LA-UR-22-20317

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Title:	Semi-Annual Monitoring Report for Los Alamos National Laboratory, AI No. 856, Title V Operating Permit P100-R2M4 for July 1 - December 31, 2021
Author(s):	Carretti, Vincent Anthony
Intended for:	Environmental Regulatory Document
Issued:	2022-02-15 (rev.1)

Los Alamos
NATIONAL LABORATORY







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Los Alamos NATIONAL LABORATORY

Environment, Safety, Health, Quality, Safeguards, and Security (ESHQSS)
Los Alamos National Laboratory
P.O. Box 1663, K491
Los Alamos, NM 87545
505-667-4218

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

Symbol: ESHQSS: 22-003
LA-UR: 22-20317
Locates Action No.: N/A
Date: FEB 08 2022

Mr. David Feather
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-R2M4 for July 1 – December 31, 2021

Dear Mr. Feather:

Enclosed is Los Alamos National Laboratory's (LANL) Semi-Annual Monitoring Report for the second half of 2021 for Operating Permit P100-R2M4, effective July 18, 2019. This Semi-Annual Monitoring Report covers the July 1 – December 31, 2021 (2021H2) reporting period.

This submission is required by permit condition A109.A. of the Title V Operating Permit P100-R2M4, and is submitted within 45 days following December 31, 2021, 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 (Signed original)
    - Reporting Submittal Form for P100-R2M4 (Signed original)
    - Title V Report Certification Form for P100-R2M4 (Signed original)
    - Title V Semi-Annual Monitoring Report for July 1– December 31, 2021 (2021H2)
        - Part 1 – Monitoring Activity Reporting Requirements
        - Part 2 – Deviation Summary Report
2. E-files of:
    - Cover Letter
    - Reporting Submittal Form for P100-R2M4
    - Title V Report Certification Form for P100-R2M4

- Title V Semi-Annual Monitoring Report for July 1– December 31, 2021 (2021H2)
  - Part 1 – Monitoring Activity Reporting Requirements
  - Part 2 – Deviation Summary Report
- Monitoring Report Attachments A.607.A through A.1507.B

There were no deviations from permit conditions during this reporting period.

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.

Sincerely,

JENNIFER PAYNE (Affiliate)

Digitally signed by JENNIFER PAYNE (Affiliate)
Date: 2022.01.20 21:11:10 -07'00'

Jennifer E. Payne
Division Leader
Environmental Protection and Compliance
Triad National Security, LLC
Los Alamos National Laboratory

Sincerely,

Theodore A. Wyka
Manager, Los Alamos Field Office
National Nuclear Security Administration
U.S. Department of Energy
Los Alamos Field Office

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 Permit P100-R2M4 for July 1 – December 31, 2021

Copy: Theodore A. Wyka, NA-LA, theodore.wyka@nnsa.doe.gov
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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:** Meteorology & Air Quality 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): Theodore A. Wyka	**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-R2M4	July 18, 2019	2195	Various

P. Reporting Period: From: July 1, 2021 To: December 31, 2021

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 for July 1 - December 31, 2021	
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 Theodore A. Wyka (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	2/1/2022	☒ 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): Theodore A. Wyka	Phone: (505) 667-5105	Fax: NA
RO Title: Manager	RO e-mail: theodore.wyka@nnsa.doe.gov	
Permit No.: P100-R2M4	Date Permit Issued: 7/18/2019	
Report Due Date (as required by the permit): 2/14/2022	Permit AI number: 856	
Time period covered by this Report: From: 7/1/2021	To: 12/31/2021	

III. Certification of Truth, Accuracy, and Completeness

I am the Responsible Official indicated above. I, (Theodore A. Wyka) certify that I meet the requirements of 20.2.70.7.AE NMAC and that I have been identified to the Department as such through a permitting action or notification. 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: 2/1/2022

ATTACHMENT 1
Communication with NMED Regarding Electronic Attachments

ESHQSS: 22-003

LA-UR-22-20317

Date: FEB 0 8 2022

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**?
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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 Permit P100-R2M4 July 1 – December 31, 2021

ESHQSS: 22-003

LA-UR-22-20317

Date: FEB 0 8 2022

Title V Semi - Annual Monitoring Report for Permits P100-R2M4

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 22, 2021 **Tracking Number:** SBR20210005

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

Comments: The Semi-Annual Emissions Report for January 1 - June 30, 2021, was submitted on September 22, 2021 within 90 days from the end of the reporting period as defined at Condition A109.A. The Semi-Annual Emissions Report for July 1 - December 31, 2021 is not due until 90 days following December 31, 2021, 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: The asphalt plant was disassembled and did not operate during 2021.

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, 2021 Semi-Annual Emissions Report was submitted on September 22, 2021 (SBR No. 20210005) within the 90 days allowed. The July 1 - December 31, 2021 Semi-Annual Emissions Report for Operating Permit P100-R2M4 is due 90 days following December 31, 2021, which is after the submission of this report.

A109.C: The 2021 Annual Compliance Certification Report for operating permit P100-R2M4 (January 1 –December 31, 2021) will be submitted to NMED AQB and the U.S. Environmental Protection Agency (EPA) by January 30, 2022, within 30 days of December 31, 2021, 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: The asphalt plant was disassembled and did not operate during 2021.

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. The Asphalt Plant did not operate during this reporting period, so no pressure data or chart recorder is provided. See 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: The asphalt plant was disassembled and did not operate during 2021.

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: The asphalt plant was disassembled and did not operate during 2021.

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 when the Asphalt Plant is operational. No visible emissions exhibited an opacity of 20% or greater as the Asphalt Plant was not operational during this reporting period. The Asphalt Plant did not operate during this reporting period, so no Method 9 opacity reports were required. See 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: The asphalt plant was disassembled and did not operate during 2021.

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 as the Asphalt Plant was not operational.

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: The asphalt plant was disassembled and did not operate during 2021.

Requirement: The asphalt plant production rate did not exceed 6,000 tons per year as the Asphalt Plant was not operational.

Monitoring: Asphalt production is monitored and recorded on a daily basis when the Asphalt Plant is operational. 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 when the Asphalt Plant is operational. The asphalt production rate for this reporting period did not exceed 6,000 tons per year as the Asphalt Plant was not operational. The 12-month rolling totals are provided in ATTACHMENT A607.E. The Asphalt Plant did not operate during this reporting period, so no daily operation log is provided.

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: The asphalt plant was disassembled and did not operate during 2021.

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 as the Asphalt Plant was not operational. The Asphalt Plant did not operate during this reporting period, so no EPA Method 9 or Method 22 reports are provided. See ATTACHMENT A607.C and ATTACHMENT A607.G.

Monitoring: The Asphalt Plant did not operate during this reporting period, so no preventative maintenance records are provided. See 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 asphalt plant was disassembled in 2021 and did not operate so no calibration nor maintenance took place during this reporting period. 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 when the Asphalt Plant is operational. The rolling 12-month totals for production are calculated on the emissions calculation spreadsheet. The rolling 12-month totals are provided in ATTACHMENT A607.E. The Asphalt Plant did not operate during this reporting period, so no operation log is provided. 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: The asphalt plant was disassembled and did not operate during 2021.

