Sample (LCS)
1204055492	452885002(NonSDG) Matrix Spike (MS)
1204055493	452885002(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

CCV Requirements
All Calibration Verification Standards (CCV) did not meet the acceptance criteria as outlined in Method 8270D for samples 452995008 (WSTMO-18-155066) and 452995012 (WSTMO-18-155069) and the associated QC. However, the method allows for a designated number of outliers dependent on the requested analyte list. This SDG satisfied the 8270D outlier acceptance criteria. If required, a CRDL was analyzed after the CCVs to demonstrate that there is adequate sensitivity to detect the failed compounds at the applicable lower quantitation limit.

Quality Control (QC) Information

Surrogate Recoveries
Samples (See Below) did not meet surrogate recovery acceptance criteria. The surrogate failures were confirmed by re-extraction and analysis. The original extraction results have been reported.

Sample	Analyte	Value
452995008 (WSTMO-18-155066)	2, 4, 6-Tribromophenol	7* (32%-124%)

	2-Fluorobiphenyl	9* (32%-112%)
	2-Fluorophenol	5* (15%-88%)
	Nitrobenzene-d5	16* (36%-115%)
	Phenol-d5	7* (15%-91%)
	p-Terphenyl-d14	11* (36%-121%)
452995012 (WSTMO-18-155069)	2, 4, 6-Tribromophenol	3* (32%-124%)
	2-Fluorobiphenyl	5* (32%-112%)
	2-Fluorophenol	12* (15%-88%)
	Nitrobenzene-d5	4* (36%-115%)
	Phenol-d5	10* (15%-91%)
	p-Terphenyl-d14	15* (36%-121%)

This batch included the original data. 452995008 (WSTMO-18-155066) and 452995012 (WSTMO-18-155069).

Spike Recovery Statement
The MS or MSD (See Below) recovered spiked analytes outside of the established acceptance limits. As similar recoveries were displayed in the MS and MSD, the failures were attributed to sample matrix interference and the data were reported.

Sample	Analyte	Value
1204055492 (Non SDG 452885002MS)	Hexachlorocyclopentadiene	18* (26%-79%)
1204055493 (Non SDG 452885002MSD)	Hexachlorocyclopentadiene	20* (26%-79%)

Technical Information

Sample Dilutions
Sample 1204055491 (LCS) was diluted due to the presence of one or more over-range target analytes.

Sample Re-extraction/Re-analysis
Samples 452995008 (WSTMO-18-155066) and 452995012 (WSTMO-18-155069) were scheduled for re-extraction due to surrogate failure and/or batch QC failure.

Miscellaneous Information

TIC Comment
Tentatively identified compounds (TIC) were requested for samples 452995008 (WSTMO-18-155066) and 452995012 (WSTMO-18-155069) in this SDG in this batch.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2748 GEL Work Order: 452995

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
E Concentration of the target analyte exceeds the instrument calibration range
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
h Preparation or preservation holding time was exceeded

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Cameron Bearden **Name: Cameron Bearden**

Date: 28 JUN 2018 **Title: Group Leader**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**452995008**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155066**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 14:12**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**970 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2514.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.09	ug/L	3.09	10.3
122-66-7	1,2-Diphenylhydrazine	U	3.09	ug/L	3.09	10.3
90-12-0	1-Methylnaphthalene	U	0.309	ug/L	0.309	1.03
95-95-4	2,4,5-Trichlorophenol	U	3.09	ug/L	3.09	10.3
88-06-2	2,4,6-Trichlorophenol	U	3.09	ug/L	3.09	10.3
120-83-2	2,4-Dichlorophenol	U	3.09	ug/L	3.09	10.3
51-28-5	2,4-Dinitrophenol	U	5.15	ug/L	5.15	20.6
121-14-2	2,4-Dinitrotoluene	U	3.09	ug/L	3.09	10.3
606-20-2	2,6-Dinitrotoluene	U	3.09	ug/L	3.09	10.3
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.09	ug/L	3.09	10.3
91-57-6	2-Methylnaphthalene	U	0.309	ug/L	0.309	1.03
91-94-1	3,3'-Dichlorobenzidine	U	3.09	ug/L	3.09	10.3
120-12-7	Anthracene	U	0.309	ug/L	0.309	1.03
92-87-5	Benzidine	U	4.02	ug/L	4.02	10.3
50-32-8	Benzo(a)pyrene	U	0.309	ug/L	0.309	1.03
205-99-2	Benzo(b)fluoranthene	U	0.309	ug/L	0.309	1.03
207-08-9	Benzo(k)fluoranthene	U	0.309	ug/L	0.309	1.03
84-74-2	Di-n-butylphthalate	U	0.309	ug/L	0.309	10.3
84-66-2	Diethylphthalate	U	0.309	ug/L	0.309	10.3
131-11-3	Dimethylphthalate	U	0.309	ug/L	0.309	10.3
122-39-4	Diphenylamine	U	3.09	ug/L	3.09	10.3
206-44-0	Fluoranthene	U	0.309	ug/L	0.309	1.03
86-73-7	Fluorene	U	0.309	ug/L	0.309	1.03
118-74-1	Hexachlorobenzene	U	3.09	ug/L	3.09	10.3
87-68-3	Hexachlorobutadiene	U	3.09	ug/L	3.09	10.3
77-47-4	Hexachlorocyclopentadiene	U	3.09	ug/L	3.09	10.3
67-72-1	Hexachloroethane	U	3.09	ug/L	3.09	10.3
78-59-1	Isophorone	U	3.61	ug/L	3.61	10.3
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.09	ug/L	3.09	10.3
924-16-3	N-Nitrosodi-n-butylamine	U	3.09	ug/L	3.09	10.3
55-18-5	N-Nitrosodiethylamine	U	3.09	ug/L	3.09	10.3
930-55-2	N-Nitrosopyrrolidine	U	3.09	ug/L	3.09	10.3
91-20-3	Naphthalene	U	0.309	ug/L	0.309	1.03
98-95-3	Nitrobenzene	U	3.09	ug/L	3.09	10.3
	PAHs(total naphthalene plus monomethylnaphthalenes)	U		ug/L		
608-93-5	Pentachlorobenzene	U	3.09	ug/L	3.09	10.3
87-86-5	Pentachlorophenol	U	3.09	ug/L	3.09	10.3
85-01-8	Phenanthrene	U	0.309	ug/L	0.309	1.03

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**452995008**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155066**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 14:12**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**970 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2514.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol	U	3.09	ug/L	3.09	10.3
129-00-0	Pyrene	U	0.309	ug/L	0.309	1.03
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.09	ug/L	3.09	10.3
111-44-4	bis(2-Chloroethyl) ether	U	3.09	ug/L	3.09	10.3
117-81-7	bis(2-Ethylhexyl)phthalate	U	0.309	ug/L	0.309	1.03

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
2,4,6-Tribromophenol	10.3	103	ug/L	7	*	(32%-124%)
2-Fluorobiphenyl	10.3	51.5	ug/L	9	*	(32%-112%)
2-Fluorophenol	10.3	103	ug/L	5	*	(15%-88%)
Nitrobenzene-d5	10.3	51.5	ug/L	16	*	(36%-115%)
Phenol-d5	10.3	103	ug/L	7	*	(15%-91%)
p-Terphenyl-d14	10.3	51.5	ug/L	11	*	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	2.237	70.9	ug/L	95	NJ
	unknown	6.399	5.3	ug/L	0	J
000112-36-7	Ethane, 1,1'-oxybis[2-ethoxy-]	6.757	25.9	ug/L	90	NJ
000143-24-8	2,5,8,11,14-Pentaoxapentadecane	10.137	7.35	ug/L	90	NJ
	unknown	10.892	4.28	ug/L	0	J

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 08:20**	**Matrix:**	**W**
Lab Sample ID:	**452995012**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155069**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 14:42**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**930 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2515.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.23	ug/L	3.23	10.8
122-66-7	1,2-Diphenylhydrazine	U	3.23	ug/L	3.23	10.8
90-12-0	1-Methylnaphthalene	U	0.323	ug/L	0.323	1.08
95-95-4	2,4,5-Trichlorophenol	U	3.23	ug/L	3.23	10.8
88-06-2	2,4,6-Trichlorophenol	U	3.23	ug/L	3.23	10.8
120-83-2	2,4-Dichlorophenol	U	3.23	ug/L	3.23	10.8
51-28-5	2,4-Dinitrophenol	U	5.38	ug/L	5.38	21.5
121-14-2	2,4-Dinitrotoluene	U	3.23	ug/L	3.23	10.8
606-20-2	2,6-Dinitrotoluene	U	3.23	ug/L	3.23	10.8
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.23	ug/L	3.23	10.8
91-57-6	2-Methylnaphthalene	U	0.323	ug/L	0.323	1.08
91-94-1	3,3'-Dichlorobenzidine	U	3.23	ug/L	3.23	10.8
120-12-7	Anthracene	U	0.323	ug/L	0.323	1.08
92-87-5	Benzidine	U	4.19	ug/L	4.19	10.8
50-32-8	Benzo(a)pyrene	U	0.323	ug/L	0.323	1.08
205-99-2	Benzo(b)fluoranthene	U	0.323	ug/L	0.323	1.08
207-08-9	Benzo(k)fluoranthene	U	0.323	ug/L	0.323	1.08
84-74-2	Di-n-butylphthalate	U	0.323	ug/L	0.323	10.8
84-66-2	Diethylphthalate	U	0.323	ug/L	0.323	10.8
131-11-3	Dimethylphthalate	U	0.323	ug/L	0.323	10.8
122-39-4	Diphenylamine	U	3.23	ug/L	3.23	10.8
206-44-0	Fluoranthene	U	0.323	ug/L	0.323	1.08
86-73-7	Fluorene	U	0.323	ug/L	0.323	1.08
118-74-1	Hexachlorobenzene	U	3.23	ug/L	3.23	10.8
87-68-3	Hexachlorobutadiene	U	3.23	ug/L	3.23	10.8
77-47-4	Hexachlorocyclopentadiene	U	3.23	ug/L	3.23	10.8
67-72-1	Hexachloroethane	U	3.23	ug/L	3.23	10.8
78-59-1	Isophorone	U	3.76	ug/L	3.76	10.8
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.23	ug/L	3.23	10.8
924-16-3	N-Nitrosodi-n-butylamine	U	3.23	ug/L	3.23	10.8
55-18-5	N-Nitrosodiethylamine	U	3.23	ug/L	3.23	10.8
930-55-2	N-Nitrosopyrrolidine	U	3.23	ug/L	3.23	10.8
91-20-3	Naphthalene	U	0.323	ug/L	0.323	1.08
98-95-3	Nitrobenzene	U	3.23	ug/L	3.23	10.8
	PAHs(total naphthalene plus monomethylnaphthalenes)	U		ug/L		
608-93-5	Pentachlorobenzene	U	3.23	ug/L	3.23	10.8
87-86-5	Pentachlorophenol	U	3.23	ug/L	3.23	10.8
85-01-8	Phenanthrene	U	0.323	ug/L	0.323	1.08

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 08:20**	**Matrix:**	**W**
Lab Sample ID:	**452995012**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155069**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 14:42**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**930 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2515.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol	U	3.23	ug/L	3.23	10.8
129-00-0	Pyrene	U	0.323	ug/L	0.323	1.08
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.23	ug/L	3.23	10.8
111-44-4	bis(2-Chloroethyl) ether	U	3.23	ug/L	3.23	10.8
117-81-7	bis(2-Ethylhexyl)phthalate	U	0.323	ug/L	0.323	1.08

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
2,4,6-Tribromophenol	10.8	108	ug/L	3	*	(32%-124%)
2-Fluorobiphenyl	10.8	53.8	ug/L	5	*	(32%-112%)
2-Fluorophenol	13.2	108	ug/L	12	*	(15%-88%)
Nitrobenzene-d5	10.8	53.8	ug/L	4	*	(36%-115%)
Phenol-d5	11.0	108	ug/L	10	*	(15%-91%)
p-Terphenyl-d14	10.8	53.8	ug/L	15	*	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.061	25.3	ug/L	0	J
	unknown	2.179	9.73	ug/L	0	J
000067-66-3	Trichloromethane	2.227	80	ug/L	95	NJ
000814-78-8	3-Buten-2-one, 3-methyl-	2.575	14.1	ug/L	91	NJ
	unknown	2.644	10.4	ug/L	0	J
	unknown	3.628	22.7	ug/L	0	J
	unknown	3.949	13.3	ug/L	0	J
000112-36-7	Ethane, 1,1'-oxybis[2-ethoxy-]	6.757	13	ug/L	90	NJ
000143-24-8	2,5,8,11,14-Pentaoxapentadecane	10.137	5.08	ug/L	90	NJ
	unknown	13.304	5.65	ug/L	0	J

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2018-2748

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC		PHL %REC		NBZ %REC		FBP %REC		TBP %REC		TPH %REC	
1204055490	MB for batch 1776091	45		27		92		64		85		87	
1204055491	LCS for batch 1776091	47		30		86		70		102		95	
1204055491	LCS for batch 1776091DL	44	D	28	D	85	D	66	D	95	D	98	D
452995008	WSTMO-18-155066	5 *		7 *		16 *		9 *		7 *		11 *	
452995012	WSTMO-18-155069	12 *		10 *		4 *		5 *		3 *		15 *	
1204055492	CALA-18-69MS	69		59		86		72		92		118	
1204055493	CALA-18-69MSD	70		59		83		70		95		111	

Surrogate		Acceptance Limits
2FP	= 2-Fluorophenol	(15%-88%)
PHL	= Phenol-d5	(15%-91%)
NBZ	= Nitrobenzene-d5	(36%-115%)
FBP	= 2-Fluorobiphenyl	(32%-112%)
TBP	= 2,4,6-Tribromophenol	(32%-124%)
TPH	= p-Terphenyl-d14	(36%-121%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **LCS for batch 1776091**
Lab Sample ID **1204055491**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/25/2018 11:15**
Prep Batch ID: **1776091**
Batch ID: **1776093**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylamine	50.0	0.0	25.2	50	30-88
108-95-2	LCS	Phenol	50.0	0.0	16.1	32	16-82
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	40.7	81	51-111
108-60-1	LCS	bis(2-Chloro-1-methylethyl)ether	50.0	0.0	49.4	99	44-123
67-72-1	LCS	Hexachloroethane	50.0	0.0	30.8	62	36-96
98-95-3	LCS	Nitrobenzene	50.0	0.0	45.7	91	53-115
78-59-1	LCS	Isophorone	50.0	0.0	42.7	85	56-117
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	42.8	86	53-109
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	34.9	70	35-98
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	35.1	70	42-103
91-20-3	LCS	Naphthalene	50.0	0.0	33.3	67	44-102
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	38.0	76	45-108
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	18.1	36	34-89
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	42.5	85	55-120
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	40.0	80	55-116
131-11-3	LCS	Dimethylphthalate	50.0	0.0	44.4	89	60-122
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	47.2	94	59-122
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	51.8	104	57-124
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	40.8	82	34-122
84-66-2	LCS	Diethylphthalate	50.0	0.0	49.2	98	57-122
86-73-7	LCS	Fluorene	50.0	0.0	42.4	85	52-114
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	40.6	81	45-124

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **LCS for batch 1776091**
Lab Sample ID **1204055491**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/25/2018 11:15**
Prep Batch ID: **1776091**
Batch ID: **1776093**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
122-39-4	LCS	Diphenylamine	50.0	0.0	36.9	74	55-113
122-66-7	LCS	1,2-Diphenylhydrazine	50.0	0.0	38.3	77	53-115
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	39.7	79	54-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	44.2	88	41-116
85-01-8	LCS	Phenanthrene	50.0	0.0	38.8	78	55-110
120-12-7	LCS	Anthracene	50.0	0.0	39.4	79	56-112
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	45.4	91	57-123
206-44-0	LCS	Fluoranthene	50.0	0.0	46.4	93	54-118
129-00-0	LCS	Pyrene	50.0	0.0	41.9	84	49-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	40.0	80	52-125
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	43.5	87	41-118
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	44.8	90	42-121
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	41.1	82	40-118
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	43.9	88	54-113
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	33.2	66	44-102
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	42.3	85	43-127

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **LCS for batch 1776091DL**
Lab Sample ID **1204055491**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/25/2018 13:43**
Dilution: 2
Prep Batch ID: **1776091**
Batch ID: **1776093**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
92-87-5	LCS	Benzidine	100	0.0	81.2	81	20-144

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **CALA-18-69MS**
Lab Sample ID **1204055492**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **06/25/2018 16:16**
Prep Batch ID: **1776091**
Batch ID: **1776093**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylamine	145	0.00	U	98.6	68	25-106
108-95-2	MS	Phenol	145	0.00	U	90.3	62	23-82
111-44-4	MS	bis(2-Chloroethyl) ether	145	0.00	U	119	82	39-114
108-60-1	MS	bis(2-Chloro-1-methylethyl)ether	145	0.00	U	145	100	32-127
67-72-1	MS	Hexachloroethane	145	0.00	U	88.4	61	29-94
98-95-3	MS	Nitrobenzene	145	0.00	U	129	89	38-123
78-59-1	MS	Isophorone	145	0.00	U	122	84	43-120
120-83-2	MS	2,4-Dichlorophenol	145	0.00	U	130	90	40-111
87-68-3	MS	Hexachlorobutadiene	145	0.00	U	97.4	67	26-98
91-57-6	MS	2-Methylnaphthalene	145	0.00	U	104	72	29-109
91-20-3	MS	Naphthalene	145	0.00	U	98.4	68	31-108
90-12-0	MS	1-Methylnaphthalene	145	0.00	U	112	78	33-112
77-47-4	MS	Hexachlorocyclopentadiene	145	0.00	U	26.8	18 *	26-79
88-06-2	MS	2,4,6-Trichlorophenol	145	0.00	U	122	84	39-124
95-95-4	MS	2,4,5-Trichlorophenol	145	0.00	U	117	81	42-120
131-11-3	MS	Dimethylphthalate	145	0.00	U	128	88	45-128
606-20-2	MS	2,6-Dinitrotoluene	145	0.00	U	137	94	46-124
121-14-2	MS	2,4-Dinitrotoluene	145	0.00	U	149	103	45-125
51-28-5	MS	2,4-Dinitrophenol	145	0.00	U	65.1	45	27-122
84-66-2	MS	Diethylphthalate	145	0.00	U	140	97	43-127
86-73-7	MS	Fluorene	145	0.00	U	123	85	39-117
534-52-1	MS	2-Methyl-4,6-dinitrophenol	145	0.00	U	60.0	41	32-126

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **CALA-18-69MS**
Lab Sample ID **1204055492**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **06/25/2018 16:16**
Prep Batch ID: **1776091**
Batch ID: **1776093**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
122-39-4	MS	Diphenylamine	145	0.00	U	106	73	37-118
122-66-7	MS	1,2-Diphenylhydrazine	145	0.00	U	111	77	38-120
118-74-1	MS	Hexachlorobenzene	145	0.00	U	117	81	40-118
87-86-5	MS	Pentachlorophenol	145	0.00	U	72.4	50	35-121
85-01-8	MS	Phenanthrene	145	0.00	U	111	76	40-115
120-12-7	MS	Anthracene	145	0.00	U	111	77	38-120
84-74-2	MS	Di-n-butylphthalate	145	0.00	U	126	87	41-128
206-44-0	MS	Fluoranthene	145	0.00	U	122	84	41-119
129-00-0	MS	Pyrene	145	0.00	U	161	111	35-128
117-81-7	MS	bis(2-Ethylhexyl)phthalate	145	0.00	U	135	93	38-131
205-99-2	MS	Benzo(b)fluoranthene	145	0.00	U	129	89	31-122
207-08-9	MS	Benzo(k)fluoranthene	145	0.00	U	132	91	33-123
50-32-8	MS	Benzo(a)pyrene	145	0.00	U	117	81	32-118
930-55-2	MS	N-Nitrosopyrrolidine	145	0.00	U	140	97	47-119
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	145	0.00	U	96.2	66	32-101
92-87-5	MS	Benzidine	290	0.00	U	182	63	15-130
91-94-1	MS	3,3'-Dichlorobenzidine	145	0.00	U	69.6	48	34-124

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **CALA-18-69MSD**
Lab Sample ID **1204055493**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **06/25/2018 16:45**
Prep Batch ID: **1776091**
Batch ID: **1776093**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylamine	145	0.00	U	102	70	25-106	3	0-30
108-95-2	MSD	Phenol	145	0.00	U	91.4	63	23-82	1	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	145	0.00	U	117	81	39-114	2	0-30
108-60-1	MSD	bis(2-Chloro-1-methylethyl)ether	145	0.00	U	140	96	32-127	3	0-30
67-72-1	MSD	Hexachloroethane	145	0.00	U	88.9	61	29-94	1	0-30
98-95-3	MSD	Nitrobenzene	145	0.00	U	128	89	38-123	1	0-30
78-59-1	MSD	Isophorone	145	0.00	U	118	81	43-120	4	0-30
120-83-2	MSD	2,4-Dichlorophenol	145	0.00	U	127	87	40-111	3	0-30
87-68-3	MSD	Hexachlorobutadiene	145	0.00	U	97.6	67	26-98	0	0-30
91-57-6	MSD	2-Methylnaphthalene	145	0.00	U	103	71	29-109	1	0-30
91-20-3	MSD	Naphthalene	145	0.00	U	97.5	67	31-108	1	0-30
90-12-0	MSD	1-Methylnaphthalene	145	0.00	U	112	77	33-112	1	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	145	0.00	U	28.8	20 *	26-79	7	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	145	0.00	U	118	81	39-124	3	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	145	0.00	U	115	79	42-120	2	0-30
131-11-3	MSD	Dimethylphthalate	145	0.00	U	124	86	45-128	3	0-30
606-20-2	MSD	2,6-Dinitrotoluene	145	0.00	U	134	93	46-124	2	0-30
121-14-2	MSD	2,4-Dinitrotoluene	145	0.00	U	148	102	45-125	0	0-30
51-28-5	MSD	2,4-Dinitrophenol	145	0.00	U	69.4	48	27-122	6	0-30
84-66-2	MSD	Diethylphthalate	145	0.00	U	139	96	43-127	0	0-30
86-73-7	MSD	Fluorene	145	0.00	U	122	84	39-117	1	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	145	0.00	U	62.8	43	32-126	5	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **CALA-18-69MSD**
Lab Sample ID **1204055493**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **06/25/2018 16:45**
Prep Batch ID: **1776091**
Batch ID: **1776093**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
122-39-4	MSD	Diphenylamine	145	0.00	U	101	70	37-118	5	0-30
122-66-7	MSD	1,2-Diphenylhydrazine	145	0.00	U	103	71	38-120	7	0-30
118-74-1	MSD	Hexachlorobenzene	145	0.00	U	112	77	40-118	5	0-30
87-86-5	MSD	Pentachlorophenol	145	0.00	U	72.1	50	35-121	0	0-30
85-01-8	MSD	Phenanthrene	145	0.00	U	110	76	40-115	1	0-30
120-12-7	MSD	Anthracene	145	0.00	U	109	75	38-120	2	0-30
84-74-2	MSD	Di-n-butylphthalate	145	0.00	U	128	88	41-128	1	0-30
206-44-0	MSD	Fluoranthene	145	0.00	U	124	85	41-119	1	0-30
129-00-0	MSD	Pyrene	145	0.00	U	150	103	35-128	7	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	145	0.00	U	130	90	38-131	4	0-30
205-99-2	MSD	Benzo(b)fluoranthene	145	0.00	U	124	86	31-122	3	0-30
207-08-9	MSD	Benzo(k)fluoranthene	145	0.00	U	127	88	33-123	4	0-30
50-32-8	MSD	Benzo(a)pyrene	145	0.00	U	114	79	32-118	3	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	145	0.00	U	135	93	47-119	3	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	145	0.00	U	96.8	67	32-101	1	0-30
92-87-5	MSD	Benzidine	290	0.00	U	196	68	15-130	7	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	145	0.00	U	70.7	49	34-124	2	0-30

Method Blank Summary

SDG Number:	**2018-2748**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1776091**	**Instrument ID:**	**MSD3.I**	**Data File:**	**s062518.s\s3f2507.D**
Lab Sample ID:	**1204055490**	**Prep Date:**	**06/22/2018 08:01**	**Analyzed:**	**06/25/18 10:40**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1776091	1204055491	s062518.s\s3f2508.D	06/25/18	1115
02 LCS for batch 1776091DL	1204055491	s062518.s\s3f2513.D	06/25/18	1343
03 WSTMO-18-155066	452995008	s062518.s\s3f2514.D	06/25/18	1412
04 WSTMO-18-155069	452995012	s062518.s\s3f2515.D	06/25/18	1442
05 CALA-18-69MS	1204055492	s062518.s\s3f2518.D	06/25/18	1616
06 CALA-18-69MSD	1204055493	s062518.s\s3f2519.D	06/25/18	1645

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**WATER**
Lab Sample ID:	**1204055490**				
Client Sample:	**QC for batch 1776091**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776091**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 10:40**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2507.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.00	ug/L	3.00	10.0
122-66-7	1,2-Diphenylhydrazine	U	3.00	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
95-95-4	2,4,5-Trichlorophenol	U	3.00	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	3.00	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	3.00	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol	U	5.00	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.00	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
91-94-1	3,3'-Dichlorobenzidine	U	3.00	ug/L	3.00	10.0
120-12-7	Anthracene	U	0.300	ug/L	0.300	1.00
92-87-5	Benzidine	U	3.90	ug/L	3.90	10.0
50-32-8	Benzo(a)pyrene	U	0.300	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene	U	0.300	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	0.300	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	0.300	ug/L	0.300	10.0
84-66-2	Diethylphthalate	U	0.300	ug/L	0.300	10.0
131-11-3	Dimethylphthalate	U	0.300	ug/L	0.300	10.0
122-39-4	Diphenylamine	U	3.00	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	0.300	ug/L	0.300	1.00
86-73-7	Fluorene	U	0.300	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene	U	3.00	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	3.00	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene	U	3.00	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	3.00	ug/L	3.00	10.0
78-59-1	Isophorone	U	3.50	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.00	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	3.00	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	3.00	ug/L	3.00	10.0
91-20-3	Naphthalene	U	0.300	ug/L	0.300	1.00
98-95-3	Nitrobenzene	U	3.00	ug/L	3.00	10.0
	PAHs(total naphthalene plus monomethylnaphthalenes)	U		ug/L		
608-93-5	Pentachlorobenzene	U	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	3.00	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	0.300	ug/L	0.300	1.00

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**WATER**
Lab Sample ID:	**1204055490**				
Client Sample:	**QC for batch 1776091**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776091**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 10:40**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2507.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol	U	3.00	ug/L	3.00	10.0
129-00-0	Pyrene	U	0.300	ug/L	0.300	1.00
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.00	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	3.00	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	84.7	100	ug/L	85	(32%-124%)
2-Fluorobiphenyl	32.1	50.0	ug/L	64	(32%-112%)
2-Fluorophenol	44.6	100	ug/L	45	(15%-88%)
Nitrobenzene-d5	45.8	50.0	ug/L	92	(36%-115%)
Phenol-d5	27.0	100	ug/L	27	(15%-91%)
p-Terphenyl-d14	43.5	50.0	ug/L	87	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000110-54-3	Hexane	2.066	5.05	ug/L	91	NJ
000067-66-3	Trichloromethane	2.232	73.3	ug/L	95	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**WATER**
Lab Sample ID:	**1204055491**				
Client Sample:	**QC for batch 1776091**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776091**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 11:15**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2508.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		33.2	ug/L	3.00	10.0
122-66-7	1,2-Diphenylhydrazine		38.3	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene		38.0	ug/L	0.300	1.00
95-95-4	2,4,5-Trichlorophenol		40.0	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		42.5	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		42.8	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol		40.8	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene		51.8	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		47.2	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol		40.6	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		35.1	ug/L	0.300	1.00
91-94-1	3,3'-Dichlorobenzidine		42.3	ug/L	3.00	10.0
120-12-7	Anthracene		39.4	ug/L	0.300	1.00
50-32-8	Benzo(a)pyrene		41.1	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene		43.5	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		44.8	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		45.4	ug/L	0.300	10.0
84-66-2	Diethylphthalate		49.2	ug/L	0.300	10.0
131-11-3	Dimethylphthalate		44.4	ug/L	0.300	10.0
122-39-4	Diphenylamine		36.9	ug/L	3.00	10.0
206-44-0	Fluoranthene		46.4	ug/L	0.300	1.00
86-73-7	Fluorene		42.4	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene		39.7	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		34.9	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene		18.1	ug/L	3.00	10.0
67-72-1	Hexachloroethane		30.8	ug/L	3.00	10.0
78-59-1	Isophorone		42.7	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine		25.2	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	3.00	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		43.9	ug/L	3.00	10.0
91-20-3	Naphthalene		33.3	ug/L	0.300	1.00
98-95-3	Nitrobenzene		45.7	ug/L	3.00	10.0
	PAHs(total naphthalene plus monomethylnaphthalenes)		403	ug/L		
608-93-5	Pentachlorobenzene	U	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		44.2	ug/L	3.00	10.0
85-01-8	Phenanthrene		38.8	ug/L	0.300	1.00
108-95-2	Phenol		16.1	ug/L	3.00	10.0

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**WATER**
Lab Sample ID:	**1204055491**				
Client Sample:	**QC for batch 1776091**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776091**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 11:15**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2508.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
129-00-0	Pyrene		41.9	ug/L	0.300	1.00
108-60-1	bis(2-Chloro-1-methylethyl)ether		49.4	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		40.7	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		40.0	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	102	100	ug/L	102	(32%-124%)
2-Fluorobiphenyl	35.1	50.0	ug/L	70	(32%-112%)
2-Fluorophenol	46.9	100	ug/L	47	(15%-88%)
Nitrobenzene-d5	43.2	50.0	ug/L	86	(36%-115%)
Phenol-d5	29.9	100	ug/L	30	(15%-91%)
p-Terphenyl-d14	47.3	50.0	ug/L	95	(36%-121%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**WATER**
Lab Sample ID:	**1204055491**				
Client Sample:	**QC for batch 1776091**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776091DL**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**2**
Run Date:	**06/25/2018 13:43**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2513.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
92-87-5	Benzidine		81.2	ug/L	7.80	20.0

Surrogate/Tracer recovery	Result	Nominal	Recovery%	Acceptable Limits

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/18/2018 10:36**	**Matrix:**	**W**
Lab Sample ID:	**1204055492**	**Date Received:**	**06/20/2018 08:50**		
Client Sample:	**QC for batch 1776091**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CALA-18-69MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 16:16**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**345 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2518.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		96.2	ug/L	8.70	29.0
122-66-7	1,2-Diphenylhydrazine		111	ug/L	8.70	29.0
90-12-0	1-Methylnaphthalene		112	ug/L	0.870	2.90
95-95-4	2,4,5-Trichlorophenol		117	ug/L	8.70	29.0
88-06-2	2,4,6-Trichlorophenol		122	ug/L	8.70	29.0
120-83-2	2,4-Dichlorophenol		130	ug/L	8.70	29.0
51-28-5	2,4-Dinitrophenol		65.1	ug/L	14.5	58.0
121-14-2	2,4-Dinitrotoluene		149	ug/L	8.70	29.0
606-20-2	2,6-Dinitrotoluene		137	ug/L	8.70	29.0
534-52-1	2-Methyl-4,6-dinitrophenol		60.0	ug/L	8.70	29.0
91-57-6	2-Methylnaphthalene		104	ug/L	0.870	2.90
91-94-1	3,3'-Dichlorobenzidine		69.6	ug/L	8.70	29.0
120-12-7	Anthracene		111	ug/L	0.870	2.90
92-87-5	Benzidine		182	ug/L	11.3	29.0
50-32-8	Benzo(a)pyrene		117	ug/L	0.870	2.90
205-99-2	Benzo(b)fluoranthene		129	ug/L	0.870	2.90
207-08-9	Benzo(k)fluoranthene		132	ug/L	0.870	2.90
84-74-2	Di-n-butylphthalate		126	ug/L	0.870	29.0
84-66-2	Diethylphthalate		140	ug/L	0.870	29.0
131-11-3	Dimethylphthalate		128	ug/L	0.870	29.0
122-39-4	Diphenylamine		106	ug/L	8.70	29.0
206-44-0	Fluoranthene		122	ug/L	0.870	2.90
86-73-7	Fluorene		123	ug/L	0.870	2.90
118-74-1	Hexachlorobenzene		117	ug/L	8.70	29.0
87-68-3	Hexachlorobutadiene		97.4	ug/L	8.70	29.0
77-47-4	Hexachlorocyclopentadiene	J	26.8	ug/L	8.70	29.0
67-72-1	Hexachloroethane		88.4	ug/L	8.70	29.0
78-59-1	Isophorone		122	ug/L	10.1	29.0
62-75-9	N-Methyl-N-nitrosomethylamine		98.6	ug/L	8.70	29.0
924-16-3	N-Nitrosodi-n-butylamine	U	8.70	ug/L	8.70	29.0
55-18-5	N-Nitrosodiethylamine	U	8.70	ug/L	8.70	29.0
930-55-2	N-Nitrosopyrrolidine		140	ug/L	8.70	29.0
91-20-3	Naphthalene		98.4	ug/L	0.870	2.90
98-95-3	Nitrobenzene		129	ug/L	8.70	29.0
	PAHs(total naphthalene plus monomethylnaphthalenes)		1200	ug/L		
608-93-5	Pentachlorobenzene	U	8.70	ug/L	8.70	29.0
87-86-5	Pentachlorophenol		72.4	ug/L	8.70	29.0
85-01-8	Phenanthrene		111	ug/L	0.870	2.90

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/18/2018 10:36**	**Matrix:**	**W**
Lab Sample ID:	**1204055492**	**Date Received:**	**06/20/2018 08:50**		
Client Sample:	**QC for batch 1776091**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CALA-18-69MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 16:16**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**345 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2518.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol		90.3	ug/L	8.70	29.0
129-00-0	Pyrene		161	ug/L	0.870	2.90
108-60-1	bis(2-Chloro-1-methylethyl)ether		145	ug/L	8.70	29.0
111-44-4	bis(2-Chloroethyl) ether		119	ug/L	8.70	29.0
117-81-7	bis(2-Ethylhexyl)phthalate		135	ug/L	0.870	2.90

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	268	290	ug/L	92	(32%-124%)
2-Fluorobiphenyl	104	145	ug/L	72	(32%-112%)
2-Fluorophenol	199	290	ug/L	69	(15%-88%)
Nitrobenzene-d5	125	145	ug/L	86	(36%-115%)
Phenol-d5	171	290	ug/L	59	(15%-91%)
p-Terphenyl-d14	172	145	ug/L	118	(36%-121%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/18/2018 10:36**	**Matrix:**	**W**
Lab Sample ID:	**1204055493**	**Date Received:**	**06/20/2018 08:50**		
Client Sample:	**QC for batch 1776091**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CALA-18-69MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 16:45**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**345 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2519.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		96.8	ug/L	8.70	29.0
122-66-7	1,2-Diphenylhydrazine		103	ug/L	8.70	29.0
90-12-0	1-Methylnaphthalene		112	ug/L	0.870	2.90
95-95-4	2,4,5-Trichlorophenol		115	ug/L	8.70	29.0
88-06-2	2,4,6-Trichlorophenol		118	ug/L	8.70	29.0
120-83-2	2,4-Dichlorophenol		127	ug/L	8.70	29.0
51-28-5	2,4-Dinitrophenol		69.4	ug/L	14.5	58.0
121-14-2	2,4-Dinitrotoluene		148	ug/L	8.70	29.0
606-20-2	2,6-Dinitrotoluene		134	ug/L	8.70	29.0
534-52-1	2-Methyl-4,6-dinitrophenol		62.8	ug/L	8.70	29.0
91-57-6	2-Methylnaphthalene		103	ug/L	0.870	2.90
91-94-1	3,3'-Dichlorobenzidine		70.7	ug/L	8.70	29.0
120-12-7	Anthracene		109	ug/L	0.870	2.90
92-87-5	Benzidine		196	ug/L	11.3	29.0
50-32-8	Benzo(a)pyrene		114	ug/L	0.870	2.90
205-99-2	Benzo(b)fluoranthene		124	ug/L	0.870	2.90
207-08-9	Benzo(k)fluoranthene		127	ug/L	0.870	2.90
84-74-2	Di-n-butylphthalate		128	ug/L	0.870	29.0
84-66-2	Diethylphthalate		139	ug/L	0.870	29.0
131-11-3	Dimethylphthalate		124	ug/L	0.870	29.0
122-39-4	Diphenylamine		101	ug/L	8.70	29.0
206-44-0	Fluoranthene		124	ug/L	0.870	2.90
86-73-7	Fluorene		122	ug/L	0.870	2.90
118-74-1	Hexachlorobenzene		112	ug/L	8.70	29.0
87-68-3	Hexachlorobutadiene		97.6	ug/L	8.70	29.0
77-47-4	Hexachlorocyclopentadiene	J	28.8	ug/L	8.70	29.0
67-72-1	Hexachloroethane		88.9	ug/L	8.70	29.0
78-59-1	Isophorone		118	ug/L	10.1	29.0
62-75-9	N-Methyl-N-nitrosomethylamine		102	ug/L	8.70	29.0
924-16-3	N-Nitrosodi-n-butylamine	U	8.70	ug/L	8.70	29.0
55-18-5	N-Nitrosodiethylamine	U	8.70	ug/L	8.70	29.0
930-55-2	N-Nitrosopyrrolidine		135	ug/L	8.70	29.0
91-20-3	Naphthalene		97.5	ug/L	0.870	2.90
98-95-3	Nitrobenzene		128	ug/L	8.70	29.0
	PAHs(total naphthalene plus monomethylnaphthalenes)		1180	ug/L		
608-93-5	Pentachlorobenzene	U	8.70	ug/L	8.70	29.0
87-86-5	Pentachlorophenol		72.1	ug/L	8.70	29.0
85-01-8	Phenanthrene		110	ug/L	0.870	2.90

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/18/2018 10:36**	**Matrix:**	**W**
Lab Sample ID:	**1204055493**	**Date Received:**	**06/20/2018 08:50**		
Client Sample:	**QC for batch 1776091**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CALA-18-69MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1776093**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/25/2018 16:45**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:01**	**Aliquot:**	**345 mL**	**Final Volume:**	**1 mL**
Data File:	**s062518.s\s3f2519.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol		91.4	ug/L	8.70	29.0
129-00-0	Pyrene		150	ug/L	0.870	2.90
108-60-1	bis(2-Chloro-1-methylethyl)ether		140	ug/L	8.70	29.0
111-44-4	bis(2-Chloroethyl) ether		117	ug/L	8.70	29.0
117-81-7	bis(2-Ethylhexyl)phthalate		130	ug/L	0.870	2.90

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	274	290	ug/L	95	(32%-124%)
2-Fluorobiphenyl	102	145	ug/L	70	(32%-112%)
2-Fluorophenol	203	290	ug/L	70	(15%-88%)
Nitrobenzene-d5	121	145	ug/L	83	(36%-115%)
Phenol-d5	172	290	ug/L	59	(15%-91%)
p-Terphenyl-d14	161	145	ug/L	111	(36%-121%)

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorates by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2748
Work Order #: 452995

Product: **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method: SW-846:6850
Analytical Procedure: GL-OA-E-067 REV# 14
Analytical Batches: 1776420 and 1776413

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
452995006	WSTMO-18-155066
452995010	WSTMO-18-155069
1204056226	Method Blank (MB)
1204056227	Laboratory Control Sample (LCS)
1204056228	452995006(WSTMO-18-155066) Matrix Spike (MS)
1204056229	452995006(WSTMO-18-155066) Matrix Spike Duplicate (MSD)
1204056230	Interference Check Sample (ICS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Matrix Spike (MS) Recovery Statement
In sample 1204056228 (MS) there was a 194% recovery for Perchlorate and 177% recovery for Perchlorate-101. In sample 1204056299 (MSD) there was a 186% recovery for Perchlorate and 376% recovery for Perchlorate-101. The acceptance range is 75-125%. The failure in the matrix spike was due to the background concentration in the parent sample, 2018-2748 (WSTMO-18-155066) and the need to dilute the sample at a 1:5 ratio. The LCS and ICS were within the acceptance ranges. 1204056228 (WSTMO-18-155066MS) and 1204056229 (WSTMO-18-155066MSD).