Requirement: The asphalt plant did not emit fugitive dust that exceeded five (5) minutes of visible emissions during any two (2) consecutive hours as the Asphalt Plant was not operational during this reporting period.

Monitoring: EPA Method 22 tests are performed once per month when the plant operates. The Asphalt Plant did

not operate during this reporting period, so no EPA Method 22 readings are provided. See 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 when the Asphalt Plant is operational. No visible emissions exhibited an opacity of 20% or greater as the Asphalt Plant was not operational 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 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)	44 pounds of beryllium (20 kg) in any 24 hour period; 1100 pounds/year (500 kg/year) using a rolling total. (NSR Permit 1081-M1-R3, Specific Condition 1.c.)	Weld cutting, weld dressing, metallography, and electric furnace operations shall be 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	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

TA-35-213	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 10, 2021; November 10, 2021 **Tracking Number:** Activity No.: 000856-08102021-01; Activity No.: 000856-11102021-01

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

Comments: A707.A Operational Requirements - Beryllium Activities:

TA-3-66 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 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 and the facility is occupied.

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 tests are included in ATTACHMENT A707.C.b.

The electric furnace did not operate during this reporting 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. Differential pressure readings were not recorded on August 14-15, 2021, as the exhaust fans were in operation, but the facility was not occupied (no beryllium was being processed). The exhaust fans were not in operation on November 6, 2021 and December 5, 2021. The facility was not occupied and no beryllium was being processed on these dates. Thus, HEPA filter differential pressure readings are not required on the above dates.

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 10, 2021 for 2021Q2 (Activity No.: 000856-08102021-01) and November 10, 2021 for 2021Q3 (Activity No.: 000856-11102021-01).

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 not currently used as the fuel system for RLUOB BHW-1 through 3. If fuel oil is burned in the future, the boilers will use only Ultra Low Sulfur Diesel (ULSD) containing no more than 0.5 wt% total sulfur. Sulfur content will be documented in fuel manifests and bill of ladings.

Recordkeeping: A copy of the natural gas transportation contract is maintained on-site. Copies of the fuel manifests and bill of ladings for fuel oil are maintained in electronic files. 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 of 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 listed in Table 800.A.

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 reporting period and no records were generated.
4) 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

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: Natural gas sulfur requirements are tracked and addressed in the natural gas transportation contract. The amount of fuel oil combusted is monitored and recorded on a monthly basis. Fuel oil is not currently used as the fuel system for RLUOB BHW-1 through 3, and units TA-55-6-BHW-1 & TA-55-6-BHW-2 only burn natural gas. If fuel oil is burned in the future, the boilers will use only Ultra Low Sulfur Diesel (ULSD) containing no more than 0.5 wt% total sulfur. Sulfur content will be documented in fuel manifests and bill of ladings. No fuel oil was purchased or used 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 requirement, 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. When installed, the requirement, 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 to ensure proper operations.

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 2021 are included in ATTACHMENT A807.F.a.

Reporting: LANL submitted two procedures that are used to carry out the operational inspections: "Preventive Maintenance Instruction (PMI) 403-A.006: Hot Water Boiler Yearly Fireside/Waterside Inspection and Maintenance" for boilers at TA-53 and TA-55 and "Maintenance Procedure UIDO-PROC-76-28-010-R0: TA-09/16 Steam Plants – Annual Boiler Waterside/Fireside Checklist" for boilers located at TA-16. The procedures were submitted to NMED AQB on May 14, 2015 (SBR20150006) within 90 days after permit P100-R2 issuance. Revisions were last made to PMI 403-A.006 on October 24, 2018. Minor revisions were made to Maintenance Procedure UIDO-PROC-76-28-010-R0 on October 8, 2021. The revised procedure is included in ATTACHMENT A807.F.b.

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:** September 22, 2021 **Tracking Number:** SBR20210005

☐ **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, 2021 was submitted to NMED on September 22, 2021 (SBR20210005), 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-1P operated for a total of 0.5 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 on a six-month basis.

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 and it contains no more than 15 ppm sulfur. Sulfur content is documented in fuel manifests and bill of ladings.

Recordkeeping: Only ULSD fuel containing no more than 15 ppm sulfur is used in this unit. Copies of the fuel manifests and bill of ladings are maintained in electronic files.

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 25% (547.5 hours in a quarter) or less of a monitoring period (calendar quarter). After two successive periods without monitoring, monitoring is required during the next period, unless the unit has operated less than 10% (219 hours in a quarter) of the monitoring period. If the unit runs less than 10%, that period is not considered as one of the two successive periods. No applicable CI-RICE units operated more than 25% for two successive monitoring periods during this reporting period, therefore no monitoring was required. 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 fuel manifests and bill of ladings documenting ULSD purchases. §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 §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(b) are available on site.

Diesel sulfur requirements of 15 ppm are met by fuel manifests and bill of ladings documenting ULSD purchases.

§60.4211 (a) (c) 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 six-month 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 six-month 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. Preventative maintenance was performed in October of 2021.

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 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: Records are maintained in accordance with Section B110. 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) standard cubic feet. Fuel oil for this source is located in a tank on-site 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 natural gas transportation contract is maintained on-site. Copies of the fuel manifests and bill of ladings for fuel oil are maintained in electronic files. 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 met as 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: LANL's natural gas 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.

Monitoring: Natural gas fuel meets the requirement specified in Condition A1305.A and B. Use of natural gas fuel constitutes compliance with the 20% opacity limit. 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: A standard form is used for all opacity measurements. The form includes the date and time of the Method 9 observation and opacity observed. 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: Certified opacity readers are located 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.

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 reporting period and therefore Method 9 opacity measurements were not conducted. See ATTACHMENT A1306.B.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: A standard form is used for all opacity measurements. The form includes the date and time of the Method 9 observation and opacity observed. 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. See ATTACHMENT A1307.A for details.

1) The average hourly emission rates are included in the spreadsheet.

2) The actual annual emission rates are included in the spreadsheet.

3) The emission rates are based on the emission factor for NOx (lbs/MMscf), which is 58 lbs/MMscf, this factor is converted to lbs/MMBtu by dividing by the high heat value of natural gas (the number of Btu in a scf). As the HHV of natural gas ranges in value, the emission range was calculated using the low and high values at LANL between 2011 and 2021, the lowest was 939.97 Btu/scf and the highest was 1079.3 Btu/scf, therefore the NOx emission rate will range from 0.0537 to 0.0617 lbs/MMBtu.

Recordkeeping: Records are maintained in accordance with Section B109.

Reporting: Emissions and monitoring reports are submitted on a semi-annual 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. Volumetric flow is measured using the liquid or gas fuel flowmeters installed on the natural gas fuel inlet to each respective unit and on the combined fuel oil inlet to the boilers. All fuel use data are tracked monthly in a spreadsheet used for emission calculations.

Monitoring: Natural gas fuel meters are in place on each boiler. Fuel oil is measured using control panel readings. Both natural gas and fuel oil are continuously monitored when being combusted. A monthly and 12-month rolling total of natural gas and fuel oil use are recorded and reviewed monthly to verify usage does not exceed allowable limits. See ATTACHMENT 1307.B for monthly and 12-month rolling totals for each fuel.