Technical Information

Sample Dilutions
Samples 1204056228 (WSTMO-18-155066MS), 1204056229 (WSTMO-18-155066MSD), 452995006 (WSTMO-18-155066) and 452995010 (WSTMO-18-155069) were diluted to bring the over range concentrations within the calibration range.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2748 GEL Work Order: 452995

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Charles W. Wilson Jr. **Name: Charles Wilson**

Date: 27 JUN 2018 **Title: Analyst II**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
WSTMO-18-155066

Date Received: 21-JUN-18

GEL Job No (SDG): 2018-2748

GEL Sample ID: 452995006

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.25	1	6.25	ug/L		5	26-JUN-18 18:50	per0626016a
	Perchlorate Isotope Ratio			3.17			5	26-JUN-18 18:50	per0626016a
14797-73-0	Perchlorate-101	.25	1	5.92	ug/L		5	26-JUN-18 18:50	per0626016a
	Perchlorate-O(18)			2.29	ug/L		5	26-JUN-18 18:50	per0626016a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
WSTMO-18-155069

Date Received: 21-JUN-18

GEL Job No (SDG): 2018-2748

GEL Sample ID: 452995010

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.25	1	6.41	ug/L		5	26-JUN-18 19:20	per0626019a
	Perchlorate Isotope Ratio			3.05			5	26-JUN-18 19:20	per0626019a
14797-73-0	Perchlorate-101	.25	1	6.33	ug/L		5	26-JUN-18 19:20	per0626019a
	Perchlorate-O(18)			2.26	ug/L		5	26-JUN-18 19:20	per0626019a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2018-2748

Extract Batch Code: 1776413

Date Filtered: 22-JUN-18

Matrix: WATER

Sample ID: 1204056227

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.2	ug/L	100		85 - 115
Perchlorate Isotope Ratio		3.11				-
Perchlorate-101	0.200	.193	ug/L	97		85 - 115
Perchlorate-O(18)		.505	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Interference Check Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2018-2748

Extract Batch Code: 1776413

Date Filtered: 22-JUN-18

Matrix: WATER

Sample ID: 1204056230

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.201	ug/L	100		70 - 130
Perchlorate Isotope Ratio		2.95				
Perchlorate-101	0.200	.204	ug/L	102		70 - 130
Perchlorate-O(18)		.512	ug/L			

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2018-2748

Extract Batch Code: 1776413

Date Extracted: 22-JUN-18

GEL MS/PS ID: 1204056228

Client ID: WSTMO-18-155066

GEL MSD/PSD ID: 1204056229

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Recovery Limit
Perchlorate	0.200	6.25	ug/L	6.64	194	*	6.62	186	*	0		30	75 - 125
Perchlorate Isotope Ratio	0	3.17		3.18			2.98			6			-
Perchlorate-101	0.200	5.92	ug/L	6.28	177	*	6.67	376	*	6		30	75 - 125
Perchlorate-O(18)	0	2.29	ug/L	2.03			2.13			5			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate RT And Area Summary

Lab Name: General Engineering Laboratories
Lab Code: GEL
HPLC Column: Dionex IonPac AG16
GEL Job No.(SDG): 2018-2748
Instrument : LCMSMS2

Initial Calibration:

DataFile	Run Dates	Area
per0626003a	26-JUN-18 16:41	6821.99
per0626004a	26-JUN-18 16:51	6877.45
per0626005a	26-JUN-18 17:01	7069.14
per0626006a	26-JUN-18 17:11	6613.31
per0626007a	26-JUN-18 17:21	6817.66
per0626008a	26-JUN-18 17:31	6696.58

Initial Calibration Average Area: **6816.02**
Lower Area Limit: **3408.01**
Upper Area Limit: **10224.03**

Sample ID	Sample DataFile	Sample Run Date	Area	RT	RT CLO4	RRT	Q 0.98-1.02
1204056226	per0626013a	26-JUN-18 18:21	7026.53	3.45			
1204056227	per0626014a	26-JUN-18 18:31	6885.42	3.45	3.48183	1.009	
1204056230	per0626015a	26-JUN-18 18:41	6978.67	3.45	3.48183	1.009	
452995006	per0626016a	26-JUN-18 18:50	6246.35	3.43	3.45418	1.007	
1204056228	per0626017a	26-JUN-18 19:00	5534.73	3.43	3.45418	1.007	
1204056229	per0626018a	26-JUN-18 19:10	5796.56	3.4	3.42667	1.008	
452995010	per0626019a	26-JUN-18 19:20	6168.49	3.43	3.45418	1.007	

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 22-JUN-18

GEL Job No (SDG): 2018-2748

GEL Sample ID: 1204056226

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	26-JUN-18 18:21	per0626013a
	Perchlorate Isotope Ratio						1	26-JUN-18 18:21	per0626013a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	26-JUN-18 18:21	per0626013a
	Perchlorate-O(18)			0.515	ug/L		1	26-JUN-18 18:21	per0626013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 22-JUN-18

GEL Job No (SDG): 2018-2748

GEL Sample ID: 1204056227

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.200	ug/L	J	1	26-JUN-18 18:31	per0626014a
	Perchlorate Isotope Ratio			3.11			1	26-JUN-18 18:31	per0626014a
14797-73-0	Perchlorate-101	.05	.2	0.193	ug/L	J	1	26-JUN-18 18:31	per0626014a
	Perchlorate-O(18)			0.505	ug/L		1	26-JUN-18 18:31	per0626014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2018-2748

GEL Sample ID: 1204056230

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.201	ug/L		1	26-JUN-18 18:41	per0626015a
	Perchlorate Isotope Ratio			2.95			1	26-JUN-18 18:41	per0626015a
14797-73-0	Perchlorate-101	.05	.2	0.204	ug/L		1	26-JUN-18 18:41	per0626015a
	Perchlorate-O(18)			0.512	ug/L		1	26-JUN-18 18:41	per0626015a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
WSTMO-18-155066MS

Date Received: 21-JUN-18

GEL Job No (SDG): 2018-2748

GEL Sample ID: 1204056228

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.25	1	6.64	ug/L		5	26-JUN-18 19:00	per0626017a
	Perchlorate Isotope Ratio			3.18			5	26-JUN-18 19:00	per0626017a
14797-73-0	Perchlorate-101	.25	1	6.28	ug/L		5	26-JUN-18 19:00	per0626017a
	Perchlorate-O(18)			2.03	ug/L		5	26-JUN-18 19:00	per0626017a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1776413

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
WSTMO-18-155066MSD

Date Received: 21-JUN-18

GEL Job No (SDG): 2018-2748

GEL Sample ID: 1204056229

Date Filtered: 22-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.25	1	6.62	ug/L		5	26-JUN-18 19:10	per0626018a
	Perchlorate Isotope Ratio			2.98			5	26-JUN-18 19:10	per0626018a
14797-73-0	Perchlorate-101	.25	1	6.67	ug/L		5	26-JUN-18 19:10	per0626018a
	Perchlorate-O(18)			2.13	ug/L		5	26-JUN-18 19:10	per0626018a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Explosives by LCMSMS Analysis

Case Narrative

Explosives by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2748
Work Order #: 452995

Product: **The Processing, Extraction, and Analysis of Nitroaromatics, Nitroamines, and Nitrate Esters by SW-846 8330B**
Analytical Method: SW846 3535A/8330B
Analytical Procedure: GL-OA-E-068 REV# 7
Analytical Batch: 1776332

Preparation Method: SW846 3535A
Preparation Procedure: GL-OA-E-033 REV# 23
Preparation Batch: 1776330

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
452995009	WSTMO-18-155066
452995013	WSTMO-18-155069
1204056038	Method Blank (MB)
1204056039	Laboratory Control Sample (LCS)
1204056040	452995013(WSTMO-18-155069) Matrix Spike (MS)
1204056041	452995013(WSTMO-18-155069) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
In accordance with GEL SOP GL-OA-056, all sample and QC extracts are diluted 1:1 v/v with LC reagent grade Water.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2748 GEL Work Order: 452995

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jannie Shaw - Busby **Name: Jannie Shaw-Busby**

Date: 08 JUL 2018 **Title: Senior Chemist**

Sample Data Summary

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: WSTMO-18-155066

Lab Code: GEL

GEL Job No (SDG) 2018-2748

Matrix: WATER

GEL Sample ID: 452995009

Sample Amount 860 mL

Date Received: 21-JUN-18

Moisture:

Extraction Batch ID: 1776330

Extraction Type Sol Exchange

Date Extracted: 22-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0629047.wiff

Date Analyzed: 01-JUL-18 00:31

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.093	U	0.093	0.291
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	.093	U	0.093	0.291
121-82-4	*RDX*				
2691-41-0	HMX	.108	J	0.093	0.291
2691-41-0	*HMX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: WSTMO-18-155069

Lab Code: GEL

GEL Job No (SDG) 2018-2748

Matrix: WATER

GEL Sample ID: 452995013

Sample Amount 800 mL

Date Received: 21-JUN-18

Moisture:

Extraction Batch ID: 1776330

Extraction Type Sol Exchange

Date Extracted: 22-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629048.wiff

Date Analyzed: 01-JUL-18 01:07

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.1	U	0.100	0.313
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	.1	U	0.100	0.313
121-82-4	*RDX*				
2691-41-0	HMX	.1	U	0.100	0.313
2691-41-0	*HMX*				

Quality Control Summary

High Explosives Surrogate Recovery Summary

Lab Name: GEL Laboratories LLC **GEL Job No (SDG):** 2018-2748

Lab Code: GEL **HPLC Column:** Ultracarb Phenomenex 5u ODS (20)

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
452995009	WSTMO-18-155066	89	55 - 115	
452995013	WSTMO-18-155069	108	55 - 115	
1204056038	MB for batch 1776330	108	55 - 115	
1204056039	LCS for batch 1776330	96	55 - 115	
1204056040	WSTMO-18-155069MS	104	55 - 115	
1204056041	WSTMO-18-155069MSD	109	55 - 115	

DNT = 3,4-Dinitrotoluene

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 2018-2748

Extract Batch Code: 1776330

Date Extracted: 22-JUN-18

GEL LCS ID: 1204056039

GEL LCSDUP ID:

Analysis Date/Time: 30-JUN-18 23:56

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec	#	LCSD Conc	LCSD Rec	#	RPD	#	RPD	Recovery Limits
2,4,6-Trinitrotoluene	5	4.33	87								69 - 113
HMX	5	4.85	97								58 - 113
RDX	5	4.67	93								64 - 117

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: WSTMO-18-155069

Lab Code: GEL

GEL Job No (SDG) 2018-2748

Extract Batch Code: 1776330

Date Extracted: 22-JUN-18

GEL Spike ID: 1204056040

GEL SpikeDup ID: 1204056041

Analysis Date/Time: 01-JUL-18 01:42

MSD Analysis Date/Time: 01-JUL-18 02:18

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Rec Limits
2,4,6-Trinitrotoluene	5.49451	0	4.39	80		5.06	92		14		30	66 - 112
HMX	5.49451	.0618	5.59	101		5.66	102		1		30	44 - 128
RDX	5.49451	0	4.24	77		5.42	99		25		30	57 - 125

#Column to be used to flag recovery and RPD values with an asterisk

Quality Control Data

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1776330

Lab Code: GEL

GEL Job No (SDG) 2018-2748

Matrix: WATER

GEL Sample ID: 1204056038

Sample Amount 1000 mL

Date Received: 21-JUN-18

Moisture:

Extraction Batch ID: 1776330

Extraction Type Sol Exchange

Date Extracted: 22-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629045.wiff

Date Analyzed: 30-JUN-18 23:20

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.08	U	0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	.08	U	0.080	0.250
121-82-4	*RDX*				
2691-41-0	HMX	.08	U	0.080	0.250
2691-41-0	*HMX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1776330

Lab Code: GEL

GEL Job No (SDG) 2018-2748

Matrix: WATER

GEL Sample ID: 1204056039

Sample Amount 1000 mL

Date Received: 21-JUN-18

Moisture:

Extraction Batch ID: 1776330

Extraction Type Sol Exchange

Date Extracted: 22-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629046.wiff

Date Analyzed: 30-JUN-18 23:56

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	4.33		0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	4.67		0.080	0.250
121-82-4	*RDX*				
2691-41-0	HMX	4.85		0.080	0.250
2691-41-0	*HMX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: WSTMO-18-155069(452995013MS)MS

Lab Code: GEL

GEL Job No (SDG) 2018-2748

Matrix: WATER

GEL Sample ID: 1204056040

Sample Amount 910 mL

Date Received: 21-JUN-18

Moisture:

Extraction Batch ID: 1776330

Extraction Type Sol Exchange

Date Extracted: 22-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629049.wiff

Date Analyzed: 01-JUL-18 01:42

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
121-82-4	RDX	4.24		0.0879	0.275
121-82-4	*RDX*				
118-96-7	2,4,6-Trinitrotoluene	4.39		0.0879	0.275
118-96-7	*2,4,6-Trinitrotoluene*				
2691-41-0	HMX	5.59		0.0879	0.275
2691-41-0	*HMX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: WSTMO-18-155069(452995013MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2018-2748

Matrix: WATER

GEL Sample ID: 1204056041

Sample Amount 910 mL

Date Received: 21-JUN-18

Moisture:

Extraction Batch ID: 1776330

Extraction Type Sol Exchange

Date Extracted: 22-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0629050.wiff

Date Analyzed: 01-JUL-18 02:18

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	5.06		0.0879	0.275
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	5.42		0.0879	0.275
121-82-4	*RDX*				
2691-41-0	HMX	5.66		0.0879	0.275
2691-41-0	*HMX*				

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2748

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 29-JUN-18 21:52

GEL Data File: EXP0629002.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2748

Lab Code: GEL

Lab Sample ID: XIBLK11

Analysis Date: 30-JUN-18 22:09

GEL Data File: EXP0629043.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2748

Lab Code: GEL

Lab Sample ID: XIBLK14

Analysis Date: 01-JUL-18 05:51

GEL Data File: EXP0629056.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0

Pesticide Analysis

Case Narrative

GC Semivolatile Pesticide
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2748
Work Order #: 452995

Product: **Organochlorine Pesticides and Chlorinated Hydrocarbons**
Analytical Method: SW846 3535A/8081B
Analytical Procedure: GL-OA-E-041 REV# 19
Analytical Batch: 1776101

Preparation Method: SW846 3535A
Preparation Procedure: GL-OA-E-070 REV# 10
Preparation Batch: 1776100

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
452995007	WSTMO-18-155066
452995011	WSTMO-18-155069
1204055506	Method Blank (MB)
1204055507	Laboratory Control Sample (LCS)
1204055510	452995011(WSTMO-18-155069) Matrix Spike (MS)
1204055513	452995011(WSTMO-18-155069) Matrix Spike Duplicate (MSD)
1204055514	Laboratory Control Sample Duplicate (LCSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

Continuing Calibration Verification (CCV) Requirements
Calibration verification standards (ICV or CCV) requirements have not been met for samples 1204055510 (WSTMO-18-155069MS), 452995007 (WSTMO-18-155066) and 452995011 (WSTMO-18-155069) in this batch in this SDG. The bracketing standard failed with a negative or positive bias for one or more target analytes. The affected samples were re-analyzed. The bracketing standard failed in a similar manner; therefore, the standard failure was attributed to sample matrix interference and the initial bracket was reported.

Quality Control (QC) Information

Surrogate Recoveries
Samples (See Below) failed to meet acceptance criteria for surrogate recovery. The same samples for PCB analysis failed surrogate recovery in the same manner; therefore, the failure is attributed to sample matrix interference.

Sample	Analyte	Value

1204055510 (WSTMO-18-155069MS)	4cmx	14* (34%-109%)
	4cmx	9* (34%-109%)
	Decachlorobiphenyl	13* (34%-133%)
	Decachlorobiphenyl	20* (34%-133%)
1204055513 (WSTMO-18-155069MSD)	4cmx	27* (34%-109%)
	Decachlorobiphenyl	30* (34%-133%)
452995007 (WSTMO-18-155066)	Decachlorobiphenyl	22* (34%-133%)
	Decachlorobiphenyl	27* (34%-133%)
452995011 (WSTMO-18-155069)	4cmx	10* (34%-109%)
	4cmx	13* (34%-109%)
	Decachlorobiphenyl	15* (34%-133%)
	Decachlorobiphenyl	19* (34%-133%)

Laboratory Control Sample Duplicate (LCSD)
The LCSD analysis was performed for this batch of the samples.

Matrix Spike (MS/MSD) Recovery Statement
The matrix QC samples (See Below) did not meet spike recovery acceptance due to sample matrix interference.

Sample	Analyte	Value
1204055510 (WSTMO-18-155069MS)	Several	See applicable report
1204055513 (WSTMO-18-155069MSD)	Several	See applicable report

MS/MSD Relative Percent Difference (RPD) Statement
The RPD values between the MS and MSD, (See Below), were not within the acceptance limits due to the large difference between the individual recoveries in each MS and MSD analyte pair.

Sample	Analyte	Value
1204055510MS and 1204055513MSD (WSTMO-18-155069)	Several	See applicable report

<u>Technical Information</u>

Sample Re-extraction/Re-analysis
Samples 1204055510 (WSTMO-18-155069MS), 1204055513 (WSTMO-18-155069MSD), 452995007 (WSTMO-18-155066) and 452995011 (WSTMO-18-155069) were re-analyzed due to failed bracketing CCV standard. The first analysis was reported. The raw data of the re-analysis were included in the Miscellaneous section for confirmation.

Florisil
Florisil clean-up was not performed on client and quality control samples in this batch.

<u>Miscellaneous Information</u>

Manual Integrations
Samples 1204055510 (WSTMO-18-155069MS), 1204055513 (WSTMO-18-155069MSD), 452995007

(WSTMO-18-155066) and 452995011 (WSTMO-18-155069) required manual integration to correctly position the baseline as set in the calibration standard injections.

Additional Comments

The Toxaphene and/or Chlordane standards were analyzed for this SDG as a retention time marker and pattern reference. A five-point calibration curve and calibration verification standard forms were not submitted in the data package since Toxaphene and/or Chlordane were not detected in the client samples.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2748 GEL Work Order: 452995

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
E Concentration of the target analyte exceeds the instrument calibration range
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimin Cao **Name: Jimin Cao**

Date: 27 JUN 2018 **Title: Data Validator**

Sample Data Summary

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**452995007**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**8081**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155066**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776101**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 19:50**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:19**	**Aliquot:**	**920 mL**	**Final Volume:**	**5 mL**
Data File:	**062618\E62635.D**	**Column:**	**1 CLP**		
	062618\E62635.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT	U	0.0109	ug/L	0.0109	0.0435	1
309-00-2	Aldrin	U	0.00723	ug/L	0.00723	0.0217	1
57-74-9	Chlordane	U	0.0832	ug/L	0.0832	0.272	1
60-57-1	Dieldrin	U	0.0109	ug/L	0.0109	0.0435	1
959-98-8	Endosulfan I	U	0.00723	ug/L	0.00723	0.0217	1
33213-65-9	Endosulfan II	U	0.0109	ug/L	0.0109	0.0435	1
72-20-8	Endrin	U	0.0109	ug/L	0.0109	0.0435	1
76-44-8	Heptachlor	U	0.00723	ug/L	0.00723	0.0217	1
8001-35-2	Toxaphene	U	0.163	ug/L	0.163	0.543	1
319-84-6	alpha-BHC	U	0.00723	ug/L	0.00723	0.0217	1
319-85-7	beta-BHC	U	0.00723	ug/L	0.00723	0.0217	1
5103-71-9	cis-Chlordane	U	0.00723	ug/L	0.00723	0.0217	1
58-89-9	gamma-BHC (Lindane)	U	0.00723	ug/L	0.00723	0.0217	1
5103-74-2	trans-Chlordane	U	0.00723	ug/L	0.00723	0.0217	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.414	1.09	ug/L	38		(34%-109%)
Decachlorobiphenyl	0.237	1.09	ug/L	22	*	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 08:20**	**Matrix:**	**W**
Lab Sample ID:	**452995011**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**8081**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155069**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776101**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 20:05**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:19**	**Aliquot:**	**960 mL**	**Final Volume:**	**5 mL**
Data File:	**062618\E62636.D**	**Column:**	**1 CLP**		
	062618\E62636.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT	U	0.0104	ug/L	0.0104	0.0417	1
309-00-2	Aldrin	U	0.00693	ug/L	0.00693	0.0208	1
57-74-9	Chlordane	U	0.0797	ug/L	0.0797	0.260	1
60-57-1	Dieldrin	U	0.0104	ug/L	0.0104	0.0417	1
959-98-8	Endosulfan I	U	0.00693	ug/L	0.00693	0.0208	1
33213-65-9	Endosulfan II	U	0.0104	ug/L	0.0104	0.0417	1
72-20-8	Endrin	U	0.0104	ug/L	0.0104	0.0417	1
76-44-8	Heptachlor	U	0.00693	ug/L	0.00693	0.0208	1
8001-35-2	Toxaphene	U	0.156	ug/L	0.156	0.521	1
319-84-6	alpha-BHC		0.0949	ug/L	0.00693	0.0208	2
319-85-7	beta-BHC	U	0.00693	ug/L	0.00693	0.0208	1
5103-71-9	cis-Chlordane	U	0.00693	ug/L	0.00693	0.0208	1
58-89-9	gamma-BHC (Lindane)	U	0.00693	ug/L	0.00693	0.0208	1
5103-74-2	trans-Chlordane	U	0.00693	ug/L	0.00693	0.0208	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.100	1.04	ug/L	10	*	(34%-109%)
Decachlorobiphenyl	0.152	1.04	ug/L	15	*	(34%-133%)

Quality Control Summary

Pesticide

Surrogate Recovery Report

SDG Number: 2018-2748

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC #	4CMX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #
1204055506	MB for batch 1776100	63	74	70	79
1204055507	LCS for batch 1776100	66	77	65	81
1204055514	LCSD for batch 1776100	65	73	64	75
452995007	WSTMO-18-155066	38	49	22 *	27 *
452995011	WSTMO-18-155069	10 *	13 *	15 *	19 *
1204055510	WSTMO-18-155069MS	9 *	14 *	13 *	20 *
1204055513	WSTMO-18-155069MSD	27 *	56	30 *	49

Surrogate		Acceptance Limits
4CMX	= 4cmx	(34%-109%)
DCB	= Decachlorobiphenyl	(34%-133%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

Pesticide

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **LCS for batch 1776100**
Lab Sample ID **1204055507**
Instrument: **ECD6A.I**
Analyst: **RXE1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **GROUND WATER**
Analysis Date: **06/26/2018 19:19**
Prep Batch ID: **1776100**
Batch ID: **1776101**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
319-84-6	LCS	alpha-BHC	0.500	0.0	0.416	83	46-122
58-89-9	LCS	gamma-BHC (Lindane)	0.500	0.0	0.422	84	46-125
76-44-8	LCS	Heptachlor	0.500	0.0	0.406	81	43-122
309-00-2	LCS	Aldrin	0.500	0.0	0.327	65	20-115
319-85-7	LCS	beta-BHC	0.500	0.0	0.382	76	43-131
5103-74-2	LCS	trans-Chlordane	0.500	0.0	0.350	70	50-129
5103-71-9	LCS	cis-Chlordane	0.500	0.0	0.413	83	48-120
959-98-8	LCS	Endosulfan I	0.500	0.0	0.395	79	43-120
60-57-1	LCS	Dieldrin	1.25	0.0	1.03	82	52-130
72-20-8	LCS	Endrin	1.25	0.0	1.27	102	33-145
33213-65-9	LCS	Endosulfan II	1.25	0.0	1.04	84	37-127
50-29-3	LCS	4,4'-DDT	1.25	0.0	1.06	85	36-125

Pesticide

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **LCSD for batch 1776100**
Lab Sample ID **1204055514**
Instrument: **ECD6A.I**
Analyst: **RXE1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample Duplicate**
Matrix: **GROUND WATER**
Analysis Date: **06/26/2018 19:34**
Dilution: 1
Prep Batch ID: **1776100**
Batch ID: **1776101**

CAS No	Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
319-84-6	LCSD alpha-BHC	0.500	0.0	0.404	81	46-122	3	0-30
58-89-9	LCSD gamma-BHC (Lindane)	0.500	0.0	0.406	81	46-125	4	0-30
76-44-8	LCSD Heptachlor	0.500	0.0	0.403	81	43-122	1	0-30
309-00-2	LCSD Aldrin	0.500	0.0	0.316	63	20-115	3	0-30
319-85-7	LCSD beta-BHC	0.500	0.0	0.365	73	43-131	5	0-30
5103-74-2	LCSD trans-Chlordane	0.500	0.0	0.365	73	50-129	4	0-30
5103-71-9	LCSD cis-Chlordane	0.500	0.0	0.404	81	48-120	2	0-30
959-98-8	LCSD Endosulfan I	0.500	0.0	0.383	77	43-120	3	0-30
60-57-1	LCSD Dieldrin	1.25	0.0	0.995	80	52-130	4	0-30
72-20-8	LCSD Endrin	1.25	0.0	1.22	97	33-145	4	0-30
33213-65-9	LCSD Endosulfan II	1.25	0.0	0.996	80	37-127	5	0-30
50-29-3	LCSD 4,4'-DDT	1.25	0.0	0.998	80	36-125	6	0-30

Pesticide

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **WSTMO-18-155069MS**
Lab Sample ID **1204055510**
Instrument: **ECD6A.I**
Analyst: **RXE1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **06/26/2018 20:21**
Prep Batch ID: **1776100**
Batch ID: **1776101**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
58-89-9	MS	gamma-BHC (Lindane)	0.562	0.00	U	0.174	31 *	35-131
76-44-8	MS	Heptachlor	0.562	0.00	U	0.0703	13 *	27-131
309-00-2	MS	Aldrin	0.562	0.00	U	0.0953	17	15-128
319-85-7	MS	beta-BHC	0.562	0.00	U	0.330	59	29-138
5103-74-2	MS	trans-Chlordane	0.562	0.00	U	0.0951	17 *	33-138
5103-71-9	MS	cis-Chlordane	0.562	0.00	U	0.166	30 *	34-128
959-98-8	MS	Endosulfan I	0.562	0.00	U	0.132	23 *	26-133
60-57-1	MS	Dieldrin	1.40	0.00	U	0.213	15 *	40-134
72-20-8	MS	Endrin	1.40	0.00	U	0.321	23	15-151
33213-65-9	MS	Endosulfan II	1.40	0.00	U	0.256	18 *	29-133
50-29-3	MS	4,4'-DDT	1.40	0.00	U	0.123	9 *	24-139
319-84-6	MS	alpha-BHC	0.562	0.0949		0.204	19 *	30-133

Pesticide

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **WSTMO-18-155069MSD**
Lab Sample ID **1204055513**
Instrument: **ECD6A.I**
Analyst: **RXE1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **06/26/2018 20:36**
Dilution: 1
Prep Batch ID: **1776100**
Batch ID: **1776101**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
58-89-9	MSD	gamma-BHC (Lindane)	0.562	0.00	U	0.350	62	35-131	67 *	0-30
76-44-8	MSD	Heptachlor	0.562	0.00	U	0.190	34	27-131	92 *	0-30
309-00-2	MSD	Aldrin	0.562	0.00	U	0.250	44	15-128	89 *	0-30
319-85-7	MSD	beta-BHC	0.562	0.00	U	0.657	117	29-138	66 *	0-30
5103-74-2	MSD	trans-Chlordane	0.562	0.00	U	0.310	55	33-138	106 *	0-30
5103-71-9	MSD	cis-Chlordane	0.562	0.00	U	0.387	69	34-128	80 *	0-30
959-98-8	MSD	Endosulfan I	0.562	0.00	U	0.275	49	26-133	70 *	0-30
60-57-1	MSD	Dieldrin	1.40	0.00	U	0.604	43	40-134	96 *	0-30
72-20-8	MSD	Endrin	1.40	0.00	U	0.814	58	15-151	87 *	0-30
33213-65-9	MSD	Endosulfan II	1.40	0.00	U	0.666	47	29-133	89 *	0-30
50-29-3	MSD	4,4'-DDT	1.40	0.00	U	0.319	23 *	24-139	88 *	0-30
319-84-6	MSD	alpha-BHC	0.562	0.0949		0.509	74	30-133	85 *	0-30

Method Blank Summary

SDG Number:	**2018-2748**	**Client:**	**ARSL004**	**Matrix:**	**GROUND WATER**
Client ID:	**MB for batch 1776100**	**Instrument ID:**	**ECD6A.I_1** **ECD6A.I_2**	**Data File:**	**062618\E62632.D** **062618\E62632.D**
Lab Sample ID:	**1204055506**				
Column:	**CLP** **CLP2**	**Prep Date:**	**06/22/2018 08:19**	**Analyzed:**	**06/26/18 19:04**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1776100	1204055507	062618\E62633.D	06/26/18	1919
02 LCSD for batch 1776100	1204055514	062618\E62634.D	06/26/18	1934
03 WSTMO-18-155066	452995007	062618\E62635.D	06/26/18	1950
04 WSTMO-18-155069	452995011	062618\E62636.D 062618\E62636.D	06/26/18	2005
05 WSTMO-18-155069MS	1204055510	062618\E62637.D 062618\E62637.D	06/26/18	2021
06 WSTMO-18-155069MSD	1204055513	062618\E62638.D 062618\E62638.D	06/26/18	2036

Quality Control Data

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**GROUND WATER**
Lab Sample ID:	**1204055506**				
Client Sample:	**QC for batch 1776100**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776100**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776101**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 19:04**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:19**	**Aliquot:**	**1000 mL**	**Final Volume:**	**5 mL**
Data File:	**062618\E62632.D**	**Column:**	**1 CLP**		
	062618\E62632.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT	U	0.010	ug/L	0.010	0.040	1
309-00-2	Aldrin	U	0.00665	ug/L	0.00665	0.020	1
57-74-9	Chlordane	U	0.0765	ug/L	0.0765	0.250	1
60-57-1	Dieldrin	U	0.010	ug/L	0.010	0.040	1
959-98-8	Endosulfan I	U	0.00665	ug/L	0.00665	0.020	1
33213-65-9	Endosulfan II	U	0.010	ug/L	0.010	0.040	1
72-20-8	Endrin	U	0.010	ug/L	0.010	0.040	1
76-44-8	Heptachlor	U	0.00665	ug/L	0.00665	0.020	1
8001-35-2	Toxaphene	U	0.150	ug/L	0.150	0.500	1
319-84-6	alpha-BHC	U	0.00665	ug/L	0.00665	0.020	1
319-85-7	beta-BHC	U	0.00665	ug/L	0.00665	0.020	1
5103-71-9	cis-Chlordane	U	0.00665	ug/L	0.00665	0.020	1
58-89-9	gamma-BHC (Lindane)	U	0.00665	ug/L	0.00665	0.020	1
5103-74-2	trans-Chlordane	U	0.00665	ug/L	0.00665	0.020	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.629	1.00	ug/L	63	(34%-109%)
Decachlorobiphenyl	0.701	1.00	ug/L	70	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**GROUND WATER**
Lab Sample ID:	**1204055507**				
Client Sample:	**QC for batch 1776100**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776100**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776101**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 19:19**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:19**	**Aliquot:**	**1000 mL**	**Final Volume:**	**5 mL**
Data File:	**062618\E62633.D**	**Column:**	**1 CLP**		
	062618\E62633.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT		1.06	ug/L	0.010	0.040	1
309-00-2	Aldrin		0.327	ug/L	0.00665	0.020	1
57-74-9	Chlordane	U	0.0765	ug/L	0.0765	0.250	1
60-57-1	Dieldrin		1.03	ug/L	0.010	0.040	1
959-98-8	Endosulfan I		0.395	ug/L	0.00665	0.020	1
33213-65-9	Endosulfan II		1.04	ug/L	0.010	0.040	1
72-20-8	Endrin		1.27	ug/L	0.010	0.040	1
76-44-8	Heptachlor		0.406	ug/L	0.00665	0.020	1
8001-35-2	Toxaphene	U	0.150	ug/L	0.150	0.500	1
319-84-6	alpha-BHC		0.416	ug/L	0.00665	0.020	1
319-85-7	beta-BHC		0.382	ug/L	0.00665	0.020	1
5103-71-9	cis-Chlordane		0.413	ug/L	0.00665	0.020	1
58-89-9	gamma-BHC (Lindane)		0.422	ug/L	0.00665	0.020	1
5103-74-2	trans-Chlordane		0.350	ug/L	0.00665	0.020	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.659	1.00	ug/L	66	(34%-109%)
Decachlorobiphenyl	0.652	1.00	ug/L	65	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 08:20**	**Matrix:**	**W**
Lab Sample ID:	**1204055510**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**QC for batch 1776100**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155069MS**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776101**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 20:21**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:19**	**Aliquot:**	**890 mL**	**Final Volume:**	**5 mL**
Data File:	**062618\E62637.D**	**Column:**	**1 CLP**		
	062618\E62637.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT		0.123	ug/L	0.0112	0.0449	1
309-00-2	Aldrin		0.0953	ug/L	0.00747	0.0225	1
57-74-9	Chlordane	U	0.086	ug/L	0.086	0.281	1
60-57-1	Dieldrin		0.213	ug/L	0.0112	0.0449	1
959-98-8	Endosulfan I		0.132	ug/L	0.00747	0.0225	1
33213-65-9	Endosulfan II		0.256	ug/L	0.0112	0.0449	1
72-20-8	Endrin		0.321	ug/L	0.0112	0.0449	1
76-44-8	Heptachlor	P	0.0703	ug/L	0.00747	0.0225	1
8001-35-2	Toxaphene	U	0.169	ug/L	0.169	0.562	1
319-84-6	alpha-BHC		0.204	ug/L	0.00747	0.0225	2
319-85-7	beta-BHC		0.330	ug/L	0.00747	0.0225	1
5103-71-9	cis-Chlordane		0.166	ug/L	0.00747	0.0225	1
58-89-9	gamma-BHC (Lindane)		0.174	ug/L	0.00747	0.0225	1
5103-74-2	trans-Chlordane	P	0.0951	ug/L	0.00747	0.0225	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.103	1.12	ug/L	9	*	(34%-109%)
Decachlorobiphenyl	0.148	1.12	ug/L	13	*	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 08:20**	**Matrix:**	**W**
Lab Sample ID:	**1204055513**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**QC for batch 1776100**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155069MSD**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776101**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 20:36**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:19**	**Aliquot:**	**890 mL**	**Final Volume:**	**5 mL**
Data File:	**062618\E62638.D**	**Column:**	**1 CLP**		
	062618\E62638.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT		0.319	ug/L	0.0112	0.0449	1
309-00-2	Aldrin	P	0.250	ug/L	0.00747	0.0225	1
57-74-9	Chlordane	U	0.086	ug/L	0.086	0.281	1
60-57-1	Dieldrin	P	0.604	ug/L	0.0112	0.0449	1
959-98-8	Endosulfan I		0.275	ug/L	0.00747	0.0225	1
33213-65-9	Endosulfan II		0.666	ug/L	0.0112	0.0449	1
72-20-8	Endrin		0.814	ug/L	0.0112	0.0449	1
76-44-8	Heptachlor		0.190	ug/L	0.00747	0.0225	1
8001-35-2	Toxaphene	U	0.169	ug/L	0.169	0.562	1
319-84-6	alpha-BHC		0.509	ug/L	0.00747	0.0225	2
319-85-7	beta-BHC	P	0.657	ug/L	0.00747	0.0225	1
5103-71-9	cis-Chlordane		0.387	ug/L	0.00747	0.0225	1
58-89-9	gamma-BHC (Lindane)		0.350	ug/L	0.00747	0.0225	1
5103-74-2	trans-Chlordane		0.310	ug/L	0.00747	0.0225	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.301	1.12	ug/L	27	*	(34%-109%)
Decachlorobiphenyl	0.339	1.12	ug/L	30	*	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**GROUND WATER**
Lab Sample ID:	**1204055514**				
Client Sample:	**QC for batch 1776100**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCSD for batch 1776100**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776101**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 19:34**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/22/2018 08:19**	**Aliquot:**	**1000 mL**	**Final Volume:**	**5 mL**
Data File:	**062618\E62634.D**	**Column:**	**1 CLP**		
	062618\E62634.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT		0.998	ug/L	0.010	0.040	1
309-00-2	Aldrin		0.316	ug/L	0.00665	0.020	1
57-74-9	Chlordane	U	0.0765	ug/L	0.0765	0.250	1
60-57-1	Dieldrin		0.995	ug/L	0.010	0.040	1
959-98-8	Endosulfan I		0.383	ug/L	0.00665	0.020	1
33213-65-9	Endosulfan II		0.996	ug/L	0.010	0.040	1
72-20-8	Endrin		1.22	ug/L	0.010	0.040	1
76-44-8	Heptachlor		0.403	ug/L	0.00665	0.020	1
8001-35-2	Toxaphene	U	0.150	ug/L	0.150	0.500	1
319-84-6	alpha-BHC		0.404	ug/L	0.00665	0.020	1
319-85-7	beta-BHC		0.365	ug/L	0.00665	0.020	1
5103-71-9	cis-Chlordane		0.404	ug/L	0.00665	0.020	1
58-89-9	gamma-BHC (Lindane)		0.406	ug/L	0.00665	0.020	1
5103-74-2	trans-Chlordane		0.365	ug/L	0.00665	0.020	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.647	1.00	ug/L	65	(34%-109%)
Decachlorobiphenyl	0.636	1.00	ug/L	64	(34%-133%)

PCB Analysis

Case Narrative

GC Semivolatile PCB
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2748
Work Order #: 452995

Product: **Analysis of The Analysis of Polychlorinated Biphenyls by GC/ECD by ECD**
Analytical Method: SW846 3535A/8082A
Analytical Procedure: GL-OA-E-040 REV# 25
Analytical Batch: 1776547

Preparation Method: SW846 3535A
Preparation Procedure: GL-OA-E-037 REV# 7
Preparation Batch: 1776546

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
452995006	WSTMO-18-155066
452995010	WSTMO-18-155069
1204056513	Method Blank (MB)
1204056514	Laboratory Control Sample (LCS)
1204056515	453084010(WSTMO-18-155068) Matrix Spike (MS)
1204056516	453084010(WSTMO-18-155068) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Surrogate Recoveries
Samples (See Below) failed to meet acceptance criteria for surrogate recovery. The same samples for the pesticides analysis failed surrogate recovery in a similar manner; therefore, the failure was attributed to sample matrix interference.

Sample	Analyte	Value
452995006 (WSTMO-18-155066)	Decachlorobiphenyl	16* (35%-138%)
	Decachlorobiphenyl	18* (35%-138%)
452995010 (WSTMO-18-155069)	Decachlorobiphenyl	29* (35%-138%)

Samples (See Below) failed to meet acceptance criteria for surrogate recovery. Since the sample and the associated MS/MSD displayed similar surrogate recovery, the failures were attributed to sample matrix interference.

Sample	Analyte	Value
1204056515 (WSTMO-18-155068MS)	4cmx	10* (33%-122%)
	4cmx	11* (33%-122%)
	Decachlorobiphenyl	10* (35%-138%)
1204056516 (WSTMO-18-155068MSD)	4cmx	15* (33%-122%)
	Decachlorobiphenyl	15* (35%-138%)
	Decachlorobiphenyl	16* (35%-138%)

Matrix Spike (MS/MSD) Recovery Statement
The MS and/or MSD (See Below) did not meet spike recovery acceptance limits due to sample matrix interference as the MS and MSD displayed similar spike recovery.

Sample	Analyte	Value
1204056515 (WSTMO-18-155068MS)	Aroclor-1016	15* (26%-110%)
	Aroclor-1260	12* (30%-127%)
1204056516 (WSTMO-18-155068MSD)	Aroclor-1016	22* (26%-110%)
	Aroclor-1260	13* (30%-127%)

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent difference (RPD) between the MS and MSD (See Below) was not within the required acceptance limits due to sample matrix interference.

Sample	Analyte	Value
1204056515MS and 1204056516MSD (WSTMO-18-155068)	Aroclor-1016	RPD 36* (0%-27%)

Technical Information

Preparation/Analytical Method Verification
All samples and QC in this batch were cleaned using alumina in order to remove oil and other high molecular weight interferences. All samples and QC in this batch were cleaned with activated copper in order to remove sulfur. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns.

Miscellaneous Information

Manual integrations
Samples 1204056515 (WSTMO-18-155068MS), 1204056516 (WSTMO-18-155068MSD) and 452995010 (WSTMO-18-155069) required manual integration to correctly position the baseline as set in the calibration standard injections and to properly identify one or more peaks.

Additional Comments
The lower results from either column have been chosen and reported in the data package for the client samples, MB and LCS. The data reported for the MS/MSD are from the same analytical column as the parent sample.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2748 GEL Work Order: 452995

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimin Cao **Name: Jimin Cao**

Date: 27 JUN 2018 **Title: Data Validator**

Sample Data Summary

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**452995006**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**8082/ClO4**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155066**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1776547**	**Inst:**	**ECD9A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 09:16**	**Analyst:**	**YS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:48**	**Aliquot:**	**940 mL**	**Final Volume:**	**1 mL**
Data File:	**062618.S\E9f2319.D**	**Column:**	**1 RTX-CLPEST 1**		
	062618.S\E9f2319.D		**2 RTX-CLPEST 2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.0354	ug/L	0.0354	0.106	1
11104-28-2	Aroclor-1221	U	0.0354	ug/L	0.0354	0.106	1
11141-16-5	Aroclor-1232	U	0.0354	ug/L	0.0354	0.106	1
53469-21-9	Aroclor-1242	U	0.0354	ug/L	0.0354	0.106	1
12672-29-6	Aroclor-1248	U	0.0354	ug/L	0.0354	0.106	1
11097-69-1	Aroclor-1254	U	0.0354	ug/L	0.0354	0.106	1
11096-82-5	Aroclor-1260	U	0.0354	ug/L	0.0354	0.106	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
Decachlorobiphenyl	0.0335	0.213	ug/L	16	*	(35%-138%)
4cmx	0.110	0.213	ug/L	52		(33%-122%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/19/2018 08:20**	**Matrix:**	**W**
Lab Sample ID:	**452995010**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**8082/ClO4**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155069**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1776547**	**Inst:**	**ECD9A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 09:27**	**Analyst:**	**YS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:48**	**Aliquot:**	**910 mL**	**Final Volume:**	**1 mL**
Data File:	**062618.S\E9f2320.D**	**Column:**	**1 RTX-CLPEST 1**		
	062618.S\E9f2320.D		**2 RTX-CLPEST 2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.0366	ug/L	0.0366	0.110	1
11104-28-2	Aroclor-1221	U	0.0366	ug/L	0.0366	0.110	1
11141-16-5	Aroclor-1232	U	0.0366	ug/L	0.0366	0.110	1
53469-21-9	Aroclor-1242	U	0.0366	ug/L	0.0366	0.110	1
12672-29-6	Aroclor-1248	U	0.0366	ug/L	0.0366	0.110	1
11097-69-1	Aroclor-1254	U	0.0366	ug/L	0.0366	0.110	1
11096-82-5	Aroclor-1260	U	0.0366	ug/L	0.0366	0.110	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.0714	0.220	ug/L	33		(33%-122%)
Decachlorobiphenyl	0.0632	0.220	ug/L	29	*	(35%-138%)

Quality Control Summary

PCB

Surrogate Recovery Report

SDG Number: 2018-2748

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC #	4CMX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #
1204056513	MB for batch 1776546	68	70	78	74
1204056514	LCS for batch 1776546	74	70	85	83
452995006	WSTMO-18-155066	56	52	16 *	18 *
452995010	WSTMO-18-155069	33	34	29 *	29 *
1204056515	WSTMO-18-155068MS	10 *	11 *	10 *	10 *
1204056516	WSTMO-18-155068MSD	15 *	15 *	15 *	16 *

Surrogate		Acceptance Limits
4CMX	= 4cmx	(33%-122%)
DCB	= Decachlorobiphenyl	(35%-138%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **LCS for batch 1776546**
Lab Sample ID **1204056514**
Instrument: **ECD9A.I**
Analyst: **YS1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/26/2018 09:04**
Dilution: 1
Prep Batch ID: **1776546**
Batch ID: **1776547**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	LCS	Aroclor-1016	1.00	0.0	0.748	75	45-101
11096-82-5	LCS	Aroclor-1260	1.00	0.0	0.854	85	52-113

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **WSTMO-18-155068MS**
Lab Sample ID **1204056515**
Instrument: **ECD9A.I**
Analyst: **YS1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **06/26/2018 10:07**
Prep Batch ID: **1776546**
Batch ID: **1776547**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	MS	Aroclor-1016	1.29	0.00	U	0.198	15 *	26-110
11096-82-5	MS	Aroclor-1260	1.29	0.00	U	0.154	12 *	30-127

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2748**
Client ID: **WSTMO-18-155068MSD**
Lab Sample ID **1204056516**
Instrument: **ECD9A.I**
Analyst: **YS1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **06/26/2018 10:20**
Dilution: 1
Prep Batch ID: **1776546**
Batch ID: **1776547**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
12674-11-2	MSD	Aroclor-1016	1.29	0.00	U	0.285	22 *	26-110	36 *	0-27
11096-82-5	MSD	Aroclor-1260	1.29	0.00	U	0.172	13 *	30-127	11	0-29

Method Blank Summary

SDG Number:	**2018-2748**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1776546**	**Instrument ID:**	**ECD9A.I_1** **ECD9A.I_2**	**Data File:**	**062618.S\E9f2317.D** **062618.S\E9f2317.D**
Lab Sample ID:	**1204056513**				
Column:	**RTX-CLPEST 1** **RTX-CLPEST 2**	**Prep Date:**	**06/25/2018 09:48**	**Analyzed:**	**06/26/18 08:53**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1776546	**1204056514**	**062618.S\E9f2318.D** **062618.S\E9f2318.D**	**06/26/18**	**0904**
02 WSTMO-18-155066	**452995006**	**062618.S\E9f2319.D** **062618.S\E9f2319.D**	**06/26/18**	**0916**
03 WSTMO-18-155069	**452995010**	**062618.S\E9f2320.D**	**06/26/18**	**0927**
04 WSTMO-18-155068MS	**1204056515**	**062618.S\E9f2323.D** **062618.S\E9f2323.D**	**06/26/18**	**1007**
05 WSTMO-18-155068MSD	**1204056516**	**062618.S\E9f2324.D** **062618.S\E9f2324.D**	**06/26/18**	**1020**

Quality Control Data

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**WATER**
Lab Sample ID:	**1204056513**				
Client Sample:	**QC for batch 1776546**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776546**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1776547**	**Inst:**	**ECD9A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 08:53**	**Analyst:**	**YS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:48**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**062618.S\E9f2317.D**	**Column:**	**1 RTX-CLPEST 1**		
	062618.S\E9f2317.D		**2 RTX-CLPEST 2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.0333	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.0333	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.0333	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.0333	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.0333	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.0333	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.0333	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.136	0.200	ug/L	68	(33%-122%)
Decachlorobiphenyl	0.147	0.200	ug/L	74	(35%-138%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**			**Matrix:**	**WATER**
Lab Sample ID:	**1204056514**				
Client Sample:	**QC for batch 1776546**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776546**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1776547**	**Inst:**	**ECD9A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 09:04**	**Analyst:**	**YS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:48**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**062618.S\E9f2318.D**	**Column:**	**1 RTX-CLPEST 1**		
	062618.S\E9f2318.D		**2 RTX-CLPEST 2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.748	ug/L	0.0333	0.100	2
11104-28-2	Aroclor-1221	U	0.0333	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.0333	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.0333	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.0333	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.0333	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260		0.854	ug/L	0.0333	0.100	2

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.140	0.200	ug/L	70	(33%-122%)
Decachlorobiphenyl	0.167	0.200	ug/L	83	(35%-138%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/20/2018 08:35**	**Matrix:**	**W**
Lab Sample ID:	**1204056515**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**QC for batch 1776546**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155068MS**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1776547**	**Inst:**	**ECD9A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 10:07**	**Analyst:**	**YS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:48**	**Aliquot:**	**775 mL**	**Final Volume:**	**1 mL**
Data File:	**062618.S\E9f2323.D**	**Column:**	**1 RTX-CLPEST 1**		
	062618.S\E9f2323.D		**2 RTX-CLPEST 2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.198	ug/L	0.043	0.129	1
11104-28-2	Aroclor-1221	U	0.043	ug/L	0.043	0.129	1
11141-16-5	Aroclor-1232	U	0.043	ug/L	0.043	0.129	1
53469-21-9	Aroclor-1242	U	0.043	ug/L	0.043	0.129	1
12672-29-6	Aroclor-1248	U	0.043	ug/L	0.043	0.129	1
11097-69-1	Aroclor-1254	U	0.043	ug/L	0.043	0.129	1
11096-82-5	Aroclor-1260		0.154	ug/L	0.043	0.129	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.0254	0.258	ug/L	10	*	(33%-122%)
Decachlorobiphenyl	0.0263	0.258	ug/L	10	*	(35%-138%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2748**	**Date Collected:**	**06/20/2018 08:35**	**Matrix:**	**W**
Lab Sample ID:	**1204056516**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**QC for batch 1776546**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155068MSD**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1776547**	**Inst:**	**ECD9A.I**	**Dilution:**	**1**
Run Date:	**06/26/2018 10:20**	**Analyst:**	**YS1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/25/2018 09:48**	**Aliquot:**	**775 mL**	**Final Volume:**	**1 mL**
Data File:	**062618.S\E9f2324.D**	**Column:**	**1 RTX-CLPEST 1**		
	062618.S\E9f2324.D		**2 RTX-CLPEST 2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.285	ug/L	0.043	0.129	1
11104-28-2	Aroclor-1221	U	0.043	ug/L	0.043	0.129	1
11141-16-5	Aroclor-1232	U	0.043	ug/L	0.043	0.129	1
53469-21-9	Aroclor-1242	U	0.043	ug/L	0.043	0.129	1
12672-29-6	Aroclor-1248	U	0.043	ug/L	0.043	0.129	1
11097-69-1	Aroclor-1254	U	0.043	ug/L	0.043	0.129	1
11096-82-5	Aroclor-1260		0.172	ug/L	0.043	0.129	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.0389	0.258	ug/L	15	*	(33%-122%)
Decachlorobiphenyl	0.0425	0.258	ug/L	16	*	(35%-138%)

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2748
Work Order #: 452995

Product: **Determination of Metals by ICP**
Analytical Method: EPA 200.7 4.4 1994
Analytical Procedure: GL-MA-E-013 REV# 30
Analytical Batch: 1775931

Product: **Determination of Metals by ICP-MS**
Analytical Method: EPA 200.8 5.4 1994
Analytical Procedure: GL-MA-E-014 REV# 32
Analytical Batch: 1775939

Product: **Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer**
Analytical Method: EPA 245.2 1974
Analytical Procedure: GL-MA-E-010 REV# 36
Analytical Batch: 1776256

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 18
Preparation Batches: 1775930 and 1775938

Preparation Method: EPA 245.1/245.2 Prep
Preparation Procedure: GL-MA-E-010 REV# 36
Preparation Batch: 1776255

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
452995002	WSTMO-18-155056
452995003	WSTMO-18-155059
452995004	WSTMO-18-155061
452995005	WSTMO-18-155064
1204055070	Method Blank (MB)**ICP**
1204055071	Laboratory Control Sample (LCS)
1204055074	452995002(WSTMO-18-155056L) Serial Dilution (SD)
1204055072	452995002(WSTMO-18-155056D) Sample Duplicate (DUP)
1204055073	452995002(WSTMO-18-155056S) Matrix Spike (MS)
1204055081	Method Blank (MB)**ICP-MS**
1204055082	Laboratory Control Sample (LCS)
1204055085	452995002(WSTMO-18-155056L) Serial Dilution (SD)
1204055083	452995002(WSTMO-18-155056D) Sample Duplicate (DUP)
1204055084	452995002(WSTMO-18-155056S) Matrix Spike (MS)
1204055879	Method Blank (MB)**CVAA**
1204055880	Laboratory Control Sample (LCS)
1204055883	452921002(NonSDGL) Serial Dilution (SD)
1204055881	452921002(NonSDGD) Sample Duplicate (DUP)
1204055882	452921002(NonSDGS) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

CRDL/PQL Requirements
The initial PQL standard recoveries for EPA 200.7/SW846 6010B met the advisory control limits with the exception of zinc. The methods do not require qualifying the data, only narrating the recoveries outside the criteria. 452995002 (WSTMO-18-155056) and 452995003 (WSTMO-18-155059)-ICP.

ICSA/ICSAB Statement
For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Technical Information

Sample Dilutions
Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range. Per the SOP, samples ICP-MS were diluted due to internal standard recoveries outside the acceptable control limits.

Analyte	452995	
	002	003
Aluminum	5X	5X
Arsenic	5X	5X
Barium	5X	5X
Cadmium	5X	5X
Chromium	5X	5X
Cobalt	5X	5X
Copper	5X	5X
Lead	5X	5X
Molybdenum	5X	5X
Nickel	5X	5X
Selenium	5X	5X
Silver	5X	5X
Uranium	5X	5X

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2748 GEL Work Order: 452995

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Nik-Cole A. Elmore **Name: Nik-Cole Elmore**

Date: 27 JUN 2018 **Title: Data Validator**

Sample Data Summary

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018−2748 **CONTRACT:** ESHL00118 **METHOD TYPE:** EPA

SAMPLE ID: 452995002 **BASIS:** As Received **DATE COLLECTED** 19−JUN−18

CLIENT ID: WSTMO−18−155056 **LEVEL:** Low **DATE RECEIVED** 21−JUN−18

MATRIX: W **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	96.5	ug/L	U	96.5	250	250	5	MS	SKJ	06/26/18 14:55	180626−2	1775939
7440−38−2	Arsenic	20	ug/L	J	10	25	25	5	MS	SKJ	06/26/18 14:55	180626−2	1775939
7440−39−3	Barium	35.6	ug/L		3.35	10	10	5	MS	SKJ	06/26/18 14:55	180626−2	1775939
7440−42−8	Boron	2630	ug/L		15	50	50	1	P	HSC	06/22/18 09:56	062218−1	1775931
7440−43−9	Cadmium	1.5	ug/L	U	1.5	5	5	5	MS	SKJ	06/26/18 14:55	180626−2	1775939
7440−47−3	Chromium	15	ug/L	U	15	50	50	5	MS	SKJ	06/26/18 14:55	180626−2	1775939
7440−48−4	Cobalt	1.5	ug/L	U	1.5	5	5	5	MS	SKJ	06/26/18 14:55	180626−2	1775939
7440−50−8	Copper	4.27	ug/L	J	1.5	5	5	5	MS	SKJ	06/26/18 14:55	180626−2	1775939
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	06/22/18 09:56	062218−1	1775931
7439−92−1	Lead	2.5	ug/L	U	2.5	10	10	5	MS	SKJ	06/26/18 14:55	180626−2	1775939
7439−96−5	Manganese	11.9	ug/L		2	10	10	1	P	HSC	06/22/18 09:56	062218−1	1775931
7439−97−6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/25/18 12:14	062518W1−4	1776256
7439−98−7	Molybdenum	472	ug/L		1	2.5	2.5	5	MS	SKJ	06/26/18 14:55	180626−2	1775939
7440−02−0	Nickel	12.1	ug/L		3	10	10	5	MS	SKJ	06/26/18 14:55	180626−2	1775939
7782−49−2	Selenium	16.5	ug/L	J	10	25	25	5	MS	SKJ	06/27/18 13:18	180627−3	1775939
7440−22−4	Silver	1.5	ug/L	U	1.5	5	5	5	MS	SKJ	06/26/18 14:55	180626−2	1775939
7440−61−1	Uranium	0.335	ug/L	U	0.335	1	1	5	MS	SKJ	06/26/18 14:55	180626−2	1775939
7440−66−6	Zinc	6.1	ug/L	J	3.3	10	10	1	P	HSC	06/22/18 09:56	062218−1	1775931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1775931	1775930	EPA 200.2	50	mL	50	mL	06/21/18	JXM8
1775939	1775938	EPA 200.2	50	mL	50	mL	06/21/18	JXM8
1776256	1776255	EPA 245.1/245.2 Prep	20	mL	20	mL	06/22/18	AXS5

***Analytical Methods:**

MS **EPA 200.8 5.4 1994**
P **EPA 200.7 4.4 1994**
AV **EPA 245.2 1974**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018−2748 **CONTRACT:** ESHL00118 **METHOD TYPE:** EPA

SAMPLE ID: 452995003 **BASIS:** As Received **DATE COLLECTED** 19−JUN−18

CLIENT ID: WSTMO−18−155059 **LEVEL:** Low **DATE RECEIVED** 21−JUN−18

MATRIX: W **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	96.5	ug/L	U	96.5	250	250	5	MS	SKJ	06/26/18 15:06	180626−2	1775939
7440−38−2	Arsenic	11.7	ug/L	J	10	25	25	5	MS	SKJ	06/26/18 15:06	180626−2	1775939
7440−39−3	Barium	12.9	ug/L		3.35	10	10	5	MS	SKJ	06/26/18 15:06	180626−2	1775939
7440−42−8	Boron	1270	ug/L		15	50	50	1	P	HSC	06/22/18 10:11	062218−1	1775931
7440−43−9	Cadmium	1.5	ug/L	U	1.5	5	5	5	MS	SKJ	06/26/18 15:06	180626−2	1775939
7440−47−3	Chromium	15	ug/L	U	15	50	50	5	MS	SKJ	06/26/18 15:06	180626−2	1775939
7440−48−4	Cobalt	1.5	ug/L	U	1.5	5	5	5	MS	SKJ	06/26/18 15:06	180626−2	1775939
7440−50−8	Copper	3.19	ug/L	J	1.5	5	5	5	MS	SKJ	06/26/18 15:06	180626−2	1775939
7439−89−6	Iron	30	ug/L	U	30	100	100	1	P	HSC	06/22/18 10:11	062218−1	1775931
7439−92−1	Lead	2.5	ug/L	U	2.5	10	10	5	MS	SKJ	06/26/18 15:06	180626−2	1775939
7439−96−5	Manganese	2.05	ug/L	J	2	10	10	1	P	HSC	06/22/18 10:11	062218−1	1775931
7439−97−6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/25/18 12:15	062518W1−4	1776256
7439−98−7	Molybdenum	313	ug/L		1	2.5	2.5	5	MS	SKJ	06/26/18 15:06	180626−2	1775939
7440−02−0	Nickel	11.4	ug/L		3	10	10	5	MS	SKJ	06/26/18 15:06	180626−2	1775939
7782−49−2	Selenium	13.7	ug/L	J	10	25	25	5	MS	SKJ	06/27/18 13:22	180627−3	1775939
7440−22−4	Silver	1.5	ug/L	U	1.5	5	5	5	MS	SKJ	06/26/18 15:06	180626−2	1775939
7440−61−1	Uranium	0.335	ug/L	U	0.335	1	1	5	MS	SKJ	06/26/18 15:06	180626−2	1775939
7440−66−6	Zinc	4.94	ug/L	J	3.3	10	10	1	P	HSC	06/22/18 10:11	062218−1	1775931

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1775931	1775930	EPA 200.2	50	mL	50	mL	06/21/18	JXM8
1775939	1775938	EPA 200.2	50	mL	50	mL	06/21/18	JXM8
1776256	1776255	EPA 245.1/245.2 Prep	20	mL	20	mL	06/22/18	AXS5

***Analytical Methods:**

MS **EPA 200.8 5.4 1994**
P **EPA 200.7 4.4 1994**
AV **EPA 245.2 1974**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018−2748 **CONTRACT:** ESHL00118 **METHOD TYPE:** EPA

SAMPLE ID: 452995004 **BASIS:** As Received **DATE COLLECTED** 19−JUN−18

CLIENT ID: WSTMO−18−155061 **LEVEL:** Low **DATE RECEIVED** 21−JUN−18

MATRIX: W **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439−97−6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/25/18 12:17	062518W1−4	1776256

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1776256	1776255	EPA 245.1/245.2 Prep	20	mL	20	mL	06/22/18	AXS5

***Analytical Methods:**

AV **EPA 245.2 1974**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018−2748 **CONTRACT:** ESHL00118 **METHOD TYPE:** EPA

SAMPLE ID: 452995005 **BASIS:** As Received **DATE COLLECTED** 19−JUN−18

CLIENT ID: WSTMO−18−155064 **LEVEL:** Low **DATE RECEIVED** 21−JUN−18

MATRIX: W **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439−97−6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/25/18 12:19	062518W1−4	1776256

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1776256	1776255	EPA 245.1/245.2 Prep	20	mL	20	mL	06/22/18	AXS5

***Analytical Methods:**

AV **EPA 245.2 1974**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2018−2748

Contract: ESHL00118

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1204055070								
	Boron	15	ug/L	+/−50	U	P	15	50
	Iron	30	ug/L	+/−100	U	P	30	100
	Zinc	3.3	ug/L	+/−10	U	P	3.3	10
	Manganese	2	ug/L	+/−10	U	P	2	10
1204055081								
	Cadmium	0.3	ug/L	+/−1	U	MS	0.3	1
	Chromium	3	ug/L	+/−10	U	MS	3	10
	Cobalt	0.3	ug/L	+/−1	U	MS	0.3	1
	Copper	0.3	ug/L	+/−1	U	MS	0.3	1
	Aluminum	19.3	ug/L	+/−50	U	MS	19.3	50
	Barium	0.67	ug/L	+/−2	U	MS	0.67	2
	Arsenic	2	ug/L	+/−5	U	MS	2	5
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.2	ug/L	+/−0.5	U	MS	0.2	0.5
	Nickel	0.6	ug/L	+/−2	U	MS	0.6	2
	Selenium	2	ug/L	+/−5	U	MS	2	5
	Silver	0.3	ug/L	+/−1	U	MS	0.3	1
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1204055879								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**EPA 200.8 DOE−AL**
P	**EPA 200.7**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2018−2748 **Client ID** WSTMO−18−155056S

Contract: ESHL00118 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 452995002 **Spike ID:** 1204055073

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L		3120		2630		500	99.6	N/A	P
Iron	ug/L	75−125	4250		30	U	5000	84.6		P
Manganese	ug/L	75−125	401		11.9		500	77.9		P
Zinc	ug/L	75−125	478		6.1	J	500	94.4		P

***Analytical Methods:**

P **EPA 200.7**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2018−2748 **Client ID** WSTMO−18−155056S

Contract: ESHL00118 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 452995002 **Spike ID:** 1204055084

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	1910		96.5	U	2000	94.9		MS
Arsenic	ug/L	75−125	66		20	J	50	92.1		MS
Barium	ug/L	75−125	85.4		35.6		50	99.6		MS
Cadmium	ug/L	75−125	39.4		1.5	U	50	78.5		MS
Chromium	ug/L	75−125	52		15	U	50	90.9		MS
Cobalt	ug/L	75−125	44.6		1.5	U	50	86.4		MS
Copper	ug/L	75−125	43.2		4.27	J	50	77.8		MS
Lead	ug/L	75−125	44.1		2.5	U	50	87.5		MS
Molybdenum	ug/L		539		472		50	135	N/A	MS
Nickel	ug/L	75−125	52.3		12.1		50	80.5		MS
Selenium	ug/L	75−125	58.6		16.5	J	50	84.1		MS
Silver	ug/L	75−125	38.6		1.5	U	50	77.1		MS
Uranium	ug/L	75−125	50.3		0.335	U	50	99.9		MS

***Analytical Methods:**

MS **EPA 200.8 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2018−2748 **Client ID** WT_SEP−URB−18−155254S

Contract: ESHL00118 **Level:** Low

Matrix: STORM WATER **% Solids:**

Sample ID: 452921002 **Spike ID:** 1204055882

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.1		0.067	U	2	105		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2018−2748 **Lab Code:** GEL

Contract: ESHL00118 **Client ID:** WSTMO−18−155056D

Matrix: WATER **Level:** Low

Sample ID: 452995002 **Duplicate ID:** 1204055072 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/−20%	2630		2670		1.53		P
Iron	ug/L		30	U	30	U			P
Manganese	ug/L	+/−10	11.9		12.3		2.6		P
Zinc	ug/L	+/−10	6.1	J	5.97	J	2.21		P

***Analytical Methods:**
P EPA 200.7

Metals
−6−
Duplicate Sample Summary

SDG No.: 2018−2748 **Lab Code:** GEL

Contract: ESHL00118 **Client ID:** WSTMO−18−155056D

Matrix: WATER **Level:** Low

Sample ID: 452995002 **Duplicate ID:** 1204055083 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		96.5	U	96.5	U			MS
Arsenic	ug/L	+/−25	20	J	20.9	J	4.67		MS
Barium	ug/L	+/−10	35.6		36.5		2.54		MS
Cadmium	ug/L		1.5	U	1.5	U			MS
Chromium	ug/L		15	U	15	U			MS
Cobalt	ug/L		1.5	U	1.5	U			MS
Copper	ug/L	+/−5	4.27	J	4.38	J	2.54		MS
Lead	ug/L		2.5	U	2.5	U			MS
Molybdenum	ug/L	+/−20%	472		482		2.18		MS
Nickel	ug/L	+/−10	12.1		12.6		4.25		MS
Selenium	ug/L	+/−25	16.5	J	11.7	J	33.8		MS
Silver	ug/L		1.5	U	1.5	U			MS
Uranium	ug/L		0.335	U	0.335	U			MS

***Analytical Methods:**
MS EPA 200.8 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2018−2748 **Lab Code:** GEL

Contract: ESHL00118 **Client ID:** WT_SEP−URB−18−155254D

Matrix: STORM WATER **Level:** Low

Sample ID: 452921002 **Duplicate ID:** 1204055881 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**
AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2018−2748

Contract: ESHL00118

Aqueous LCS Source: Inorganic Ventures **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1204055071								
	Boron	ug/L	500	493		98.6	85−115	P
	Iron	ug/L	5000	4880		97.5	85−115	P
	Manganese	ug/L	500	483		96.6	85−115	P
	Zinc	ug/L	500	461		92.2	85−115	P

***Analytical Methods:**

P **EPA 200.7**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2018−2748

Contract: ESHL00118

Aqueous LCS Source: Inorganic Ventures **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1204055082								
	Aluminum	ug/L	2000	2100		105	85−115	MS
	Arsenic	ug/L	50	51.3		103	85−115	MS
	Barium	ug/L	50	54.5		109	85−115	MS
	Cadmium	ug/L	50	51.2		102	85−115	MS
	Chromium	ug/L	50	51.8		104	85−115	MS
	Cobalt	ug/L	50	52.3		105	85−115	MS
	Copper	ug/L	50	51.9		104	85−115	MS
	Lead	ug/L	50	52		104	85−115	MS
	Molybdenum	ug/L	50	52.2		104	85−115	MS
	Nickel	ug/L	50	51.5		103	85−115	MS
	Selenium	ug/L	50	52.6		105	85−115	MS
	Silver	ug/L	50	51.5		103	85−115	MS
	Uranium	ug/L	50	51.5		103	85−115	MS

***Analytical Methods:**

MS **EPA 200.8 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2018−2748

Contract: ESHL00118

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1204055880								
	Mercury	ug/L	2	2.07		103	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2018−2748 **Client ID:** WSTMO−18−155056L

Contract: ESHL00118

Matrix: LIQUID **Level:** Low

Sample ID: 452995002 **Serial Dilution ID:** 1204055074

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	2630		2620		.417		10	P
Iron	30	U	150	U				P
Manganese	11.9		14.9	J	24.987			P
Zinc	6.1	J	29.2	J	378.031			P

***Analytical Methods:**

P **EPA 200.7**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2018−2748 **Client ID** WSTMO−18−155056L

Contract: ESHL00118

Matrix: LIQUID **Level:** Low

Sample ID: 452995002 **Serial Dilution ID:** 1204055085

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	19.3	U	96.5	U				MS
Arsenic	3.99	J	10	U	49.161			MS
Barium	7.12		7.55	J	5.939			MS
Cadmium	.3	U	1.5	U				MS
Chromium	3	U	15	U				MS
Cobalt	.3	U	1.5	U				MS
Copper	.854	J	1.5	U	34.075			MS
Lead	.5	U	2.5	U				MS
Molybdenum	94.4		95.9		1.637		10	MS
Nickel	2.42		3.04	J	25.413			MS
Selenium	3.3	J	10	U	141.667			MS
Silver	.3	U	1.5	U				MS
Uranium	.067	U	.335	U				MS

***Analytical Methods:**

MS **EPA 200.8 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2018−2748 **Client ID** WT_SEP−URB−18−155254L

Contract: ESHL00118

Matrix: LIQUID **Level:** Low

Sample ID: 452921002 **Serial Dilution ID:** 1204055883

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2748
Work Order #: 452995

Product: **Cyanide, Total**
Analytical Method: EPA 335.4 1993
Analytical Procedure: GL-GC-E-095 REV# 22
Analytical Batches: 1776672 and 1776671

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
452995002	WSTMO-18-155056
452995003	WSTMO-18-155059
1204056821	Method Blank (MB)
1204056822	Laboratory Control Sample (LCS)
1204056823	452995002(WSTMO-18-155056) Sample Duplicate (DUP)
1204056824	452995002(WSTMO-18-155056) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Ion Chromatography**
Analytical Method: EPA:300.0
Analytical Procedure: GL-GC-E-086 REV# 25
Analytical Batch: 1776005

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
452995002	WSTMO-18-155056
452995003	WSTMO-18-155059
1204055256	Method Blank (MB)
1204055257	Laboratory Control Sample (LCS)
1204055258	452995003(WSTMO-18-155059) Sample Duplicate (DUP)
1204055259	452995003(WSTMO-18-155059) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204055258 (WSTMO-18-155059DUP), 1204055259 (WSTMO-18-155059PS), 452995002 (WSTMO-18-155056) and 452995003 (WSTMO-18-155059) were diluted because target analyte concentrations exceeded the calibration range. The following samples 1204055258 (WSTMO-18-155059DUP), 1204055259 (WSTMO-18-155059PS), 452995002 (WSTMO-18-155056) and 452995003 (WSTMO-18-155059) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	452995	
	002	003
Fluoride	100X	100X
Sulfate	500X	200X

Product: **Nitrate Nitrite by Cadmium Reduction**
Analytical Method: EPA:353.2
Analytical Procedure: GL-GC-E-128 REV# 10
Analytical Batch: 1776650

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
452995002	WSTMO-18-155056
452995003	WSTMO-18-155059
1204056767	Method Blank (MB)
1204056768	Laboratory Control Sample (LCS)
1204056770	452995002(WSTMO-18-155056) Sample Duplicate (DUP)
1204056772	452995002(WSTMO-18-155056) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following sample 452995003 (WSTMO-18-155059) was diluted because target analyte concentrations exceeded the calibration range. The following samples 1204056770 (WSTMO-18-155056DUP), 1204056772 (WSTMO-18-155056PS) and 452995002 (WSTMO-18-155056) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	452995	
	002	003
Nitrogen, Nitrate/Nitrite	10X	10X

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2748 GEL Work Order: 452995

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
H Analytical holding time was exceeded
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Aubrey Kingsbury**

Date: 28 JUN 2018 **Title: Data Validator**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 28, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- Discharge Permits

Client SDG: 2018-2748

Client Sample ID: WSTMO-18-155056
Sample ID: 452995002
Matrix: W
Collect Date: 19-JUN-18 10:30
Receive Date: 21-JUN-18
Collector: Client

Project: ESHL00118
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
DP-CN(TOTAL) "As Received"												
Cyanide, Total		41.0	1.67	5.00	ug/L	1.00	1	AXH3	06/26/18	1118	1776672	1
Ion Chromatography												
DP-F+SO4 "As Received"												
Fluoride	U	ND	3.30	10.0	mg/L		100	MAR1	06/27/18	1040	1776005	2
Sulfate		4730	66.5	200	mg/L		500	MAR1	06/27/18	1240	1776005	3
Nutrient Analysis												
DP-NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite		1.44	0.170	0.500	mg/L		10	AXH3	06/25/18	0645	1776650	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	06/26/18	0900	1776671

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 335.4 1993	
2	EPA:300.0	
3	EPA:300.0	
4	EPA:353.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 28, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- Discharge Permits

Client SDG: 2018-2748

Client Sample ID: WSTMO-18-155059
Sample ID: 452995003
Matrix: W
Collect Date: 19-JUN-18 08:20
Receive Date: 21-JUN-18
Collector: Client

Project: ESHL00118
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
DP-CN(TOTAL) "As Received"												
Cyanide, Total		35.9	1.67	5.00	ug/L	1.00	1	AXH3	06/26/18	1121	1776672	1
Ion Chromatography												
DP-F+SO4 "As Received"												
Fluoride	U	ND	3.30	10.0	mg/L		100	MAR1	06/27/18	1110	1776005	2
Sulfate		2570	26.6	80.0	mg/L		200	MAR1	06/27/18	1310	1776005	3
Nutrient Analysis												
DP-NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite		2.27	0.170	0.500	mg/L		10	AXH3	06/25/18	0649	1776650	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	06/26/18	0900	1776671

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 335.4 1993	
2	EPA:300.0	
3	EPA:300.0	
4	EPA:353.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: June 28, 2018

Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico

Contact: **Ms. Nita Patel**

Workorder: **452995**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Flow Injection Analysis											
Batch 1776672											
QC1204056823 452995002 DUP											
Cyanide, Total			41.0		40.9	ug/L	0.244		(0%-30%)	AXH3	06/26/18 11:19
QC1204056822 LCS											
Cyanide, Total	50.0				51.7	ug/L		103	(90%-110%)		06/26/18 11:17
QC1204056821 MB											
Cyanide, Total				U	ND	ug/L					06/26/18 11:16
QC1204056824 452995002 MS											
Cyanide, Total	100		41.0		139	ug/L		98	(90%-110%)		06/26/18 11:20
Ion Chromatography											
Batch 1776005											
QC1204055258 452995003 DUP											
Fluoride		U	ND	U	ND	mg/L	N/A			MAR1	06/27/18 14:40
Sulfate			2570		2580	mg/L	0.425		(0%-20%)		06/27/18 15:39
QC1204055257 LCS											
Fluoride	2.50				2.49	mg/L		99.4	(80%-120%)	JXH5	06/26/18 12:35
Sulfate	10.0				9.75	mg/L		97.5	(80%-120%)		
QC1204055256 MB											
Fluoride				U	ND	mg/L					06/26/18 12:06
Sulfate					0.00	mg/L					
QC1204055259 452995003 PS											
Fluoride	2.50	U	ND		2.42	mg/L		96.7	(75%-125%)	MAR1	06/27/18 15:09

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **452995**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1776005										
Sulfate	10.0	12.8		23.8	mg/L		110	(75%-125%)	MAR1	06/27/18 16:11
Nutrient Analysis										
Batch 1776650										
QC1204056770 452995002 DUP										
Nitrogen, Nitrate/Nitrite		1.44		1.43	mg/L	0.697 ^		(+/-0.500)	AXH3	06/25/18 06:47
QC1204056768 LCS										
Nitrogen, Nitrate/Nitrite	1.00			0.992	mg/L		99.2	(90%-110%)		06/25/18 06:34
QC1204056767 MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					06/25/18 06:32
QC1204056772 452995002 PS										
Nitrogen, Nitrate/Nitrite	1.00	0.144		1.14	mg/L		99.6	(90%-110%)		06/25/18 06:48

Notes:

<	Result is less than value reported
>	Result is greater than value reported
B	The target analyte was detected in the associated blank.
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
H	Analytical holding time was exceeded
J	Value is estimated
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

QC Summary

Workorder: **452995**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
e	5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2748
Work Order #: 452995

Product: **Ra228**
Analytical Method: EPA:904
Analytical Procedure: GL-RAD-A-063 REV# 2
Analytical Batch: 1775922

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
452995002	WSTMO-18-155056
452995003	WSTMO-18-155059
1204055049	Method Blank (MB)
1204055050	452995002(WSTMO-18-155056) Sample Duplicate (DUP)
1204055051	452995002(WSTMO-18-155056) Matrix Spike (MS)
1204055052	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Blank Information
Aliquots for samples 1204055049 (MB) and 1204055052 (LCS) were changed to 1.0 per client request.

Miscellaneous Information

Additional Comments
The matrix spike, 1204055051 (WSTMO-18-155056MS), aliquot was reduced to conserve sample volume.

Product: **Ra226**
Analytical Method: EPA:903.1
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 1774512

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
452995002	WSTMO-18-155056
452995003	WSTMO-18-155059

1204051711	Method Blank (MB)
1204051712	452592005(NonSDG) Sample Duplicate (DUP)
1204051713	452592005(NonSDG) Matrix Spike (MS)
1204051714	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Blank Information
Aliquots for samples 1204051711 (MB) and 1204051714 (LCS) were changed to 1.0 per client request.

Miscellaneous Information

Additional Comments
The matrix spike, 1204051713 (Non SDG 452592005MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2748 GEL Work Order: 452995

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Theresa L. Austin **Name: Theresa Austin**

Date: 27 JUN 2018 **Title: Group Leader**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545 Report Date: June 27, 2018

Contact: Ms. Nita Patel
Project: LANL- Discharge Permits

Client Sample ID: WSTMO-18-155056
Sample ID: 452995002
Matrix: W
Collect Date: 19-JUN-18
Receive Date: 21-JUN-18
Collector: Client

Project: ESHL00118
Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting															
Ra228 "As Received"															
Radium-228	U	0.230	+/-0.250	0.879	0.379	+/-0.252	1.00	pCi/L			JXC9	06/25/18	1442	1775922	1
Rad Radium-226															
Ra226 "As Received"															
Radium-226	U	0.164	+/-0.0981	0.313	0.108	+/-0.100	1.00	pCi/L			PCW	06/26/18	1025	1774512	2

The following Analytical Methods were performed

Method	Description
1	EPA:904
2	EPA:903.1

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	Ra228 "As Received"	1775922	66.2	(50%-105%)

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545 Report Date: June 27, 2018

Contact: Ms. Nita Patel
Project: LANL- Discharge Permits

Client Sample ID: WSTMO-18-155059 Project: ESHL00118
Sample ID: 452995003 Client ID: ARSL004
Matrix: W
Collect Date: 19-JUN-18
Receive Date: 21-JUN-18
Collector: Client

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting															
Ra228 "As Received"															
Radium-228	U	0.312	+/-0.193	0.639	0.274	+/-0.197	1.00	pCi/L			JXC9	06/25/18	1442	1775922	1
Rad Radium-226															
Ra226 "As Received"															
Radium-226	U	0.0704	+/-0.122	0.472	0.183	+/-0.122	1.00	pCi/L			PCW	06/26/18	1025	1774512	2

The following Analytical Methods were performed

Method	Description
1	EPA:904
2	EPA:903.1

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	Ra228 "As Received"	1775922	85.1	(50%-105%)

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: June 27, 2018

Client : **Los Alamos National Laboratory**
TA-00, SM1237, Rm104C

Los Alamos, New Mexico

Contact: **Ms. Nita Patel**

Workorder: **452995**

Parmname	NOM		Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow											
Batch 1775922											
QC1204055050 452995002 DUP											
Radium-228		U	0.230	U	-0.076	pCi/L	0.332		(0-1)	JXC9	06/25/18 14:41
	Uncert:		+/-0.250		+/-0.209						
	TPU:		+/-0.252		+/-0.209						
**Barium-133 Tracer	190		126		127	CPM		66.8	(50%-105%)		
QC1204055052 LCS											
Radium-228	5.37				6.19	pCi/L		115	(80%-120%)	JXC9	06/25/18 14:41
	Uncert:				+/-0.330						
	TPU:				+/-0.878						
**Barium-133 Tracer	190				177	CPM		93.2	(50%-105%)		
QC1204055049 MB											
Radium-228				U	-0.204	pCi/L				JXC9	06/25/18 14:41
	Uncert:				+/-0.081						
	TPU:				+/-0.081						
**Barium-133 Tracer	190				178	CPM		93.4	(50%-105%)		
QC1204055051 452995002 MS											
Radium-228	53.7	U	0.230		46.6	pCi/L		86.8	(75%-125%)	JXC9	06/25/18 14:41
	Uncert:		+/-0.250		+/-3.13						
	TPU:		+/-0.252		+/-6.90						
**Barium-133 Tracer	190		126		153	CPM		80.4	(50%-105%)		
Rad Ra-226											
Batch 1774512											
QC1204051712 452592005 DUP											
Radium-226		U	-0.159	U	0.214	pCi/L	0.888		(0-1)	PCW	06/26/18 11:05
	Uncert:		+/-0.0955		+/-0.113						
	TPU:		+/-0.0955		+/-0.115						
QC1204051714 LCS											
Radium-226	13.0				10.8	pCi/L		83.1	(80%-120%)	PCW	06/26/18 11:05
	Uncert:				+/-0.480						
	TPU:				+/-1.02						
QC1204051711 MB											
Radium-226				U	-0.0331	pCi/L				PCW	06/26/18 11:05
	Uncert:				+/-0.0523						
	TPU:				+/-0.0523						
QC1204051713 452592005 MS											
Radium-226	130	U	-0.159		102	pCi/L		78.8	(75%-125%)	PCW	06/26/18 11:05
	Uncert:		+/-0.0955		+/-4.08						
	TPU:		+/-0.0955		+/-10.1						

Notes:

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

QC Summary

Workorder: **452995**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time

The Qualifiers in this report are defined as follows:

**	Analyte is a Tracer compound
<	Result is less than value reported
>	Result is greater than value reported
BD	Results are either below the MDC or tracer recovery is low
FA	Failed analysis.
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

July 02, 2018

Ms. Nita Patel
Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico 87545

Re: LANL - WQH NPDES
Work Order: 453315
SDG: 2018-2793

Dear Ms. Patel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on June 26, 2018, and analyzed for General Chemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

B Luthman

Brielle Luthman for
Valerie Davis
Project Manager

Chain of Custody: 2018-2793
Enclosures

ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL - WQH NPDES
Workorder #: 453315
SDG # : 2018-2793

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....4

Data Review Qualifier Flag Definition Sheet.....8

General Chem Analysis.....11

Case Narrative.....12

Sample Data Summary.....20

Quality Control Summary.....23

Case Narrative

Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL - WQH NPDES
Workorder #: 453315
SDG # : 2018-2793

July 02, 2018

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on June 26, 2018 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperatures were checked, documented, and within specifications. Shipping container temperature was within specification (0 - 6C). There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
453315001	WSTMO-18-153344
453315002	WSTMO-18-159907

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

B Luthman
Brielle Luthman for
Valerie Davis
Project Manager

List of current GEL Certifications as of 02 July 2018

State	Certification
Alaska	17−018
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA180011
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122018−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−18−13
Utah NELAP	SC000122018−26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation

453315

General Engineering

Charleston SC

Chain of Custody/Analysis Request

COC/Lab Request #: 2018-2793

Page 1 of 1

Client Contact:

Lab Agreement #:

Site Name: Los Alamos National Laboratory

Project Number: LANL

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐

7 Days - ☒

14 Days - ☐

21 Days - ☐

28 Days - ☐

Rad Screening Info: Similar locations identify no DOT hazard

Lab Reporting Limit Type: Method Detection Limit

Field Sample ID	Sample Date	Sample Time	Sample Matrix	NPDES-NH3/NO3/NO2/TKN	NPDES-TDS+Cl	TKN+PO4
WSTMO-18-153344	Jun 21 2018	8:30	W			1
WSTMO-18-159907	Jun 21 2018	8:30	W	1	1	

Special Instructions:

Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
[signature]	Sherri Sherwood	6/25/18 3pm	[signature]	Zac Worsham	6/26/18 9:00
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ESHL	**SDG/AR/COC/Work Order:** 453315
Received By: ZKW	**Date Received:** 6/26/18
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 4401 2166 1232 4401 2166 1243 4401 2166 1254

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
Is package, COC, and/or Samples marked HAZ?		✓	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 3°C
4	Daily check performed and passed on IR temperature gun?	✓			**Temperature Device Serial #:** IR3-18 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?			✓	Sample ID's and Containers Affected: See Below If Preservation added, Lot#: 180330
7	Do any samples require Volatile Analysis?	✓			If Yes, Are Encores or Soil Kits present? Yes___ No ✓ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes ✓ No___ N/A___ (If unknown, select No) VOA vials free of headspace? Yes___ No ✓ N/A___ Sample ID's and containers affected: One vial for -155065 rec'd w/headspace
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			

Comments (Use Continuation Form if needed):

* All ~~Four~~ 2226/2226 Containers for -155055 and the metals Containers for -155055 & -155060 were rec'd w/a pH > 2. Preserved w/ HNO_3

* Samples preserved per client request via phone call

PM (or PMA) review: Initials TMC Date 6/27/18 Page 1 of 1

GL-CHL-SR-001 Rev 5

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25JUN18
ACTWGT: 43.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 566-8171
REF: 8A03OAWE6L11570000

3°C

FedEx Express

J171016102001uv

1 of 3

TRK# 0201 4401 2166 1232

MASTER

TUE - 26 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25JUN18
ACTWGT: 25.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 566-8171
REF: 8A03OAWE6L11570000

3°C

FedEx Express

J171016102001uv

546C1/48E5/53C1

2 of 3

MPS# 0263 4401 2166 1243

Mstr# 4401 2166 1232 0201

TUE - 26 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25JUN18
ACTWGT: 52.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 566-8171
REF: 8A03OAWE6L11570000

3°C

FedEx Express

J171016102001uv

546C1/48E5/53C1

3 of 3

MPS# 0263 4401 2166 1254

Mstr# 4401 2166 1232 0201

TUE - 26 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference. For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2793
Work Order #: 453315

Product: **Ion Chromatography**
Analytical Method: EPA:300.0
Analytical Procedure: GL-GC-E-086 REV# 25
Analytical Batch: 1777200

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453315002	WSTMO-18-159907
1204058142	Method Blank (MB)
1204058143	Laboratory Control Sample (LCS)
1204058144	453314002(NonSDG) Sample Duplicate (DUP)
1204058145	453314002(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204058144 (Non SDG 453314002DUP), 1204058145 (Non SDG 453314002PS) and 453315002 (WSTMO-18-159907) were diluted because target analyte concentrations exceeded the calibration range. The following samples 1204058144 (Non SDG 453314002DUP) and 1204058145 (Non SDG 453314002PS) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453315 002
Chloride	20000X

Miscellaneous Information

Manual Integrations
Sample 1204058144 (Non SDG 453314002DUP) were manually integrated to correctly position the baseline as set in the calibration standards.

Product: **Ammonia Nitrogen**
Preparation Method: EPA:350.1
Preparation Procedure: GL-GC-E-106 REV# 10
Preparation Batch: 1777260

Preparation Method: EPA 350.1 Prep
Preparation Procedure: GL-GC-E-072 REV# 17
Preparation Batch: 1777259

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453315002	WSTMO-18-159907
1204058289	Method Blank (MB)
1204058290	Laboratory Control Sample (LCS)
1204058291	453315002(WSTMO-18-159907) Sample Duplicate (DUP)
1204058292	453315002(WSTMO-18-159907) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204058291 (WSTMO-18-159907DUP), 1204058292 (WSTMO-18-159907MS) and 453315002 (WSTMO-18-159907) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453315 002
Nitrogen, Ammonia	5X

Product: **Total Kjeldahl Nitrogen**
Preparation Method: EPA:351.2
Preparation Procedure: GL-GC-E-104 REV# 15
Preparation Batch: 1777748

Preparation Method: EPA 351.2 Prep
Preparation Procedure: GL-GC-E-071 REV# 16
Preparation Batch: 1777747

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453315001	WSTMO-18-153344
453315002	WSTMO-18-159907
1204059279	Method Blank (MB)
1204059280	Laboratory Control Sample (LCS)
1204059281	453315001(WSTMO-18-153344) Sample Duplicate (DUP)
1204059282	453315001(WSTMO-18-153344) Matrix Spike (MS)
1204059285	453395001(NonSDG) Sample Duplicate (DUP)
1204059286	453395001(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204059281 (WSTMO-18-153344DUP), 1204059282 (WSTMO-18-153344MS), 453315001 (WSTMO-18-153344) and 453315002 (WSTMO-18-159907) were diluted because target analyte concentrations exceeded the calibration range. Samples 1204059281 (WSTMO-18-153344DUP), 1204059282 (WSTMO-18-153344MS) and 453315001 (WSTMO-18-153344) were diluted at the prep step due to high concentration. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453315	
	001	002
Nitrogen, Total Kjeldahl	5X	5X

Product: **Nitrate Nitrite by Cadmium Reduction**
Analytical Method: EPA:353.2
Analytical Procedure: GL-GC-E-128 REV# 10
Analytical Batch: 1777658

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453315002	WSTMO-18-159907
1204059100	Method Blank (MB)
1204059101	Laboratory Control Sample (LCS)
1204059102	453315002(WSTMO-18-159907) Sample Duplicate (DUP)
1204059103	453314002(NonSDG) Sample Duplicate (DUP)
1204059104	453315002(WSTMO-18-159907) Post Spike (PS)
1204059105	453314002(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204059102 (WSTMO-18-159907DUP), 1204059103 (Non SDG 453314002DUP), 1204059104 (WSTMO-18-159907PS), 1204059105 (Non SDG 453314002PS) and 453315002 (WSTMO-18-159907) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453315 002
Nitrogen, Nitrate/Nitrite	10X

Product: **Total Phosphorus**
Analytical Method: EPA 365.4 1974
Analytical Procedure: GL-GC-E-103 REV# 11
Analytical Batch: 1777257

Preparation Method: EPA 365.4 Prep
Preparation Procedure: GL-GC-E-071 REV# 16
Preparation Batch: 1777256

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453315001	WSTMO-18-153344
1204058283	Method Blank (MB)
1204058284	Laboratory Control Sample (LCS)
1204058285	453315001(WSTMO-18-153344) Sample Duplicate (DUP)
1204058286	453315001(WSTMO-18-153344) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Re-analysis
Sample1204058283 (MB) was re-analyzed due to (its) proximity to an overrange sample. The results from the reanalysis are reported.