Recordkeeping: Total monthly liquid fuel for all boilers and gaseous fuel for each boiler were recorded on a monthly basis. The annual fuel usage was calculated and recorded on a monthly rolling 12-month total basis. 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 to verify usage does not exceed 1400 MMscf. The daily and monthly total fuel use is collected and recorded in a spreadsheet used for calculating emissions. See 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 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 reporting 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 normal operation. The operating 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. See ATTACHMENT A.1307.D.

Recordkeeping: The operating 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. 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: When a boiler is operating, the associated Flue Gas Recirculation (FGR) fan is operating. 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. No malfunctions of the FGR systems have occurred during this reporting period.

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

Recordkeeping: Records of inspection and maintenance of the FGR fans are completed monthly. No malfunctions occurred during this reporting period. 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 combustion turbine is equipped with the Dry Low Emissions (DLE) control technology. 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 of the DLE system associated with the combustion turbine were all 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 emission limits in Table A1302.A, including the NOx ppmv limitation, as demonstrated in the monitoring and reporting sections below.

Monitoring: The test followed the requirements and limitations required in Section B108. 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. Results from the test demonstrate compliance with NOx and CO emission limits and thus the VOC emission limits. No limits were exceeded. See ATTACHMENT

A1307.H. for the test report.
1) An emission stack test was conducted on December 8, 2021; the test results demonstrated that the actual emissions were less than the allowable emissions.
2) No additional stack testing was required during this monitoring period.
3) 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.
4) The stack test was performed following the monitoring requirements required in Section B108 and general testing procedures found in Section B111. Records of periodic emissions test include all data required by this section.
5) Performance testing met the requirements of this condition and were completed during the specified monitoring period.

Recordkeeping: The test followed the requirements and limitations required in Section B109. Records are kept of the periodic emissions test results, including the turbine's fuel flow rate and horsepower, and the type of fuel fired. 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. Raw data and calculations are included in the test report.

Reporting: 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.

P100-R2M1 - 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: Requirement: The facility is in compliance with the allowable emissions limits in Table 106.B by calculating the annual total HAP emissions in tons per year. The most recent water analysis results and hours of operation are used to calculate the emissions. The SERF evaporative sprayers did not operate during this reporting period.

Monitoring: The facility conducts analysis of the basin water for HAPs and TAPs every two years effective 2018. Basin water sampling was conducted in November and December of 2020. The hours of operation are monitored and tabulated. See ATTACHMENT A1507.A.b. for details.

Recordkeeping: Records are kept on-site and include the monthly rolling and 12-month total of HAPs emissions based on 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 in November and December of 2020. See ATTACHMENT A1507.A.a. for details.

P100-R2M1 - 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: 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.

P100-R2M4 - A1507 Evaporative Sprayers–HAPs Calculations, Maintenance, and Repair

A. HAPs Calculations (Evaporative Sprayers)

Requirement: Compliance with the facility-wide allowable emission limits in Table 106.B (P100-R2M1) 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 New Mexico 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 calculated actual 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 according to Section A109 and in accordance with Section B111 (P100-R2M1). 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 Condition A109.A (P100-R2M1) 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: Requirement: The facility demonstrates compliance with the allowable emissions limits in Table 106.B by calculating the annual total HAP emissions in tons per year. The most recent water analysis results and hours of operation are used to calculate the emissions. The SERF evaporative sprayers did not operate during this reporting period.

Monitoring: The facility conducts analysis of the basin water for HAPs and TAPs every two years effective 2018. Basin water sampling was conducted in November and December of 2020. The hours of operation are monitored and tabulated.

Recordkeeping: Records are kept on-site and include the monthly rolling and 12-month total of HAPs emissions based on 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 in November and December of 2020.

P100-R2M4 - A1507 Evaporative Sprayers–HAPs Calculations, Maintenance, and Repair

B. Maintenance and Repair Requirements

Requirement: Compliance with the facility-wide allowable emission limits in Table 106.B (P100-R2M1) 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 (P100-R2M1), 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 (P100-R2M1),

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

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				
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								☐ Yes ☐ No
2								☐ Yes ☐ No
3								☐ Yes ☐ No
4								☐ Yes ☐ No
5								☐ Yes ☐ No

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Operating Permit P100-R2M4

Monitoring Period July 1–December 31, 2021

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.a.	External Combustion – Operational Boiler Inspection
ATTACHMENT A807.F.b.	External Combustion – Revised Boiler Maintenance Procedures
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

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Operating Permit P100-R2M4

Monitoring Period July 1–December 31, 2021

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

The Asphalt Plant did not operate during this reporting period and no differential pressure records were required.

ATTACHMENT A607.C.

Asphalt Plant

EPA Method 9 Opacity Reports

The Asphalt Plant did not operate during this reporting period and no EPA Method 9 opacity reports were required.

ATTACHMENT A607.E.

Asphalt Plant

Daily Operation Log and 12-Month Rolling Production

The Asphalt Plant did not operate during this reporting period and no daily operation logs were required.

2021 TA-60 BDM Asphalt Plant

Month	Asphalt Produced (Tons)	12-Month Rolling Total	Month	Asphalt Produced (Tons)	12-Month Rolling Total
January	0	97	July	0	65
February	0	72	August	0	65
March	0	65	September	0	65
April	0	65	October	0	37
May	0	65	November	0	3
June	0	65	December	0	0
6 mo. Total	0		6 mo. Total	0	

12-Month Rolling Production Permit Limit is 6,000 Tons

2021 Asphalt Produced (Tons)	0

Data Reviewed By / Date: K. Mahoney, 1/5/2022 (July-Dec)

Annual Hours			
Month	Hours	Month	Hours
Jan	0.0	Jul	0.0
Feb	0.0	Aug	0.0
Mar	0.0	Sep	0.0
Apr	0.0	Oct	0.0
May	0.0	Nov	0.0
Jun	0.0	Dec	0.0
Total:	0.0	Total:	0.0

Annual Total (to date)	0.0 Hours

Hours are Limited to 4,380 per Year

ATTACHMENT A607.F.

Asphalt Plant

Maintenance and Delivery Records

The Asphalt Plant did not operate during this reporting period and no maintenance and delivery records were required.

ATTACHMENT A607.G.

Asphalt Plant

EPA Method 22 Opacity Reports

The Asphalt Plant did not operate during this reporting period and no EPA Method 22 opacity reports were required.

ATTACHMENT A707.B.a.