Product: **Solids, Total Dissolved**
Analytical Method: EPA:160.1
Analytical Procedure: GL-GC-E-001 REV# 15
Analytical Batch: 1777171

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453315002	WSTMO-18-159907
1204058082	Method Blank (MB)
1204058083	Laboratory Control Sample (LCS)
1204058297	453315002(WSTMO-18-159907) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Method Blank (MB) Statement
The MBs analyzed with this SDG met the acceptance criteria. In instances where there were positive hits in the method blank, the results were evaluated and appropriately flagged on the data.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2793 GEL Work Order: 453315

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
H Analytical holding time was exceeded
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Kristen Mizzell **Name: Kristen Mizzell**

Date: 02 JUL 2018 **Title: Team Leader**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: July 2, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL - WQH NPDES

Client SDG: 2018-2793

Client Sample ID: WSTMO-18-153344
Sample ID: 453315001
Matrix: W
Collect Date: 21-JUN-18 08:30
Receive Date: 26-JUN-18
Collector: Client

Project: ESHL00814
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis												
PO4 "As Received"												
Phosphorus, Total as P		0.838	0.020	0.050	mg/L	1.00	1	KLP1	06/27/18	1420	1777257	1
TKN "As Received"												
Nitrogen, Total Kjeldahl		23.0	0.660	2.00	mg/L	4.00	5	KLP1	07/02/18	1254	1777748	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	06/28/18	1700	1777747
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	AXH3	06/27/18	0900	1777256

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 365.4 1974	
2	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: July 2, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL - WQH NPDES

Client SDG: 2018-2793

Client Sample ID: WSTMO-18-159907
Sample ID: 453315002
Matrix: W
Collect Date: 21-JUN-18 08:30
Receive Date: 26-JUN-18
Collector: Client

Project: ESHL00814
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
Chloride "As Received"												
Chloride		96200	1340	4000	mg/L		20000	MAR1	06/27/18	1307	1777200	1
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia		5.50	0.085	0.250	mg/L	1.00	5	KLP1	06/27/18	1548	1777260	2
NO3/NO2 "As Received"												
Nitrogen, Nitrate/Nitrite	U	ND	0.170	0.500	mg/L		10	AXH3	06/28/18	0743	1777658	3
TKN "As Received"												
Nitrogen, Total Kjeldahl		7.20	0.165	0.500	mg/L	1.00	5	KLP1	07/02/18	1256	1777748	4
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		160000	3.40	14.3	mg/L			KLP1	06/27/18	1413	1777171	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	06/27/18	1248	1777259
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	06/28/18	1700	1777747

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA:300.0	
2	EPA:350.1	
3	EPA:353.2	
4	EPA:351.2	
5	EPA:160.1	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: July 2, 2018

Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico

Contact: **Ms. Nita Patel**

Workorder: **453315**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography										
Batch 1777200										
QC1204058144 453314002 DUP										
Chloride		82900		81100	mg/L	2.12		(0%-20%)	MAR1	06/30/18 22:00
QC1204058143 LCS										
Chloride	5.00			4.88	mg/L		97.6	(80%-120%)	JXH5	06/26/18 16:22
QC1204058142 MB										
Chloride			U	ND	mg/L					06/26/18 15:51
QC1204058145 453314002 PS										
Chloride	5.00	4.14		9.48	mg/L		107	(75%-125%)	MAR1	06/30/18 22:30
Nutrient Analysis										
Batch 1777257										
QC1204058285 453315001 DUP										
Phosphorus, Total as P		0.838		0.880	mg/L	4.89		(0%-27%)	KLP1	06/27/18 14:21
QC1204058284 LCS										
Phosphorus, Total as P	1.00			0.934	mg/L		93.4	(80%-124%)		06/27/18 13:54
QC1204058283 MB										
Phosphorus, Total as P			U	ND	mg/L					06/27/18 14:07
QC1204058286 453315001 MS										
Phosphorus, Total as P	1.00	0.838		1.64	mg/L		80.2	(63%-139%)		06/27/18 14:22
Batch 1777260										
QC1204058291 453315002 DUP										
Nitrogen, Ammonia		5.50		5.20	mg/L	5.61		(0%-20%)	KLP1	06/27/18 15:48

QC Summary

Workorder: **453315**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1777260											
QC1204058290 LCS											
Nitrogen, Ammonia	1.00				1.08	mg/L		108	(90%-110%)	KLP1	06/27/18 15:36
QC1204058289 MB											
Nitrogen, Ammonia				U	ND	mg/L					06/27/18 15:35
QC1204058292 453315002 MS											
Nitrogen, Ammonia	1.00		5.50		6.50	mg/L		N/A	(90%-110%)		06/27/18 15:49
Batch 1777658											
QC1204059102 453315002 DUP											
Nitrogen, Nitrate/Nitrite		U	ND	U	ND	mg/L	N/A			AXH3	06/28/18 07:45
QC1204059103 453314002 DUP											
Nitrogen, Nitrate/Nitrite		U	ND	U	ND	mg/L	N/A				06/28/18 07:41
QC1204059101 LCS											
Nitrogen, Nitrate/Nitrite	1.00				0.985	mg/L		98.5	(90%-110%)		06/28/18 07:39
QC1204059100 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					06/28/18 07:37
QC1204059104 453315002 PS											
Nitrogen, Nitrate/Nitrite	1.00	U	ND		1.02	mg/L		101	(90%-110%)		06/28/18 07:46
QC1204059105 453314002 PS											
Nitrogen, Nitrate/Nitrite	1.00	U	ND		1.04	mg/L		103	(90%-110%)		06/28/18 07:42
Batch 1777748											
QC1204059281 453315001 DUP											
Nitrogen, Total Kjeldahl			23.0		23.2	mg/L	0.866		(0%-20%)	KLP1	07/02/18 12:54
QC1204059285 453395001 DUP											
Nitrogen, Total Kjeldahl		J	0.0875	J	0.0539	mg/L	47.5 ^		(+/-0.100)		07/02/18 13:06

QC Summary

Workorder: **453315**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis											
Batch 1777748											
QC1204059280 LCS											
Nitrogen, Total Kjeldahl	1.00				1.07	mg/L		107	(90%-110%)	KLP1	07/02/18 12:39
QC1204059279 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					07/02/18 12:39
QC1204059282 453315001 MS											
Nitrogen, Total Kjeldahl	4.00		23.0		28.6	mg/L		N/A	(90%-110%)		07/02/18 12:55
QC1204059286 453395001 MS											
Nitrogen, Total Kjeldahl	1.00	J	0.0875		1.10	mg/L		101	(90%-110%)		07/02/18 13:07
Solids Analysis											
Batch 1777171											
QC1204058297 453315002 DUP											
Total Dissolved Solids			160000		157000	mg/L	1.47		(0%-5%)	KLP1	06/27/18 14:13
QC1204058083 LCS											
Total Dissolved Solids	300				306	mg/L		102	(95%-105%)		06/27/18 14:13
QC1204058082 MB											
Total Dissolved Solids				J	5.71	mg/L					06/27/18 14:13

Notes:

<	Result is less than value reported
>	Result is greater than value reported
B	The target analyte was detected in the associated blank.
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
H	Analytical holding time was exceeded
J	Value is estimated
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier

QC Summary

Workorder: **453315**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
e	5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

June 27, 2018

Ms. Nita Patel
Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico 87545

Re: LANL - WQH NPDES
Work Order: 453020
SDG: 2018-2754

Dear Ms. Patel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on June 21, 2018, and analyzed for General Chemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

B Luthman

Brielle Luthman for
Valerie Davis
Project Manager

Chain of Custody: 2018-2754
Enclosures

ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL - WQH NPDES
Workorder #: 453020
SDG # : 2018-2754

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....5

Data Review Qualifier Flag Definition Sheet.....17

General Chem Analysis.....20

Case Narrative.....21

Sample Data Summary.....30

Quality Control Summary.....35

Case Narrative

Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL - WQH NPDES
Workorder #: 453020
SDG # : 2018-2754

June 27, 2018

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on June 21, 2018 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperatures were checked, documented, and within specifications. Shipping container temperature was within specification (0 - 6C). There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
453020001	WSTMO-18-153342
453020002	WSTMO-18-153343
453020003	WSTMO-18-159775
453020004	WSTMO-18-159776

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

B. Luthman

Brielle Luthman for
Valerie Davis
Project Manager

List of current GEL Certifications as of 27 June 2018

State	Certification
Alaska	17−018
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA180011
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122018−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−18−13
Utah NELAP	SC000122018−26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation

453020

General Engineering
Charleston SC

Chain of Custody/Analysis Request

COC/Lab Request #: 2018-2754
Page 1 of 1

Client Contact:

Lab Agreement #:

Project Number: ~~ADESH~~ CANC

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Days - ☒
14 Days - ☐
21 Days - ☐
28 Days - ☐

Site Name: Los Alamos National Laboratory

Rad Screening Info: Location no

Lab Reporting Limit Type: Method Detection Limit

Field Sample ID	Sample Date	Sample Time	Sample Matrix	NPDES-NH3/NO3/NO2/TKN	NPDES-TDS+Cl	TKN+PO4
WSTMO-18-153342	Jun 19 2018	8:20	W			1
WSTMO-18-153343	Jun 19 2018	10:30	W			1
WSTMO-18-159775	Jun 19 2018	10:30	W	1	1	
WSTMO-18-159776	Jun 19 2018	8:20	W	1	1	

Special Instructions:

Relinquished by:	Print Name: Melissa Martin	Date/Time: 6/20/18 830	Received by:	Print Name: Zoe Washburn	Date/Time: 6/21/18 850
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ESHL	SDG/AR/COC/Work Order: 453020
Received By: ZKW	Date Received: 6/21/18
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other See Attached

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
Is package, COC, and/or Samples marked HAZ?		✓	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: See Attached
4	Daily check performed and passed on IR temperature gun?	✓			**Temperature Device Serial #:** IR3-18 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?			✓	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) One PCB Cont. for CALA-18-139 rec'd busted
6	Samples requiring chemical preservation at proper pH?			✓	Sample ID's and Containers Affected: WST Sample not preserved If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?	✓			If Yes, Are Encores or Soil Kits present? Yes___ No ✓ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes ✓ No___ N/A___ (If unknown, select No) VOA vials free of headspace? Yes___ No ✓ N/A___ Sample ID's and containers affected: See Below
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?			✓	Sample ID's affected: Collect Time for WT-SEP-155167 is 12:44, -155259 is 12:44, and -155349 is 12:41
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			

Comments (Use Continuation Form if needed):

VOA Vials Rec'd w/headspace:
CALA-18-67, -60, -123, -137, -140, -144, -128
WSTMO-18-155069 (1 vial), -066 (2 vials), -364 (2 vials), and -945 (2 vials)

PM (or PMA) review: Initials TML Date 6/22/18 Page 1 of 2

GL-CHL-SR-001 Rev 5

CEL | Laboratories LLC SAMPLE RECEIPT & REVIEW CONTINUATION FORM

Client: ESHL Received By: ZKW Date Received: 6/21/18 SDG/AR/COC/Work Order: 453020

FedEx Traeling #'s and Temps:

4414 1748 1848 - 13°C (Rchem)
4414 1748 1929 - 3°C
4414 1748 1892 - 12°C (Rchem)
4414 1748 1870 - 13°C (Rchem)
4414 1748 1984 - 3°C
4414 1748 1860 - 12°C (Rchem)
4414 1748 1907 - 3°C
4414 1748 1918 - 2°C
4401 2166 1081 - 4°C
4401 2166 1070 - 6°C
4401 2166 1107 - 3°C
4414 1748 1930 - 3°C
4401 2166 1059 - 3°C
4401 2166 1060 - 2°C
4414 1748 1951 - 4°C
4414 1748 1940 - 3°C
4414 1748 1995 - 2°C
4414 1748 1881 - 3°C
4414 1748 1973 - 2°C
4414 1748 1962 - 2°C
4401 2166 1048 - 4°C
4414 1748 1859 - 3°C

PM (or PMA) review: Initials TMC Date 6/22/18 Page 2 of 2

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 54.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: 100.30.003.05.211.0100.001

2c

546C2/93DF/53C1

FedEx Express

J171016102001uv

2 of 2
MPS# 0263 4414 1748 1995
Mstr# 4414 1748 1984

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

0201

X7 RBWA

29407
SC-US CHS

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 49.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: 100.30.003.05.211.0100.001

3c

546C2/93DF/53C1

FedEx Express

J171016102001uv

2 of 3
MPS# 0263 4414 1748 1881
Mstr# 4414 1748 1870

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

0201

X7 RBWA

29407
SC-US CHS

Part # 156146-434 RIT EXP 08/16

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 52.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: 100.30.003.05.211.0100.001

2c

546C2/93DF/53C1

FedEx Express

J171016102001uv

2 of 2
MPS# 0263 4414 1748 1973
Mstr# 4414 1748 1962

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

0201

X7 RBWA

29407
SC-US CHS

Part # 156146-434 RIT EXP 08/16

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 46.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

2c

546C1/48E5/53C1

FedEx Express

J171016102001uv

3 of 3
MPS# 0263 4401 2166 1060
Mstr# 4401 2166 1048 0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 47.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

4c

546C2/93BF/53C1

FedEx Express

J171016102001uv

3 of 3
MPS# 0263 4414 1748 1951
Mstr# 4414 1748 1930 0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 06/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 49.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3c

FedEx Express

J171016102001uv

2 of 3
MPS# 0263 4414 1748 1940
Mstr# 4414 1748 1930 0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 06/18

546C2/93BF/53C1

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 40.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

3c

546C1/4BE5/53C1

FedEx Express

J171016102001uv

TRK# 0201 4401 2166 1107

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 54.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3c

546C2/93DF/53C1

FedEx Express

J171016102001uv

1 of 3

TRK# 0201 4414 1748 1930
MASTER

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 06/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 46.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

3c

546C1/4BE5/53C1

FedEx Express

J171016102001uv

2 of 3

MPS# 0263 4401 2166 1059 0201
Mstr# 4401 2166 1048

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 53.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3c

546C2/93DF/53C1

FedEx Express

J171016102001uv

1 of 3
TRK# 0201 4414 1748 1907
MASTER

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 52.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

2c

546C2/93DF/53C1

FedEx Express

J171016102001uv

2 of 3
MPS# 0263 4414 1748 1918
Mstr# 4414 1748 1907 0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP GSU
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 56.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 3N040ADH0500000000

4c

546C1/48E5/53C1

FedEx Express

J171016102001uv

2 of 2
MPS# 0263 4401 2166 1081
Mstr# 4401 2168 1070 0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 50.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: 100.30.003.05.211.0100.001

3°C

546C2/93DF/53C1

FedEx Express

J171016102001uv

2 of 3
MPS# 0263 4414 1748 1859
Mstr# 4414 1748 1848 0201

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 46.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 566-8171
REF: 8A030AWE6L11570000

4°C

546C1/48E5/53C1

FedEx Express

J171016102001uv

1 of 3
TRK# 0201 4401 2166 1048
MASTER

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 48.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 566-8171
REF: 100.30.003.05.211.0100.001

2°C

546C2/93DF/53C1

FedEx Express

J171016102001uv

1 of 2
TRK# 0201 4414 1748 1962
MASTER

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 51.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

13°C
Rchem

546C2/93DF/53C1

FedEx Express

J171016102001UV

1 of 3

TRK# 0201 4414 1748 1870

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

MASTER

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 55.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3°C

546C2/93DF/53C1

FedEx Express

J171016102001UV

1 of 2

TRK# 0201 4414 1748 1984

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

MASTER

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 50.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

12°C
Rchem

546C2/93DF/53C1

FedEx Express

J171016102001UV

3 of 3

MPS# 0263 4414 1748 1860

Mstr# 4414 1748 1848

0201

X7 RBWA

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 50.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

13°C

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

Rchem

546C2/93DF/53C1

FedEx Express

E

J171016102001uv

1 of 3
TRK# 0201 4414 1748 1848
MASTER

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 40.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

3°C

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

546C2/93DF/53C1

E

J171016102001uv

3 of 3
MPS# 0263 4414 1748 1929
Mstr# 4414 1748 1907

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

0201

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

546C2/93DF/53C1

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAB N3B SMO
TA3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 44.00 LB MAN
CAD: 0518290/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

12°C

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

Rchem

FedEx Express

E

J171016102001uv

3 of 3
MPS# 0263 4414 1748 1892
Mstr# 4414 1748 1870

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

0201

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 08/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 20JUN18
ACTWGT: 27.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 3N040ADH0500000000

6°C

546C1/4BE5/53C1

FedEx Express

E

J171016102001uv

1 of 2
TRK# 0201 4401 2166 1070
MASTER
X7 RBWA

THU - 21 JUN 10:30A
PRIORITY OVERNIGHT

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference. For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2754
Work Order #: 453020

Product: **Ion Chromatography**
Analytical Method: EPA:300.0
Analytical Procedure: GL-GC-E-086 REV# 25
Analytical Batch: 1776008

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453020003	WSTMO-18-159775
453020004	WSTMO-18-159776
1204055260	Method Blank (MB)
1204055261	Laboratory Control Sample (LCS)
1204055262	453020004(WSTMO-18-159776) Sample Duplicate (DUP)
1204055263	453020004(WSTMO-18-159776) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204055262 (WSTMO-18-159776DUP), 1204055263 (WSTMO-18-159776PS), 453020003 (WSTMO-18-159775) and 453020004 (WSTMO-18-159776) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453020	
	003	004
Chloride	10000X	5000X

Sample Re-analysis
Samples1204055260 (MB) and 1204055261 (LCS) were re-analyzed due to CCV failure. The reanalysis data with passing instrument QC was reported.

Product: **Ammonia Nitrogen**
Preparation Method: EPA:350.1
Preparation Procedure: GL-GC-E-106 REV# 10
Preparation Batch: 1775566

Preparation Method: EPA 350.1 Prep
Preparation Procedure: GL-GC-E-072 REV# 17
Preparation Batch: 1775565

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453020003	WSTMO-18-159775
453020004	WSTMO-18-159776
1204054245	Method Blank (MB)
1204054246	Laboratory Control Sample (LCS)
1204054247	452884001(NonSDG) Sample Duplicate (DUP)
1204054248	452884001(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following sample 453020003 (WSTMO-18-159775) was diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453020 003
Nitrogen, Ammonia	5X

Product: **Total Kjeldahl Nitrogen**
Preparation Method: EPA:351.2
Preparation Procedure: GL-GC-E-104 REV# 15
Preparation Batch: 1775563

Preparation Method: EPA 351.2 Prep
Preparation Procedure: GL-GC-E-071 REV# 16
Preparation Batch: 1775561

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453020001	WSTMO-18-153342
453020002	WSTMO-18-153343
453020003	WSTMO-18-159775
453020004	WSTMO-18-159776
1204054234	Method Blank (MB)
1204054235	Laboratory Control Sample (LCS)
1204054238	452884002(NonSDG) Sample Duplicate (DUP)
1204054239	452884002(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Nitrogen, Total Kjeldahl	1204054239 (Non SDG 452884002MS)	111* (90%-110%)

Technical Information

Sample Dilutions
The following samples 453020001 (WSTMO-18-153342), 453020002 (WSTMO-18-153343), 453020003 (WSTMO-18-159775) and 453020004 (WSTMO-18-159776) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453020			
	001	**002**	**003**	**004**
Nitrogen, Total Kjeldahl	10X	5X	5X	10X

Product: **Nitrate Nitrite by Cadmium Reduction**
Analytical Method: EPA:353.2
Analytical Procedure: GL-GC-E-128 REV# 10
Analytical Batch: 1776650

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453020003	WSTMO-18-159775
453020004	WSTMO-18-159776
1204056767	Method Blank (MB)
1204056768	Laboratory Control Sample (LCS)
1204056770	452995002(NonSDG) Sample Duplicate (DUP)
1204056772	452995002(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following sample 453020004 (WSTMO-18-159776) was diluted because target analyte concentrations exceeded the calibration range. The following samples 1204056770 (Non SDG 452995002DUP), 1204056772 (Non SDG 452995002PS) and 453020003 (WSTMO-18-159775) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453020	
	003	004
Nitrogen, Nitrate/Nitrite	10X	10X

Product: **Total Phosphorus**
Analytical Method: EPA 365.4 1974
Analytical Procedure: GL-GC-E-103 REV# 11
Analytical Batch: 1776439

Preparation Method: EPA 365.4 Prep
Preparation Procedure: GL-GC-E-071 REV# 16
Preparation Batch: 1776437

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453020001	WSTMO-18-153342
453020002	WSTMO-18-153343
1204056260	Method Blank (MB)
1204056261	Laboratory Control Sample (LCS)
1204056262	453088003(WSTMO-18-153345) Sample Duplicate (DUP)
1204056263	453088003(WSTMO-18-153345) Matrix Spike (MS)
1204056264	452990001(NonSDG) Sample Duplicate (DUP)
1204056265	452990001(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Solids, Total Dissolved**
Analytical Method: EPA:160.1
Analytical Procedure: GL-GC-E-001 REV# 15
Analytical Batch: 1775233

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453020003	WSTMO-18-159775
453020004	WSTMO-18-159776
1204053498	Method Blank (MB)
1204053499	Laboratory Control Sample (LCS)
1204054262	452884001(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Duplicate Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample:

Analyte	Sample	Value
Total Dissolved Solids	1204054262 (Non SDG 452884001DUP)	14.3* (0%-5%)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2754 GEL Work Order: 453020

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
H Analytical holding time was exceeded
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Kristen Mizzell **Name: Kristen Mizzell**

Date: 27 JUN 2018 **Title: Team Leader**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 27, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL - WQH NPDES

Client SDG: 2018-2754

Client Sample ID: WSTMO-18-153342
Sample ID: 453020001
Matrix: W
Collect Date: 19-JUN-18 08:20
Receive Date: 21-JUN-18
Collector: Client

Project: ESHL00814
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis												
PO4 "As Received"												
Phosphorus, Total as P		0.317	0.020	0.050	mg/L	1.00	1	KLP1	06/26/18	1604	1776439	1
TKN "As Received"												
Nitrogen, Total Kjeldahl		16.1	0.330	1.00	mg/L	1.00	10	KLP1	06/26/18	1441	1775563	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	06/25/18	1700	1775561
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	06/25/18	1700	1776437

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 365.4 1974	
2	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 27, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL - WQH NPDES

Client SDG: 2018-2754

Client Sample ID: WSTMO-18-153343
Sample ID: 453020002
Matrix: W
Collect Date: 19-JUN-18 10:30
Receive Date: 21-JUN-18
Collector: Client

Project: ESHL00814
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis												
PO4 "As Received"												
Phosphorus, Total as P		0.565	0.020	0.050	mg/L	1.00	1	KLP1	06/26/18	1605	1776439	1
TKN "As Received"												
Nitrogen, Total Kjeldahl		8.35	0.165	0.500	mg/L	1.00	5	KLP1	06/26/18	1442	1775563	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	06/25/18	1700	1775561
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	06/25/18	1700	1776437

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 365.4 1974	
2	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 27, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL - WQH NPDES

Client SDG: 2018-2754

Client Sample ID: WSTMO-18-159775
Sample ID: 453020003
Matrix: W
Collect Date: 19-JUN-18 10:30
Receive Date: 21-JUN-18
Collector: Client

Project: ESHL00814
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
Chloride "As Received"												
Chloride		43000	670	2000	mg/L		10000	MAR1	06/27/18	1010	1776008	1
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia		4.02	0.085	0.250	mg/L	1.00	5	KLP1	06/26/18	1038	1775566	2
NO3/NO2 "As Received"												
Nitrogen, Nitrate/Nitrite		1.31	0.170	0.500	mg/L		10	AXH3	06/25/18	0650	1776650	3
TKN "As Received"												
Nitrogen, Total Kjeldahl		7.15	0.165	0.500	mg/L	1.00	5	KLP1	06/26/18	1442	1775563	4
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		81600	3.40	14.3	mg/L			KLP1	06/22/18	1211	1775233	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	06/25/18	1540	1775565
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	06/25/18	1700	1775561

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA:300.0	
2	EPA:350.1	
3	EPA:353.2	
4	EPA:351.2	
5	EPA:160.1	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 27, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL - WQH NPDES

Client SDG: 2018-2754

Client Sample ID: WSTMO-18-159776
Sample ID: 453020004
Matrix: W
Collect Date: 19-JUN-18 08:20
Receive Date: 21-JUN-18
Collector: Client

Project: ESHL00814
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
Chloride "As Received"												
Chloride		20500	335	1000	mg/L		5000	JXH5	06/26/18	1834	1776008	1
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia		1.56	0.017	0.050	mg/L	1.00	1	KLP1	06/26/18	1035	1775566	2
NO3/NO2 "As Received"												
Nitrogen, Nitrate/Nitrite		2.15	0.170	0.500	mg/L		10	AXH3	06/25/18	0656	1776650	3
TKN "As Received"												
Nitrogen, Total Kjeldahl		11.7	0.330	1.00	mg/L	1.00	10	KLP1	06/26/18	1443	1775563	4
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		40000	3.40	14.3	mg/L			KLP1	06/22/18	1211	1775233	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	06/25/18	1540	1775565
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	06/25/18	1700	1775561

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA:300.0	
2	EPA:350.1	
3	EPA:353.2	
4	EPA:351.2	
5	EPA:160.1	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: June 27, 2018

Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico

Contact: **Ms. Nita Patel**

Workorder: **453020**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1776008											
QC1204055262 453020004 DUP											
Chloride			20500		20500	mg/L	0.0953		(0%-20%)	JXH5	06/26/18 19:04
QC1204055261 LCS											
Chloride	5.00				4.89	mg/L		97.7	(80%-120%)		06/26/18 17:34
QC1204055260 MB											
Chloride				U	ND	mg/L					06/26/18 17:04
QC1204055263 453020004 PS											
Chloride	5.00		4.09		9.50	mg/L		108	(75%-125%)		06/26/18 19:34
Nutrient Analysis											
Batch 1775563											
QC1204054238 452884002 DUP											
Nitrogen, Total Kjeldahl		U	ND	U	ND	mg/L	N/A			KLP1	06/26/18 13:42
QC1204054235 LCS											
Nitrogen, Total Kjeldahl	1.00				0.999	mg/L		99.9	(90%-110%)		06/26/18 13:37
QC1204054234 MB											
Nitrogen, Total Kjeldahl				U	ND	mg/L					06/26/18 13:37
QC1204054239 452884002 MS											
Nitrogen, Total Kjeldahl	1.00	U	ND		1.12	mg/L		111*	(90%-110%)		06/26/18 13:42
Batch 1775566											
QC1204054247 452884001 DUP											
Nitrogen, Ammonia			0.0632	J	0.0402	mg/L	44.5 ^		(+/-0.050)	KLP1	06/26/18 10:14

QC Summary

Workorder: **453020**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Nutrient Analysis												
Batch 1775566												
QC1204054246 LCS												
Nitrogen, Ammonia	1.00				1.05	mg/L			105	(90%-110%)	KLP1	06/26/18 10:09
QC1204054245 MB												
Nitrogen, Ammonia				U	ND	mg/L						06/26/18 10:09
QC1204054248 452884001 MS												
Nitrogen, Ammonia	1.00		0.0632		1.08	mg/L			102	(90%-110%)		06/26/18 10:14
Batch 1776439												
QC1204056262 453088003 DUP												
Phosphorus, Total as P			2.20		2.10	mg/L	4.65			(0%-27%)	KLP1	06/26/18 16:06
QC1204056264 452990001 DUP												
Phosphorus, Total as P		J	0.0353	U	ND	mg/L	200	^				06/26/18 16:01
QC1204056261 LCS												
Phosphorus, Total as P	1.00				1.10	mg/L			110	(80%-124%)		06/26/18 16:00
QC1204056260 MB												
Phosphorus, Total as P				J	0.0265	mg/L						06/26/18 15:59
QC1204056263 453088003 MS												
Phosphorus, Total as P	1.00		2.20		3.47	mg/L			127	(63%-139%)		06/26/18 16:12
QC1204056265 452990001 MS												
Phosphorus, Total as P	1.00	J	0.0353		1.08	mg/L			104	(63%-139%)		06/26/18 16:02
Batch 1776650												
QC1204056770 452995002 DUP												
Nitrogen, Nitrate/Nitrite			1.44		1.43	mg/L	0.697	^		(+/-0.500)	AXH3	06/25/18 06:47
QC1204056768 LCS												
Nitrogen, Nitrate/Nitrite	1.00				0.992	mg/L			99.2	(90%-110%)		06/25/18 06:34

QC Summary

Workorder: **453020**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis										
Batch 1776650										
QC1204056767 MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L				AXH3	06/25/18 06:32
QC1204056772 452995002 PS										
Nitrogen, Nitrate/Nitrite	1.00	0.144		1.14	mg/L		99.6	(90%-110%)		06/25/18 06:48
Solids Analysis										
Batch 1775233										
QC1204054262 452884001 DUP										
Total Dissolved Solids		157		181	mg/L	14.3*		(0%-5%)	KLP1	06/22/18 12:11
QC1204053499 LCS										
Total Dissolved Solids	300			296	mg/L		98.6	(95%-105%)		06/22/18 12:11
QC1204053498 MB										
Total Dissolved Solids			U	ND	mg/L					06/22/18 12:11

Notes:

<	Result is less than value reported
>	Result is greater than value reported
B	The target analyte was detected in the associated blank.
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
H	Analytical holding time was exceeded
J	Value is estimated
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.

QC Summary

Workorder: **453020**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.

d 5-day BOD--The 2:1 depletion requirement was not met for this sample

e 5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes

h Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

June 28, 2018

Ms. Nita Patel
Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico 87545

Re: LANL - WQH NPDES
Work Order: 453088
SDG: 2018-2762

Dear Ms. Patel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on June 22, 2018, and analyzed for General Chemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

B Luthman

Brielle Luthman for
Valerie Davis
Project Manager

Chain of Custody: 2018-2762
Enclosures

ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL - WQH NPDES
Workorder #: 453088
SDG # : 2018-2762

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....5

Data Review Qualifier Flag Definition Sheet.....13

General Chem Analysis.....16

Case Narrative.....17

Sample Data Summary.....26

Quality Control Summary.....31

Case Narrative

Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL - WQH NPDES
Workorder #: 453088
SDG # : 2018-2762

June 28, 2018

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on June 22, 2018 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperatures were checked, documented, and within specifications. Shipping container temperature was within specification (0 - 6C). There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
453088001	WSTMO-18-153340
453088002	WSTMO-18-153341
453088003	WSTMO-18-153345
453088004	WSTMO-18-153346

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

B. Luthman

Brielle Luthman for
Valerie Davis
Project Manager

List of current GEL Certifications as of 28 June 2018

State	Certification
Alaska	17−018
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA180011
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122018−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−18−13
Utah NELAP	SC000122018−26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation

453088

General Engineering

Charleston SC

Chain of Custody/Analysis Request

COC/Lab Request #: 2018-2762

Page 1 of 1

Client Contact:

Lab Agreement #:

Project Number: LANL

Analysis Turnaround Time:

24 Hour - ☐ Other - ☐

7 Days - ☒

14 Days - ☐

21 Days - ☐

28 Days - ☐

Site Name: Los Alamos National Laboratory

Rad Screening Info: Similar locations identify no DOT hazard

Lab Reporting Limit Type: Method Detection Limit

Field Sample ID	Sample Date	Sample Time	Sample Matrix	NPDES-NH3/NO3/NO2/TKN	NPDES-TDS+Cl	TKN+PO4
WSTMO-18-153340	Jun 20 2018	8:35	W	1	1	
WSTMO-18-153341	Jun 20 2018	10:30	W	1	1	
WSTMO-18-153345	Jun 20 2018	8:35	W			1
WSTMO-18-153346	Jun 20 2018	10:30	W			1

Special Instructions:

Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Sherwood	Sherri Sherwood	6/21/18 3pm		Zac Worsham	6/22/18 0950
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ESHC	**SDG/AR/COC/Work Order:** 453088
Received By: ZKW	**Date Received:** 6/22/18
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other See Attached

Suspected Hazard Information	Yes	No	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr Classified as: Rad 1 Rad 2 Rad 3
Is package, COC, and/or Samples marked HAZ?		✓	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: See Attached
4	Daily check performed and passed on IR temperature gun?	✓			**Temperature Device Serial #:** IR3-18 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?			✓	Circle Applicable: Seals broken Damaged container Leaking container Other (describe) One PCB Cont. for CALM-18-113 Rec'd Broken
6	Samples requiring chemical preservation at proper pH?	✓			Sample ID's and Containers Affected: If Preservation added, Lot#:
7	Do any samples require Volatile Analysis?	✓			If Yes, Are Encores or Soil Kits present? Yes___ No✓ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes✓ No___ N/A___ (If unknown, select No) VOA vials free of headspace? Yes___ No✓ N/A___ Sample ID's and containers affected: See Below
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			

Comments (Use Continuation Form if needed):

Both Vials for WSTMO-18-155067 & -068, Plus the Vials for CALA-18-111 & -114 Rec'd w/ Headspace.

PM (or PMA) review: Initials TMC Date 6/25/18 Page 1 of 2

GL-CHL-SR-001 Rev 5

CEA | Laboratories LLC SAMPLE RECEIPT & REVIEW CONTINUATION FORM

Client: ESHL Received By: Zxw Date Received: 6/22/18 SDG/AR/COC/Work Order: 453088

Tracking #'s and Temps:

4412 7834 1995 -3°c
4412 7834 1940 -3°c
4412 7834 1951 -2°c
4401 2166 1162 -2°c
4401 2166 1184 -3°c
4412 7834 1984 -2°c
4401 2166 1173 -3°c
4412 7834 1929 -3°c
4412 7834 1930 -6°c
4412 7834 1973 -12°c (Rchem)
4412 7834 1962 - 14°c Rchem

PM (or PMA) review: Initials TMC Date 6/25/18 Page 2 of 2

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 43.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

14°C
Rchem

546C2/93DF/53C1

FedEx Express

E

J171016102001uv

2 of 3
MPS# 0263 4412 7834 1962
Mstr# 4412 7834 1951

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

0201

X7 RBWA

29407
SC-US CHS

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 49.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3°C

546C2/93DF/53C1

FedEx Express

E

J171016102001uv

TRK# 0201 4412 7834 1995

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148V-434 RIT2 EXP 02/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 46.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3°C

546C2/93DF/53C1

FedEx Express

E

J171016102001uv

3 of 3
MPS# 0263 4412 7834 1940
Mstr# 4412 7834 1929

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

0201

X7 RBWA

29407
SC-US CHS

Part # 156148V-434 RIT2 EXP 02/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 45.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

2c

546C2/93DF/53C1

FedEx Express

J171016102001uv

1 of 3

TRK# 0201 4412 7834 1951

MASTER

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT2 EXP 02/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 48.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

2c

546C1/48E5/53C1

FedEx Express

J171016102001uv

2 of 3

MPS# 0263 4401 2166 1162

Mstr# 4401 2166 1151 0201

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 82.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

3c

546C1/48E5/53C1

FedEx Express

J171016102001uv

TRK# 0201 4401 2166 1184

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 42.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

2c

54GC2/93DF/53C1

FedEx Express

J171016102001uv

TRK# 0201 4412 7834 1984

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148V-434 RIT2 EXP 02/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 50.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

3c

546C1/4BE5/53C1

FedEx Express

J171016102001uv

3 of 3

MPS# 0263 4401 2166 1173

Mstr# 4401 2166 1151 0201

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-434 RIT EXP 04/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 53.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

3c

54GC2/93DF/53C1

FedEx Express

J171016102001uv

1 of 3

TRK# 0201 4412 7834 1929

MASTER

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148V-434 RIT2 EXP 02/18

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 51.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

6°C

FedEx Express

E

J171016102001uv

2 of 3
MPS# 0263 4412 7834 1930
Mstr# 4412 7834 1929
0201

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148V-434 RIT2 EXP 02/18

Do Not Lift Using This Tag

ORIGIN ID:SAFA (505) 603-3019
RANEE ONSTOTT
LOS ALAMOS NATL LAN N3B SMO
TA 3 BLDG 271

LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 21JUN18
ACTWGT: 49.00 LB MAN
CAD: 0510156/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE RD

CHARLESTON SC 29407
(843) 556-8171
REF: 100.30.003.05.211.0100.001

12°C
Rchem

546C2/93DF/53C1

FedEx Express

E

J171016102001uv

3 of 3
MPS# 0263 4412 7834 1973
Mstr# 4412 7834 1951
0201

FRI - 22 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148V-434 RIT2 EXP 02/18

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference. For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2762
Work Order #: 453088

Product: **Ion Chromatography**
Analytical Method: EPA:300.0
Analytical Procedure: GL-GC-E-086 REV# 25
Analytical Batch: 1776008

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453088001	WSTMO-18-153340
453088002	WSTMO-18-153341
1204055260	Method Blank (MB)
1204055261	Laboratory Control Sample (LCS)
1204055262	453020004(WSTMO-18-159776) Sample Duplicate (DUP)
1204055263	453020004(WSTMO-18-159776) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204055262 (WSTMO-18-159776DUP), 1204055263 (WSTMO-18-159776PS), 453088001 (WSTMO-18-153340) and 453088002 (WSTMO-18-153341) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453088	
	001	002
Chloride	10000X	10000X

Sample Re-analysis
Samples1204055260 (MB) and 1204055261 (LCS) were re-analyzed due to CCV failure. The reanalysis data with passing instrument QC was reported.

Product: **Ammonia Nitrogen**
Preparation Method: EPA:350.1
Preparation Procedure: GL-GC-E-106 REV# 10
Preparation Batches: 1776444 and 1777260

Preparation Method: EPA 350.1 Prep
Preparation Procedure: GL-GC-E-072 REV# 17
Preparation Batches: 1776443 and 1777259

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453088001	WSTMO-18-153340
453088002	WSTMO-18-153341
1204056272	Method Blank (MB)
1204056273	Laboratory Control Sample (LCS)
1204056274	453088001(WSTMO-18-153340) Sample Duplicate (DUP)
1204056275	453094001(NonSDG) Sample Duplicate (DUP)
1204056276	453088001(WSTMO-18-153340) Matrix Spike (MS)
1204056277	453094001(NonSDG) Matrix Spike (MS)
1204058289	Method Blank (MB)
1204058290	Laboratory Control Sample (LCS)
1204058291	453315002(WSTMO-18-159907) Sample Duplicate (DUP)
1204058292	453315002(WSTMO-18-159907) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Matrix Spike (MS)/Post Spike (PS) Recovery Statement
The percent recoveries (%R) obtained from the spike analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The matrix spike recovered outside of the established acceptance limits due to matrix interference and/or non-homogeneity.

Analyte	Sample	Value
Nitrogen, Ammonia	1204056276 (WSTMO-18-153340MS)	139* (90%-110%)

Technical Information

Sample Dilutions
The following samples 1204056274 (WSTMO-18-153340DUP), 1204056276 (WSTMO-18-153340MS), 453088001

(WSTMO-18-153340), 453088002 (WSTMO-18-153341), 1204058291 (WSTMO-18-159907DUP) and 1204058292 (WSTMO-18-159907MS) were diluted because target analyte concentrations exceeded the calibration range. Sample 453088002 (WSTMO-18-153341) was diluted at the prep step due to high concentration. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	**453088**
	001
Nitrogen, Ammonia	5X

Sample Re-analysis
Sample was reprepped and re-analyzed to verify the result. 453088002 (WSTMO-18-153341).

Miscellaneous Information

Additional Comments
The TKN result is less than the NH3 result; however, the RPD is within limits. 453088002 (WSTMO-18-153341).

Product: **Total Kjeldahl Nitrogen**
Preparation Method: EPA:351.2
Preparation Procedure: GL-GC-E-104 REV# 15
Preparation Batch: 1776442

Preparation Method: EPA 351.2 Prep
Preparation Procedure: GL-GC-E-071 REV# 16
Preparation Batch: 1776440

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453088001	WSTMO-18-153340
453088002	WSTMO-18-153341
453088003	WSTMO-18-153345
453088004	WSTMO-18-153346
1204056266	Method Blank (MB)
1204056267	Laboratory Control Sample (LCS)
1204056268	453088003(WSTMO-18-153345) Sample Duplicate (DUP)
1204056269	453094002(NonSDG) Sample Duplicate (DUP)
1204056270	453088003(WSTMO-18-153345) Matrix Spike (MS)
1204056271	453094002(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204056268 (WSTMO-18-153345DUP), 1204056270 (WSTMO-18-153345MS), 453088003 (WSTMO-18-153345) and 453088004 (WSTMO-18-153346) were diluted because target analyte concentrations exceeded the calibration range. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453088	
	003	004
Nitrogen, Total Kjeldahl	5X	5X

Sample Re-analysis
Sample1204056266 (MB) was re-analyzed due to (its) proximity to an overrange sample. The results from the reanalysis are reported.

Product: **Nitrate Nitrite by Cadmium Reduction**
Analytical Method: EPA:353.2
Analytical Procedure: GL-GC-E-128 REV# 10
Analytical Batch: 1776650

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453088001	WSTMO-18-153340
453088002	WSTMO-18-153341
1204056767	Method Blank (MB)
1204056768	Laboratory Control Sample (LCS)
1204056770	452995002(NonSDG) Sample Duplicate (DUP)
1204056772	452995002(NonSDG) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204056770 (Non SDG 452995002DUP), 1204056772 (Non SDG 452995002PS), 453088001 (WSTMO-18-153340) and 453088002 (WSTMO-18-153341) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453088	
	001	002
Nitrogen, Nitrate/Nitrite	10X	10X

Product: **Total Phosphorus**
Analytical Method: EPA 365.4 1974
Analytical Procedure: GL-GC-E-103 REV# 11
Analytical Batch: 1776439

Preparation Method: EPA 365.4 Prep
Preparation Procedure: GL-GC-E-071 REV# 16
Preparation Batch: 1776437

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453088003	WSTMO-18-153345
453088004	WSTMO-18-153346
1204056260	Method Blank (MB)
1204056261	Laboratory Control Sample (LCS)
1204056262	453088003(WSTMO-18-153345) Sample Duplicate (DUP)
1204056263	453088003(WSTMO-18-153345) Matrix Spike (MS)
1204056264	452990001(NonSDG) Sample Duplicate (DUP)
1204056265	452990001(NonSDG) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Solids, Total Dissolved**
Analytical Method: EPA:160.1
Analytical Procedure: GL-GC-E-001 REV# 15
Analytical Batch: 1776436

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453088001	WSTMO-18-153340
453088002	WSTMO-18-153341
1204056255	Method Blank (MB)
1204056256	Laboratory Control Sample (LCS)
1204056257	453088001(WSTMO-18-153340) Sample Duplicate (DUP)
1204056258	453103001(NonSDG) Sample Duplicate (DUP)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Duplicate Relative Percent Difference (RPD) Statement
The Relative Percent Difference (RPD) between the sample and duplicate falls outside of the established acceptance limits because of the heterogeneous matrix of the sample:

Analyte	Sample	Value
Total Dissolved Solids	1204056258 (Non SDG 453103001DUP)	12.5* (0%-5%)

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2762 GEL Work Order: 453088

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
H Analytical holding time was exceeded
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: **Name: Aubrey Kingsbury**

Date: 28 JUN 2018 **Title: Data Validator**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 28, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL - WQH NPDES

Client SDG: 2018-2762

Client Sample ID: WSTMO-18-153340
Sample ID: 453088001
Matrix: W
Collect Date: 20-JUN-18 08:35
Receive Date: 22-JUN-18
Collector: Client

Project: ESHL00814
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
Chloride "As Received"												
Chloride		76100	670	2000	mg/L		10000	JXH5	06/26/18	2004	1776008	1
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia		3.77	0.085	0.250	mg/L	1.00	5	KLP1	06/26/18	1045	1776444	2
NO3/NO2 "As Received"												
Nitrogen, Nitrate/Nitrite	U	ND	0.170	0.500	mg/L		10	AXH3	06/25/18	0700	1776650	3
TKN "As Received"												
Nitrogen, Total Kjeldahl		3.92	0.033	0.100	mg/L	1.00	1	KLP1	06/26/18	1409	1776442	4
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		112000	3.40	14.3	mg/L			KLP1	06/26/18	1355	1776436	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	KLP1	06/25/18	1540	1776443
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	06/25/18	1700	1776440

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA:300.0	
2	EPA:350.1	
3	EPA:353.2	
4	EPA:351.2	
5	EPA:160.1	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 28, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL - WQH NPDES

Client SDG: 2018-2762

Client Sample ID: WSTMO-18-153341
Sample ID: 453088002
Matrix: W
Collect Date: 20-JUN-18 10:30
Receive Date: 22-JUN-18
Collector: Client

Project: ESHL00814
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Ion Chromatography												
Chloride "As Received"												
Chloride		70400	670	2000	mg/L		10000	JXH5	06/26/18	2033	1776008	1
Nutrient Analysis												
NH3 "As Received"												
Nitrogen, Ammonia		3.62	0.085	0.250	mg/L	5.00	1	KLP1	06/27/18	1537	1777260	2
NO3/NO2 "As Received"												
Nitrogen, Nitrate/Nitrite	U	ND	0.170	0.500	mg/L		10	AXH3	06/25/18	0701	1776650	3
TKN "As Received"												
Nitrogen, Total Kjeldahl		3.18	0.033	0.100	mg/L	1.00	1	KLP1	06/26/18	1414	1776442	4
Solids Analysis												
TDS "As Received"												
Total Dissolved Solids		116000	3.40	14.3	mg/L			KLP1	06/26/18	1355	1776436	5

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 350.1 Prep	EPA 350.1 Ammonia Nitrogen Prep	AXH3	06/27/18	1248	1777259
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	06/25/18	1700	1776440

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA:300.0	
2	EPA:350.1	
3	EPA:353.2	
4	EPA:351.2	
5	EPA:160.1	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 28, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL - WQH NPDES

Client SDG: 2018-2762

Client Sample ID: WSTMO-18-153345
Sample ID: 453088003
Matrix: W
Collect Date: 20-JUN-18 08:35
Receive Date: 22-JUN-18
Collector: Client

Project: ESHL00814
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis												
PO4 "As Received"												
Phosphorus, Total as P		2.20	0.020	0.050	mg/L	1.00	1	KLP1	06/26/18	1605	1776439	1
TKN "As Received"												
Nitrogen, Total Kjeldahl		7.15	0.165	0.500	mg/L	1.00	5	KLP1	06/26/18	1433	1776442	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	06/25/18	1700	1776440
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	06/25/18	1700	1776437

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 365.4 1974	
2	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: June 28, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL - WQH NPDES

Client SDG: 2018-2762

Client Sample ID: WSTMO-18-153346
Sample ID: 453088004
Matrix: W
Collect Date: 20-JUN-18 10:30
Receive Date: 22-JUN-18
Collector: Client

Project: ESHL00814
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Nutrient Analysis												
PO4 "As Received"												
Phosphorus, Total as P		0.848	0.020	0.050	mg/L	1.00	1	KLP1	06/26/18	1612	1776439	1
TKN "As Received"												
Nitrogen, Total Kjeldahl		9.60	0.165	0.500	mg/L	1.00	5	KLP1	06/26/18	1440	1776442	2

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 351.2 Prep	EPA 351.2 Total Kjeldahl Nitrogen Prep	KLP1	06/25/18	1700	1776440
EPA 365.4 Prep	EPA 365.4 Phosphorus, Total in liquid PR	KLP1	06/25/18	1700	1776437

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 365.4 1974	
2	EPA:351.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: June 28, 2018

Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico

Contact: **Ms. Nita Patel**

Workorder: **453088**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Ion Chromatography												
Batch 1776008												
QC1204055262 453020004 DUP												
Chloride			20500		20500	mg/L	0.0953			(0%-20%)	JXH5	06/26/18 19:04
QC1204055261 LCS												
Chloride	5.00				4.89	mg/L			97.7	(80%-120%)		06/26/18 17:34
QC1204055260 MB												
Chloride				U	ND	mg/L						06/26/18 17:04
QC1204055263 453020004 PS												
Chloride	5.00		4.09		9.50	mg/L			108	(75%-125%)		06/26/18 19:34
Nutrient Analysis												
Batch 1776439												
QC1204056262 453088003 DUP												
Phosphorus, Total as P			2.20		2.10	mg/L	4.65			(0%-27%)	KLP1	06/26/18 16:06
QC1204056264 452990001 DUP												
Phosphorus, Total as P		J	0.0353	U	ND	mg/L	200	^				06/26/18 16:01
QC1204056261 LCS												
Phosphorus, Total as P	1.00				1.10	mg/L			110	(80%-124%)		06/26/18 16:00
QC1204056260 MB												
Phosphorus, Total as P				J	0.0265	mg/L						06/26/18 15:59
QC1204056263 453088003 MS												
Phosphorus, Total as P	1.00		2.20		3.47	mg/L			127	(63%-139%)		06/26/18 16:12
QC1204056265 452990001 MS												
Phosphorus, Total as P	1.00	J	0.0353		1.08	mg/L			104	(63%-139%)		06/26/18 16:02

QC Summary

Workorder: **453088**

Parmname	NOM		Sample	Qual	QC	Units	RPD%		REC%	Range	Anlst	Date Time
Nutrient Analysis												
Batch 1776442												
QC1204056268 453088003 DUP												
Nitrogen, Total Kjeldahl			7.15		7.80	mg/L	8.7			(0%-20%)	KLP1	06/26/18 14:34
QC1204056269 453094002 DUP												
Nitrogen, Total Kjeldahl		J	0.0698	U	ND	mg/L	200	^				06/26/18 14:20
QC1204056267 LCS												
Nitrogen, Total Kjeldahl	1.00				1.10	mg/L			110	(90%-110%)		06/26/18 14:08
QC1204056266 MB												
Nitrogen, Total Kjeldahl				U	ND	mg/L						06/26/18 14:27
QC1204056270 453088003 MS												
Nitrogen, Total Kjeldahl	1.00		7.15		10.5	mg/L			N/A	(90%-110%)		06/26/18 14:35
QC1204056271 453094002 MS												
Nitrogen, Total Kjeldahl	1.00	J	0.0698		1.04	mg/L			97	(90%-110%)		06/26/18 14:20
Batch 1776444												
QC1204056274 453088001 DUP												
Nitrogen, Ammonia			3.77		3.91	mg/L	3.65			(0%-20%)	KLP1	06/26/18 10:46
QC1204056275 453094001 DUP												
Nitrogen, Ammonia			0.065	J	0.0415	mg/L	44.1	^		(+/-0.050)		06/26/18 10:50
QC1204056273 LCS												
Nitrogen, Ammonia	1.00				1.09	mg/L			109	(90%-110%)		06/26/18 10:40
QC1204056272 MB												
Nitrogen, Ammonia				U	ND	mg/L						06/26/18 10:39
QC1204056276 453088001 MS												
Nitrogen, Ammonia	1.00		3.77		5.15	mg/L			139*	(90%-110%)		06/26/18 10:47

QC Summary

Workorder: **453088**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Nutrient Analysis										
Batch 1776444										
QC1204056277 453094001 MS										
Nitrogen, Ammonia	1.00	0.065		1.10	mg/L		104	(90%-110%)	KLP1	06/26/18 10:50
Batch 1776650										
QC1204056770 452995002 DUP										
Nitrogen, Nitrate/Nitrite		1.44		1.43	mg/L	0.697 ^		(+/-0.500)	AXH3	06/25/18 06:47
QC1204056768 LCS										
Nitrogen, Nitrate/Nitrite	1.00			0.992	mg/L		99.2	(90%-110%)		06/25/18 06:34
QC1204056767 MB										
Nitrogen, Nitrate/Nitrite			U	ND	mg/L					06/25/18 06:32
QC1204056772 452995002 PS										
Nitrogen, Nitrate/Nitrite	1.00	0.144		1.14	mg/L		99.6	(90%-110%)		06/25/18 06:48
Batch 1777260										
QC1204058291 453315002 DUP										
Nitrogen, Ammonia		5.50		5.20	mg/L	5.61		(0%-20%)	KLP1	06/27/18 15:48
QC1204058290 LCS										
Nitrogen, Ammonia	1.00			1.08	mg/L		108	(90%-110%)		06/27/18 15:36
QC1204058289 MB										
Nitrogen, Ammonia			U	ND	mg/L					06/27/18 15:35
QC1204058292 453315002 MS										
Nitrogen, Ammonia	1.00	5.50		6.50	mg/L		N/A	(90%-110%)		06/27/18 15:49
Solids Analysis										
Batch 1776436										
QC1204056257 453088001 DUP										
Total Dissolved Solids		112000		113000	mg/L	1.28		(0%-5%)	KLP1	06/26/18 13:55

QC Summary

Workorder: **453088**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time
Solids Analysis											
Batch 1776436											
QC1204056258 453103001 DUP											
Total Dissolved Solids		304		269	mg/L	12.5*		(0%-5%)	KLP1	06/26/18	13:55
QC1204056256 LCS											
Total Dissolved Solids	300			310	mg/L		103	(95%-105%)		06/26/18	13:55
QC1204056255 MB											
Total Dissolved Solids			J	5.71	mg/L					06/26/18	13:55

Notes:

<	Result is less than value reported
>	Result is greater than value reported
B	The target analyte was detected in the associated blank.
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
H	Analytical holding time was exceeded
J	Value is estimated
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
e	5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
h	Preparation or preservation holding time was exceeded

QC Summary

Workorder: **453088**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

GEL Laboratories LLC
a member of The GEL Group INC

PO Box 30712 Charleston, SC 29417
2040 Savage Road Charleston, SC 29407
P 843.556.8171
F 843.766.1178

gel.com

July 05, 2018

Ms. Nita Patel
Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico 87545

Re: LANL- Discharge Permits
Work Order: 453314
SDG: 2018-2791

Dear Ms. Patel:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the following analytical results for the sample(s) we received on June 26, 2018, and analyzed for Explosives by LCMSMS, GC Semivolatile PCB, GC Semivolatile Pesticide, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4485.

Sincerely,

B Luthman

Brielle Luthman for
Valerie Davis
Project Manager

Chain of Custody: 2018-2791
Enclosures

ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- Discharge Permits
Workorder #: 453314
SDG # : 2018-2791

Table of Contents

Case Narrative.....1

Chain of Custody and Supporting Documentation.....5

Data Review Qualifier Flag Definition Sheet.....9

Volatile Analysis.....12

Case Narrative.....13

Sample Data Summary.....16

Quality Control Summary.....21

Quality Control Data.....30

Semi-Volatile Analysis.....36

Case Narrative.....37

Sample Data Summary.....41

Quality Control Summary.....44

Quality Control Data.....53

Perchlorates by LCMSMS Analysis.....62

Case Narrative.....63

Sample Data Summary.....66

Quality Control Summary.....68

Quality Control Data.....74

Explosives by LCMSMS Analysis.....80

Case Narrative.....81

Sample Data Summary.....84
Quality Control Summary.....86
Quality Control Data.....90
Pesticide Analysis.....100
Case Narrative.....101
Sample Data Summary.....106
Quality Control Summary.....108
Quality Control Data.....115
PCB Analysis.....121
Case Narrative.....122
Sample Data Summary.....126
Quality Control Summary.....128
Quality Control Data.....134
Metals Analysis.....139
Case Narrative.....140
Sample Data Summary.....145
Quality Control Summary.....148
General Chem Analysis.....162
Case Narrative.....163
Sample Data Summary.....168
Quality Control Summary.....170

Radiological Analysis.....174

Case Narrative.....175

Sample Data Summary.....179

Quality Control Summary.....181

Case Narrative

Case Narrative for
ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)
LANL- Discharge Permits
Workorder #: 453314
SDG # : 2018-2791

July 05, 2018

Laboratory Identification:

GEL Laboratories LLC
2040 Savage Road
Charleston, South Carolina 29407
(843) 556-8171

Summary

Sample receipt The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on June 26, 2018 for analysis. The samples were delivered with proper chain of custody documentation and signatures. The samples were screened according to GEL Standard Operating Procedure. All sample containers arrived without any visible signs of tampering or breakage. Containers were checked for pH, where appropriate, and matched the preservative as documented on the accompanying chain of custody. Shipping container temperatures were checked, documented, and within specifications. Shipping container temperature was within specification (0 - 6C). There are no additional comments concerning sample receipt.

Sample Identification The laboratory received the following samples:

Laboratory ID	Client ID
453314001	WSTMO-18-159781
453314002	WSTMO-18-155055
453314003	WSTMO-18-155060
453314004	WSTMO-18-155065
453314005	WSTMO-18-155065
453314006	WSTMO-18-155065
453314007	WSTMO-18-155065

Case Narrative

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

Data Package

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Explosives by LCMSMS, GC Semivolatile PCB, GC Semivolatile Pesticide, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals, Perchlorates by LCMSMS and Radiochemistry.

I certify that this data report is in compliance with the terms and conditions of the subcontract and task order, both technically and for completeness, for other than the conditions detailed in the attached case narrative.

B Luthman

Brielle Luthman for
Valerie Davis
Project Manager

List of current GEL Certifications as of 05 July 2018

State	Certification
Alaska	17−018
Arkansas	88−0651
CLIA	42D0904046
California	2940
Colorado	SC00012
Connecticut	PH−0169
Delaware	SC00012
DoD ELAP/ ISO17025 A2LA	2567.01
Florida NELAP	E87156
Foreign Soils Permit	P330−15−00283, P330−15−00253
Georgia	SC00012
Georgia SDWA	967
Hawaii	SC00012
Idaho Chemistry	SC00012
Idaho Radiochemistry	SC00012
Illinois NELAP	200029
Indiana	C−SC−01
Kansas NELAP	E−10332
Kentucky SDWA	90129
Kentucky Wastewater	90129
Louisiana NELAP	03046 (AI33904)
Louisiana SDWA	LA180011
Maryland	270
Massachusetts	M−SC012
Michigan	9976
Mississippi	SC00012
Nebraska	NE−OS−26−13
Nevada	SC000122018−1
New Hampshire NELAP	205415
New Jersey NELAP	SC002
New Mexico	SC00012
New York NELAP	11501
North Carolina	233
North Carolina SDWA	45709
North Dakota	R−158
Oklahoma	9904
Pennsylvania NELAP	68−00485
Puerto Rico	SC00012
S. Carolina Radiochem	10120002
South Carolina Chemistry	10120001
Tennessee	TN 02934
Texas NELAP	T104704235−18−13
Utah NELAP	SC000122018−26
Vermont	VT87156
Virginia NELAP	460202
Washington	C780
West Virginia	997404

Chain of Custody and Supporting Documentation

453314

General Engineering

Charleston SC

Chain of Custody/Analysis Request

COC/Lab Request #: 2018-2791

Page 1 of 1

Client Contact:

Lab Agreement #:

Project Number: ~~ADESH~~ LANL

Analysis Turnaround Time:
24 Hour - ☐ Other - ☐
7 Days - ☒
14 Days - ☐
21 Days - ☐
28 Days - ☐

Site Name: Los Alamos National Laboratory

Rad Screening Info: Similar locations identify no DOT hazard

Lab Reporting Limit Type: Method Detection Limit

Field Sample ID	Sample Date	Sample Time	Sample Matrix	DP-8082	DP-ClO4	DP-CN(TOTAL)	DP-F+SO4	DP-Hg	DP-Metals	DP-NO3NO2	DP-Ra226+228	DP-TP-8081	DP-TP-8260	DP-TP-8270	DP-TP-8330									Rad Screening Info
WSTMO-18-159781	Jun 21 2018	8:30	W										~~2~~ 1											
WSTMO-18-155055	Jun 21 2018	8:30	W			1	1		1	1	4													
WSTMO-18-155060	Jun 21 2018	8:30	W					1																
WSTMO-18-155065	Jun 21 2018	8:30	W	3	1							3	2	2	3									* See note below

Special Instructions: Small bubbles in both DP-TP-8260 vials

Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Sherwood	Sherri Sherwood	6/25/18 3pm		Zack Worsham	6/26/18 9:00
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:
Relinquished by:	Print Name:	Date/Time:	Received by:	Print Name:	Date/Time:

GEL Laboratories LLC

SAMPLE RECEIPT & REVIEW FORM

Client: ESHL	**SDG/AR/COC/Work Order:** 453314
Received By: ZKW	**Date Received:** 6/26/18
Carrier and Tracking Number	Circle Applicable: FedEx Express FedEx Ground UPS Field Services Courier Other 4401 2166 1232 4401 2166 1243 4401 2166 1254

Suspected Hazard Information	**Yes**	**No**	*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#:
COC/Samples marked or classified as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 CPM / mR/Hr **Classified as: Rad 1 Rad 2 Rad 3**
Is package, COC, and/or Samples marked HAZ?		✓	If yes, select Hazards below, and contact the GEL Safety Group. PCB's Flammable Foreign Soil RCRA Asbestos Beryllium Other:

	Sample Receipt Criteria	**Yes**	**NA**	**No**	**Comments/Qualifiers (Required for Non-Conforming Items)**
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Chain of custody documents included with shipment?	✓			
3	Samples requiring cold preservation within (0 ≤ 6 deg. C)?*	✓			Preservation Method: Wet Ice Ice Packs Dry ice None Other: *all temperatures are recorded in Celsius TEMP: 3°C
4	Daily check performed and passed on IR temperature gun?	✓			**Temperature Device Serial #:** IR3-18 Secondary Temperature Device Serial # (If Applicable):
5	Sample containers intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
6	Samples requiring chemical preservation at proper pH?			✓	Sample ID's and Containers Affected: See Below If Preservation added, Lot#: 180330
7	Do any samples require Volatile Analysis?	✓			If Yes, Are Encores or Soil Kits present? Yes___ No ✓ (If yes, take to VOA Freezer) Do VOA vials contain acid preservation? Yes ✓ No___ N/A___ (If unknown, select No) VOA vials free of headspace? Yes___ No ✓ N/A___ Sample ID's and containers affected: One vial for -155045 rec'd w/headspace
8	Samples received within holding time?	✓			ID's and tests affected:
9	Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10	Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11	Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12	Are sample containers identifiable as GEL provided?			✓	
13	COC form is properly signed in relinquished/received sections?	✓			

Comments (Use Continuation Form if needed):

* All ~~Four~~ R2216/228 Containers for -155055 and the metals Containers for -155055 & -155060 were rec'd w/a pH > 2. Preserved w/ HNO_3
* Samples preserved per client request via phone call

PM (or PMA) review: Initials THC Date 6/27/18 Page 1 of 1

GL-CHL-SR-001 Rev 5

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25JUN18
ACTWGT: 43.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

3°C

FedEx Express

J171016102001uv

1 of 3

TRK# 0201 4401 2166 1232
MASTER

TUE - 26 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-494 RIT EXP 04/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25JUN18
ACTWGT: 25.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

546C1/48E5/53C1

3°C

FedEx Express

J171016102001uv

2 of 3

MPS# 0263 4401 2166 1243
Mstr# 4401 2166 1232 0201

TUE - 26 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-494 RIT EXP 04/18

ORIGIN ID:SAFA (505) 665-8622
MELISSA MONTOYA
LOS ALAMOS NATIONAL LABORATORY
BIKINI ATOLL ROAD, SM-30
TA-59-0001, DP 05U
LOS ALAMOS, NM 87545
UNITED STATES US

SHIP DATE: 25JUN18
ACTWGT: 32.00 LB MAN
CAD: 0476109/CAFE3111

BILL SENDER

TO VALERIE DAVIS
GENERAL ENGINEERING LAB
2040 SAVAGE ROAD

CHARLESTON SC 29407
(843) 556-8171
REF: 8A030AWE6L11570000

3°C

FedEx Express

J171016102001uv

3 of 3

MPS# 0263 4401 2166 1254
Mstr# 4401 2166 1232 0201

TUE - 26 JUN 10:30A
PRIORITY OVERNIGHT

X7 RBWA

29407
SC-US CHS

Part # 156148-494 RIT EXP 04/18

546C1/48E5/53C1

Data Review Qualifier Flag Definition Sheet

Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

P Organics-The concentrations between the primary and confirmation columns/detectors is >40% difference. For HPLC, the difference is >70%.

U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.

Volatile Analysis

Case Narrative

GC/MS Volatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2791
Work Order #: 453314

Product: **Volatile Organic Compounds (VOC) by Gas Chromatograph/Mass Spectrometer**
Analytical Method: SW-846:8260B
Analytical Procedure: GL-OA-E-038 REV# 26
Analytical Batch: 1778633

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453314001	WSTMO-18-159781
453314006	WSTMO-18-155065
1204061386	452990006(NonSDG) Post Spike (PS)
1204061388	452990006(NonSDG) Post Spike Duplicate (PSD)
1204062234	Method Blank (MB)
1204062235	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Blank (MB) Statement
Target analytes were detected in the blank 1204062234 (MB) below the reporting limit.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2791 GEL Work Order: 453314

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
B The target analyte was detected in the associated blank.
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Erin Haubert **Name:** **Erin Haubert**

Date: **03 JUL 2018** **Title:** **Data Validator**

Sample Data Summary

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**453314001**	**Date Received:**	**06/26/2018 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-159781**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1778633**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**07/02/2018 18:16**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**07/02/2018 18:16**				
Data File:	**070218V9\9Z109.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)	U	0.300	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
75-09-2	Methylene chloride	BJ	1.38	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.3	50.0	ug/L	97	(71%-134%)
Bromofluorobenzene	50.4	50.0	ug/L	101	(70%-131%)
Toluene-d8	50.8	50.0	ug/L	102	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**453314001**	**Date Received:**	**06/26/2018 09:00**		
		Client:	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-159781**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1778633**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**07/02/2018 18:16**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**07/02/2018 18:16**				
Data File:	**070218V9\9Z109.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown siloxane	12.363	9.49	ug/L	0	J
	unknown siloxane	14.722	12.8	ug/L	0	J

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**453314006**	**Date Received:**	**06/26/2018 09:00**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155065**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1778633**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**07/02/2018 20:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**07/02/2018 20:08**				
Data File:	**070218V9\9Z113.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)	U	0.300	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
75-09-2	Methylene chloride	BJ	1.59	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	65.4	50.0	ug/L	131	(71%-134%)
Bromofluorobenzene	56.0	50.0	ug/L	112	(70%-131%)
Toluene-d8	55.7	50.0	ug/L	111	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**453314006**	**Date Received:**	**06/26/2018 09:00**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155065**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1778633**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**07/02/2018 20:08**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**07/02/2018 20:08**				
Data File:	**070218V9\9Z113.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000075-18-3	Dimethyl sulfide	7.43	5.95	ug/L	95	NJ

Quality Control Summary

Volatile

Surrogate Recovery Report

SDG Number: 2018-2791

Matrix Type: LIQUID

Sample ID	Client ID	DCED4 %REC	TOL %REC	BFB %REC
1204062235	LCS for batch 1778633	96	101	104
1204062234	MB for batch 1778633	95	101	100
453314001	WSTMO-18-159781	97	102	101
453314006	WSTMO-18-155065	131	111	112
1204061386	CALA-18-61PS	98	99	100
1204061388	CALA-18-61PSD	98	100	101

Surrogate		Acceptance Limits
DCED4	= 1,2-Dichloroethane-d4	(71%-134%)
TOL	= Toluene-d8	(74%-124%)
BFB	= Bromofluorobenzene	(70%-131%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **CALA-18-61PS**
Lab Sample ID **1204061386**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **07/02/2018 22:56**
Dilution: 1
Batch ID: **1778633**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
179601-23-1	PS	m,p-Xylenes	100	0.00	U	90.1	90	59-132
542-75-6	PS	1,3-Dichloropropylene(total) *1,3-Dichloropropylene*	100			96.8	97	89-125
1330-20-7	PS	Xylenes (total)	150			134	89	60-131
75-09-2	PS	Methylene chloride	50.0	1.71	BJ	44.6	86	62-123
75-71-8	PS	Dichlorodifluoromethane	50.0	0.00	U	58.3	117	33-164
74-87-3	PS	Chloromethane	50.0	0.00	U	45.9	92	53-139
75-01-4	PS	Vinyl chloride	50.0	0.00	U	47.7	95	58-140
74-83-9	PS	Bromomethane	50.0	0.00	U	51.0	102	59-146
75-69-4	PS	Trichlorofluoromethane	50.0	0.00	U	52.1	104	65-141
75-35-4	PS	1,1-Dichloroethylene	50.0	0.00	U	45.6	91	59-130
1634-04-4	PS	tert-Butyl methyl ether	50.0	0.00	U	49.6	99	69-132
156-60-5	PS	trans-1,2-Dichloroethylene	50.0	0.00	U	42.9	86	65-127
75-34-3	PS	1,1-Dichloroethane	50.0	0.00	U	42.1	84	67-127
156-59-2	PS	cis-1,2-Dichloroethylene	50.0	0.00	U	43.1	86	69-127
67-66-3	PS	Chloroform	50.0	0.00	U	44.5	89	71-129
71-55-6	PS	1,1,1-Trichloroethane	50.0	0.00	U	47.1	94	69-139
56-23-5	PS	Carbon tetrachloride	50.0	0.00	U	47.6	95	66-143
107-06-2	PS	1,2-Dichloroethane	50.0	0.00	U	42.9	86	69-130
71-43-2	PS	Benzene	50.0	0.00	U	42.4	85	66-125
79-01-6	PS	Trichloroethylene	50.0	0.00	U	44.1	88	65-131
75-27-4	PS	Bromodichloromethane	50.0	0.00	U	47.5	95	70-138
108-88-3	PS	Toluene	50.0	0.00	U	42.5	85	60-126

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **CALA-18-61PS**
Lab Sample ID **1204061386**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike**
Matrix: **W**
Analysis Date: **07/02/2018 22:56**
Dilution: 1
Batch ID: **1778633**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
79-00-5	PS	1,1,2-Trichloroethane	50.0	0.00	U	44.1	88	66-125
127-18-4	PS	Tetrachloroethylene	50.0	0.00	U	44.1	88	60-130
106-93-4	PS	1,2-Dibromoethane	50.0	0.00	U	46.3	93	71-127
108-90-7	PS	Chlorobenzene	50.0	0.00	U	43.9	88	64-124
100-41-4	PS	Ethylbenzene	50.0	0.00	U	42.9	86	61-130
95-47-6	PS	o-Xylene	50.0	0.00	U	43.8	88	62-131
75-25-2	PS	Bromoform	50.0	0.00	U	44.7	89	64-138
79-34-5	PS	1,1,2,2-Tetrachloroethane	50.0	0.00	U	44.0	88	62-129
106-46-7	PS	1,4-Dichlorobenzene	50.0	0.00	U	44.7	89	55-125

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **CALA-18-61PSD**
Lab Sample ID **1204061388**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **07/02/2018 23:24**
Dilution: 1
Batch ID: **1778633**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
179601-23-1	PSD	m,p-Xylenes	100	0.00	U	96.5	96	59-132	7	0-20
542-75-6	PSD	1,3-Dichloropropylene(total) *1,3-Dichloropropylene*	100			106	106	89-125	9	0-20
1330-20-7	PSD	Xylenes (total)	150			144	96	60-131	7	0-20
75-09-2	PSD	Methylene chloride	50.0	1.71	BJ	47.7	92	62-123	7	0-20
75-71-8	PSD	Dichlorodifluoromethane	50.0	0.00	U	60.1	120	33-164	3	0-20
74-87-3	PSD	Chloromethane	50.0	0.00	U	46.1	92	53-139	0	0-20
75-01-4	PSD	Vinyl chloride	50.0	0.00	U	46.7	93	58-140	2	0-20
74-83-9	PSD	Bromomethane	50.0	0.00	U	52.4	105	59-146	3	0-20
75-69-4	PSD	Trichlorofluoromethane	50.0	0.00	U	54.2	108	65-141	4	0-20
75-35-4	PSD	1,1-Dichloroethylene	50.0	0.00	U	48.8	98	59-130	7	0-20
1634-04-4	PSD	tert-Butyl methyl ether	50.0	0.00	U	54.4	109	69-132	9	0-20
156-60-5	PSD	trans-1,2-Dichloroethylene	50.0	0.00	U	45.7	91	65-127	6	0-20
75-34-3	PSD	1,1-Dichloroethane	50.0	0.00	U	45.2	90	67-127	7	0-20
156-59-2	PSD	cis-1,2-Dichloroethylene	50.0	0.00	U	46.1	92	69-127	7	0-20
67-66-3	PSD	Chloroform	50.0	0.00	U	47.2	94	71-129	6	0-20
71-55-6	PSD	1,1,1-Trichloroethane	50.0	0.00	U	49.6	99	69-139	5	0-20
56-23-5	PSD	Carbon tetrachloride	50.0	0.00	U	50.4	101	66-143	6	0-20
107-06-2	PSD	1,2-Dichloroethane	50.0	0.00	U	46.3	93	69-130	8	0-20
71-43-2	PSD	Benzene	50.0	0.00	U	45.5	91	66-125	7	0-20
79-01-6	PSD	Trichloroethylene	50.0	0.00	U	48.0	96	65-131	8	0-20
75-27-4	PSD	Bromodichloromethane	50.0	0.00	U	51.0	102	70-138	7	0-20
108-88-3	PSD	Toluene	50.0	0.00	U	45.9	92	60-126	8	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **CALA-18-61PSD**
Lab Sample ID **1204061388**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Post Spike Duplicate**
Matrix: **W**
Analysis Date: **07/02/2018 23:24**
Dilution: 1
Batch ID: **1778633**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
79-00-5	PSD	1,1,2-Trichloroethane	50.0	0.00	U	48.5	97	66-125	9	0-20
127-18-4	PSD	Tetrachloroethylene	50.0	0.00	U	47.6	95	60-130	8	0-20
106-93-4	PSD	1,2-Dibromoethane	50.0	0.00	U	52.2	104	71-127	12	0-20
108-90-7	PSD	Chlorobenzene	50.0	0.00	U	47.6	95	64-124	8	0-20
100-41-4	PSD	Ethylbenzene	50.0	0.00	U	45.8	92	61-130	7	0-20
95-47-6	PSD	o-Xylene	50.0	0.00	U	47.2	94	62-131	8	0-20
75-25-2	PSD	Bromoform	50.0	0.00	U	50.3	101	64-138	12	0-20
79-34-5	PSD	1,1,2,2-Tetrachloroethane	50.0	0.00	U	49.9	100	62-129	12	0-20
106-46-7	PSD	1,4-Dichlorobenzene	50.0	0.00	U	47.7	95	55-125	6	0-20

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **LCS for batch 1778633**
Lab Sample ID **1204062235**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **MISC LIQUID**
Analysis Date: **07/02/2018 15:29**
Dilution: 1
Batch ID: **1778633**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
542-75-6	LCS	1,3-Dichloropropylene(total) *1,3-Dichloropropylene*	100	0.0	97.3	97	78-134
179601-23-1	LCS	m,p-Xylenes	100	0.0	90.2	90	71-127
1330-20-7	LCS	Xylenes (total)	150	0.0	134	89	73-125
75-71-8	LCS	Dichlorodifluoromethane	50.0	0.0	53.2	106	40-160
74-87-3	LCS	Chloromethane	50.0	0.0	43.7	87	58-135
75-01-4	LCS	Vinyl chloride	50.0	0.0	44.2	88	65-137
74-83-9	LCS	Bromomethane	50.0	0.0	45.8	92	63-137
75-69-4	LCS	Trichlorofluoromethane	50.0	0.0	48.2	96	69-138
75-35-4	LCS	1,1-Dichloroethylene	50.0	0.0	45.3	91	66-126
75-09-2	LCS	Methylene chloride	50.0	0.0	42.3	85	68-119
1634-04-4	LCS	tert-Butyl methyl ether	50.0	0.0	48.5	97	76-128
156-60-5	LCS	trans-1,2-Dichloroethylene	50.0	0.0	43.1	86	71-124
75-34-3	LCS	1,1-Dichloroethane	50.0	0.0	41.8	84	73-123
156-59-2	LCS	cis-1,2-Dichloroethylene	50.0	0.0	42.6	85	75-123
67-66-3	LCS	Chloroform	50.0	0.0	43.3	87	76-123
71-55-6	LCS	1,1,1-Trichloroethane	50.0	0.0	46.3	93	74-136
56-23-5	LCS	Carbon tetrachloride	50.0	0.0	46.5	93	72-140
107-06-2	LCS	1,2-Dichloroethane	50.0	0.0	41.4	83	74-122
71-43-2	LCS	Benzene	50.0	0.0	42.1	84	72-121
79-01-6	LCS	Trichloroethylene	50.0	0.0	44.4	89	74-125
75-27-4	LCS	Bromodichloromethane	50.0	0.0	46.4	93	77-131
108-88-3	LCS	Toluene	50.0	0.0	42.6	85	71-121

Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **LCS for batch 1778633**
Lab Sample ID **1204062235**
Instrument: **VOA9.I**
Analyst: **RXY1**
Purge Vol: **5 mL**

Sample Type: **Laboratory Control Sample**
Matrix: **MISC LIQUID**
Analysis Date: **07/02/2018 15:29**
Dilution: 1
Batch ID: **1778633**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
79-00-5	LCS	1,1,2-Trichloroethane	50.0	0.0	43.2	86	74-118
127-18-4	LCS	Tetrachloroethylene	50.0	0.0	43.9	88	69-129
106-93-4	LCS	1,2-Dibromoethane	50.0	0.0	45.9	92	78-122
108-90-7	LCS	Chlorobenzene	50.0	0.0	44.2	88	74-120
100-41-4	LCS	Ethylbenzene	50.0	0.0	42.8	86	73-125
95-47-6	LCS	o-Xylene	50.0	0.0	43.9	88	74-126
75-25-2	LCS	Bromoform	50.0	0.0	43.8	88	72-136
79-34-5	LCS	1,1,2,2-Tetrachloroethane	50.0	0.0	42.8	86	70-126
106-46-7	LCS	1,4-Dichlorobenzene	50.0	0.0	44.7	89	71-120

Method Blank Summary

SDG Number:	**2018-2791**	**Client:**	**ARSL004**	**Matrix:**	**MISC LIQUID**
Client ID:	**MB for batch 1778633**	**Instrument ID:**	**VOA9.I**	**Data File:**	**070218V9\9Z108B1.D**
Lab Sample ID:	**1204062234**	**Prep Date:**	**07/02/2018 17:48**	**Analyzed:**	**07/02/18 17:48**
Column:	**DB-624**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1778633	1204062235	070218V9\9Z103L1.D	07/02/18	1529
02 WSTMO-18-159781	453314001	070218V9\9Z109.D	07/02/18	1816
03 WSTMO-18-155065	453314006	070218V9\9Z113.D	07/02/18	2008
04 CALA-18-61PS	1204061386	070218V9\9Z119.D	07/02/18	2256
05 CALA-18-61PSD	1204061388	070218V9\9Z120.D	07/02/18	2324

Quality Control Data

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/19/2018 10:05**	**Matrix:**	**W**
Lab Sample ID:	**1204061386**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**QC for batch 1778633**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CALA-18-61PS**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1778633**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**07/02/2018 22:56**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**07/02/2018 22:56**				
Data File:	**070218V9\9Z119.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		47.1	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		44.0	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		44.1	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		42.1	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		45.6	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		46.3	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		42.9	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)		96.8	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene		44.7	ug/L	0.300	1.00
71-43-2	Benzene		42.4	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		47.5	ug/L	0.300	1.00
75-25-2	Bromoform		44.7	ug/L	0.300	1.00
74-83-9	Bromomethane		51.0	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride		47.6	ug/L	0.300	1.00
108-90-7	Chlorobenzene		43.9	ug/L	0.300	1.00
67-66-3	Chloroform		44.5	ug/L	0.300	1.00
74-87-3	Chloromethane		45.9	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		58.3	ug/L	0.300	1.00
100-41-4	Ethylbenzene		42.9	ug/L	0.300	1.00
75-09-2	Methylene chloride	B	44.6	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene		44.1	ug/L	0.300	1.00
108-88-3	Toluene		42.5	ug/L	0.300	1.00
79-01-6	Trichloroethylene		44.1	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		52.1	ug/L	0.300	1.00
75-01-4	Vinyl chloride		47.7	ug/L	0.300	1.00
1330-20-7	Xylenes (total)		134	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		43.1	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		90.1	ug/L	0.300	2.00
95-47-6	o-Xylene		43.8	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether		49.6	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		42.9	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.9	50.0	ug/L	98	(71%-134%)
Bromofluorobenzene	50.2	50.0	ug/L	100	(70%-131%)
Toluene-d8	49.3	50.0	ug/L	99	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/19/2018 10:05**	**Matrix:**	**W**
Lab Sample ID:	**1204061388**	**Date Received:**	**06/21/2018 08:50**		
Client Sample:	**QC for batch 1778633**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**CALA-18-61PSD**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1778633**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**07/02/2018 23:24**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**07/02/2018 23:24**				
Data File:	**070218V9\9Z120.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		49.6	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		49.9	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		48.5	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		45.2	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		48.8	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		52.2	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		46.3	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)		106	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene		47.7	ug/L	0.300	1.00
71-43-2	Benzene		45.5	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		51.0	ug/L	0.300	1.00
75-25-2	Bromoform		50.3	ug/L	0.300	1.00
74-83-9	Bromomethane		52.4	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride		50.4	ug/L	0.300	1.00
108-90-7	Chlorobenzene		47.6	ug/L	0.300	1.00
67-66-3	Chloroform		47.2	ug/L	0.300	1.00
74-87-3	Chloromethane		46.1	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		60.1	ug/L	0.300	1.00
100-41-4	Ethylbenzene		45.8	ug/L	0.300	1.00
75-09-2	Methylene chloride	B	47.7	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene		47.6	ug/L	0.300	1.00
108-88-3	Toluene		45.9	ug/L	0.300	1.00
79-01-6	Trichloroethylene		48.0	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		54.2	ug/L	0.300	1.00
75-01-4	Vinyl chloride		46.7	ug/L	0.300	1.00
1330-20-7	Xylenes (total)		144	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		46.1	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		96.5	ug/L	0.300	2.00
95-47-6	o-Xylene		47.2	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether		54.4	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		45.7	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.9	50.0	ug/L	98	(71%-134%)
Bromofluorobenzene	50.7	50.0	ug/L	101	(70%-131%)
Toluene-d8	49.8	50.0	ug/L	100	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**			**Matrix:**	**MISC LIQUID**
Lab Sample ID:	**1204062234**				
Client Sample:	**QC for batch 1778633**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1778633**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1778633**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**07/02/2018 17:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**07/02/2018 17:48**				
Data File:	**070218V9\9Z108B1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane	U	0.300	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane	U	0.300	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane	U	0.300	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane	U	0.300	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene	U	0.300	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane	U	0.300	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane	U	0.300	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)	U	0.300	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene	U	0.300	ug/L	0.300	1.00
71-43-2	Benzene	U	0.300	ug/L	0.300	1.00
75-27-4	Bromodichloromethane	U	0.300	ug/L	0.300	1.00
75-25-2	Bromoform	U	0.300	ug/L	0.300	1.00
74-83-9	Bromomethane	U	0.300	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride	U	0.300	ug/L	0.300	1.00
108-90-7	Chlorobenzene	U	0.300	ug/L	0.300	1.00
67-66-3	Chloroform	U	0.300	ug/L	0.300	1.00
74-87-3	Chloromethane	U	0.300	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane	U	0.300	ug/L	0.300	1.00
100-41-4	Ethylbenzene	U	0.300	ug/L	0.300	1.00
75-09-2	Methylene chloride	J	1.19	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene	U	0.300	ug/L	0.300	1.00
108-88-3	Toluene	U	0.300	ug/L	0.300	1.00
79-01-6	Trichloroethylene	U	0.300	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane	U	0.300	ug/L	0.300	1.00
75-01-4	Vinyl chloride	U	0.300	ug/L	0.300	1.00
1330-20-7	Xylenes (total)	U	0.300	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes	U	0.300	ug/L	0.300	2.00
95-47-6	o-Xylene	U	0.300	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether	U	0.300	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	47.7	50.0	ug/L	95	(71%-134%)
Bromofluorobenzene	50.2	50.0	ug/L	100	(70%-131%)
Toluene-d8	50.7	50.0	ug/L	101	(74%-124%)

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**			**Matrix:**	**MISC LIQUID**
Lab Sample ID:	**1204062234**				
Client Sample:	**QC for batch 1778633**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1778633**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1778633**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**07/02/2018 17:48**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**07/02/2018 17:48**				
Data File:	**070218V9\9Z108B1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	No Tentatively Identified Compounds Found			ug/L		

Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**			**Matrix:**	**MISC LIQUID**
Lab Sample ID:	**1204062235**				
Client Sample:	**QC for batch 1778633**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1778633**	**Method:**	**SW-846:8260B**	**SOP Ref:**	**GL-OA-E-038**
Batch ID:	**1778633**	**Inst:**	**VOA9.I**	**Dilution:**	**1**
Run Date:	**07/02/2018 15:29**	**Analyst:**	**RXY1**	**Purge Vol:**	**5 mL**
Prep Date:	**07/02/2018 15:29**				
Data File:	**070218V9\9Z103L1.D**	**Column:**	**DB-624**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
71-55-6	1,1,1-Trichloroethane		46.3	ug/L	0.300	1.00
79-34-5	1,1,2,2-Tetrachloroethane		42.8	ug/L	0.300	1.00
79-00-5	1,1,2-Trichloroethane		43.2	ug/L	0.300	1.00
75-34-3	1,1-Dichloroethane		41.8	ug/L	0.300	1.00
75-35-4	1,1-Dichloroethylene		45.3	ug/L	0.300	1.00
106-93-4	1,2-Dibromoethane		45.9	ug/L	0.300	1.00
107-06-2	1,2-Dichloroethane		41.4	ug/L	0.300	1.00
542-75-6	1,3-Dichloropropylene(total)		97.3	ug/L	0.300	1.00
	1,3-Dichloropropylene					
106-46-7	1,4-Dichlorobenzene		44.7	ug/L	0.300	1.00
71-43-2	Benzene		42.1	ug/L	0.300	1.00
75-27-4	Bromodichloromethane		46.4	ug/L	0.300	1.00
75-25-2	Bromoform		43.8	ug/L	0.300	1.00
74-83-9	Bromomethane		45.8	ug/L	0.300	1.00
56-23-5	Carbon tetrachloride		46.5	ug/L	0.300	1.00
108-90-7	Chlorobenzene		44.2	ug/L	0.300	1.00
67-66-3	Chloroform		43.3	ug/L	0.300	1.00
74-87-3	Chloromethane		43.7	ug/L	0.300	1.00
75-71-8	Dichlorodifluoromethane		53.2	ug/L	0.300	1.00
100-41-4	Ethylbenzene		42.8	ug/L	0.300	1.00
75-09-2	Methylene chloride	B	42.3	ug/L	1.00	10.0
127-18-4	Tetrachloroethylene		43.9	ug/L	0.300	1.00
108-88-3	Toluene		42.6	ug/L	0.300	1.00
79-01-6	Trichloroethylene		44.4	ug/L	0.300	1.00
75-69-4	Trichlorofluoromethane		48.2	ug/L	0.300	1.00
75-01-4	Vinyl chloride		44.2	ug/L	0.300	1.00
1330-20-7	Xylenes (total)		134	ug/L	0.300	1.00
156-59-2	cis-1,2-Dichloroethylene		42.6	ug/L	0.300	1.00
179601-23-1	m,p-Xylenes		90.2	ug/L	0.300	2.00
95-47-6	o-Xylene		43.9	ug/L	0.300	1.00
1634-04-4	tert-Butyl methyl ether		48.5	ug/L	0.300	1.00
156-60-5	trans-1,2-Dichloroethylene		43.1	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
1,2-Dichloroethane-d4	48.1	50.0	ug/L	96	(71%-134%)
Bromofluorobenzene	51.9	50.0	ug/L	104	(70%-131%)
Toluene-d8	50.5	50.0	ug/L	101	(74%-124%)

Semi-Volatile Analysis

Case Narrative

GC/MS Semivolatile
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2791
Work Order #: 453314

Product: **Analysis of Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry**
Analytical Method: SW846 3510C/8270D
Analytical Procedure: GL-OA-E-009 REV# 40
Analytical Batch: 1777837

Preparation Method: SW846 3510C
Preparation Procedure: GL-OA-E-013 REV# 32
Preparation Batch: 1777836

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453314006	WSTMO-18-155065
1204059477	Method Blank (MB)
1204059478	Laboratory Control Sample (LCS)
1204059479	453314006(WSTMO-18-155065) Matrix Spike (MS)
1204059480	453314006(WSTMO-18-155065) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Surrogate Recoveries
Samples (See Below) did not meet surrogate recovery acceptance criteria. Since the parent sample and associated MS/MSD pair displayed similar recoveries, the failures were attributed to matrix interference and the data results are reported.