Beryllium

TA-03-0066 Beryllium Logs

July 1, 2021 - December 31, 2021

Electroplating/Chemical Milling

Date	Weight of Beryllium Samples Processed (gm)	Controlled Emission Factor (gm emission/gm Used)	Controlled Be Emissions (gm)
No beryllium processed during this period.		1.20E-05	0.00E+00
Total Beryllium Emissions from Electroplating/Chemical Milling			**0.00E+00**

Note: Information required under Title V Operating Permit P100-R2M4, Section A707.B, Emissions Monitoring Requirements and A707.D, Reporting Requirements

July 1, 2021 - December 31, 2021

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-R2M4, Section A707.B, Emissions Monitoring Requirements and A707.D, Reporting Requirements

July 1, 2021 - December 31, 2021

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-R2M4, 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, 2021

July		August		September		October		November		December	
Date	**Hours**	**Date**	**Hours**	**Date**	**Hours**	**Date**	**Hours**	**Date**	**Hours**	**Date**	**Hours**
1-Jul-2021	6	2-Aug-2021	4	1-Sep-2021	5	6-Oct-2021	5	2-Nov-2021	5	1-Dec-2021	6
6-Jul-2021	6	3-Aug-2021	4	2-Sep-2021	6	7-Oct-2021	6	3-Nov-2021	7	2-Dec-2021	6
7-Jul-2021	7	9-Aug-2021	6	6-Sep-2021	6	11-Oct-2021	6	4-Nov-2021	6	6-Dec-2021	7
8-Jul-2021	5	10-Aug-2021	6	7-Sep-2021	6	12-Oct-2021	6	8-Nov-2021	6	7-Dec-2021	4
9-Jul-2021	5	12-Aug-2021	5	8-Sep-2021	5	13-Oct-2021	6	9-Nov-2021	4	8-Dec-2021	5
12-Jul-2021	5	13-Aug-2021	6	9-Sep-2021	4	14-Oct-2021	6	10-Nov-2021	7	9-Dec-2021	6
13-Jul-2021	6	16-Aug-2021	6			15-Oct-2021	4	11-Nov-2021	7	10-Dec-2021	4
14-Jul-2021	6	17-Aug-2021	5			18-Oct-2021	5	12-Nov-2021	6	14-Dec-2021	5
15-Jul-2021	6	18-Aug-2021	7			19-Oct-2021	6	15-Nov-2021	5	15-Dec-2021	5
19-Jul-2021	7	19-Aug-2021	6			20-Oct-2021	6	16-Nov-2021	6	16-Dec-2021	6
20-Jul-2021	6	20-Aug-2021	4			21-Oct-2021	5	17-Nov-2021	6	20-Dec-2021	4
21-Jul-2021	6	23-Aug-2021	5			25-Oct-2021	4	18-Nov-2021	4	21-Dec-2021	4
22-Jul-2021	5	24-Aug-2021	6			26-Oct-2021	4	22-Nov-2021	4		
23-Jul-2021	4	25-Aug-2021	7			27-Oct-2021	5	23-Nov-2021	5		
26-Jul-2021	5	26-Aug-2021	6			28-Oct-2021	5	29-Nov-2021	6		
27-Jul-2021	6	30-Aug-2021	4			29-Oct-2021	6	30-Nov-2021	6		
28-Jul-2021	6	31-Aug-2021	4								
29-Jul-2021	6										
Total Hours	**103**		**91**		**32**		**85**		**90**		**62**

Total hours for July 1 - December 31, 2021: **463**

Reviewed by: Katelyn Mahoney, 1/5/2022

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	0.89	0.68	0.85	2021
	12:00	0.90	0.68	1.09	2021
	20:00	0.96	0.71	1.03	2021
DAY 2	04:00	0.94	0.69	0.93	2021
	12:00	0.91	0.68	1.02	2021
	20:00	0.93	0.69	1.04	2021
DAY 3	04:00	0.91	0.68	0.89	2021
	12:00	0.91	0.68	1.05	2021
	20:00	0.92	0.68	1.05	2021
DAY 4	04:00	0.91	0.67	0.93	2021
	12:00	0.91	0.67	1.09	2021
	20:00	0.92	0.68	1.15	2021
DAY 5	04:00	0.91	0.68	0.97	2021
	12:00	0.91	0.67	1.06	2021
	20:00	0.91	0.67	1.06	2021
DAY 6	04:00	0.91	0.68	0.89	2021
	12:00	0.92	0.68	1.06	2021
	20:00	0.93	0.69	1.00	2021
DAY 7	04:00	0.92	0.67	0.93	2021
	12:00	0.91	0.67	1.02	2021
	20:00	0.93	0.68	1.11	2021
DAY 8	04:00	0.92	0.68	0.95	2021
	12:00	0.92	0.69	1.08	2021
	20:00	0.92	0.68	1.16	2021
DAY 9	04:00	0.91	0.66	0.94	2021
	12:00	0.92	0.67	1.17	2021
	20:00	0.92	0.68	1.14	2021
DAY 10	04:00	0.92	0.67	1.05	2021
	12:00	0.91	0.67	1.19	2021
	20:00	0.91	0.67	1.16	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 11	04:00	0.91	0.67	1.05	2021
	12:00	0.91	0.68	1.09	2021
	20:00	0.91	0.67	1.07	2021
DAY 12	04:00	0.91	0.68	0.99	2021
	12:00	0.91	0.68	1.08	2021
	20:00	0.91	0.67	1.13	2021
DAY 13	04:00	0.91	0.68	1.02	2021
	12:00	0.94	0.69	1.26	2021
	20:00	0.91	0.68	1.20	2021
DAY 14	04:00	0.91	0.67	0.97	2021
	12:00	0.96	0.71	1.11	2021
	20:00	0.92	0.69	1.04	2021
DAY 15	04:00	0.90	0.67	1.00	2021
	12:00	0.94	0.69	1.12	2021
	20:00	0.92	0.68	1.14	2021
DAY 16	04:00	0.91	0.67	0.96	2021
	12:00	0.94	0.70	1.10	2021
	20:00	0.91	0.67	1.07	2021
DAY 17	04:00	0.92	0.68	0.97	2021
	12:00	0.91	0.67	1.05	2021
	20:00	0.91	0.67	1.11	2021
DAY 18	04:00	0.91	0.68	0.93	2021
	12:00	0.90	0.66	1.07	2021
	20:00	0.91	0.67	1.09	2021
DAY 19	04:00	0.91	0.67	0.98	2021
	12:00	0.89	0.65	1.16	2021
	20:00	0.92	0.68	1.23	2021
DAY 20	04:00	0.93	0.68	1.08	2021
	12:00	0.92	0.69	1.18	2021
	20:00	0.93	0.69	1.07	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 21	04:00	0.93	0.69	0.94	2021
	12:00	0.92	0.68	1.01	2021
	20:00	0.93	0.68	1.12	2021
DAY 22	04:00	0.92	0.69	0.91	2021
	12:00	0.93	0.68	1.10	2021
	20:00	0.93	0.68	1.00	2021
DAY 23	04:00	0.92	0.68	0.93	2021
	12:00	0.96	0.71	1.12	2021
	20:00	0.96	0.71	1.01	2021
DAY 24	04:00	0.95	0.71	0.81	2021
	12:00	0.95	0.71	0.96	2021
	20:00	0.95	0.71	0.98	2021
DAY 25	04:00	0.92	0.69	0.83	2021
	12:00	0.94	0.70	1.03	2021
	20:00	0.95	0.70	1.00	2021
DAY 26	04:00	0.95	0.70	0.89	2021
	12:00	0.92	0.69	1.08	2021
	20:00	0.93	0.68	1.02	2021
DAY 27	04:00	0.92	0.68	0.94	2021
	12:00	0.41	0.33	0.08	2021
	20:00	0.85	0.66	1.00	2021
DAY 28	04:00	0.85	0.65	0.95	2021
	12:00	0.85	0.65	1.08	2021
	20:00	0.86	0.65	1.06	2021
DAY 29	04:00	0.86	0.65	0.94	2021
	12:00	0.85	0.64	1.10	2021
	20:00	0.86	0.64	1.10	2021
DAY 30	04:00	0.85	0.64	0.95	2021
	12:00	0.84	0.65	1.06	2021
	20:00	0.85	0.64	1.03	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 31	04:00	0.84	0.64	0.98	2021
	12:00	0.84	0.64	1.08	2021
	20:00	0.85	0.64	1.02	2021