Sample	Analyte	Value
1204059479 (WSTMO-18-155065MS)	2, 4, 6-Tribromophenol	25* (32%-124%)
	2-Fluorobiphenyl	30* (32%-112%)
	Nitrobenzene-d5	33* (36%-115%)
453314006 (WSTMO-18-155065)	2, 4, 6-Tribromophenol	13* (32%-124%)
	2-Fluorobiphenyl	8* (32%-112%)
	2-Fluorophenol	12* (15%-88%)
	Nitrobenzene-d5	10* (36%-115%)
	Phenol-d5	11* (15%-91%)

	p-Terphenyl-d14	10* (36%-121%)

Spike Recovery Statement
The MS or MSD (See Below) recovered spiked analytes outside of the established acceptance limits. As similar recoveries were displayed in the MS and MSD, the failures were attributed to sample matrix interference and the data were reported.

Sample	Analyte	Value
1204059479 (WSTMO-18-155065MS)	Several	See applicable report
1204059480 (WSTMO-18-155065MSD)	Several	See applicable report

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent differences (RPD) for the MS and MSD, (See Below), were not within the acceptance limits. The failures were attributed to matrix interference. The data were reported.

Sample	Analyte	Value
1204059479MS and 1204059480MSD (WSTMO-18-155065)	Several	See applicable report

Miscellaneous Information

TIC Comment
Tentatively identified compounds (TIC) were requested for sample 453314006 (WSTMO-18-155065) in this SDG in this batch.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2791 GEL Work Order: 453314

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Barbara Bailey **Name: Barbara Bailey**

Date: 02 JUL 2018 **Title: Data Validator**

Sample Data Summary

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**453314006**	**Date Received:**	**06/26/2018 09:00**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155065**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1777837**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/28/2018 16:09**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2018 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062818.s\s3f2815.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.00	ug/L	3.00	10.0
122-66-7	1,2-Diphenylhydrazine	U	3.00	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
95-95-4	2,4,5-Trichlorophenol	U	3.00	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	3.00	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	3.00	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol	U	5.00	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.00	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
91-94-1	3,3'-Dichlorobenzidine	U	3.00	ug/L	3.00	10.0
120-12-7	Anthracene	U	0.300	ug/L	0.300	1.00
92-87-5	Benzidine	U	3.90	ug/L	3.90	10.0
50-32-8	Benzo(a)pyrene	U	0.300	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene	U	0.300	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	0.300	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	0.300	ug/L	0.300	10.0
84-66-2	Diethylphthalate	U	0.300	ug/L	0.300	10.0
131-11-3	Dimethylphthalate	U	0.300	ug/L	0.300	10.0
122-39-4	Diphenylamine	U	3.00	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	0.300	ug/L	0.300	1.00
86-73-7	Fluorene	U	0.300	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene	U	3.00	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	3.00	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene	U	3.00	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	3.00	ug/L	3.00	10.0
78-59-1	Isophorone	U	3.50	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.00	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	3.00	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	3.00	ug/L	3.00	10.0
91-20-3	Naphthalene	U	0.300	ug/L	0.300	1.00
98-95-3	Nitrobenzene	U	3.00	ug/L	3.00	10.0
	PAHs(total naphthalene plus monomethylnaphthalenes)	U		ug/L		
608-93-5	Pentachlorobenzene	U	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	3.00	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	0.300	ug/L	0.300	1.00

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**453314006**	**Date Received:**	**06/26/2018 09:00**		
Client Sample:	**8260/8270**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155065**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1777837**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/28/2018 16:09**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2018 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062818.s\s3f2815.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol	U	3.00	ug/L	3.00	10.0
129-00-0	Pyrene	U	0.300	ug/L	0.300	1.00
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.00	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	3.00	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
2,4,6-Tribromophenol	12.9	100	ug/L	13	*	(32%-124%)
2-Fluorobiphenyl	10.0	50.0	ug/L	8	*	(32%-112%)
2-Fluorophenol	11.6	100	ug/L	12	*	(15%-88%)
Nitrobenzene-d5	10.0	50.0	ug/L	10	*	(36%-115%)
Phenol-d5	10.8	100	ug/L	11	*	(15%-91%)
p-Terphenyl-d14	10.0	50.0	ug/L	10	*	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
000067-66-3	Trichloromethane	2.157	83.9	ug/L	95	NJ
000067-71-0	Dimethyl sulfone	4.906	10	ug/L	91	NJ
	unknown	6.313	9.57	ug/L	0	J
	unknown	6.495	4.06	ug/L	0	J
000112-36-7	Ethane, 1,1'-oxybis[2-ethoxy-]	6.666	5.35	ug/L	90	NJ
	unknown	9.18	22	ug/L	0	J
000143-24-8	2,5,8,11,14-Pentaoxapentadecane	10.052	4.52	ug/L	90	NJ
	unknown	10.817	4.09	ug/L	0	J

Quality Control Summary

Semi-Volatile

Surrogate Recovery Report

SDG Number: 2018-2791

Matrix Type: LIQUID

Sample ID	Client ID	2FP %REC	PHL %REC	NBZ %REC	FBP %REC	TBP %REC	TPH %REC
1204059477	MB for batch 1777836	44	27	90	69	75	95
1204059478	LCS for batch 1777836	47	30	91	77	101	97
453314006	WSTMO-18-155065	12 *	11 *	10 *	8 *	13 *	10 *
1204059479	WSTMO-18-155065MS	27	37	33 *	30 *	25 *	37
1204059480	WSTMO-18-155065MSD	33	41	49	39	36	46

Surrogate		Acceptance Limits
2FP	= 2-Fluorophenol	(15%-88%)
PHL	= Phenol-d5	(15%-91%)
NBZ	= Nitrobenzene-d5	(36%-115%)
FBP	= 2-Fluorobiphenyl	(32%-112%)
TBP	= 2,4,6-Tribromophenol	(32%-124%)
TPH	= p-Terphenyl-d14	(36%-121%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **LCS for batch 1777836**
Lab Sample ID **1204059478**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/28/2018 15:10**
Dilution: 1
Prep Batch ID: **1777836**
Batch ID: **1777837**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	LCS	N-Methyl-N-nitrosomethylamine	50.0	0.0	25.5	51	30-88
108-95-2	LCS	Phenol	50.0	0.0	16.0	32	16-82
111-44-4	LCS	bis(2-Chloroethyl) ether	50.0	0.0	40.0	80	51-111
108-60-1	LCS	bis(2-Chloro-1-methylethyl)ether	50.0	0.0	48.3	97	44-123
67-72-1	LCS	Hexachloroethane	50.0	0.0	31.3	63	36-96
98-95-3	LCS	Nitrobenzene	50.0	0.0	47.6	95	53-115
78-59-1	LCS	Isophorone	50.0	0.0	42.1	84	56-117
120-83-2	LCS	2,4-Dichlorophenol	50.0	0.0	44.7	89	53-109
87-68-3	LCS	Hexachlorobutadiene	50.0	0.0	37.6	75	35-98
91-57-6	LCS	2-Methylnaphthalene	50.0	0.0	35.1	70	42-103
91-20-3	LCS	Naphthalene	50.0	0.0	34.5	69	44-102
90-12-0	LCS	1-Methylnaphthalene	50.0	0.0	37.3	75	45-108
77-47-4	LCS	Hexachlorocyclopentadiene	50.0	0.0	20.6	41	34-89
88-06-2	LCS	2,4,6-Trichlorophenol	50.0	0.0	45.2	90	55-120
95-95-4	LCS	2,4,5-Trichlorophenol	50.0	0.0	42.5	85	55-116
131-11-3	LCS	Dimethylphthalate	50.0	0.0	43.1	86	60-122
606-20-2	LCS	2,6-Dinitrotoluene	50.0	0.0	45.8	92	59-122
121-14-2	LCS	2,4-Dinitrotoluene	50.0	0.0	47.0	94	57-124
51-28-5	LCS	2,4-Dinitrophenol	50.0	0.0	50.5	101	34-122
84-66-2	LCS	Diethylphthalate	50.0	0.0	44.8	90	57-122
86-73-7	LCS	Fluorene	50.0	0.0	41.1	82	52-114
534-52-1	LCS	2-Methyl-4,6-dinitrophenol	50.0	0.0	47.8	96	45-124

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **LCS for batch 1777836**
Lab Sample ID **1204059478**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/28/2018 15:10**
Dilution: 1
Prep Batch ID: **1777836**
Batch ID: **1777837**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
122-39-4	LCS	Diphenylamine	50.0	0.0	38.4	77	55-113
122-66-7	LCS	1,2-Diphenylhydrazine	50.0	0.0	39.0	78	53-115
118-74-1	LCS	Hexachlorobenzene	50.0	0.0	41.4	83	54-115
87-86-5	LCS	Pentachlorophenol	50.0	0.0	45.1	90	41-116
85-01-8	LCS	Phenanthrene	50.0	0.0	38.4	77	55-110
120-12-7	LCS	Anthracene	50.0	0.0	38.3	77	56-112
84-74-2	LCS	Di-n-butylphthalate	50.0	0.0	42.1	84	57-123
206-44-0	LCS	Fluoranthene	50.0	0.0	43.2	86	54-118
129-00-0	LCS	Pyrene	50.0	0.0	42.9	86	49-121
117-81-7	LCS	bis(2-Ethylhexyl)phthalate	50.0	0.0	41.3	83	52-125
205-99-2	LCS	Benzo(b)fluoranthene	50.0	0.0	39.3	79	41-118
207-08-9	LCS	Benzo(k)fluoranthene	50.0	0.0	40.6	81	42-121
50-32-8	LCS	Benzo(a)pyrene	50.0	0.0	39.4	79	40-118
930-55-2	LCS	N-Nitrosopyrrolidine	50.0	0.0	42.3	85	54-113
95-94-3	LCS	1,2,4,5-Tetrachlorobenzene	50.0	0.0	36.8	74	44-102
92-87-5	LCS	Benzidine	100	0.0	104	104	20-144
91-94-1	LCS	3,3'-Dichlorobenzidine	50.0	0.0	44.8	90	43-127

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **WSTMO-18-155065MS**
Lab Sample ID **1204059479**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **06/28/2018 16:38**
Prep Batch ID: **1777836**
Batch ID: **1777837**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
62-75-9	MS	N-Methyl-N-nitrosomethylamine	141	0.00	U	59.7	42	25-106
108-95-2	MS	Phenol	141	0.00	U	53.5	38	23-82
111-44-4	MS	bis(2-Chloroethyl) ether	141	0.00	U	41.6	30 *	39-114
108-60-1	MS	bis(2-Chloro-1-methylethyl)ether	141	0.00	U	46.4	33	32-127
67-72-1	MS	Hexachloroethane	141	0.00	U	35.0	25 *	29-94
98-95-3	MS	Nitrobenzene	141	0.00	U	50.5	36 *	38-123
78-59-1	MS	Isophorone	141	0.00	U	46.1	33 *	43-120
120-83-2	MS	2,4-Dichlorophenol	141	0.00	U	47.7	34 *	40-111
87-68-3	MS	Hexachlorobutadiene	141	0.00	U	49.3	35	26-98
91-57-6	MS	2-Methylnaphthalene	141	0.00	U	40.2	29	29-109
91-20-3	MS	Naphthalene	141	0.00	U	35.5	25 *	31-108
90-12-0	MS	1-Methylnaphthalene	141	0.00	U	42.0	30 *	33-112
77-47-4	MS	Hexachlorocyclopentadiene	141	0.00	U	20.3	14 *	26-79
88-06-2	MS	2,4,6-Trichlorophenol	141	0.00	U	25.0	18 *	39-124
95-95-4	MS	2,4,5-Trichlorophenol	141	0.00	U	37.0	26 *	42-120
131-11-3	MS	Dimethylphthalate	141	0.00	U	44.6	32 *	45-128
606-20-2	MS	2,6-Dinitrotoluene	141	0.00	U	46.4	33 *	46-124
121-14-2	MS	2,4-Dinitrotoluene	141	0.00	U	47.6	34 *	45-125
51-28-5	MS	2,4-Dinitrophenol	141	0.00	U	48.5	34	27-122
84-66-2	MS	Diethylphthalate	141	0.00	U	47.2	34 *	43-127
86-73-7	MS	Fluorene	141	0.00	U	47.0	33 *	39-117
534-52-1	MS	2-Methyl-4,6-dinitrophenol	141	0.00	U	25.5	18 *	32-126

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **WSTMO-18-155065MS**
Lab Sample ID **1204059479**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **06/28/2018 16:38**
Prep Batch ID: **1777836**
Batch ID: **1777837**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
122-39-4	MS	Diphenylamine	141	0.00	U	39.7	28 *	37-118
122-66-7	MS	1,2-Diphenylhydrazine	141	0.00	U	44.5	32 *	38-120
118-74-1	MS	Hexachlorobenzene	141	0.00	U	47.6	34 *	40-118
87-86-5	MS	Pentachlorophenol	141	0.00	U	31.9	23 *	35-121
85-01-8	MS	Phenanthrene	141	0.00	U	45.2	32 *	40-115
120-12-7	MS	Anthracene	141	0.00	U	43.7	31 *	38-120
84-74-2	MS	Di-n-butylphthalate	141	0.00	U	45.7	32 *	41-128
206-44-0	MS	Fluoranthene	141	0.00	U	45.6	32 *	41-119
129-00-0	MS	Pyrene	141	0.00	U	47.7	34 *	35-128
117-81-7	MS	bis(2-Ethylhexyl)phthalate	141	0.00	U	45.2	32 *	38-131
205-99-2	MS	Benzo(b)fluoranthene	141	0.00	U	45.0	32	31-122
207-08-9	MS	Benzo(k)fluoranthene	141	0.00	U	45.0	32 *	33-123
50-32-8	MS	Benzo(a)pyrene	141	0.00	U	43.4	31 *	32-118
930-55-2	MS	N-Nitrosopyrrolidine	141	0.00	U	60.1	43 *	47-119
95-94-3	MS	1,2,4,5-Tetrachlorobenzene	141	0.00	U	41.4	29 *	32-101
92-87-5	MS	Benzidine	282	0.00	U	0.00	0 *	15-130
91-94-1	MS	3,3'-Dichlorobenzidine	141	0.00	U	0.00	0 *	34-124

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **WSTMO-18-155065MSD**
Lab Sample ID **1204059480**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **06/28/2018 17:08**
Dilution: 1
Prep Batch ID: **1777836**
Batch ID: **1777837**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
62-75-9	MSD	N-Methyl-N-nitrosomethylamine	141	0.00	U	62.5	44	25-106	5	0-30
108-95-2	MSD	Phenol	141	0.00	U	61.0	43	23-82	13	0-30
111-44-4	MSD	bis(2-Chloroethyl) ether	141	0.00	U	59.6	42	39-114	36 *	0-30
108-60-1	MSD	bis(2-Chloro-1-methylethyl)ether	141	0.00	U	65.4	46	32-127	34 *	0-30
67-72-1	MSD	Hexachloroethane	141	0.00	U	46.5	33	29-94	28	0-30
98-95-3	MSD	Nitrobenzene	141	0.00	U	72.8	52	38-123	36 *	0-30
78-59-1	MSD	Isophorone	141	0.00	U	66.1	47	43-120	36 *	0-30
120-83-2	MSD	2,4-Dichlorophenol	141	0.00	U	67.8	48	40-111	35 *	0-30
87-68-3	MSD	Hexachlorobutadiene	141	0.00	U	60.9	43	26-98	21	0-30
91-57-6	MSD	2-Methylnaphthalene	141	0.00	U	50.9	36	29-109	24	0-30
91-20-3	MSD	Naphthalene	141	0.00	U	48.7	35	31-108	31 *	0-30
90-12-0	MSD	1-Methylnaphthalene	141	0.00	U	54.2	38	33-112	25	0-30
77-47-4	MSD	Hexachlorocyclopentadiene	141	0.00	U	24.1	17 *	26-79	17	0-30
88-06-2	MSD	2,4,6-Trichlorophenol	141	0.00	U	39.1	28 *	39-124	44 *	0-30
95-95-4	MSD	2,4,5-Trichlorophenol	141	0.00	U	52.2	37 *	42-120	34 *	0-30
131-11-3	MSD	Dimethylphthalate	141	0.00	U	61.4	44 *	45-128	32 *	0-30
606-20-2	MSD	2,6-Dinitrotoluene	141	0.00	U	65.0	46	46-124	33 *	0-30
121-14-2	MSD	2,4-Dinitrotoluene	141	0.00	U	66.2	47	45-125	33 *	0-30
51-28-5	MSD	2,4-Dinitrophenol	141	0.00	U	42.6	30	27-122	13	0-30
84-66-2	MSD	Diethylphthalate	141	0.00	U	60.8	43	43-127	25	0-30
86-73-7	MSD	Fluorene	141	0.00	U	56.9	40	39-117	19	0-30
534-52-1	MSD	2-Methyl-4,6-dinitrophenol	141	0.00	U	23.2	16 *	32-126	9	0-30

Semi-Volatile

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **WSTMO-18-155065MSD**
Lab Sample ID **1204059480**
Instrument: **MSD3.I**
Analyst: **JLD1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **06/28/2018 17:08**
Prep Batch ID: **1777836**
Batch ID: **1777837**
Dilution: 1

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
122-39-4	MSD	Diphenylamine	141	0.00	U	54.5	39	37-118	31 *	0-30
122-66-7	MSD	1,2-Diphenylhydrazine	141	0.00	U	56.3	40	38-120	23	0-30
118-74-1	MSD	Hexachlorobenzene	141	0.00	U	61.7	44	40-118	26	0-30
87-86-5	MSD	Pentachlorophenol	141	0.00	U	29.1	21 *	35-121	9	0-30
85-01-8	MSD	Phenanthrene	141	0.00	U	55.1	39 *	40-115	20	0-30
120-12-7	MSD	Anthracene	141	0.00	U	54.5	39	38-120	22	0-30
84-74-2	MSD	Di-n-butylphthalate	141	0.00	U	59.6	42	41-128	26	0-30
206-44-0	MSD	Fluoranthene	141	0.00	U	60.5	43	41-119	28	0-30
129-00-0	MSD	Pyrene	141	0.00	U	60.0	43	35-128	23	0-30
117-81-7	MSD	bis(2-Ethylhexyl)phthalate	141	0.00	U	60.2	43	38-131	29	0-30
205-99-2	MSD	Benzo(b)fluoranthene	141	0.00	U	57.1	41	31-122	24	0-30
207-08-9	MSD	Benzo(k)fluoranthene	141	0.00	U	57.7	41	33-123	25	0-30
50-32-8	MSD	Benzo(a)pyrene	141	0.00	U	54.5	39	32-118	23	0-30
930-55-2	MSD	N-Nitrosopyrrolidine	141	0.00	U	72.6	52	47-119	19	0-30
95-94-3	MSD	1,2,4,5-Tetrachlorobenzene	141	0.00	U	53.9	38	32-101	26	0-30
92-87-5	MSD	Benzidine	282	0.00	U	40.7	14 *	15-130	200 *	0-30
91-94-1	MSD	3,3'-Dichlorobenzidine	141	0.00	U	38.0	27 *	34-124	200 *	0-30

Method Blank Summary

SDG Number:	**2018-2791**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1777836**	**Instrument ID:**	**MSD3.I**	**Data File:**	**s062818.s\s3f2812.D**
Lab Sample ID:	**1204059477**	**Prep Date:**	**06/28/2018 08:00**	**Analyzed:**	**06/28/18 14:40**
Column:	**DB-5ms**				

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1777836	1204059478	s062818.s\s3f2813.D	06/28/18	1510
02 WSTMO-18-155065	453314006	s062818.s\s3f2815.D	06/28/18	1609
03 WSTMO-18-155065MS	1204059479	s062818.s\s3f2816.D	06/28/18	1638
04 WSTMO-18-155065MSD	1204059480	s062818.s\s3f2817.D	06/28/18	1708

Quality Control Data

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**			**Matrix:**	**WATER**
Lab Sample ID:	**1204059477**				
Client Sample:	**QC for batch 1777836**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1777836**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1777837**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/28/2018 14:40**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2018 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062818.s\s3f2812.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene	U	3.00	ug/L	3.00	10.0
122-66-7	1,2-Diphenylhydrazine	U	3.00	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
95-95-4	2,4,5-Trichlorophenol	U	3.00	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol	U	3.00	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol	U	3.00	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol	U	5.00	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene	U	3.00	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol	U	3.00	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene	U	0.300	ug/L	0.300	1.00
91-94-1	3,3'-Dichlorobenzidine	U	3.00	ug/L	3.00	10.0
120-12-7	Anthracene	U	0.300	ug/L	0.300	1.00
92-87-5	Benzidine	U	3.90	ug/L	3.90	10.0
50-32-8	Benzo(a)pyrene	U	0.300	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene	U	0.300	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene	U	0.300	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate	U	0.300	ug/L	0.300	10.0
84-66-2	Diethylphthalate	U	0.300	ug/L	0.300	10.0
131-11-3	Dimethylphthalate	U	0.300	ug/L	0.300	10.0
122-39-4	Diphenylamine	U	3.00	ug/L	3.00	10.0
206-44-0	Fluoranthene	U	0.300	ug/L	0.300	1.00
86-73-7	Fluorene	U	0.300	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene	U	3.00	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene	U	3.00	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene	U	3.00	ug/L	3.00	10.0
67-72-1	Hexachloroethane	U	3.00	ug/L	3.00	10.0
78-59-1	Isophorone	U	3.50	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine	U	3.00	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	3.00	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine	U	3.00	ug/L	3.00	10.0
91-20-3	Naphthalene	U	0.300	ug/L	0.300	1.00
98-95-3	Nitrobenzene	U	3.00	ug/L	3.00	10.0
	PAHs(total naphthalene plus monomethylnaphthalenes)	U		ug/L		
608-93-5	Pentachlorobenzene	U	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol	U	3.00	ug/L	3.00	10.0
85-01-8	Phenanthrene	U	0.300	ug/L	0.300	1.00

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**			**Matrix:**	**WATER**
Lab Sample ID:	**1204059477**				
Client Sample:	**QC for batch 1777836**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1777836**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1777837**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/28/2018 14:40**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2018 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062818.s\s3f2812.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol	U	3.00	ug/L	3.00	10.0
129-00-0	Pyrene	U	0.300	ug/L	0.300	1.00
108-60-1	bis(2-Chloro-1-methylethyl)ether	U	3.00	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether	U	3.00	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate	U	0.300	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	74.8	100	ug/L	75	(32%-124%)
2-Fluorobiphenyl	34.5	50.0	ug/L	69	(32%-112%)
2-Fluorophenol	43.9	100	ug/L	44	(15%-88%)
Nitrobenzene-d5	44.9	50.0	ug/L	90	(36%-115%)
Phenol-d5	26.7	100	ug/L	27	(15%-91%)
p-Terphenyl-d14	47.3	50.0	ug/L	95	(36%-121%)

Tentatively Identified Compound Summary

CAS No.	Tentatively Identified Compound (TIC)	RT	Estimated	Units	Fit	Qual
	unknown	2.045	6.08	ug/L	0	J
000067-66-3	Trichloromethane	2.163	87.9	ug/L	97	NJ

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**			**Matrix:**	**WATER**
Lab Sample ID:	**1204059478**				
Client Sample:	**QC for batch 1777836**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1777836**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1777837**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/28/2018 15:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2018 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062818.s\s3f2813.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		36.8	ug/L	3.00	10.0
122-66-7	1,2-Diphenylhydrazine		39.0	ug/L	3.00	10.0
90-12-0	1-Methylnaphthalene		37.3	ug/L	0.300	1.00
95-95-4	2,4,5-Trichlorophenol		42.5	ug/L	3.00	10.0
88-06-2	2,4,6-Trichlorophenol		45.2	ug/L	3.00	10.0
120-83-2	2,4-Dichlorophenol		44.7	ug/L	3.00	10.0
51-28-5	2,4-Dinitrophenol		50.5	ug/L	5.00	20.0
121-14-2	2,4-Dinitrotoluene		47.0	ug/L	3.00	10.0
606-20-2	2,6-Dinitrotoluene		45.8	ug/L	3.00	10.0
534-52-1	2-Methyl-4,6-dinitrophenol		47.8	ug/L	3.00	10.0
91-57-6	2-Methylnaphthalene		35.1	ug/L	0.300	1.00
91-94-1	3,3'-Dichlorobenzidine		44.8	ug/L	3.00	10.0
120-12-7	Anthracene		38.3	ug/L	0.300	1.00
92-87-5	Benzidine		104	ug/L	3.90	10.0
50-32-8	Benzo(a)pyrene		39.4	ug/L	0.300	1.00
205-99-2	Benzo(b)fluoranthene		39.3	ug/L	0.300	1.00
207-08-9	Benzo(k)fluoranthene		40.6	ug/L	0.300	1.00
84-74-2	Di-n-butylphthalate		42.1	ug/L	0.300	10.0
84-66-2	Diethylphthalate		44.8	ug/L	0.300	10.0
131-11-3	Dimethylphthalate		43.1	ug/L	0.300	10.0
122-39-4	Diphenylamine		38.4	ug/L	3.00	10.0
206-44-0	Fluoranthene		43.2	ug/L	0.300	1.00
86-73-7	Fluorene		41.1	ug/L	0.300	1.00
118-74-1	Hexachlorobenzene		41.4	ug/L	3.00	10.0
87-68-3	Hexachlorobutadiene		37.6	ug/L	3.00	10.0
77-47-4	Hexachlorocyclopentadiene		20.6	ug/L	3.00	10.0
67-72-1	Hexachloroethane		31.3	ug/L	3.00	10.0
78-59-1	Isophorone		42.1	ug/L	3.50	10.0
62-75-9	N-Methyl-N-nitrosomethylamine		25.5	ug/L	3.00	10.0
924-16-3	N-Nitrosodi-n-butylamine	U	3.00	ug/L	3.00	10.0
55-18-5	N-Nitrosodiethylamine	U	3.00	ug/L	3.00	10.0
930-55-2	N-Nitrosopyrrolidine		42.3	ug/L	3.00	10.0
91-20-3	Naphthalene		34.5	ug/L	0.300	1.00
98-95-3	Nitrobenzene		47.6	ug/L	3.00	10.0
	PAHs(total naphthalene plus monomethylnaphthalenes)		391	ug/L		
608-93-5	Pentachlorobenzene	U	3.00	ug/L	3.00	10.0
87-86-5	Pentachlorophenol		45.1	ug/L	3.00	10.0
85-01-8	Phenanthrene		38.4	ug/L	0.300	1.00

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**			**Matrix:**	**WATER**
Lab Sample ID:	**1204059478**				
Client Sample:	**QC for batch 1777836**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1777836**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1777837**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/28/2018 15:10**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2018 08:00**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**s062818.s\s3f2813.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol		16.0	ug/L	3.00	10.0
129-00-0	Pyrene		42.9	ug/L	0.300	1.00
108-60-1	bis(2-Chloro-1-methylethyl)ether		48.3	ug/L	3.00	10.0
111-44-4	bis(2-Chloroethyl) ether		40.0	ug/L	3.00	10.0
117-81-7	bis(2-Ethylhexyl)phthalate		41.3	ug/L	0.300	1.00

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	101	100	ug/L	101	(32%-124%)
2-Fluorobiphenyl	38.4	50.0	ug/L	77	(32%-112%)
2-Fluorophenol	47.5	100	ug/L	47	(15%-88%)
Nitrobenzene-d5	45.7	50.0	ug/L	91	(36%-115%)
Phenol-d5	29.8	100	ug/L	30	(15%-91%)
p-Terphenyl-d14	48.6	50.0	ug/L	97	(36%-121%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**1204059479**	**Date Received:**	**06/26/2018 09:00**		
Client Sample:	**QC for batch 1777836**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155065MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1777837**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/28/2018 16:38**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2018 08:00**	**Aliquot:**	**355 mL**	**Final Volume:**	**1 mL**
Data File:	**s062818.s\s3f2816.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		41.4	ug/L	8.45	28.2
122-66-7	1,2-Diphenylhydrazine		44.5	ug/L	8.45	28.2
90-12-0	1-Methylnaphthalene		42.0	ug/L	0.845	2.82
95-95-4	2,4,5-Trichlorophenol		37.0	ug/L	8.45	28.2
88-06-2	2,4,6-Trichlorophenol	J	25.0	ug/L	8.45	28.2
120-83-2	2,4-Dichlorophenol		47.7	ug/L	8.45	28.2
51-28-5	2,4-Dinitrophenol	J	48.5	ug/L	14.1	56.3
121-14-2	2,4-Dinitrotoluene		47.6	ug/L	8.45	28.2
606-20-2	2,6-Dinitrotoluene		46.4	ug/L	8.45	28.2
534-52-1	2-Methyl-4,6-dinitrophenol	J	25.5	ug/L	8.45	28.2
91-57-6	2-Methylnaphthalene		40.2	ug/L	0.845	2.82
91-94-1	3,3'-Dichlorobenzidine	U	8.45	ug/L	8.45	28.2
120-12-7	Anthracene		43.7	ug/L	0.845	2.82
92-87-5	Benzidine	U	11.0	ug/L	11.0	28.2
50-32-8	Benzo(a)pyrene		43.4	ug/L	0.845	2.82
205-99-2	Benzo(b)fluoranthene		45.0	ug/L	0.845	2.82
207-08-9	Benzo(k)fluoranthene		45.0	ug/L	0.845	2.82
84-74-2	Di-n-butylphthalate		45.7	ug/L	0.845	28.2
84-66-2	Diethylphthalate		47.2	ug/L	0.845	28.2
131-11-3	Dimethylphthalate		44.6	ug/L	0.845	28.2
122-39-4	Diphenylamine		39.7	ug/L	8.45	28.2
206-44-0	Fluoranthene		45.6	ug/L	0.845	2.82
86-73-7	Fluorene		47.0	ug/L	0.845	2.82
118-74-1	Hexachlorobenzene		47.6	ug/L	8.45	28.2
87-68-3	Hexachlorobutadiene		49.3	ug/L	8.45	28.2
77-47-4	Hexachlorocyclopentadiene	J	20.3	ug/L	8.45	28.2
67-72-1	Hexachloroethane		35.0	ug/L	8.45	28.2
78-59-1	Isophorone		46.1	ug/L	9.86	28.2
62-75-9	N-Methyl-N-nitrosomethylamine		59.7	ug/L	8.45	28.2
924-16-3	N-Nitrosodi-n-butylamine	U	8.45	ug/L	8.45	28.2
55-18-5	N-Nitrosodiethylamine	U	8.45	ug/L	8.45	28.2
930-55-2	N-Nitrosopyrrolidine		60.1	ug/L	8.45	28.2
91-20-3	Naphthalene		35.5	ug/L	0.845	2.82
98-95-3	Nitrobenzene		50.5	ug/L	8.45	28.2
	PAHs(total naphthalene plus monomethylnaphthalenes)		437	ug/L		
608-93-5	Pentachlorobenzene	U	8.45	ug/L	8.45	28.2
87-86-5	Pentachlorophenol		31.9	ug/L	8.45	28.2
85-01-8	Phenanthrene		45.2	ug/L	0.845	2.82

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**1204059479**	**Date Received:**	**06/26/2018 09:00**		
Client Sample:	**QC for batch 1777836**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155065MS**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1777837**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/28/2018 16:38**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2018 08:00**	**Aliquot:**	**355 mL**	**Final Volume:**	**1 mL**
Data File:	**s062818.s\s3f2816.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol		53.5	ug/L	8.45	28.2
129-00-0	Pyrene		47.7	ug/L	0.845	2.82
108-60-1	bis(2-Chloro-1-methylethyl)ether		46.4	ug/L	8.45	28.2
111-44-4	bis(2-Chloroethyl) ether		41.6	ug/L	8.45	28.2
117-81-7	bis(2-Ethylhexyl)phthalate		45.2	ug/L	0.845	2.82

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
2,4,6-Tribromophenol	71.7	282	ug/L	25	*	(32%-124%)
2-Fluorobiphenyl	42.3	141	ug/L	30	*	(32%-112%)
2-Fluorophenol	76.4	282	ug/L	27		(15%-88%)
Nitrobenzene-d5	46.9	141	ug/L	33	*	(36%-115%)
Phenol-d5	104	282	ug/L	37		(15%-91%)
p-Terphenyl-d14	51.4	141	ug/L	37		(36%-121%)

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**1204059480**	**Date Received:**	**06/26/2018 09:00**		
Client Sample:	**QC for batch 1777836**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155065MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1777837**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/28/2018 17:08**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2018 08:00**	**Aliquot:**	**355 mL**	**Final Volume:**	**1 mL**
Data File:	**s062818.s\s3f2817.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
95-94-3	1,2,4,5-Tetrachlorobenzene		53.9	ug/L	8.45	28.2
122-66-7	1,2-Diphenylhydrazine		56.3	ug/L	8.45	28.2
90-12-0	1-Methylnaphthalene		54.2	ug/L	0.845	2.82
95-95-4	2,4,5-Trichlorophenol		52.2	ug/L	8.45	28.2
88-06-2	2,4,6-Trichlorophenol		39.1	ug/L	8.45	28.2
120-83-2	2,4-Dichlorophenol		67.8	ug/L	8.45	28.2
51-28-5	2,4-Dinitrophenol	J	42.6	ug/L	14.1	56.3
121-14-2	2,4-Dinitrotoluene		66.2	ug/L	8.45	28.2
606-20-2	2,6-Dinitrotoluene		65.0	ug/L	8.45	28.2
534-52-1	2-Methyl-4,6-dinitrophenol	J	23.2	ug/L	8.45	28.2
91-57-6	2-Methylnaphthalene		50.9	ug/L	0.845	2.82
91-94-1	3,3'-Dichlorobenzidine		38.0	ug/L	8.45	28.2
120-12-7	Anthracene		54.5	ug/L	0.845	2.82
92-87-5	Benzidine		40.7	ug/L	11.0	28.2
50-32-8	Benzo(a)pyrene		54.5	ug/L	0.845	2.82
205-99-2	Benzo(b)fluoranthene		57.1	ug/L	0.845	2.82
207-08-9	Benzo(k)fluoranthene		57.7	ug/L	0.845	2.82
84-74-2	Di-n-butylphthalate		59.6	ug/L	0.845	28.2
84-66-2	Diethylphthalate		60.8	ug/L	0.845	28.2
131-11-3	Dimethylphthalate		61.4	ug/L	0.845	28.2
122-39-4	Diphenylamine		54.5	ug/L	8.45	28.2
206-44-0	Fluoranthene		60.5	ug/L	0.845	2.82
86-73-7	Fluorene		56.9	ug/L	0.845	2.82
118-74-1	Hexachlorobenzene		61.7	ug/L	8.45	28.2
87-68-3	Hexachlorobutadiene		60.9	ug/L	8.45	28.2
77-47-4	Hexachlorocyclopentadiene	J	24.1	ug/L	8.45	28.2
67-72-1	Hexachloroethane		46.5	ug/L	8.45	28.2
78-59-1	Isophorone		66.1	ug/L	9.86	28.2
62-75-9	N-Methyl-N-nitrosomethylamine		62.5	ug/L	8.45	28.2
924-16-3	N-Nitrosodi-n-butylamine	U	8.45	ug/L	8.45	28.2
55-18-5	N-Nitrosodiethylamine	U	8.45	ug/L	8.45	28.2
930-55-2	N-Nitrosopyrrolidine		72.6	ug/L	8.45	28.2
91-20-3	Naphthalene		48.7	ug/L	0.845	2.82
98-95-3	Nitrobenzene		72.8	ug/L	8.45	28.2
	PAHs(total naphthalene plus monomethylnaphthalenes)		556	ug/L		
608-93-5	Pentachlorobenzene	U	8.45	ug/L	8.45	28.2
87-86-5	Pentachlorophenol		29.1	ug/L	8.45	28.2
85-01-8	Phenanthrene		55.1	ug/L	0.845	2.82

Semi-Volatile
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**1204059480**	**Date Received:**	**06/26/2018 09:00**		
Client Sample:	**QC for batch 1777836**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155065MSD**	**Method:**	**SW846 3510C/8270D**	**SOP Ref:**	**GL-OA-E-009**
Batch ID:	**1777837**	**Inst:**	**MSD3.I**	**Dilution:**	**1**
Run Date:	**06/28/2018 17:08**	**Analyst:**	**JLD1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/28/2018 08:00**	**Aliquot:**	**355 mL**	**Final Volume:**	**1 mL**
Data File:	**s062818.s\s3f2817.D**	**Column:**	**DB-5ms**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ
108-95-2	Phenol		61.0	ug/L	8.45	28.2
129-00-0	Pyrene		60.0	ug/L	0.845	2.82
108-60-1	bis(2-Chloro-1-methylethyl)ether		65.4	ug/L	8.45	28.2
111-44-4	bis(2-Chloroethyl) ether		59.6	ug/L	8.45	28.2
117-81-7	bis(2-Ethylhexyl)phthalate		60.2	ug/L	0.845	2.82

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
2,4,6-Tribromophenol	101	282	ug/L	36	(32%-124%)
2-Fluorobiphenyl	55.1	141	ug/L	39	(32%-112%)
2-Fluorophenol	92.2	282	ug/L	33	(15%-88%)
Nitrobenzene-d5	68.8	141	ug/L	49	(36%-115%)
Phenol-d5	116	282	ug/L	41	(15%-91%)
p-Terphenyl-d14	65.1	141	ug/L	46	(36%-121%)

Perchlorates by LCMSMS Analysis

Case Narrative

Perchlorates by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2791
Work Order #: 453314

Product: **Definitive Low Level Perchlorate Analysis Utilizing Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS) by EPA Method 6850 Modified (6850M)**
Analytical Method: SW-846:6850
Analytical Procedure: GL-OA-E-067 REV# 14
Analytical Batches: 1777938 and 1777937

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453314004	WSTMO-18-155065
1204059703	Method Blank (MB)
1204059704	Laboratory Control Sample (LCS)
1204059705	452966001(NonSDG) Matrix Spike (MS)
1204059706	452966001(NonSDG) Matrix Spike Duplicate (MSD)
1204059723	Interference Check Sample (ICS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
Sample 453314004 (WSTMO-18-155065) was diluted to bring the over range concentration within the calibration range.

Miscellaneous Information

Additional Comments
The run time for sample 453314004 (WSTMO-18-155065) was extended due to the shift in retention time for Perchlorate, Perchlorate-101, and Perchlorate O-18 due to the sample matrix. 453314004 (WSTMO-18-155065).

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2791 GEL Work Order: 453314

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Charles W. Wilson Jr. **Name: Charles Wilson**

Date: 03 JUL 2018 **Title: Analyst II**

Sample Data Summary

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1777937

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
WSTMO-18-155065

Date Received: 26-JUN-18

GEL Job No (SDG): 2018-2791

GEL Sample ID: 453314004

Date Filtered: 28-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	1	4	9.39	ug/L		20	02-JUL-18 16:59	per0702013a
	Perchlorate Isotope Ratio			2.94			20	02-JUL-18 16:59	per0702013a
14797-73-0	Perchlorate-101	1	4	9.22	ug/L		20	02-JUL-18 16:59	per0702013a
	Perchlorate-O(18)			7.48	ug/L		20	02-JUL-18 16:59	per0702013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Quality Control Summary

Perchlorate Laboratory Control Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2018-2791

Extract Batch Code: 1777937

Date Filtered: 28-JUN-18

Matrix: WATER

Sample ID: 1204059704

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.202	ug/L	101		85 - 115
Perchlorate Isotope Ratio		3.22				-
Perchlorate-101	0.200	.193	ug/L	97		85 - 115
Perchlorate-O(18)		.484	ug/L			-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Interference Check Sample

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No. (SDG): 2018-2791

Extract Batch Code: 1777937

Date Filtered: 28-JUN-18

Matrix: WATER

Sample ID: 1204059723

Analyte^	True	Found	Units	%Rec	Q	Control Limits
Perchlorate	0.200	.208	ug/L	104		70 - 130
Perchlorate Isotope Ratio		2.87				
Perchlorate-101	0.200	.223	ug/L	112		70 - 130
Perchlorate-O(18)		.485	ug/L			

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area. The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate Spike/Spike Duplicate Summary

Lab Name: General Engineering Laboratories

Lab Code: GEL

GEL Job No (SDG): 2018-2791

Extract Batch Code: 1777937

Date Extracted: 28-JUN-18

GEL MS/PS ID: 1204059705

Client ID: CALA-18-121

GEL MSD/PSD ID: 1204059706

QC Type: MS

Compound^	Spike Added	Sample Conc	Units	MS Conc	MS Rec #	MSD Conc	MSD Rec #	RPD #	RPD Limit	Recovery Limit
Perchlorate	0.200	0.429	ug/L	0.622	96	.654	113	5	30	75 - 125
Perchlorate Isotope Ratio	0	3.07		3.11		3.03		3		-
Perchlorate-101	0.200	0.431	ug/L	0.616	93	.667	118	8	30	75 - 125
Perchlorate-O(18)	0	0.482	ug/L	0.485		.487		0		-

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

Perchlorate RT And Area Summary

Lab Name: General Engineering Laboratories
Lab Code: GEL
HPLC Column: Dionex IonPac AG16
GEL Job No.(SDG): 2018-2791
Instrument : LCMSMS2

Initial Calibration:

DataFile	Run Dates	Area
per0629003a	29-JUN-18 15:51	6906.47
per0629004a	29-JUN-18 16:11	6945.89
per0629005a	29-JUN-18 16:31	6858.75
per0629006a	29-JUN-18 16:51	6868.77
per0629007a	29-JUN-18 17:11	6689.84
per0629008a	29-JUN-18 17:31	7025.31

Initial Calibration Average Area: **6882.51**
Lower Area Limit: **3441.26**
Upper Area Limit: **10323.77**

Sample ID	Sample DataFile	Sample Run Date	Area	RT	RT CLO4	RRT	Q 0.98-1.02
1204059703	per0629013a	29-JUN-18 19:10	6752.89	11.92			
1204059704	per0629014a	29-JUN-18 19:30	6665.59	11.76	11.812	1.004	
1204059723	per0629015a	29-JUN-18 19:50	6679.39	11.15	11.1775	1.002	
1204059705	per0629017a	29-JUN-18 20:30	6682.28	11.12	11.1775	1.005	
1204059706	per0629018a	29-JUN-18 20:50	6709.64	11.23	11.2879	1.005	

Perchlorate RT And Area Summary

Lab Name: General Engineering Laboratories
Lab Code: GEL
HPLC Column: Dionex IonPac AG16
GEL Job No.(SDG): 2018-2791
Instrument : LCMSMS2

Initial Calibration:

DataFile	Run Dates	Area
per0702003a	02-JUL-18 11:15	7694.43
per0702004a	02-JUL-18 11:30	7969.56
per0702005a	02-JUL-18 11:45	8259.82
per0702006a	02-JUL-18 12:00	8097.99
per0702007a	02-JUL-18 12:15	7772.52
per0702008a	02-JUL-18 12:30	7951.89

Initial Calibration Average Area: **7957.7**
Lower Area Limit: **3978.85**
Upper Area Limit: **11936.55**

Sample ID	Sample DataFile	Sample Run Date	Area	RT	RT CLO4	RRT	Q 0.98-1.02
453314004	per0702013a	02-JUL-18 16:59	5948.63	12.61	12.6395	1.002	

Quality Control Data

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1777937

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
MB

Date Received: 28-JUN-18

GEL Job No (SDG): 2018-2791

GEL Sample ID: 1204059703

Date Filtered: 28-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.050	ug/L	U	1	29-JUN-18 19:10	per0629013a
	Perchlorate Isotope Ratio						1	29-JUN-18 19:10	per0629013a
14797-73-0	Perchlorate-101	.05	.2	0.050	ug/L	U	1	29-JUN-18 19:10	per0629013a
	Perchlorate-O(18)			0.491	ug/L		1	29-JUN-18 19:10	per0629013a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: EPA 6850 Modified

Matrix: WATER

Extraction Batch ID: 1777937

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
LCS

Date Received: 28-JUN-18

GEL Job No (SDG): 2018-2791

GEL Sample ID: 1204059704

Date Filtered: 28-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.202	ug/L		1	29-JUN-18 19:30	per0629014a
	Perchlorate Isotope Ratio			3.22			1	29-JUN-18 19:30	per0629014a
14797-73-0	Perchlorate-101	.05	.2	0.193	ug/L	J	1	29-JUN-18 19:30	per0629014a
	Perchlorate-O(18)			0.484	ug/L		1	29-JUN-18 19:30	per0629014a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1777937

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
ICS

Date Received:

GEL Job No (SDG): 2018-2791

GEL Sample ID: 1204059723

Date Filtered: 28-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.208	ug/L		1	29-JUN-18 19:50	per0629015a
	Perchlorate Isotope Ratio			2.87			1	29-JUN-18 19:50	per0629015a
14797-73-0	Perchlorate-101	.05	.2	0.223	ug/L		1	29-JUN-18 19:50	per0629015a
	Perchlorate-O(18)			0.485	ug/L		1	29-JUN-18 19:50	per0629015a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1777937

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CALA-18-121MS

Date Received: 21-JUN-18

GEL Job No (SDG): 2018-2791

GEL Sample ID: 1204059705

Date Filtered: 28-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.622	ug/L		1	29-JUN-18 20:30	per0629017a
	Perchlorate Isotope Ratio			3.11			1	29-JUN-18 20:30	per0629017a
14797-73-0	Perchlorate-101	.05	.2	0.616	ug/L		1	29-JUN-18 20:30	per0629017a
	Perchlorate-O(18)			0.485	ug/L		1	29-JUN-18 20:30	per0629017a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Perchlorate Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Lab Code: GEL

Instrument: LCMSMS

Method: SW846 6850 Modified

Matrix: WATER

Extraction Batch ID: 1777937

Extraction Type: Filter/DAI

Sample Volume/Weight: 10.0 mL

Concentrated Extract Volume: 10.0

Client Sample No.
CALA-18-121MSD

Date Received: 21-JUN-18

GEL Job No (SDG): 2018-2791

GEL Sample ID: 1204059706

Date Filtered: 28-JUN-18

Injection Volume (uL): 20

%Solids:

CAS No.	Analyte^	MDL	RL	Conc*	Units	Q	Dilution Factor	Date Analyzed	GEL File ID
14797-73-0	Perchlorate	.05	.2	0.654	ug/L		1	29-JUN-18 20:50	per0629018a
	Perchlorate Isotope Ratio			3.03			1	29-JUN-18 20:50	per0629018a
14797-73-0	Perchlorate-101	.05	.2	0.667	ug/L		1	29-JUN-18 20:50	per0629018a
	Perchlorate-O(18)			0.487	ug/L		1	29-JUN-18 20:50	per0629018a

^ When the analyte name is Perchlorate Isotope Ratio the concentration is a unitless value calculated from the ratio of Perchlorate peak area to Perchlorate-101 peak area.
The Perchlorate-101 and isotopic ratio results are provided for qualitative purposes only. The results are used to verify the presence and quantitation of Perchlorate.