JAN FEB MAR

APR MAY JUN

JUL AUG SEP

OCT NOV DEC

MONTH DISPLAYED IS
JULY

PRINT SCREEN MAIN

3:45:22 PM Tuesday, January 04, 2022

NM STATE REPORTING

		HEPA 1	HEPA 2	DUST	YEAR
DAY 1	04:00	0.84	0.65	0.89	2021
	12:00	0.84	0.64	0.94	2021
	20:00	0.85	0.65	1.03	2021
DAY 2	04:00	0.84	0.64	0.87	2021
	12:00	0.84	0.64	0.96	2021
	20:00	0.85	0.64	0.94	2021
DAY 3	04:00	0.85	0.65	0.87	2021
	12:00	0.87	0.66	1.04	2021
	20:00	0.84	0.63	0.96	2021
DAY 4	04:00	0.85	0.64	0.89	2021
	12:00	0.87	0.66	1.03	2021
	20:00	0.86	0.65	1.06	2021
DAY 5	04:00	0.85	0.65	0.96	2021
	12:00	0.88	0.67	1.08	2021
	20:00	0.88	0.67	1.16	2021
DAY 6	04:00	0.88	0.67	0.99	2021
	12:00	0.85	0.65	1.14	2021
	20:00	0.85	0.64	1.12	2021
DAY 7	04:00	0.87	0.66	1.00	2021
	12:00	0.88	0.66	1.10	2021
	20:00	0.88	0.67	1.06	2021
DAY 8	04:00	0.89	0.67	0.96	2021
	12:00	0.88	0.67	1.00	2021
	20:00	0.89	0.67	1.07	2021
DAY 9	04:00	0.89	0.67	1.04	2021
	12:00	0.88	0.67	1.19	2021
	20:00	0.86	0.65	1.20	2021
DAY 10	04:00	0.85	0.65	1.11	2021
	12:00	0.86	0.65	1.07	2021
	20:00	0.86	0.65	1.03	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 11	04:00	0.86	0.65	1.03	2021
	12:00	0.87	0.66	1.09	2021
	20:00	0.86	0.66	1.21	2021
DAY 12	04:00	0.86	0.66	0.98	2021
	12:00	0.87	0.66	1.11	2021
	20:00	0.86	0.65	1.03	2021
DAY 13	04:00	0.85	0.65	0.96	2021
	12:00	0.86	0.65	1.03	2021
	20:00	0.65	0.52	0.00	2021
DAY 14	04:00	0.63	0.50	-0.2	2021
	12:00	0.70	0.77	-0.1	2021
	20:00	0.69	0.77	-0.0	2021
DAY 15	04:00	0.68	0.75	-0.2	2021
	12:00	0.85	1.67	-0.0	2021
	20:00	0.69	0.76	-0.1	2021
DAY 16	04:00	0.68	0.76	-0.2	2021
	12:00	0.95	1.02	0.94	2021
	20:00	0.93	1.00	0.98	2021
DAY 17	04:00	0.92	1.00	0.90	2021
	12:00	0.94	1.00	0.93	2021
	20:00	0.89	0.60	1.08	2021
DAY 18	04:00	0.89	0.61	0.94	2021
	12:00	0.89	0.61	1.06	2021
	20:00	0.90	0.61	1.06	2021
DAY 19	04:00	0.88	0.61	0.97	2021
	12:00	0.89	0.61	1.02	2021
	20:00	0.89	0.61	1.07	2021
DAY 20	04:00	0.90	0.62	0.99	2021
	12:00	0.89	0.60	1.02	2021
	20:00	0.89	0.62	1.10	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 21	04:00	0.89	0.61	0.93	2021
	12:00	0.88	0.61	1.10	2021
	20:00	0.89	0.61	1.08	2021
DAY 22	04:00	0.88	0.61	1.01	2021
	12:00	0.88	0.61	1.11	2021
	20:00	0.89	0.61	1.10	2021
DAY 23	04:00	0.88	0.61	1.02	2021
	12:00	0.88	0.60	1.13	2021
	20:00	0.89	0.61	1.15	2021
DAY 24	04:00	0.89	0.61	1.03	2021
	12:00	0.90	0.61	1.14	2021
	20:00	0.90	0.61	1.18	2021
DAY 25	04:00	0.89	0.61	1.04	2021
	12:00	0.90	0.61	1.12	2021
	20:00	0.89	0.61	1.10	2021
DAY 26	04:00	0.89	0.61	1.00	2021
	12:00	0.89	0.61	1.11	2021
	20:00	0.89	0.60	0.98	2021
DAY 27	04:00	0.88	0.61	1.00	2021
	12:00	0.92	0.62	1.01	2021
	20:00	0.92	0.62	1.01	2021
DAY 28	04:00	0.88	0.61	0.89	2021
	12:00	0.89	0.61	1.05	2021
	20:00	0.89	0.61	1.09	2021
DAY 29	04:00	0.89	0.61	0.97	2021
	12:00	0.89	0.61	1.04	2021
	20:00	0.87	0.60	1.07	2021
DAY 30	04:00	0.89	0.61	0.93	2021
	12:00	0.87	0.60	1.14	2021
	20:00	0.89	0.61	1.03	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 31	04:00	0.88	0.61	0.94	2021
	12:00	0.88	0.60	1.09	2021
	20:00	0.89	0.61	1.08	2021

JAN FEB MAR

APR MAY JUN

JUL AUG SEP

OCT NOV DEC

MONTH DISPLAYED IS
AUGUST

PRINT SCREEN MAIN

3:45.34 PM Tuesday, January 04, 2022

NM STATE REPORTING

		HEPA 1	HEPA 2	DUST	YEAR
DAY 1	04:00	0.89	0.60	0.92	2021
	12:00	0.89	0.61	1.02	2021
	20:00	0.88	0.60	0.88	2021
DAY 2	04:00	0.87	0.60	0.84	2021
	12:00	0.89	0.60	0.94	2021
	20:00	0.89	0.61	0.96	2021
DAY 3	04:00	0.89	0.61	0.91	2021
	12:00	0.92	0.63	0.96	2021
	20:00	0.92	0.62	1.05	2021
DAY 4	04:00	0.90	0.62	0.90	2021
	12:00	0.90	0.62	1.01	2021
	20:00	0.90	0.62	1.04	2021
DAY 5	04:00	0.90	0.62	0.81	2021
	12:00	0.90	0.62	0.93	2021
	20:00	0.90	0.61	1.04	2021
DAY 6	04:00	0.89	0.62	0.90	2021
	12:00	0.89	0.61	1.02	2021
	20:00	0.90	0.61	1.10	2021
DAY 7	04:00	0.90	0.61	0.93	2021
	12:00	0.85	0.58	1.09	2021
	20:00	0.89	0.61	1.10	2021
DAY 8	04:00	0.87	0.60	0.94	2021
	12:00	0.89	0.61	1.10	2021
	20:00	0.87	0.59	1.11	2021
DAY 9	04:00	0.87	0.59	0.95	2021
	12:00	0.86	0.58	1.05	2021
	20:00	0.92	0.61	1.17	2021
DAY 10	04:00	0.90	0.61	1.00	2021
	12:00	0.86	0.59	1.07	2021
	20:00	0.89	0.60	1.15	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 11	04:00	0.87	0.60	1.03	2021
	12:00	0.90	0.61	1.06	2021
	20:00	0.92	0.63	1.12	2021
DAY 12	04:00	0.90	0.61	0.95	2021
	12:00	0.86	0.59	1.06	2021
	20:00	0.89	0.60	1.11	2021
DAY 13	04:00	0.86	0.59	0.95	2021
	12:00	0.90	0.61	1.03	2021
	20:00	0.87	0.59	1.06	2021
DAY 14	04:00	0.88	0.60	0.98	2021
	12:00	0.90	0.62	1.07	2021
	20:00	0.88	0.60	1.08	2021
DAY 15	04:00	0.87	0.60	0.94	2021
	12:00	0.87	0.60	1.00	2021
	20:00	0.88	0.60	1.02	2021
DAY 16	04:00	0.87	0.60	0.92	2021
	12:00	0.87	0.59	1.03	2021
	20:00	0.88	0.60	1.04	2021
DAY 17	04:00	0.87	0.60	0.89	2021
	12:00	0.90	0.61	1.02	2021
	20:00	0.91	0.62	1.04	2021
DAY 18	04:00	0.91	0.62	0.82	2021
	12:00	0.90	0.61	0.94	2021
	20:00	0.88	0.61	1.04	2021
DAY 19	04:00	0.88	0.60	0.91	2021
	12:00	0.87	0.59	0.95	2021
	20:00	0.87	0.59	0.95	2021
DAY 20	04:00	0.86	0.59	0.89	2021
	12:00	0.86	0.59	0.93	2021
	20:00	0.88	0.60	0.93	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 21	04:00	0.86	0.59	0.76	2021
	12:00	0.89	0.60	0.97	2021
	20:00	0.88	0.60	1.05	2021
DAY 22	04:00	0.88	0.60	1.04	2021
	12:00	0.88	0.60	0.99	2021
	20:00	0.88	0.60	0.99	2021
DAY 23	04:00	0.89	0.61	0.86	2021
	12:00	0.89	0.60	0.94	2021
	20:00	0.91	0.62	0.96	2021
DAY 24	04:00	0.92	0.62	0.91	2021
	12:00	0.88	0.59	0.95	2021
	20:00	0.87	0.60	0.96	2021
DAY 25	04:00	0.88	0.60	0.87	2021
	12:00	0.88	0.60	0.98	2021
	20:00	0.89	0.59	1.00	2021
DAY 26	04:00	0.88	0.60	0.84	2021
	12:00	0.88	0.59	0.93	2021
	20:00	0.90	0.61	0.95	2021
DAY 27	04:00	0.89	0.60	0.84	2021
	12:00	0.87	0.59	0.90	2021
	20:00	0.89	0.60	0.96	2021
DAY 28	04:00	0.89	0.60	0.74	2021
	12:00	0.89	0.60	0.86	2021
	20:00	0.91	0.61	0.83	2021
DAY 29	04:00	0.92	0.62	0.82	2021
	12:00	0.88	0.60	0.85	2021
	20:00	0.88	0.60	0.87	2021
DAY 30	04:00	0.88	0.60	0.82	2021
	12:00	0.89	0.60	0.79	2021
	20:00	0.89	0.60	0.80	2021

JAN FEB MAR

APR MAY JUN

JUL AUG SEP

OCT NOV DEC

MONTH DISPLAYED IS
SEPTEMBER

PRINT SCREEN MAIN

3:45 41 PM Tuesday, January 04, 2022

NM STATE REPORTING

		HEPA 1	HEPA 2	DUST	YEAR
DAY 1	04:00	0.87	0.59	0.71	2021
	12:00	0.92	0.62	0.74	2021
	20:00	0.87	0.60	0.80	2021
DAY 2	04:00	0.87	0.60	0.72	2021
	12:00	0.88	0.60	0.85	2021
	20:00	0.89	0.60	0.84	2021
DAY 3	04:00	0.87	0.60	0.82	2021
	12:00	0.88	0.60	0.89	2021
	20:00	0.88	0.60	0.87	2021
DAY 4	04:00	0.88	0.60	0.84	2021
	12:00	0.88	0.60	0.86	2021
	20:00	0.89	0.60	0.93	2021
DAY 5	04:00	0.87	0.61	0.79	2021
	12:00	0.89	0.61	0.90	2021
	20:00	0.89	0.61	0.92	2021
DAY 6	04:00	0.88	0.59	0.82	2021
	12:00	0.87	0.59	0.86	2021
	20:00	0.88	0.60	0.89	2021
DAY 7	04:00	0.87	0.59	0.79	2021
	12:00	0.88	0.60	0.85	2021
	20:00	0.89	0.59	0.92	2021
DAY 8	04:00	0.87	0.59	0.85	2021
	12:00	0.87	0.59	0.87	2021
	20:00	0.88	0.60	0.89	2021
DAY 9	04:00	0.87	0.59	0.88	2021
	12:00	0.89	0.61	0.93	2021
	20:00	0.90	0.61	0.85	2021
DAY 10	04:00	0.88	0.60	0.78	2021
	12:00	0.88	0.60	0.72	2021
	20:00	0.87	0.59	0.82	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 11	04:00	0.86	0.59	0.72	2021
	12:00	0.87	0.59	0.79	2021
	20:00	0.90	0.60	0.77	2021
DAY 12	04:00	0.90	0.60	0.71	2021
	12:00	0.89	0.60	0.74	2021
	20:00	0.87	0.60	0.64	2021
DAY 13	04:00	0.88	0.60	0.59	2021
	12:00	0.93	0.63	0.67	2021
	20:00	0.88	0.60	0.68	2021
DAY 14	04:00	0.87	0.60	0.65	2021
	12:00	0.90	0.62	0.67	2021
	20:00	0.91	0.61	0.67	2021
DAY 15	04:00	0.91	0.62	0.79	2021
	12:00	0.93	0.63	0.97	2021
	20:00	0.88	0.61	0.70	2021
DAY 16	04:00	0.89	0.60	0.59	2021
	12:00	0.91	0.62	0.70	2021
	20:00	0.92	0.62	0.80	2021
DAY 17	04:00	0.89	0.61	0.70	2021
	12:00	0.91	0.62	0.79	2021
	20:00	0.91	0.62	0.86	2021
DAY 18	04:00	0.91	0.62	0.78	2021
	12:00	0.91	0.61	0.83	2021
	20:00	0.87	0.60	0.77	2021
DAY 19	04:00	0.92	0.62	0.80	2021
	12:00	0.86	0.58	0.76	2021
	20:00	0.88	0.59	0.76	2021
DAY 20	04:00	0.87	0.59	0.69	2021
	12:00	0.88	0.59	0.74	2021
	20:00	0.91	0.62	0.79	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 21	04:00	0.90	0.61	0.71	2021
	12:00	0.88	0.59	0.76	2021
	20:00	0.90	0.60	0.83	2021
DAY 22	04:00	0.90	0.60	0.69	2021
	12:00	0.90	0.61	0.77	2021
	20:00	0.93	0.62	0.87	2021
DAY 23	04:00	0.91	0.61	0.70	2021
	12:00	0.89	0.61	0.95	2021
	20:00	0.90	0.61	1.05	2021
DAY 24	04:00	0.91	0.61	1.04	2021
	12:00	0.90	0.60	1.01	2021
	20:00	0.91	0.61	1.06	2021
DAY 25	04:00	0.91	0.61	1.02	2021
	12:00	0.90	0.61	1.07	2021
	20:00	-0.0	-0.0	0.05	2021
DAY 26	04:00	-0.0	-0.0	0.05	2021
	12:00	0.95	0.63	0.97	2021
	20:00	0.94	0.62	0.66	2021
DAY 27	04:00	0.94	0.64	0.61	2021
	12:00	0.94	0.63	0.87	2021
	20:00	1.00	0.66	0.65	2021
DAY 28	04:00	0.97	0.64	0.81	2021
	12:00	0.96	0.64	0.90	2021
	20:00	0.94	0.63	0.75	2021
DAY 29	04:00	0.94	0.62	0.70	2021
	12:00	0.95	0.63	0.81	2021
	20:00	0.93	0.61	0.85	2021
DAY 30	04:00	0.95	0.63	0.75	2021
	12:00	-0.0	-0.0	-0.2	2021
	20:00	0.99	0.65	0.84	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 31	04:00	0.96	0.64	0.75	2021
	12:00	0.97	0.64	0.86	2021
	20:00	0.96	0.64	0.83	2021