*Concentration =

$$\text{Instrument Value} \times \frac{\text{Concentrated Extract Volume}}{\text{Aliquot}} \times \frac{1}{\%\text{Solids}}$$

Explosives by LCMSMS Analysis

Case Narrative

Explosives by LCMSMS
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2791
Work Order #: 453314

Product: **The Processing, Extraction, and Analysis of Nitroaromatics, Nitroamines, and Nitrate Esters by SW-846 8330B**
Analytical Method: SW846 3535A/8330B
Analytical Procedure: GL-OA-E-068 REV# 7
Analytical Batch: 1777426

Preparation Method: SW846 3535A
Preparation Procedure: GL-OA-E-033 REV# 23
Preparation Batch: 1777425

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453314007	WSTMO-18-155065
1204058621	Method Blank (MB)
1204058622	Laboratory Control Sample (LCS)
1204058623	453314007(WSTMO-18-155065) Matrix Spike (MS)
1204058624	453314007(WSTMO-18-155065) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
In accordance with GEL SOP GL-OA-056, all sample and QC extracts are diluted 1:1 v/v with LC reagent grade Water.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2791 GEL Work Order: 453314

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jannie Shaw - Busby **Name: Jannie Shaw-Busby**

Date: 08 JUL 2018 **Title: Senior Chemist**

Sample Data Summary

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: WSTMO-18-155065

Lab Code: GEL

GEL Job No (SDG) 2018-2791

Matrix: WATER

GEL Sample ID: 453314007

Sample Amount 860 mL

Date Received: 26-JUN-18

Moisture:

Extraction Batch ID: 1777425

Extraction Type Sol Exchange

Date Extracted: 27-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629071.wiff

Date Analyzed: 01-JUL-18 14:44

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.093	U	0.093	0.291
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	.093	U	0.093	0.291
121-82-4	*RDX*				
2691-41-0	HMX	.093	U	0.093	0.291
2691-41-0	*HMX*				

Quality Control Summary

High Explosives Surrogate Recovery Summary

Lab Name: GEL Laboratories LLC **GEL Job No (SDG):** 2018-2791

Lab Code: GEL **HPLC Column:** Ultracarb Phenomenex 5u ODS (20)

Lab Sample ID	Client Sample ID	DNT	QC Limits	Flg
453314007	WSTMO-18-155065	97	55 - 115	
1204058621	MB for batch 1777425	98	55 - 115	
1204058622	LCS for batch 1777425	88	55 - 115	
1204058623	WSTMO-18-155065MS	95	55 - 115	
1204058624	WSTMO-18-155065MSD	102	55 - 115	

DNT = 3,4-Dinitrotoluene

3B
High Explosives LCS/LCS Duplicate Summary

Lab Name: GEL Laboratories LLC

Client ID: LCS

Lab Code: GEL

GEL Job No (SDG) 2018-2791

Extract Batch Code: 1777425

Date Extracted: 27-JUN-18

GEL LCS ID: 1204058622

GEL LCSDUP ID:

Analysis Date/Time: 01-JUL-18 14:09

DUP Analysis Date/Time:

Reporting Units: ug/L

QC Type: LCS/LCSD

Compound	Spike Added	LCS Conc	LCS Rec	#	LCSD Conc	LCSD Rec	#	RPD	#	RPD	Recovery Limits
2,4,6-Trinitrotoluene	5	4.51	90								69 - 113
HMX	5	5.28	106								58 - 113
RDX	5	4.75	95								64 - 117

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

High Explosives MS/MSD Summary

Lab Name: GEL Laboratories LLC

Client ID: WSTMO-18-155065

Lab Code: GEL

GEL Job No (SDG) 2018-2791

Extract Batch Code: 1777425

Date Extracted: 27-JUN-18

GEL Spike ID: 1204058623

GEL SpikeDup ID: 1204058624

Analysis Date/Time: 01-JUL-18 15:20

MSD Analysis Date/Time: 01-JUL-18 15:55

Reporting Units: ug/L

QC Type: MS/MSD

Compound	Spike Added	Sample Conc	MS Conc	MS Rec	#	MSD Conc	MSD Rec	#	RPD	#	RPD Limit	Rec Limits
2,4,6-Trinitrotoluene	5.81395	0	4.68	80		4.54	85		3		30	66 - 112
HMX	5.81395	0	4.95	85		5.3	100		7		30	44 - 128
RDX	5.81395	0	5.96	103		5.15	97		15		30	57 - 125

#Column to be used to flag recovery and RPD values with an asterisk

Quality Control Data

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: MB for batch 1777425

Lab Code: GEL

GEL Job No (SDG) 2018-2791

Matrix: WATER

GEL Sample ID: 1204058621

Sample Amount 1000 mL

Date Received: 26-JUN-18

Moisture:

Extraction Batch ID: 1777425

Extraction Type Sol Exchange

Date Extracted: 27-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629069.wiff

Date Analyzed: 01-JUL-18 13:33

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	.08	U	0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	.08	U	0.080	0.250
121-82-4	*RDX*				
2691-41-0	HMX	.08	U	0.080	0.250
2691-41-0	*HMX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: LCS for batch 1777425

Lab Code: GEL

GEL Job No (SDG) 2018-2791

Matrix: WATER

GEL Sample ID: 1204058622

Sample Amount 1000 mL

Date Received: 26-JUN-18

Moisture:

Extraction Batch ID: 1777425

Extraction Type Sol Exchange

Date Extracted: 27-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629070.wiff

Date Analyzed: 01-JUL-18 14:09

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	4.51		0.080	0.250
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	4.75		0.080	0.250
121-82-4	*RDX*				
2691-41-0	HMX	5.28		0.080	0.250
2691-41-0	*HMX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: WSTMO-18-155065(453314007MS)MS

Lab Code: GEL

GEL Job No (SDG) 2018-2791

Matrix: WATER

GEL Sample ID: 1204058623

Sample Amount 860 mL

Date Received: 26-JUN-18

Moisture:

Extraction Batch ID: 1777425

Extraction Type Sol Exchange

Date Extracted: 27-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL): 50

GEL data file: EXP0629072.wiff

Date Analyzed: 01-JUL-18 15:20

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	4.68		0.093	0.291
118-96-7	*2,4,6-Trinitrotoluene*				
2691-41-0	HMX	4.95		0.093	0.291
2691-41-0	*HMX*				
121-82-4	RDX	5.96		0.093	0.291
121-82-4	*RDX*				

High Explosives Analysis Data Sheet

Lab Name: GEL Laboratories LLC

Client Sample ID: WSTMO-18-155065(453314007MSD)MSD

Lab Code: GEL

GEL Job No (SDG) 2018-2791

Matrix: WATER

GEL Sample ID: 1204058624

Sample Amount 940 mL

Date Received: 26-JUN-18

Moisture:

Extraction Batch ID: 1777425

Extraction Type Sol Exchange

Date Extracted: 27-JUN-18

Concentrated Extract Volume (mL) 5

Injection Volume (uL):50

GEL data file: EXP0629073.wiff

Date Analyzed: 01-JUL-18 15:55

Dilution Factor: 2

Concentration Units: ug/L

Cas No.	Compound	Concentration*	Q	MDL	PQL
118-96-7	2,4,6-Trinitrotoluene	4.54		0.0851	0.266
118-96-7	*2,4,6-Trinitrotoluene*				
121-82-4	RDX	5.15		0.0851	0.266
121-82-4	*RDX*				
2691-41-0	HMX	5.3		0.0851	0.266
2691-41-0	*HMX*				

Explosives Initial Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2791

Lab Code: GEL

Lab Sample ID: XIBLK01

Analysis Date: 29-JUN-18 21:52

GEL Data File: EXP0629002.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2791

Lab Code: GEL

Lab Sample ID: XIBLK02

Analysis Date: 30-JUN-18 02:36

GEL Data File: EXP0629010.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
MNX	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2791

Lab Code: GEL

Lab Sample ID: XIBLK03

Analysis Date: 30-JUN-18 04:59

GEL Data File: EXP0629014.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2791

Lab Code: GEL

Lab Sample ID: XIBLK17

Analysis Date: 01-JUL-18 12:22

GEL Data File: EXP0629067.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

4A
Explosives Continuing Calibration Blank

Lab Name: GEL Laboratories LLC

GEL Job No(SDG): 2018-2791

Lab Code: GEL

Lab Sample ID: XIBLK19

Analysis Date: 01-JUL-18 17:42

GEL Data File: EXP0629076.wiff

Instrument ID: LCMSMS5

Column: Ultracarb Phenomenex 5u ODS (20)

Compound	True	Found (ug/L)
3,4-Dinitrotoluene	0	0
tris(o-cresyl) phosphate	0	0
TATB	0	0
3,5-Dinitroaniline	0	0
2,4-Diamino-6-nitrotoluene	0	0
2,6-Diamino-4-nitrotoluene	0	0
DNX	0	0
MNX	0	0
TNX	0	0
1,3,5-Trinitrobenzene	0	0
2,4,6-Trinitrotoluene	0	0
2,4-Dinitrotoluene	0	0
2,6-Dinitrotoluene	0	0
2-Amino-4,6-dinitrotoluene	0	0
4-Amino-2,6-dinitrotoluene	0	0
HMX	0	0
Nitrobenzene	0	0
Nitroglycerin	0	0
PETN	0	0
RDX	0	0
Tetryl	0	0
m-Dinitrobenzene	0	0
m-Nitrotoluene	0	0
o-Nitrotoluene	0	0
p-Nitrotoluene	0	0

Pesticide Analysis

Case Narrative

GC Semivolatile Pesticide
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2791
Work Order #: 453314

Product: **Organochlorine Pesticides and Chlorinated Hydrocarbons**
Analytical Method: SW846 3535A/8081B
Analytical Procedure: GL-OA-E-041 REV# 19
Analytical Batch: 1776509

Preparation Method: SW846 3535A
Preparation Procedure: GL-OA-E-070 REV# 10
Preparation Batch: 1776506

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453314005	WSTMO-18-155065
1204056441	Method Blank (MB)
1204056442	Laboratory Control Sample (LCS)
1204056443	453084007(WSTMO-18-155067) Matrix Spike (MS)
1204056444	453084007(WSTMO-18-155067) Matrix Spike Duplicate (MSD)
1204058467	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

Continuing Calibration Verification (CCV) Requirements
Calibration verification standards (ICV or CCV) requirements have not been met. The CCV standard bracketing the samples in this SDG failed with a negative or positive bias for one or more target analytes. Samples 1204056443 (WSTMO-18-155067MS), 1204056444 (WSTMO-18-155067MSD) and 453314005 (WSTMO-18-155065) were re-analyzed. The bracketing standard failed in a similar manner; therefore, the standard failure was attributed to sample matrix interference.

Quality Control (QC) Information

Surrogate Recoveries
Samples (See Below) failed to meet acceptance criteria for surrogate recovery. The same samples for PCB analysis failed surrogate recovery in the same manner; therefore, the failure is attributed to sample matrix interference.

Sample	Analyte	Value
453314005 (WSTMO-18-155065)	4cmx	29* (34%-109%)

	4cmx	33* (34%-109%)
	Decachlorobiphenyl	26* (34%-133%)
	Decachlorobiphenyl	32* (34%-133%)

Sample (See Below) failed to meet acceptance criteria for surrogate recovery. Since the MS/MSD and the parent sample displayed similar surrogate recovery, this failure was attributed to sample matrix interference.

Sample	Analyte	Value
1204056443 (WSTMO-18-155067MS)	Decachlorobiphenyl	31* (34%-133%)
1204056444 (WSTMO-18-155067MSD)	4cmx	20* (34%-109%)
	4cmx	30* (34%-109%)
	Decachlorobiphenyl	18* (34%-133%)
	Decachlorobiphenyl	22* (34%-133%)

Matrix Spike (MS/MSD) Recovery Statement
The MS/MSD (See Below) did not meet spike recovery acceptance criteria possibly due to matrix interference and extraction efficiency issue.

Sample	Analyte	Value
1204056444 (WSTMO-18-155067MSD)	4, 4’-DDT	15* (24%-139%)
	Dieldrin	30* (40%-134%)
	Heptachlor	17* (27%-131%)
	trans-Chlordane	29* (33%-138%)

MS/MSD Relative Percent Difference (RPD) Statement
The RPD between the MS and MSD did not meet the acceptance criteria possibly due to sample matrix interference and extraction efficiency issue.

Sample	Analyte	Value
1204056443MS and 1204056444MSD (WSTMO-18-155067)	Several	See applicable report

Technical Information

Sample Dilutions
Samples 1204056443 (WSTMO-18-155067MS), 1204056444 (WSTMO-18-155067MSD) and 453314005 (WSTMO-18-155065) were diluted due to high concentrations of non-target analytes within the retention time window of interest.

Sample Re-extraction/Re-analysis
Samples 1204056443 (WSTMO-18-155067MS), 1204056444 (WSTMO-18-155067MSD) and 453314005 (WSTMO-18-155065) were re-analyzed due to failing bracketing CCV standard. The first analysis was reported. The raw data of the second analysis were included in the Miscellaneous section for confirmation.

Miscellaneous Information

Manual Integrations
Samples 1204056443 (WSTMO-18-155067MS), 1204056444 (WSTMO-18-155067MSD) and 453314005 (WSTMO-18-155065) required manual integration to correctly position the baseline as set in the calibration standard injections.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2791 GEL Work Order: 453314

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
J Value is estimated
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, the difference is >70%.
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimin Cao **Name: Jimin Cao**

Date: 03 JUL 2018 **Title: Data Validator**

Sample Data Summary

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**453314005**	**Date Received:**	**06/26/2018 09:00**		
Client Sample:	**8081**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155065**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**2**
Run Date:	**06/27/2018 20:48**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**880 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62747.D**	**Column:**	**1 CLP**		
	062718B\E62747.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT	U	0.0227	ug/L	0.0227	0.0909	1
309-00-2	Aldrin	J	0.0357	ug/L	0.0151	0.0455	2
57-74-9	Chlordane	U	0.174	ug/L	0.174	0.568	1
60-57-1	Dieldrin	U	0.0227	ug/L	0.0227	0.0909	1
959-98-8	Endosulfan I	U	0.0151	ug/L	0.0151	0.0455	1
33213-65-9	Endosulfan II	U	0.0227	ug/L	0.0227	0.0909	1
72-20-8	Endrin	U	0.0227	ug/L	0.0227	0.0909	1
76-44-8	Heptachlor	U	0.0151	ug/L	0.0151	0.0455	1
8001-35-2	Toxaphene	U	0.341	ug/L	0.341	1.14	1
319-84-6	alpha-BHC		0.0813	ug/L	0.0151	0.0455	2
319-85-7	beta-BHC	U	0.0151	ug/L	0.0151	0.0455	1
5103-71-9	cis-Chlordane	U	0.0151	ug/L	0.0151	0.0455	1
58-89-9	gamma-BHC (Lindane)	U	0.0151	ug/L	0.0151	0.0455	1
5103-74-2	trans-Chlordane	U	0.0151	ug/L	0.0151	0.0455	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.331	1.14	ug/L	29	*	(34%-109%)
Decachlorobiphenyl	0.297	1.14	ug/L	26	*	(34%-133%)

Quality Control Summary

Pesticide

Surrogate Recovery Report

SDG Number: 2018-2791

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC	#	4CMX 2 %REC	#	DCB 1 %REC	#	DCB 2 %REC	#
1204056441	MB for batch 1776506	64		67		69		76	
1204056442	LCS for batch 1776506	63		66		69		75	
1204058467	LCS for batch 1776506	58		61		61		67	
1204056443	WSTMO-18-155067MS	66	D	64	D	31 *	D	38	D
1204056444	WSTMO-18-155067MSD	20 *	D	30 *	D	18 *	D	22 *	D
453314005	WSTMO-18-155065	29 *	D	33 *	D	26 *	D	32 *	D

Surrogate		Acceptance Limits
4CMX	= 4cmx	(34%-109%)
DCB	= Decachlorobiphenyl	(34%-133%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

Pesticide

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **LCS for batch 1776506**
Lab Sample ID **1204056442**
Instrument: **ECD6A.I**
Analyst: **RXE1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/27/2018 19:01**
Dilution: 1
Prep Batch ID: **1776506**
Batch ID: **1776509**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
319-84-6	LCS	alpha-BHC	0.500	0.0	0.436	87	46-122
58-89-9	LCS	gamma-BHC (Lindane)	0.500	0.0	0.440	88	46-125
76-44-8	LCS	Heptachlor	0.500	0.0	0.398	80	43-122
309-00-2	LCS	Aldrin	0.500	0.0	0.344	69	20-115
319-85-7	LCS	beta-BHC	0.500	0.0	0.402	80	43-131
5103-74-2	LCS	trans-Chlordane	0.500	0.0	0.380	76	50-129
5103-71-9	LCS	cis-Chlordane	0.500	0.0	0.445	89	48-120
959-98-8	LCS	Endosulfan I	0.500	0.0	0.420	84	43-120
60-57-1	LCS	Dieldrin	1.25	0.0	1.08	86	52-130
72-20-8	LCS	Endrin	1.25	0.0	1.16	93	33-145
33213-65-9	LCS	Endosulfan II	1.25	0.0	1.08	86	37-127
50-29-3	LCS	4,4'-DDT	1.25	0.0	1.04	83	36-125

Pesticide

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **WSTMO-18-155067MS**
Lab Sample ID **1204056443**
Instrument: **ECD6A.I**
Analyst: **RXE1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **06/27/2018 19:50**
Prep Batch ID: **1776506**
Batch ID: **1776509**
Dilution: 2

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
319-84-6	MS	alpha-BHC	0.581	0.00	U	0.466	80	30-133
58-89-9	MS	gamma-BHC (Lindane)	0.581	0.00	U	0.378	65	35-131
76-44-8	MS	Heptachlor	0.581	0.00	U	0.198	34	27-131
309-00-2	MS	Aldrin	0.581	0.00	U	0.266	46	15-128
319-85-7	MS	beta-BHC	0.581	0.00	U	0.758	130	29-138
5103-74-2	MS	trans-Chlordane	0.581	0.00	U	0.282	49	33-138
5103-71-9	MS	cis-Chlordane	0.581	0.00	U	0.389	67	34-128
959-98-8	MS	Endosulfan I	0.581	0.00	U	0.275	47	26-133
60-57-1	MS	Dieldrin	1.45	0.00	U	0.748	51	40-134
72-20-8	MS	Endrin	1.45	0.00	U	1.02	70	15-151
33213-65-9	MS	Endosulfan II	1.45	0.00	U	0.675	46	29-133
50-29-3	MS	4,4'-DDT	1.45	0.00	U	0.420	29	24-139

Pesticide

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **WSTMO-18-155067MSD**
Lab Sample ID **1204056444**
Instrument: **ECD6A.I**
Analyst: **RXE1**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **06/27/2018 20:09**
Prep Batch ID: **1776506**
Batch ID: **1776509**
Dilution: **2**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
319-84-6	MSD	alpha-BHC	0.581	0.00	U	0.245	42	30-133	62 *	0-30
58-89-9	MSD	gamma-BHC (Lindane)	0.581	0.00	U	0.206	35	35-131	59 *	0-30
76-44-8	MSD	Heptachlor	0.581	0.00	U	0.0993	17 *	27-131	67 *	0-30
309-00-2	MSD	Aldrin	0.581	0.00	U	0.166	29	15-128	46 *	0-30
319-85-7	MSD	beta-BHC	0.581	0.00	U	0.374	64	29-138	68 *	0-30
5103-74-2	MSD	trans-Chlordane	0.581	0.00	U	0.167	29 *	33-138	51 *	0-30
5103-71-9	MSD	cis-Chlordane	0.581	0.00	U	0.221	38	34-128	55 *	0-30
959-98-8	MSD	Endosulfan I	0.581	0.00	U	0.180	31	26-133	42 *	0-30
60-57-1	MSD	Dieldrin	1.45	0.00	U	0.430	30 *	40-134	54 *	0-30
72-20-8	MSD	Endrin	1.45	0.00	U	0.572	39	15-151	56 *	0-30
33213-65-9	MSD	Endosulfan II	1.45	0.00	U	0.423	29	29-133	46 *	0-30
50-29-3	MSD	4,4'-DDT	1.45	0.00	U	0.222	15 *	24-139	62 *	0-30

Pesticide

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **LCS for batch 1776506**
Lab Sample ID **1204058467**
Instrument: **ECD6A.I**
Analyst: **RXE1**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/27/2018 19:15**
Dilution: 1
Prep Batch ID: **1776506**
Batch ID: **1776509**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
8001-35-2	LCS	Toxaphene	4.00	0.0	2.97	74	52-105

Method Blank Summary

SDG Number:	**2018-2791**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1776506**	**Instrument ID:**	**ECD6A.I_1** **ECD6A.I_2**	**Data File:**	**062718B\E62740.D** **062718B\E62740.D**
Lab Sample ID:	**1204056441**				
Column:	**CLP** **CLP2**	**Prep Date:**	**06/27/2018 08:38**	**Analyzed:**	**06/27/18 18:46**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1776506	**1204056442**	**062718B\E62741.D**	**06/27/18**	**1901**
02 LCS for batch 1776506	**1204058467**	**062718B\E62742.D** **062718B\E62742.D**	**06/27/18**	**1915**
03 WSTMO-18-155067MS	**1204056443**	**062718B\E62744.D**	**06/27/18**	**1950**
04 WSTMO-18-155067MSD	**1204056444**	**062718B\E62745.D**	**06/27/18**	**2009**
05 WSTMO-18-155065	**453314005**	**062718B\E62747.D** **062718B\E62747.D**	**06/27/18**	**2048**

Quality Control Data

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**			**Matrix:**	**WATER**
Lab Sample ID:	**1204056441**				
Client Sample:	**QC for batch 1776506**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1776506**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 18:46**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**1000 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62740.D**	**Column:**	**1 CLP**		
	062718B\E62740.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT	U	0.010	ug/L	0.010	0.040	1
309-00-2	Aldrin	U	0.00665	ug/L	0.00665	0.020	1
57-74-9	Chlordane	U	0.0765	ug/L	0.0765	0.250	1
60-57-1	Dieldrin	U	0.010	ug/L	0.010	0.040	1
959-98-8	Endosulfan I	U	0.00665	ug/L	0.00665	0.020	1
33213-65-9	Endosulfan II	U	0.010	ug/L	0.010	0.040	1
72-20-8	Endrin	U	0.010	ug/L	0.010	0.040	1
76-44-8	Heptachlor	U	0.00665	ug/L	0.00665	0.020	1
8001-35-2	Toxaphene	U	0.150	ug/L	0.150	0.500	1
319-84-6	alpha-BHC	U	0.00665	ug/L	0.00665	0.020	1
319-85-7	beta-BHC	U	0.00665	ug/L	0.00665	0.020	1
5103-71-9	cis-Chlordane	U	0.00665	ug/L	0.00665	0.020	1
58-89-9	gamma-BHC (Lindane)	U	0.00665	ug/L	0.00665	0.020	1
5103-74-2	trans-Chlordane	U	0.00665	ug/L	0.00665	0.020	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.639	1.00	ug/L	64	(34%-109%)
Decachlorobiphenyl	0.692	1.00	ug/L	69	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**			**Matrix:**	**WATER**
Lab Sample ID:	**1204056442**				
Client Sample:	**QC for batch 1776506**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776506**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 19:01**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**1000 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62741.D**	**Column:**	**1 CLP**		
	062718B\E62741.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT		1.04	ug/L	0.010	0.040	1
309-00-2	Aldrin		0.344	ug/L	0.00665	0.020	1
57-74-9	Chlordane	U	0.0765	ug/L	0.0765	0.250	1
60-57-1	Dieldrin		1.08	ug/L	0.010	0.040	1
959-98-8	Endosulfan I		0.420	ug/L	0.00665	0.020	1
33213-65-9	Endosulfan II		1.08	ug/L	0.010	0.040	1
72-20-8	Endrin		1.16	ug/L	0.010	0.040	1
76-44-8	Heptachlor		0.398	ug/L	0.00665	0.020	1
8001-35-2	Toxaphene	U	0.150	ug/L	0.150	0.500	1
319-84-6	alpha-BHC		0.436	ug/L	0.00665	0.020	1
319-85-7	beta-BHC		0.402	ug/L	0.00665	0.020	1
5103-71-9	cis-Chlordane		0.445	ug/L	0.00665	0.020	1
58-89-9	gamma-BHC (Lindane)		0.440	ug/L	0.00665	0.020	1
5103-74-2	trans-Chlordane		0.380	ug/L	0.00665	0.020	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.631	1.00	ug/L	63	(34%-109%)
Decachlorobiphenyl	0.689	1.00	ug/L	69	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1204056443**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**QC for batch 1776506**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155067MS**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**2**
Run Date:	**06/27/2018 19:50**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**860 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62744.D**	**Column:**	**1 CLP**		
	062718B\E62744.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT		0.420	ug/L	0.0233	0.093	1
309-00-2	Aldrin		0.266	ug/L	0.0155	0.0465	1
57-74-9	Chlordane	U	0.178	ug/L	0.178	0.581	1
60-57-1	Dieldrin		0.748	ug/L	0.0233	0.093	1
959-98-8	Endosulfan I		0.275	ug/L	0.0155	0.0465	1
33213-65-9	Endosulfan II		0.675	ug/L	0.0233	0.093	1
72-20-8	Endrin		1.02	ug/L	0.0233	0.093	1
76-44-8	Heptachlor	P	0.198	ug/L	0.0155	0.0465	1
8001-35-2	Toxaphene	U	0.349	ug/L	0.349	1.16	1
319-84-6	alpha-BHC		0.466	ug/L	0.0155	0.0465	1
319-85-7	beta-BHC		0.758	ug/L	0.0155	0.0465	1
5103-71-9	cis-Chlordane		0.389	ug/L	0.0155	0.0465	1
58-89-9	gamma-BHC (Lindane)		0.378	ug/L	0.0155	0.0465	1
5103-74-2	trans-Chlordane		0.282	ug/L	0.0155	0.0465	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.767	1.16	ug/L	66		(34%-109%)
Decachlorobiphenyl	0.364	1.16	ug/L	31	*	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/20/2018 10:30**	**Matrix:**	**W**
Lab Sample ID:	**1204056444**	**Date Received:**	**06/22/2018 09:00**		
Client Sample:	**QC for batch 1776506**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155067MSD**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**2**
Run Date:	**06/27/2018 20:09**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**860 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62745.D**	**Column:**	**1 CLP**		
	062718B\E62745.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT		0.222	ug/L	0.0233	0.093	1
309-00-2	Aldrin		0.166	ug/L	0.0155	0.0465	1
57-74-9	Chlordane	U	0.178	ug/L	0.178	0.581	1
60-57-1	Dieldrin		0.430	ug/L	0.0233	0.093	1
959-98-8	Endosulfan I		0.180	ug/L	0.0155	0.0465	1
33213-65-9	Endosulfan II		0.423	ug/L	0.0233	0.093	1
72-20-8	Endrin		0.572	ug/L	0.0233	0.093	1
76-44-8	Heptachlor	P	0.0993	ug/L	0.0155	0.0465	1
8001-35-2	Toxaphene	U	0.349	ug/L	0.349	1.16	1
319-84-6	alpha-BHC		0.245	ug/L	0.0155	0.0465	1
319-85-7	beta-BHC		0.374	ug/L	0.0155	0.0465	1
5103-71-9	cis-Chlordane		0.221	ug/L	0.0155	0.0465	1
58-89-9	gamma-BHC (Lindane)		0.206	ug/L	0.0155	0.0465	1
5103-74-2	trans-Chlordane		0.167	ug/L	0.0155	0.0465	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.238	1.16	ug/L	20	*	(34%-109%)
Decachlorobiphenyl	0.211	1.16	ug/L	18	*	(34%-133%)

Pesticide
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**			**Matrix:**	**WATER**
Lab Sample ID:	**1204058467**				
Client Sample:	**QC for batch 1776506**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1776506**	**Method:**	**SW846 3535A/8081B**	**SOP Ref:**	**GL-OA-E-041**
Batch ID:	**1776509**	**Inst:**	**ECD6A.I**	**Dilution:**	**1**
Run Date:	**06/27/2018 19:15**	**Analyst:**	**RXE1**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/27/2018 08:38**	**Aliquot:**	**1000 mL**	**Final Volume:**	**5 mL**
Data File:	**062718B\E62742.D**	**Column:**	**1 CLP**		
	062718B\E62742.D		**2 CLP2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
50-29-3	4,4'-DDT	U	0.010	ug/L	0.010	0.040	1
309-00-2	Aldrin	U	0.00665	ug/L	0.00665	0.020	1
57-74-9	Chlordane	U	0.0765	ug/L	0.0765	0.250	1
60-57-1	Dieldrin	U	0.010	ug/L	0.010	0.040	1
959-98-8	Endosulfan I	U	0.00665	ug/L	0.00665	0.020	1
33213-65-9	Endosulfan II	U	0.010	ug/L	0.010	0.040	1
72-20-8	Endrin	U	0.010	ug/L	0.010	0.040	1
76-44-8	Heptachlor	U	0.00665	ug/L	0.00665	0.020	1
8001-35-2	Toxaphene		2.97	ug/L	0.150	0.500	2
319-84-6	alpha-BHC	U	0.00665	ug/L	0.00665	0.020	1
319-85-7	beta-BHC	U	0.00665	ug/L	0.00665	0.020	1
5103-71-9	cis-Chlordane	U	0.00665	ug/L	0.00665	0.020	1
58-89-9	gamma-BHC (Lindane)	U	0.00665	ug/L	0.00665	0.020	1
5103-74-2	trans-Chlordane	U	0.00665	ug/L	0.00665	0.020	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.580	1.00	ug/L	58	(34%-109%)
Decachlorobiphenyl	0.610	1.00	ug/L	61	(34%-133%)

PCB Analysis

Case Narrative

GC Semivolatile PCB
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2791
Work Order #: 453314

Product: **Analysis of The Analysis of Polychlorinated Biphenyls by GC/ECD by ECD**
Analytical Method: SW846 3535A/8082A
Analytical Procedure: GL-OA-E-040 REV# 25
Analytical Batch: 1777846

Preparation Method: SW846 3535A
Preparation Procedure: GL-OA-E-037 REV# 7
Preparation Batch: 1777844

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453314004	WSTMO-18-155065
1204059489	Method Blank (MB)
1204059490	Laboratory Control Sample (LCS)
1204059493	453314004(WSTMO-18-155065) Matrix Spike (MS)
1204059494	453314004(WSTMO-18-155065) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Surrogate Recoveries
Samples (See Below) failed to meet acceptance criteria for surrogate recovery. The same samples for the pesticides analysis failed surrogate recovery in a similar manner; therefore, the failure was attributed to sample matrix interference.

Sample	Analyte	Value
1204059493 (WSTMO-18-155065MS)	4cmx	26* (33%-122%)
	4cmx	28* (33%-122%)
453314004 (WSTMO-18-155065)	4cmx	19* (33%-122%)
	4cmx	26* (33%-122%)
	Decachlorobiphenyl	18* (35%-138%)

Matrix Spike (MS/MSD) Recovery Statement
The MS or MSD (See Below) did not meet spike recovery acceptance limits due to dilution and sample matrix interference.

Sample	Analyte	Value
1204059493 (WSTMO-18-155065MS)	Aroclor-1016	142* (26%-110%)
	Aroclor-1260	57* (30%-127%)
1204059494 (WSTMO-18-155065MSD)	Aroclor-1016	421* (26%-110%)

MS/MSD Relative Percent Difference (RPD) Statement
The relative percent difference (RPD) between the MS and MSD was not within the required acceptance limits due to dilution and sample matrix interference.

Sample	Analyte	Value
1204059493MS and 1204059494MSD (WSTMO-18-155065)	Aroclor-1016	95* (0%-27%)

Technical Information

Preparation/Analytical Method Verification
All samples and QC in this batch were cleaned using alumina in order to remove oil and other high molecular weight interferences. All reported analyte detections in client and quality control samples were within the established retention time windows. Reported analyte concentrations were confirmed on dissimilar columns.

Sample Dilutions
Samples 1204059493 (WSTMO-18-155065MS), 1204059494 (WSTMO-18-155065MSD) and 453314004 (WSTMO-18-155065) were diluted due to high level of non-target analytes within the retention time window of interest.

Miscellaneous Information

Manual integrations
Samples 1204059493 (WSTMO-18-155065MS), 1204059494 (WSTMO-18-155065MSD) and 453314004 (WSTMO-18-155065) required manual integration to correctly position the baseline as set in the calibration standard injections.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2791 GEL Work Order: 453314

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a surrogate compound
J Value is estimated
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Jimi Cao **Name: Jimin Cao**

Date: 02 JUL 2018 **Title: Data Validator**

Sample Data Summary

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**453314004**	**Date Received:**	**06/26/2018 09:00**		
Client Sample:	**8082/ClO4**	**Client:**	**ARSL004**	**Project:**	**ESHL00118**
Client ID:	**WSTMO-18-155065**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1777846**	**Inst:**	**ECD8A.I**	**Dilution:**	**10**
Run Date:	**06/29/2018 21:44**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/29/2018 05:05**	**Aliquot:**	**910 mL**	**Final Volume:**	**1 mL**
Data File:	**062918.B\e8f2935.D**	**Column:**	**1 RTX-CLPEST1**		
	062918.B\e8f2935.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.366	ug/L	0.366	1.10	1
11104-28-2	Aroclor-1221	U	0.366	ug/L	0.366	1.10	1
11141-16-5	Aroclor-1232	U	0.366	ug/L	0.366	1.10	1
53469-21-9	Aroclor-1242	U	0.366	ug/L	0.366	1.10	1
12672-29-6	Aroclor-1248	U	0.366	ug/L	0.366	1.10	1
11097-69-1	Aroclor-1254	U	0.366	ug/L	0.366	1.10	1
11096-82-5	Aroclor-1260	U	0.366	ug/L	0.366	1.10	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.0575	0.220	ug/L	26	*	(33%-122%)
Decachlorobiphenyl	0.220	0.220	ug/L	51		(35%-138%)

Quality Control Summary

PCB

Surrogate Recovery Report

SDG Number: 2018-2791

Matrix Type: LIQUID

Sample ID	Client ID	4CMX 1 %REC	#	4CMX 2 %REC	#	DCB 1 %REC	#	DCB 2 %REC	#
1204059489	MB for batch 1777844	66		66		70		86	
1204059490	LCS for batch 1777844	69		67		81		92	
453314004	WSTMO-18-155065	26 *	D	19 *	D	51	D	18 *	D
1204059493	WSTMO-18-155065MS	28 *	D	26 *	D	43	D	45	D
1204059494	WSTMO-18-155065MSD	57	D	51	D	50	D	37	D

Surrogate		Acceptance Limits
4CMX	= 4cmx	(33%-122%)
DCB	= Decachlorobiphenyl	(35%-138%)

* Recovery outside Acceptance Limits
\# Column to be used to flag recovery values
D Sample Diluted

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **LCS for batch 1777844**
Lab Sample ID **1204059490**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Laboratory Control Sample**
Matrix: **WATER**
Analysis Date: **06/29/2018 16:46**
Dilution: 1
Prep Batch ID: **1777844**
Batch ID: **1777846**

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L	Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	LCS	Aroclor-1016	1.00	0.0	0.654	65	45-101
11096-82-5	LCS	Aroclor-1260	1.00	0.0	0.745	74	52-113

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **WSTMO-18-155065MS**
Lab Sample ID **1204059493**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike**
Matrix: **W**
Analysis Date: **06/29/2018 22:03**
Prep Batch ID: **1777844**
Batch ID: **1777846**
Dilution: 10

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits
12674-11-2	MS	Aroclor-1016	1.14	0.00	U	1.61	142 *	26-110
11096-82-5	MS	Aroclor-1260	1.14	0.00	U	0.651	57	30-127

PCB

Quality Control Summary
Spike Recovery Report

SDG Number: **2018-2791**
Client ID: **WSTMO-18-155065MSD**
Lab Sample ID **1204059494**
Instrument: **ECD8A.I**
Analyst: **JXM**
Inj. Vol: **1 uL**

Sample Type: **Matrix Spike Duplicate**
Matrix: **W**
Analysis Date: **06/29/2018 22:23**
Prep Batch ID: **1777844**
Batch ID: **1777846**
Dilution: 10

CAS No		Parmname	Amount Added ug/L	Sample Conc. ug/L		Spike Conc. ug/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
12674-11-2	MSD	Aroclor-1016	1.08	0.00	U	4.53	421 *	26-110	95 *	0-27
11096-82-5	MSD	Aroclor-1260	1.08	0.00	U	0.752	70	30-127	14	0-29

Method Blank Summary

SDG Number:	**2018-2791**	**Client:**	**ARSL004**	**Matrix:**	**WATER**
Client ID:	**MB for batch 1777844**	**Instrument ID:**	**ECD8A.I_1** **ECD8A.I_2**	**Data File:**	**062918.B\e8f2911.D** **062918.B\e8f2911.D**
Lab Sample ID:	**1204059489**				
Column:	**RTX-CLPEST1** **RTX-CLPEST2**	**Prep Date:**	**06/29/2018 05:05**	**Analyzed:**	**06/29/18 16:34**

This method blank applies to the following samples and quality control samples:

Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01 LCS for batch 1777844	1204059490	062918.B\e8f2912.D	06/29/18	1646
02 WSTMO-18-155065	453314004	062918.B\e8f2935.D	06/29/18	2144
03 WSTMO-18-155065MS	1204059493	062918.B\e8f2936.D	06/29/18	2203
04 WSTMO-18-155065MSD	1204059494	062918.B\e8f2937.D	06/29/18	2223

Quality Control Data

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**			**Matrix:**	**WATER**
Lab Sample ID:	**1204059489**				
Client Sample:	**QC for batch 1777844**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**MB for batch 1777844**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1777846**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**06/29/2018 16:34**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/29/2018 05:05**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**062918.B\e8f2911.D**	**Column:**	**1 RTX-CLPEST1**		
	062918.B\e8f2911.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016	U	0.0333	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.0333	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.0333	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.0333	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.0333	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.0333	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260	U	0.0333	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.132	0.200	ug/L	66	(33%-122%)
Decachlorobiphenyl	0.140	0.200	ug/L	70	(35%-138%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**			**Matrix:**	**WATER**
Lab Sample ID:	**1204059490**				
Client Sample:	**QC for batch 1777844**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**LCS for batch 1777844**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1777846**	**Inst:**	**ECD8A.I**	**Dilution:**	**1**
Run Date:	**06/29/2018 16:46**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/29/2018 05:05**	**Aliquot:**	**1000 mL**	**Final Volume:**	**1 mL**
Data File:	**062918.B\e8f2912.D**	**Column:**	**1 RTX-CLPEST1**		
	062918.B\e8f2912.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		0.654	ug/L	0.0333	0.100	1
11104-28-2	Aroclor-1221	U	0.0333	ug/L	0.0333	0.100	1
11141-16-5	Aroclor-1232	U	0.0333	ug/L	0.0333	0.100	1
53469-21-9	Aroclor-1242	U	0.0333	ug/L	0.0333	0.100	1
12672-29-6	Aroclor-1248	U	0.0333	ug/L	0.0333	0.100	1
11097-69-1	Aroclor-1254	U	0.0333	ug/L	0.0333	0.100	1
11096-82-5	Aroclor-1260		0.745	ug/L	0.0333	0.100	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.138	0.200	ug/L	69	(33%-122%)
Decachlorobiphenyl	0.163	0.200	ug/L	81	(35%-138%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**1204059493**	**Date Received:**	**06/26/2018 09:00**		
Client Sample:	**QC for batch 1777844**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155065MS**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1777846**	**Inst:**	**ECD8A.I**	**Dilution:**	**10**
Run Date:	**06/29/2018 22:03**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/29/2018 05:05**	**Aliquot:**	**880 mL**	**Final Volume:**	**1 mL**
Data File:	**062918.B\e8f2936.D**	**Column:**	**1 RTX-CLPEST1**		
	062918.B\e8f2936.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		1.61	ug/L	0.378	1.14	1
11104-28-2	Aroclor-1221	U	0.378	ug/L	0.378	1.14	1
11141-16-5	Aroclor-1232	U	0.378	ug/L	0.378	1.14	1
53469-21-9	Aroclor-1242	U	0.378	ug/L	0.378	1.14	1
12672-29-6	Aroclor-1248	U	0.378	ug/L	0.378	1.14	1
11097-69-1	Aroclor-1254	U	0.378	ug/L	0.378	1.14	1
11096-82-5	Aroclor-1260	J	0.651	ug/L	0.378	1.14	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%		Acceptable Limits
4cmx	0.0634	0.227	ug/L	28	*	(33%-122%)
Decachlorobiphenyl	0.227	0.227	ug/L	43		(35%-138%)

PCB
Certificate of Analysis
Sample Summary

SDG Number:	**2018-2791**	**Date Collected:**	**06/21/2018 08:30**	**Matrix:**	**W**
Lab Sample ID:	**1204059494**	**Date Received:**	**06/26/2018 09:00**		
Client Sample:	**QC for batch 1777844**	**Client:**	**ARSL004**	**Project:**	**QC**
Client ID:	**WSTMO-18-155065MSD**	**Method:**	**SW846 3535A/8082A**	**SOP Ref:**	**GL-OA-E-040**
Batch ID:	**1777846**	**Inst:**	**ECD8A.I**	**Dilution:**	**10**
Run Date:	**06/29/2018 22:23**	**Analyst:**	**JXM**	**Inj. Vol:**	**1 uL**
Prep Date:	**06/29/2018 05:05**	**Aliquot:**	**930 mL**	**Final Volume:**	**1 mL**
Data File:	**062918.B\e8f2937.D**	**Column:**	**1 RTX-CLPEST1**		
	062918.B\e8f2937.D		**2 RTX-CLPEST2**		

CAS No.	Parmname	Qualifier	Result	Units	MDL/LOD	PQL/LOQ	Column
12674-11-2	Aroclor-1016		4.53	ug/L	0.358	1.08	1
11104-28-2	Aroclor-1221	U	0.358	ug/L	0.358	1.08	1
11141-16-5	Aroclor-1232	U	0.358	ug/L	0.358	1.08	1
53469-21-9	Aroclor-1242	U	0.358	ug/L	0.358	1.08	1
12672-29-6	Aroclor-1248	U	0.358	ug/L	0.358	1.08	1
11097-69-1	Aroclor-1254	U	0.358	ug/L	0.358	1.08	1
11096-82-5	Aroclor-1260	J	0.752	ug/L	0.358	1.08	1

Surrogate/Tracer recovery	Result	Nominal		Recovery%	Acceptable Limits
4cmx	0.123	0.215	ug/L	57	(33%-122%)
Decachlorobiphenyl	0.215	0.215	ug/L	50	(35%-138%)

Metals Analysis

Case Narrative

Metals
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2791
Work Order #: 453314

Product: **Determination of Metals by ICP**
Analytical Method: EPA 200.7 4.4 1994
Analytical Procedure: GL-MA-E-013 REV# 30
Analytical Batch: 1777202

Product: **Determination of Metals by ICP-MS**
Analytical Method: EPA 200.8 5.4 1994
Analytical Procedure: GL-MA-E-014 REV# 32
Analytical Batch: 1777227

Product: **Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer**
Analytical Method: EPA 245.2 1974
Analytical Procedure: GL-MA-E-010 REV# 36
Analytical Batch: 1777527

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 18
Preparation Batches: 1777201 and 1777226

Preparation Method: EPA 245.1/245.2 Prep
Preparation Procedure: GL-MA-E-010 REV# 36
Preparation Batch: 1777520

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453314002	WSTMO-18-155055
453314003	WSTMO-18-155060
1204058146	Method Blank (MB)**ICP**
1204058147	Laboratory Control Sample (LCS)
1204058150	453314002(WSTMO-18-155055L) Serial Dilution (SD)
1204058148	453314002(WSTMO-18-155055D) Sample Duplicate (DUP)
1204058149	453314002(WSTMO-18-155055S) Matrix Spike (MS)
1204058215	Method Blank (MB)**ICP-MS**
1204058216	Laboratory Control Sample (LCS)
1204058219	453314002(WSTMO-18-155055L) Serial Dilution (SD)
1204058217	453314002(WSTMO-18-155055D) Sample Duplicate (DUP)
1204058218	453314002(WSTMO-18-155055S) Matrix Spike (MS)
1204058877	Method Blank (MB)**CVAA**
1204058878	Laboratory Control Sample (LCS)
1204058881	453160001(NonSDGL) Serial Dilution (SD)
1204058879	453160001(NonSDGD) Sample Duplicate (DUP)
1204058880	453160001(NonSDGS) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Calibration Information

ICSA/ICSAB Statement
For the ICP-MS analysis, the ICSA solution contains analyte concentrations which are verified trace impurities indigenous to the purchased standard.