JAN FEB MAR

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3:46:03 PM Tuesday, January 04, 2022

NM STATE REPORTING

		HEPA 1	HEPA 2	DUST	YEAR
DAY 1	04:00	0.97	0.65	0.64	2021
	12:00	0.93	0.62	0.79	2021
	20:00	0.94	0.62	0.78	2021
DAY 2	04:00	0.97	0.64	0.72	2021
	12:00	0.94	0.64	0.72	2021
	20:00	0.94	0.63	0.79	2021
DAY 3	04:00	0.95	0.63	0.74	2021
	12:00	0.97	0.65	0.70	2021
	20:00	0.95	0.63	0.72	2021
DAY 4	04:00	0.95	0.63	0.63	2021
	12:00	0.97	0.64	0.77	2021
	20:00	0.93	0.62	0.79	2021
DAY 5	04:00	0.94	0.63	0.71	2021
	12:00	0.95	0.64	0.76	2021
	20:00	-0.0	-0.0	-0.2	2021
DAY 6	04:00	-0.0	-0.0	-0.0	2021
	12:00	-0.0	-0.0	-0.2	2021
	20:00	-0.0	-0.0	-0.2	2021
DAY 7	04:00	-0.0	-0.0	-0.1	2021
	12:00	-0.0	-0.0	-0.1	2021
	20:00	0.95	0.64	0.87	2021
DAY 8	04:00	0.95	0.63	0.85	2021
	12:00	0.94	0.63	0.83	2021
	20:00	0.92	0.62	0.87	2021
DAY 9	04:00	0.93	0.62	0.77	2021
	12:00	0.91	0.62	0.79	2021
	20:00	0.92	0.62	0.82	2021
DAY 10	04:00	0.92	0.62	0.67	2021
	12:00	0.91	0.62	0.74	2021
	20:00	0.94	0.62	0.72	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 11	04:00	0.93	0.63	0.70	2021
	12:00	0.94	0.63	0.72	2021
	20:00	0.94	0.63	0.76	2021
DAY 12	04:00	0.92	0.61	0.65	2021
	12:00	0.94	0.63	0.83	2021
	20:00	0.92	0.62	0.76	2021
DAY 13	04:00	0.91	0.61	0.71	2021
	12:00	0.91	0.62	0.76	2021
	20:00	0.94	0.62	0.83	2021
DAY 14	04:00	0.93	0.63	0.75	2021
	12:00	0.93	0.61	0.81	2021
	20:00	0.93	0.62	0.87	2021
DAY 15	04:00	0.93	0.62	0.86	2021
	12:00	0.93	0.62	0.87	2021
	20:00	0.93	0.62	0.90	2021
DAY 16	04:00	0.96	0.64	0.80	2021
	12:00	0.95	0.64	0.85	2021
	20:00	0.95	0.63	0.84	2021
DAY 17	04:00	0.97	0.64	0.72	2021
	12:00	0.93	0.62	0.82	2021
	20:00	0.97	0.65	0.78	2021
DAY 18	04:00	0.95	0.64	0.86	2021
	12:00	0.96	0.64	0.90	2021
	20:00	0.92	0.61	0.76	2021
DAY 19	04:00	0.93	0.63	0.63	2021
	12:00	0.93	0.62	0.81	2021
	20:00	0.93	0.62	0.80	2021
DAY 20	04:00	0.93	0.62	0.76	2021
	12:00	0.92	0.62	0.81	2021
	20:00	0.94	0.62	0.77	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 21	04:00	0.94	0.63	0.78	2021
	12:00	0.93	0.63	0.76	2021
	20:00	0.94	0.63	0.80	2021
DAY 22	04:00	0.94	0.63	0.73	2021
	12:00	0.92	0.62	0.86	2021
	20:00	0.95	0.64	0.68	2021
DAY 23	04:00	0.95	0.63	0.79	2021
	12:00	0.94	0.63	0.85	2021
	20:00	0.94	0.63	0.95	2021
DAY 24	04:00	0.93	0.61	0.96	2021
	12:00	0.92	0.62	0.86	2021
	20:00	0.95	0.63	0.97	2021
DAY 25	04:00	0.95	0.63	0.96	2021
	12:00	0.93	0.62	0.93	2021
	20:00	0.93	0.62	0.77	2021
DAY 26	04:00	0.93	0.63	0.63	2021
	12:00	0.93	0.63	0.88	2021
	20:00	0.92	0.61	0.78	2021
DAY 27	04:00	0.94	0.63	0.70	2021
	12:00	0.93	0.62	0.72	2021
	20:00	0.94	0.63	0.78	2021
DAY 28	04:00	0.94	0.62	0.75	2021
	12:00	0.93	0.62	0.76	2021
	20:00	0.93	0.62	0.81	2021
DAY 29	04:00	0.93	0.62	0.79	2021
	12:00	0.95	0.64	0.78	2021
	20:00	0.90	0.61	0.86	2021
DAY 30	04:00	0.93	0.63	0.83	2021
	12:00	0.93	0.61	0.76	2021
	20:00	0.93	0.61	0.83	2021

JAN FEB MAR

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3:46:37 PM Tuesday, January 04, 2022