Quality Control (QC) Information

Matrix Spike (MS/MSD) Recovery Statement
The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analytes.

Sample	Analyte	Value
1204058149 (WSTMO-18-155055MS)	Zinc	-2.68* (75%-125%)
1204058218 (WSTMO-18-155055MS)	Cadmium	74.2* (75%-125%)
	Copper	63.8* (75%-125%)
	Nickel	68.2* (75%-125%)

Duplicate Relative Percent Difference (RPD) Statement
The RPD obtained from the designated sample duplicate (DUP) is evaluated based on acceptance criteria of 20% when the sample is >5X the contract required reporting limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control of +/-RL is used to evaluate the DUP results. Not all the applicable analyte RPD values were within the acceptance criteria.

Sample	Analyte	Value
1204058148 (WSTMO-18-155055DUP)	Zinc	abs(24.8 - 514)* (+/-100 ug/L)

Technical Information

Sample Dilutions
Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range. Per the SOP, samples 1204058148 (WSTMO-18-155055DUP), 1204058149 (WSTMO-18-155055MS), 1204058150 (WSTMO-18-155055SDILT) and 453314002 (WSTMO-18-155055)-ICP were diluted due to internal standard recoveries outside the acceptable control limits. Per the SOP, samples ICP-MS were diluted due to internal standard recoveries outside the acceptable control limits.

Analyte	453314 002
Aluminum	10X
Arsenic	20X
Barium	10X
Boron	10X

Cadmium	20X
Chromium	10X
Cobalt	10X
Copper	10X
Iron	10X
Lead	10X
Manganese	10X
Molybdenum	20X
Nickel	10X
Selenium	20X
Silver	20X
Uranium	10X
Zinc	10X

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2791 GEL Work Order: 453314

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
J Value is estimated
N Metals--The Matrix spike sample recovery is not within specified control limits
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Nik-Cole A. Elmore **Name: Nik-Cole Elmore**

Date: 03 JUL 2018 **Title: Data Validator**

Sample Data Summary

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018−2791 **CONTRACT:** ESHL00118 **METHOD TYPE:** EPA

SAMPLE ID: 453314002 **BASIS:** As Received **DATE COLLECTED** 21−JUN−18

CLIENT ID: WSTMO−18−155055 **LEVEL:** Low **DATE RECEIVED** 26−JUN−18

MATRIX: W **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7429−90−5	Aluminum	193	ug/L	U	193	500	500	10	MS	PRB	06/29/18 21:34	180629−3	1777227
7440−38−2	Arsenic	40.2	ug/L	J	40	100	100	20	MS	PRB	07/02/18 11:35	180702−4	1777227
7440−39−3	Barium	25.3	ug/L		6.7	20	20	10	MS	PRB	06/29/18 21:34	180629−3	1777227
7440−42−8	Boron	4230	ug/L		150	500	500	10	P	HSC	07/02/18 06:36	070218−1	1777202
7440−43−9	Cadmium	6	ug/L	UN	6	20	20	20	MS	PRB	07/02/18 11:35	180702−4	1777227
7440−47−3	Chromium	30	ug/L	U	30	100	100	10	MS	PRB	06/29/18 21:34	180629−3	1777227
7440−48−4	Cobalt	3	ug/L	U	3	10	10	10	MS	PRB	06/29/18 21:34	180629−3	1777227
7440−50−8	Copper	6.07	ug/L	JN	3	10	10	10	MS	PRB	06/29/18 21:34	180629−3	1777227
7439−89−6	Iron	300	ug/L	U	300	1000	1000	10	P	HSC	06/29/18 15:04	062918A−2	1777202
7439−92−1	Lead	5	ug/L	U	5	20	20	10	MS	PRB	06/29/18 21:34	180629−3	1777227
7439−96−5	Manganese	20	ug/L	U	20	100	100	10	P	HSC	06/29/18 15:04	062918A−2	1777202
7439−97−6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/28/18 11:21	062818W1−5	1777527
7439−98−7	Molybdenum	978	ug/L		4	10	10	20	MS	PRB	07/02/18 11:35	180702−4	1777227
7440−02−0	Nickel	19.6	ug/L	JN	6	20	20	10	MS	PRB	06/29/18 21:34	180629−3	1777227
7782−49−2	Selenium	55.7	ug/L	J	40	100	100	20	MS	PRB	07/02/18 11:35	180702−4	1777227
7440−22−4	Silver	6	ug/L	U	6	20	20	20	MS	PRB	07/02/18 11:35	180702−4	1777227
7440−61−1	Uranium	0.790	ug/L	J	0.67	2	2	10	MS	PRB	06/29/18 21:34	180629−3	1777227
7440−66−6	Zinc	514	ug/L	*N	33	100	100	10	P	HSC	06/29/18 15:04	062918A−2	1777202

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1777202	1777201	EPA 200.2	50	mL	50	mL	06/27/18	JXM8
1777227	1777226	EPA 200.2	50	mL	50	mL	06/27/18	JXM8
1777527	1777520	EPA 245.1/245.2 Prep	20	mL	20	mL	06/27/18	AXS5

***Analytical Methods:**

MS	**EPA 200.8 5.4 1994**
P	**EPA 200.7 4.4 1994**
AV	**EPA 245.2 1974**

METALS
−1−
INORGANICS ANALYSIS DATA PACKAGE

SDG No: 2018−2791 **CONTRACT:** ESHL00118 **METHOD TYPE:** EPA

SAMPLE ID: 453314003 **BASIS:** As Received **DATE COLLECTED** 21−JUN−18

CLIENT ID: WSTMO−18−155060 **LEVEL:** Low **DATE RECEIVED** 26−JUN−18

MATRIX: W **%SOLIDS:** 0

CAS	Analyte	Result	Units	Qual	MDL	PQL	CRDL	DF	M*	Analyst	Run Date	Analytical Run	Analytical Batch
7439−97−6	Mercury	0.067	ug/L	U	0.067	0.2	0.2	1	AV	MTM1	06/28/18 11:23	062818W1−5	1777527

Prep Information:

Analytical Batch	Prep Batch	Prep Method	Initial wt./vol.	Units	Final wt./vol.	Units	Date	Analyst
1777527	1777520	EPA 245.1/245.2 Prep	20	mL	20	mL	06/27/18	AXS5

***Analytical Methods:**

AV **EPA 245.2 1974**

Quality Control Summary

METALS
−3b−
PREPARATION BLANK SUMMARY

SDG NO. 2018−2791

Contract: ESHL00118

Matrix: W

Sample ID	Analyte	Result	Units	Acceptance Window	Conc Qual	M*	MDL	RDL
1204058146								
	Boron	15	ug/L	+/−50	U	P	15	50
	Iron	30	ug/L	+/−100	U	P	30	100
	Manganese	2	ug/L	+/−10	U	P	2	10
	Zinc	−4.65	ug/L	+/−10	J	P	3.3	10
1204058215								
	Lead	0.5	ug/L	+/−2	U	MS	0.5	2
	Molybdenum	0.2	ug/L	+/−0.5	U	MS	0.2	0.5
	Aluminum	19.3	ug/L	+/−50	U	MS	19.3	50
	Barium	0.67	ug/L	+/−2	U	MS	0.67	2
	Chromium	3	ug/L	+/−10	U	MS	3	10
	Copper	0.3	ug/L	+/−1	U	MS	0.3	1
	Cobalt	0.3	ug/L	+/−1	U	MS	0.3	1
	Cadmium	0.3	ug/L	+/−1	U	MS	0.3	1
	Arsenic	2	ug/L	+/−5	U	MS	2	5
	Nickel	0.6	ug/L	+/−2	U	MS	0.6	2
	Selenium	2	ug/L	+/−5	U	MS	2	5
	Silver	0.3	ug/L	+/−1	U	MS	0.3	1
	Uranium	0.067	ug/L	+/−0.2	U	MS	0.067	0.2
1204058877								
	Mercury	0.067	ug/L	+/−0.2	U	AV	0.067	0.2

***Analytical Methods:**

MS	**EPA 200.8 DOE−AL**
P	**EPA 200.7**
AV	**EPA 245.1/245.2**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2018−2791 **Client ID** WSTMO−18−155055S

Contract: ESHL00118 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 453314002 **Spike ID:** 1204058149

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Boron	ug/L		5010		4230		500	157	N/A	P
Iron	ug/L	75−125	5080		300	U	5000	101		P
Manganese	ug/L	75−125	459		20	U	500	89.1		P
Zinc	ug/L	75−125	500		514		500	−2.68	N	P

***Analytical Methods:**

P **EPA 200.7**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2018−2791 **Client ID** WSTMO−18−155055S

Contract: ESHL00118 **Level:** Low

Matrix: WATER **% Solids:**

Sample ID: 453314002 **Spike ID:** 1204058218

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Aluminum	ug/L	75−125	1740		193	U	2000	86.3		MS
Arsenic	ug/L	75−125	78.8	J	40.2	J	50	77.2		MS
Barium	ug/L	75−125	67.1		25.3		50	83.5		MS
Cadmium	ug/L	75−125	37.4		6	U	50	74.2	N	MS
Chromium	ug/L	75−125	45.8	J	30	U	50	88.9		MS
Cobalt	ug/L	75−125	40.6		3	U	50	77.1		MS
Copper	ug/L	75−125	38		6.07	J	50	63.8	N	MS
Lead	ug/L	75−125	39.8		5	U	50	77.4		MS
Molybdenum	ug/L		980		978		50	5	N/A	MS
Nickel	ug/L	75−125	53.7		19.6	J	50	68.2	N	MS
Selenium	ug/L	75−125	101		55.7	J	50	89.8		MS
Silver	ug/L	75−125	38.1		6	U	50	76.1		MS
Uranium	ug/L	75−125	42.4		0.79	J	50	83.2		MS

***Analytical Methods:**

MS **EPA 200.8 DOE−AL**

METALS
−5a−

Matrix Spike Summary

SDG NO. 2018−2791 **Client ID** WT_SEP−URB−18−155025S

Contract: ESHL00118 **Level:** Low

Matrix: STORM WATER **% Solids:**

Sample ID: 453160001 **Spike ID:** 1204058880

Analyte	Units	Acceptance Limit	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M*
Mercury	ug/L	75−125	2.04		0.067	U	2	102		AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

Metals
−6−
Duplicate Sample Summary

SDG No.: 2018−2791 **Lab Code:** GEL

Contract: ESHL00118 **Client ID:** WSTMO−18−155055D

Matrix: WATER **Level:** Low

Sample ID: 453314002 **Duplicate ID:** 1204058148 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Boron	ug/L	+/−20%	4230		4180		1.15		P
Iron	ug/L		300	U	300	U			P
Manganese	ug/L		20	U	20	U			P
Zinc	ug/L	+/−100	514		33	U	182	*	P

***Analytical Methods:**
P EPA 200.7

Metals
−6−
Duplicate Sample Summary

SDG No.: 2018−2791 **Lab Code:** GEL

Contract: ESHL00118 **Client ID:** WSTMO−18−155055D

Matrix: WATER **Level:** Low

Sample ID: 453314002 **Duplicate ID:** 1204058217 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Aluminum	ug/L		193	U	193	U			MS
Arsenic	ug/L		40.2	J	40	U	200		MS
Barium	ug/L	+/−20	25.3		26.2		3.3		MS
Cadmium	ug/L		6	U	6	U			MS
Chromium	ug/L		30	U	30	U			MS
Cobalt	ug/L		3	U	3	U			MS
Copper	ug/L	+/−10	6.07	J	5.33	J	13		MS
Lead	ug/L		5	U	5	U			MS
Molybdenum	ug/L	+/−20%	978		935		4.49		MS
Nickel	ug/L	+/−20	19.6	J	19.3	J	1.75		MS
Selenium	ug/L	+/−100	55.7	J	59	J	5.79		MS
Silver	ug/L		6	U	6	U			MS
Uranium	ug/L		0.79	J	0.67	U	200		MS

***Analytical Methods:**
MS EPA 200.8 DOE−AL

Metals
−6−
Duplicate Sample Summary

SDG No.: 2018−2791 **Lab Code:** GEL

Contract: ESHL00118 **Client ID:** WT_SEP−URB−18−155025D

Matrix: STORM WATER **Level:** Low

Sample ID: 453160001 **Duplicate ID:** 1204058879 **Percent Solids for Dup:** N/A

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M*
Mercury	ug/L		0.067	U	0.067	U			AV

***Analytical Methods:**
AV EPA 245.1/245.2

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2018−2791

Contract: ESHL00118

Aqueous LCS Source: Inorganic Ventures **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1204058147								
	Boron	ug/L	500	550		110	85−115	P
	Iron	ug/L	5000	5650		113	85−115	P
	Manganese	ug/L	500	521		104	85−115	P
	Zinc	ug/L	500	506		101	85−115	P

***Analytical Methods:**

P **EPA 200.7**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2018−2791

Contract: ESHL00118

Aqueous LCS Source: Inorganic Ventures **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1204058216								
	Aluminum	ug/L	2000	2040		102	85−115	MS
	Arsenic	ug/L	50	54		108	85−115	MS
	Barium	ug/L	50	54.2		108	85−115	MS
	Cadmium	ug/L	50	54.1		108	85−115	MS
	Chromium	ug/L	50	53.2		106	85−115	MS
	Cobalt	ug/L	50	54		108	85−115	MS
	Copper	ug/L	50	54		108	85−115	MS
	Lead	ug/L	50	54.4		109	85−115	MS
	Molybdenum	ug/L	50	54		108	85−115	MS
	Nickel	ug/L	50	54.1		108	85−115	MS
	Selenium	ug/L	50	54.7		109	85−115	MS
	Silver	ug/L	50	54.1		108	85−115	MS
	Uranium	ug/L	50	53.7		107	85−115	MS

***Analytical Methods:**

MS **EPA 200.8 DOE−AL**

METALS
−7−
Laboratory Control Sample Summary

SDG NO. 2018−2791

Contract: ESHL00118

Aqueous LCS Source: GEL **Solid LCS Source:**

Sample ID	Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limit	M*
1204058878								
	Mercury	ug/L	2	2.04		102	85−115	AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2018−2791 **Client ID:** WSTMO−18−155055L

Contract: ESHL00118

Matrix: LIQUID **Level:** Low

Sample ID: 453314002 **Serial Dilution ID:** 1204058150

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Boron	423		421		.391			P
Iron	30	U	150	U				P
Manganese	2	U	10	U				P
Zinc	51.4		16.5	U	77.563			P

***Analytical Methods:**

P **EPA 200.7**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2018−2791 **Client ID** WSTMO−18−155055L

Contract: ESHL00118

Matrix: LIQUID **Level:** Low

Sample ID: 453314002 **Serial Dilution ID:** 1204058219

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Aluminum	19.3	U	96.5	U				MS
Arsenic	2.01	J	10	U	5.567			MS
Barium	2.53		3.35	U	1.186			MS
Cadmium	.3	U	1.5	U				MS
Chromium	3	U	15	U				MS
Cobalt	.3	U	1.5	U				MS
Copper	.607	J	1.5	U	26.853			MS
Lead	.5	U	2.5	U				MS
Molybdenum	48.9		47.9		2.017		10	MS
Nickel	1.96	J	3	U	16.718			MS
Selenium	2.79	J	10	U	46.32			MS
Silver	.3	U	1.5	U				MS
Uranium	.079	J	.335	U	1.266			MS

***Analytical Methods:**

MS **EPA 200.8 DOE−AL**

METALS
−9−
Serial Dilution Sample Summary

SDG NO. 2018−2791 **Client ID** WT_SEP−URB−18−155025L

Contract: ESHL00118

Matrix: LIQUID **Level:** Low

Sample ID: 453160001 **Serial Dilution ID:** 1204058881

Analyte	Initial Value ug/L	C	Serial Value ug/L	C	% Difference	Qual	Acceptance Limit	M*
Mercury	.067	U	.335	U				AV

***Analytical Methods:**

AV **EPA 245.1/245.2**

General Chem Analysis

Case Narrative

General Chemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2791
Work Order #: 453314

Product: **Cyanide, Total**
Analytical Method: EPA 335.4 1993
Analytical Procedure: GL-GC-E-095 REV# 22
Analytical Batches: 1776656 and 1776655

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453314002	WSTMO-18-155055
1204056791	Method Blank (MB)
1204056792	Laboratory Control Sample (LCS)
1204056793	452966003(NonSDG) Sample Duplicate (DUP)
1204056794	452990002(NonSDG) Sample Duplicate (DUP)
1204056795	452966003(NonSDG) Matrix Spike (MS)
1204056796	452990002(NonSDG) Matrix Spike (MS)
1204058133	452966003(NonSDG) Matrix Spike Duplicate (MSD)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable.

Product: **Ion Chromatography**
Analytical Method: EPA:300.0
Analytical Procedure: GL-GC-E-086 REV# 25
Analytical Batch: 1777200

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453314002	WSTMO-18-155055
1204058142	Method Blank (MB)
1204058143	Laboratory Control Sample (LCS)
1204058144	453314002(WSTMO-18-155055) Sample Duplicate (DUP)
1204058145	453314002(WSTMO-18-155055) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204058144 (WSTMO-18-155055DUP), 1204058145 (WSTMO-18-155055PS) and 453314002 (WSTMO-18-155055) were diluted because target analyte concentrations exceeded the calibration range. The following samples 1204058144 (WSTMO-18-155055DUP), 1204058145 (WSTMO-18-155055PS) and 453314002 (WSTMO-18-155055) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453314002
Fluoride	100X
Sulfate	500X

Miscellaneous Information

Manual Integrations
Samples 1204058144 (WSTMO-18-155055DUP) and 453314002 (WSTMO-18-155055) were manually integrated to correctly position the baseline as set in the calibration standards.

Product: **Nitrate Nitrite by Cadmium Reduction**
Analytical Method: EPA:353.2
Analytical Procedure: GL-GC-E-128 REV# 10
Analytical Batch: 1777658

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453314002	WSTMO-18-155055
1204059100	Method Blank (MB)
1204059101	Laboratory Control Sample (LCS)
1204059102	453315002(NonSDG) Sample Duplicate (DUP)
1204059103	453314002(WSTMO-18-155055) Sample Duplicate (DUP)
1204059104	453315002(NonSDG) Post Spike (PS)
1204059105	453314002(WSTMO-18-155055) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Technical Information

Sample Dilutions
The following samples 1204059102 (Non SDG 453315002DUP), 1204059103 (WSTMO-18-155055DUP), 1204059104 (Non SDG 453315002PS), 1204059105 (WSTMO-18-155055PS) and 453314002 (WSTMO-18-155055) in this sample group were diluted due to matrix interference. Dilutions may be required for many reasons, including to minimize matrix interferences or to bring over range target analyte concentrations into the linear calibration range.

Analyte	453314 002
Nitrogen, Nitrate/Nitrite	10X

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2791 GEL Work Order: 453314

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
H Analytical holding time was exceeded
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Kristen Mizzell **Name: Kristen Mizzell**

Date: 02 JUL 2018 **Title: Team Leader**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Report Date: July 2, 2018

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545
Contact: Ms. Nita Patel
Project: LANL- Discharge Permits

Client SDG: 2018-2791

Client Sample ID: WSTMO-18-155055
Sample ID: 453314002
Matrix: W
Collect Date: 21-JUN-18 08:30
Receive Date: 26-JUN-18
Collector: Client

Project: ESHL00118
Client ID: ARSL004

Parameter	Qualifier	Result	DL	RL	Units	PF	DF	Analyst	Date	Time	Batch	Method
Flow Injection Analysis												
DP-CN(TOTAL) "As Received"												
Cyanide, Total		10.2	1.67	5.00	ug/L	1.00	1	AXH3	06/27/18	0929	1776656	1
Ion Chromatography												
DP-F+SO4 "As Received"												
Sulfate		9600	66.5	200	mg/L		500	MAR1	06/27/18	1135	1777200	2
Fluoride	U	ND	3.30	10.0	mg/L		100	MAR1	06/28/18	1036	1777200	3
Nutrient Analysis												
DP-NO3NO2 "As Received"												
Nitrogen, Nitrate/Nitrite	U	ND	0.170	0.500	mg/L		10	AXH3	06/28/18	0740	1777658	4

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 335.4	EPA 335.4 Total Cyanide	AXH3	06/27/18	0729	1776655

The following Analytical Methods were performed:

Method	Description	Analyst Comments
1	EPA 335.4 1993	
2	EPA:300.0	
3	EPA:300.0	
4	EPA:353.2	

Notes:

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Lc/LC: Critical Level
PF: Prep Factor
RL: Reporting Limit
SQL: Sample Quantitation Limit

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: July 2, 2018

Los Alamos National Laboratory
TA-00, SM1237, Rm104C
Los Alamos, New Mexico

Contact: **Ms. Nita Patel**

Workorder: **453314**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Flow Injection Analysis											
Batch 1776656											
QC1204056793 452966003 DUP											
Cyanide, Total		U	ND	U	ND	ug/L	N/A			AXH3	06/27/18 08:56
QC1204056794 452990002 DUP											
Cyanide, Total		U	ND	U	ND	ug/L	N/A				06/27/18 09:12
QC1204056792 LCS											
Cyanide, Total	50.0				50.2	ug/L		100	(90%-110%)		06/27/18 08:54
QC1204056791 MB											
Cyanide, Total				U	ND	ug/L					06/27/18 08:53
QC1204056795 452966003 MS											
Cyanide, Total	100	U	ND		104	ug/L		104	(90%-110%)		06/27/18 08:57
QC1204056796 452990002 MS											
Cyanide, Total	100	U	ND		102	ug/L		102	(90%-110%)		06/27/18 09:13
QC1204058133 452966003 MSD											
Cyanide, Total	100	U	ND		102	ug/L	1.94	102	(0%-20%)		06/27/18 08:58
Ion Chromatography											
Batch 1777200											
QC1204058144 453314002 DUP											
Fluoride		U	ND	U	ND	mg/L	N/A			MAR1	06/28/18 11:07
Sulfate			9600		9730	mg/L	1.33		(0%-20%)		06/27/18 12:06
QC1204058143 LCS											
Fluoride	2.50				2.53	mg/L		101	(80%-120%)	JXH5	06/26/18 16:22

GEL LABORATORIES LLC

2040 Savage Road Charleston, SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Workorder: **453314**

Parmname	NOM		Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date Time
Ion Chromatography											
Batch 1777200											
Sulfate	10.0				10.1	mg/L		101	(80%-120%)	JXH5	06/26/18 16:22
QC1204058142 MB											
Fluoride				U	ND	mg/L					06/26/18 15:51
Sulfate				U	ND	mg/L					
QC1204058145 453314002 PS											
Fluoride	2.50	U	ND		2.39	mg/L		95	(75%-125%)	MAR1	06/28/18 11:38
Sulfate	10.0		19.2		30.8	mg/L		116	(75%-125%)		06/27/18 12:37
Nutrient Analysis											
Batch 1777658											
QC1204059102 453315002 DUP											
Nitrogen, Nitrate/Nitrite		U	ND	U	ND	mg/L	N/A			AXH3	06/28/18 07:45
QC1204059103 453314002 DUP											
Nitrogen, Nitrate/Nitrite		U	ND	U	ND	mg/L	N/A				06/28/18 07:41
QC1204059101 LCS											
Nitrogen, Nitrate/Nitrite	1.00				0.985	mg/L		98.5	(90%-110%)		06/28/18 07:39
QC1204059100 MB											
Nitrogen, Nitrate/Nitrite				U	ND	mg/L					06/28/18 07:37
QC1204059104 453315002 PS											
Nitrogen, Nitrate/Nitrite	1.00	U	ND		1.02	mg/L		101	(90%-110%)		06/28/18 07:46
QC1204059105 453314002 PS											
Nitrogen, Nitrate/Nitrite	1.00	U	ND		1.04	mg/L		103	(90%-110%)		06/28/18 07:42

Notes:

QC Summary

Workorder: **453314**

Parmname	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Anlst	Date	Time

<	Result is less than value reported
>	Result is greater than value reported
B	The target analyte was detected in the associated blank.
E	General Chemistry--Concentration of the target analyte exceeds the instrument calibration range
H	Analytical holding time was exceeded
J	Value is estimated
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Per section 9.3.4.1 of Method 1664 Revision B, due to matrix spike recovery issues, this result may not be reported or used for regulatory compliance purposes.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Z	Paint Filter Test--Particulates passed through the filter, however no free liquids were observed.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
d	5-day BOD--The 2:1 depletion requirement was not met for this sample
e	5-day BOD--Test replicates show more than 30% difference between high and low values. The data is qualified per the method and can be used for reporting purposes
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptance criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
* Indicates that a Quality Control parameter was not within specifications.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

Radiological Analysis

Case Narrative

Radiochemistry
Technical Case Narrative
ARS International, LLC (ARSL)
SDG #: 2018-2791
Work Order #: 453314

Product: **Ra228**
Analytical Method: EPA:904
Analytical Procedure: GL-RAD-A-063 REV# 2
Analytical Batch: 1777174

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453314002	WSTMO-18-155055
1204058094	Method Blank (MB)
1204058095	453314002(WSTMO-18-155055) Sample Duplicate (DUP)
1204058096	453314002(WSTMO-18-155055) Matrix Spike (MS)
1204058097	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Blank Information
Aliquots for samples 1204058094 (MB) and 1204058097 (LCS) were changed to 1.0 per client request.

Miscellaneous Information

Additional Comments
The matrix spike, 1204058096 (WSTMO-18-155055MS), aliquot was reduced to conserve sample volume.

Product: **Ra226**
Analytical Method: EPA:903.1
Analytical Procedure: GL-RAD-A-008 REV# 15
Analytical Batch: 1777914

The following samples were analyzed using the above methods and analytical procedure(s).

GEL Sample ID#	Client Sample Identification
453314002	WSTMO-18-155055
1204059620	Method Blank (MB)
1204059621	453314002(WSTMO-18-155055) Sample Duplicate (DUP)

1204059622	453314002(WSTMO-18-155055) Matrix Spike (MS)
1204059623	Laboratory Control Sample (LCS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Blank Information
Aliquots for samples 1204059620 (MB) and 1204059623 (LCS) were changed to 1.0 per client request.

Miscellaneous Information

Additional Comments
The matrix spike, 1204059622 (WSTMO-18-155055MS), aliquot was reduced to conserve sample volume.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Qualifier Definition Report
for

ARSL004 ARS International, LLC (ARS-LANS-MTOA6-25093-GEL)

Client SDG: 2018-2791 GEL Work Order: 453314

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria
** Analyte is a Tracer compound
U Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.

Review/Validation

GEL requires all analytical data to be verified by a qualified data reviewer. In addition, all CLP-like deliverables receive a third level review of the fractional data package.

The following data validator verified the information presented in this data report:

Signature: Heather M. McCarty **Name:** **Heather McCarty**

Date: **03 JUL 2018** **Title:** **Analyst II**

Sample Data Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

Certificate of Analysis

Company : Los Alamos National Laboratory
Address : TA-00, SM1237, Rm104C

Los Alamos, New Mexico 87545 Report Date: July 3, 2018

Contact: Ms. Nita Patel
Project: LANL- Discharge Permits

Client Sample ID: WSTMO-18-155055
Sample ID: 453314002
Matrix: W
Collect Date: 21-JUN-18
Receive Date: 26-JUN-18
Collector: Client

Project: ESHL00118
Client ID: ARSL004

Parameter	Qualifier	Result	Uncertainty	MDC	Lc	TPU	RL	Units	PF	DF	Analyst	Date	Time	Batch	Mtd.
Rad Gas Flow Proportional Counting															
Ra228 "As Received"															
Radium-228	U	0.498	+/-0.234	0.740	0.318	+/-0.243	1.00	pCi/L			JXC9	07/02/18	0927	1777174	1
Rad Radium-226															
Ra226 "As Received"															
Radium-226		0.593	+/-0.163	0.303	0.092	+/-0.178	1.00	pCi/L			PCW	07/02/18	0815	1777914	2

The following Analytical Methods were performed

Method	Description
1	EPA:904
2	EPA:903.1

Surrogate/Tracer Recovery	Test	Batch ID	Recovery%	Acceptable Limits
Barium-133 Tracer	Ra228 "As Received"	1777174	66	(50%-105%)

Notes:

The MDC is a sample specific MDC.
TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

Column headers are defined as follows:

DF: Dilution Factor
DL: Detection Limit
Lc/LC: Critical Level
MDA: Minimum Detectable Activity
MDC: Minimum Detectable Concentration
Mtd.: Method
PF: Prep Factor
RL: Reporting Limit
TPU: Total Propagated Uncertainty

Quality Control Summary

GEL LABORATORIES LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

QC Summary

Report Date: July 3, 2018

Client : **Los Alamos National Laboratory**
TA-00, SM1237, Rm104C

Los Alamos, New Mexico

Contact: **Ms. Nita Patel**

Workorder: **453314**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time
Rad Gas Flow										
Batch 1777174										
QC1204058095 453314002 DUP										
Radium-228	U	0.498		1.05	pCi/L	0.514		(0-1)	JXC9	07/02/18 09:26
	Uncert:	+/-0.234		+/-0.265						
	TPU:	+/-0.243		+/-0.299						
**Barium-133 Tracer	205	135		153	CPM		74.4	(50%-105%)		
QC1204058097 LCS										
Radium-228	5.36			5.57	pCi/L		104	(80%-120%)	JXC9	07/02/18 10:54
	Uncert:			+/-0.334						
	TPU:			+/-0.802						
**Barium-133 Tracer	205			206	CPM		100	(50%-105%)		
QC1204058094 MB										
Radium-228			U	0.0719	pCi/L				JXC9	07/02/18 09:26
	Uncert:			+/-0.121						
	TPU:			+/-0.121						
**Barium-133 Tracer	205			199	CPM		97.3	(50%-105%)		
QC1204058096 453314002 MS										
Radium-228	53.6 U	0.498		45.0	pCi/L		83.9	(75%-125%)	JXC9	07/02/18 09:27
	Uncert:	+/-0.234		+/-3.21						
	TPU:	+/-0.243		+/-6.72						
**Barium-133 Tracer	205	135		186	CPM		90.8	(50%-105%)		
Rad Ra-226										
Batch 1777914										
QC1204059621 453314002 DUP										
Radium-226		0.593		0.442	pCi/L	0.228		(0-1)	PCW	07/02/18 08:15
	Uncert:	+/-0.163		+/-0.148						
	TPU:	+/-0.178		+/-0.154						
QC1204059623 LCS										
Radium-226	13.0			11.0	pCi/L		84.7	(80%-120%)	PCW	07/02/18 08:15
	Uncert:			+/-0.404						
	TPU:			+/-1.08						
QC1204059620 MB										
Radium-226			U	-0.0467	pCi/L				PCW	07/02/18 08:15
	Uncert:			+/-0.0562						
	TPU:			+/-0.0562						
QC1204059622 453314002 MS										
Radium-226	130	0.593		107	pCi/L		81.9	(75%-125%)	PCW	07/02/18 08:15
	Uncert:	+/-0.163		+/-4.16						
	TPU:	+/-0.178		+/-8.93						

Notes:

TPU and Counting Uncertainty are calculated at the 68% confidence level (1-sigma).

QC Summary

Workorder: **453314**

Parmname	NOM	Sample	Qual	QC	Units	RER	REC%	Range	Anlst	Date Time

The Qualifiers in this report are defined as follows:

**	Analyte is a Tracer compound
<	Result is less than value reported
>	Result is greater than value reported
BD	Results are either below the MDC or tracer recovery is low
FA	Failed analysis.
H	Analytical holding time was exceeded
J	Value is estimated
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
M	M if above MDC and less than LLD
M	REMP Result > MDC/CL and < RDL
N/A	RPD or %Recovery limits do not apply.
N1	See case narrative
ND	Analyte concentration is not detected above the detection limit
NJ	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Q	One or more quality control criteria have not been met. Refer to the applicable narrative or DER.
R	Sample results are rejected
U	Analyte was analyzed for, but not detected above the MDL, MDA, MDC or LOD.
UI	Gamma Spectroscopy--Uncertain identification
UJ	Gamma Spectroscopy--Uncertain identification
UL	Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	Other specific qualifiers were required to properly define the results. Consult case narrative.
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL. Qualifier Not Applicable for Radiochemistry.
h	Preparation or preservation holding time was exceeded

N/A indicates that spike recovery limits do not apply when sample concentration exceeds spike conc. by a factor of 4 or more or %RPD not applicable.
** Indicates analyte is a surrogate/tracer compound.
^ The Relative Percent Difference (RPD) obtained from the sample duplicate (DUP) is evaluated against the acceptence criteria when the sample is greater than five times (5X) the contract required detection limit (RL). In cases where either the sample or duplicate value is less than 5X the RL, a control limit of +/- the RL is used to evaluate the DUP result.
For PS, PSD, and SDILT results, the values listed are the measured amounts, not final concentrations.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the QC Summary.

ATTACHMENT A1507.A.b

Evaporative Sprayers

Hours of Operation

2018 Operational Data for SERF Spray Evaporators - Data entry

	Evap Sprayer #1 (SN 0053)		Evap Sprayer #2 (SN 0054)		Evap Sprayer #3 (SN 0055)		Evap Sprayer #4 (SN 0006) (installed 8/23/18)		Evap Sprayer 5 (SN 0008) (installed 8/23/18)	
	Hrs of Op	Gallons Sprayed	Hrs of Op	Gallons Sprayed	Hrs of Op	Gallons Sprayed	Hrs of Op	Gallons Sprayed	Hrs of Op	Gallons Sprayed
Jan	311	112,174	296	70,408	-	-				
Feb	374	134,402	147	88,946	-	-				
Mar	536	193,376	304	109,614	-	-				
Apr	620	227,150	383	139,812	-	-				
May	704	267,490	442	168,198	-	-				
Jun	711	306,734	397	147,074	-	-				
Jul	700	332,980	402	144,618	-	-				
Aug	670	317,512	416	174,126	-	-	7	2254	0.5	152
Sep	743	350,491	449	242,432	-	-	0	15	1	60
Oct	384	184,655	276	105,760	-	-	5	27120	-	-
Nov	134	48,348	165	78,896	-	-	117	32670	-	-
Dec	340	122,360	112	54,000	-	-	112	833	0	0
Annual Totals	6,227	2,597,672	3,789	1,523,884	-	-	241	62,892	1.5	212

Reviewed by: _____

ATTACHMENT A1507.B.

Evaporative Sprayers

Work Practice Standards

Maintenance and Repair Requirements

Operations Procedure

SERF Sigma Basin SMI 120F Evaporator Inspections

Review frequency 1 yr ☐ 2 yr ☐ 3 yr ☒

Issue date 6/18/18 **Next review** 6/18/21

Process Owner

Jared Hornberger	SERF Lead Operator	
	Z-# 281223	Date 6/13/18

Reviewed by

Joshua Begay	SERF System Engineer	
	Z-# 304395	Date 6/13/2018

ESH Review

Russell Stone	ESH Manager	
	Z-# 117365	Date 6/14/2018

Approved by

Lawrence Chavez	Operations Manager	
	Z-# 186199 090208	Date 6-18-18

Derivative Classifier Review

Michael E. Gallegos	VERIFIED UNCLASSIFIED	
	~~Z-# 089717~~ 120179	Date 14 June 18

History of Revisions

Document Number	Issue Date	Action
UI-PROC-81-00-027-R1	6/18/18	Review and reissue. Minor changes.
UI-PROC-81-00-027-R0	06/01/18	New procedure.

Table of Contents

1 Purpose 5
2 Scope/Applicability 5
3 Prerequisites 5
4 Precautions and Limitations 5
5 Equipment, Supplies, etc. 6
6 Responsibilities 6
7 Work Steps 6
7.1 General Items 6
7.2 Perform Inspections 7
8 Records 7
9 Abbreviations, Acronyms, and Terms 8
10 References 8
11 Appendices and Attachments 8

This page intentionally left blank.

Utilities & Institutional Facilities
Operations Procedure

SERF Sigma Basin SMI 120F Evaporator Inspections

1 Purpose

The purpose of this procedure is to provide instructions for inspecting and removing scale and debris from SMI Evaporative Solutions Model 120F Floating Mechanical Evaporators used at SERF evaporation ponds at TA-60-0221/0222 on Sigma Mesa.

2 Scope/Applicability

1. The procedure includes inspecting evaporator housings and pump sleeves for scale, inspecting fan blades for wear, removing scale, removing obstructions, and cleaning evaporator pump static inlet filters.
2. Affected personnel: SERF Operations and other personnel

3 Prerequisites

1. Required training and qualifications:
   a. Utilities & Institutional Facilities (UI) procedures and work control processes
   b. The current procedure, equipment, supplies, etc.
   c. P101-3, Lockout/Tagout for Hazardous Energy Control
2. Pre-job briefing

4 Precautions and Limitations

1. Required Personal Protective Equipment (PPE)
   - Steel-toe safety shoes
   - Safety glasses with side shields
   - Personal floatation device
2. All procedure hazards, both task and site, must be addressed in accordance with UI work control processes.
3. Refer to Integrated Work Document (IWD) for specific task and site hazards.
4. Lockout/tagout (LO/TO) must be performed per P101-3, Lockout/Tagout for Hazardous Energy Control.

5 Equipment, Supplies, etc.

1. Equipment, tools, instruments:
   - Pressure washer
   - Power generator
   - Pump
   - Flat and/or combination screwdriver
   - Hand tools
   - Flashlight

6 Responsibilities

1. Persons performing this procedure are responsible for –
   - Complying with its requirements
   - Notifying appropriate supervisory personnel of equipment damage or other conditions that could require corrective action
   - Issuing a PAUSE/STOP WORK order whenever warranted by conditions related to health or safety in accordance with P101-18, Procedure for Pause/Stop Work
2. Managers are responsible for ensuring procedure compliance.

7 Work Steps

7.1 General Items

1. Schedule performance of the procedure in coordination with SERF Operations.
   - Inform affected personnel when the inspection process is about to begin.
2. Make sure evaporators are operational.

   If an evaporator is out of service, record the following information in SERF Operator Log:
   - Reason out of service
   - Submitted Work Order/FSR number

     (if MSS repair)

7.2 Perform Inspections

Perform inspections yearly.

1. Turn evaporators OFF.
2. Apply LO/TO per P101-3, Lockout/Tagout for Hazardous Energy Control.
3. Remove evaporators from ponds using tethering cable.
   - Inspect cables for tear or excessive jacket wear.
4. Inspect exterior of evaporators for scale build-up.
   - Use pressure washer to remove scale.
5. Inspect fan blades for wear.
   - Note that the blades are not sharp.
   - Notify appropriate personnel of excessive wear.
6. Inspect pump sleeves through viewing port for obstructions and scale build-up.
   - Remove any obstructions.
   - Use pressure washer to remove scale.
7. Remove static inlet filters from pumps and clean them.
8. Reinstall cleaned static inlet filters.
9. Return evaporators and tethering cables where they came from in pond.
10. Remove LO/TO.
11. Turn evaporators ON and check for normal operation.
12. If a problem is found, immediately notify appropriate personnel so corrective action can be taken.

8 Records

Records generated as a result of implementing this procedure are maintained in accordance with the UI records program.

9 Abbreviations, Acronyms, and Terms

Abbreviation, Acronym, or Term	Definition
ESH	Environment, Safety, and Health
IWD	Integrated Work Document
LO/TO	Lockout/tagout
PPE	Personal Protective Equipment
SERF	Sanitary Effluent Reclamation Facility
UI	Utilities & Institutional Facilities

10 References

P101-3, Lockout/Tagout for Hazardous Energy Control

11 Appendices and Attachments

None

SERF SIGMA BASINS EVAPORATOR CLEANING LOG

UI-PROC-81-00-027-LOG

Date	Evaporator Number	Pond Number	Inspection		Cleaning	Performed By	Z#	Comments
			Damage? (Y/N)	Wear? (Y/N)				
9-12-18	ØØ53	Pond #1	No	No	Yes HP Wash	CB/JH	280633 281223	—
9-12-18	ØØ54	Pond #3	No	No	Yes HP Wash	"	"	—
9-12-18	ØØØC	Pond #2	No	No	Yes HP Wash	"	"	—