NM STATE REPORTING

		HEPA 1	HEPA 2	DUST	YEAR
DAY 1	04:00	0.94	0.63	0.77	2021
	12:00	0.93	0.62	0.77	2021
	20:00	0.92	0.62	0.78	2021
DAY 2	04:00	0.94	0.62	0.73	2021
	12:00	0.95	0.64	0.76	2021
	20:00	0.93	0.62	0.78	2021
DAY 3	04:00	0.93	0.63	0.72	2021
	12:00	0.94	0.63	0.77	2021
	20:00	0.93	0.62	0.69	2021
DAY 4	04:00	0.93	0.62	0.72	2021
	12:00	-0.0	-0.0	-0.2	2021
	20:00	-0.0	-0.0	-0.2	2021
DAY 5	04:00	-0.0	-0.0	-0.3	2021
	12:00	0.84	0.59	-0.3	2021
	20:00	0.85	0.60	-0.3	2021
DAY 6	04:00	0.91	0.63	0.72	2021
	12:00	0.90	0.62	0.83	2021
	20:00	0.92	0.62	0.92	2021
DAY 7	04:00	0.92	0.64	0.91	2021
	12:00	0.91	0.62	1.02	2021
	20:00	0.91	0.63	0.74	2021
DAY 8	04:00	0.91	0.63	0.88	2021
	12:00	0.90	0.63	0.88	2021
	20:00	0.90	0.62	0.97	2021
DAY 9	04:00	0.89	0.61	0.78	2021
	12:00	0.89	0.62	0.65	2021
	20:00	0.92	0.62	0.74	2021
DAY 10	04:00	0.91	0.62	0.73	2021
	12:00	0.90	0.62	0.82	2021
	20:00	0.90	0.61	0.77	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 11	04:00	0.90	0.62	0.68	2021
	12:00	0.89	0.62	0.62	2021
	20:00	0.91	0.62	0.67	2021
DAY 12	04:00	0.89	0.62	0.64	2021
	12:00	0.88	0.60	0.69	2021
	20:00	0.91	0.62	0.82	2021
DAY 13	04:00	0.91	0.61	0.76	2021
	12:00	0.91	0.61	0.88	2021
	20:00	0.90	0.61	0.74	2021
DAY 14	04:00	0.89	0.60	0.68	2021
	12:00	0.88	0.59	0.72	2021
	20:00	0.88	0.61	0.74	2021
DAY 15	04:00	0.88	0.59	0.71	2021
	12:00	0.87	0.60	0.78	2021
	20:00	0.87	0.60	0.85	2021
DAY 16	04:00	0.88	0.60	0.73	2021
	12:00	0.85	0.59	0.77	2021
	20:00	0.89	0.61	0.87	2021
DAY 17	04:00	0.88	0.60	0.84	2021
	12:00	0.86	0.59	0.93	2021
	20:00	0.87	0.60	0.71	2021
DAY 18	04:00	0.86	0.59	0.86	2021
	12:00	0.84	0.58	0.78	2021
	20:00	0.85	0.60	0.88	2021
DAY 19	04:00	0.86	0.59	0.82	2021
	12:00	0.84	0.58	0.81	2021
	20:00	0.86	0.59	0.88	2021
DAY 20	04:00	0.86	0.60	0.93	2021
	12:00	0.84	0.58	0.87	2021
	20:00	0.90	0.61	0.68	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 21	04:00	0.88	0.61	0.82	2021
	12:00	0.86	0.60	0.76	2021
	20:00	0.87	0.59	0.71	2021
DAY 22	04:00	0.86	0.59	0.78	2021
	12:00	0.87	0.60	0.69	2021
	20:00	0.88	0.61	0.67	2021
DAY 23	04:00	0.88	0.61	0.63	2021
	12:00	0.86	0.60	0.70	2021
	20:00	0.84	0.58	0.78	2021
DAY 24	04:00	0.87	0.60	0.81	2021
	12:00	0.85	0.59	0.70	2021
	20:00	0.86	0.60	0.71	2021
DAY 25	04:00	0.86	0.58	0.63	2021
	12:00	0.85	0.59	0.70	2021
	20:00	0.86	0.60	0.61	2021
DAY 26	04:00	0.85	0.60	0.73	2021
	12:00	0.87	0.59	0.68	2021
	20:00	0.87	0.60	0.66	2021
DAY 27	04:00	0.85	0.58	0.86	2021
	12:00	0.86	0.59	0.89	2021
	20:00	0.86	0.59	0.83	2021
DAY 28	04:00	0.88	0.60	0.94	2021
	12:00	0.85	0.59	0.90	2021
	20:00	0.86	0.59	0.88	2021
DAY 29	04:00	0.86	0.60	0.88	2021
	12:00	0.86	0.58	0.89	2021
	20:00	0.86	0.60	0.82	2021
DAY 30	04:00	0.86	0.60	0.86	2021
	12:00	0.86	0.60	0.89	2021
	20:00	0.87	0.60	0.65	2021

		HEPA 1	HEPA 2	DUST	YEAR
DAY 31	04:00	0.86	0.59	0.81	2021
	12:00	0.84	0.58	0.88	2021
	20:00	0.85	0.60	0.80	2021

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3:46:47 PM Tuesday, January 04, 2022

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:	100 AREA GLOVEBOX EXHAUST IN-PLACE HEPA FILTER TESTING
Procedure no.:	TA55-STP-104A, R4
Date of issue:	7/13/21
Working copy issued to:	K. BRAUER
Working copy issued by:	D. HEINTZCHEL
	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. BRAUER	DH	7/13/21
M. VIGIL	DH	7/13/21
R. MARTINEZ	M	7/13/21

OC Reviews Complete and TSR Status Board Updated

DH 7/16/21

OCO Signature Date

FOR INFORMATION ONLY

Attachment A, 100 Area Glovebox Exhaust FF-852 Data Sheet

(Page 1 of 3)

Step 3.1[2]	Obtain current copy of STP	Initials KB	Step 3.1[3]	Obtain Permission to conduct STP	Initials KB
Step 5.1[2]	Plenum (Circle One) SAT UNSAT	Initial KB			

Valve	Required Position	Initials Step 5.1[3]
V-852-H	Closed and Locked	KB
V-852-G	Closed	KB
V-852-F	Closed	KB
V-852-D	Closed	KB
V-852-C	Closed	KB
V-852-B	Closed	KB
V-852-A	Closed	KB
V-852-AA	Closed	KB
TP-852-1	Closed and Capped	KB
TP-852-2	Closed and Capped	KB
TP-852-3	Closed and Capped	KB

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 KB

Date: 7/13/21 (5.1[6][a]) **Photometer Cal. Expiration Date:** 12/15/21 (5.1[6][b]) **Photometer File #** 104062 (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 (PDI-815-2)	0.55 Inches wc
5.2[1][c]	Second-Stage HEPA Filter ΔP (PDI-815-4)	0.48 Inches wc
5.2[2][d]	Third-Stage HEPA Filter ΔP (PDI-815-5)	0.49 Inches wc

$	**PLENUM EFFICIENCY TEST [SR #4.1.3.1.A, #4.1.3.1.B]**
Follow the HEPA test procedure	
Cu = 44 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 = 44 ug/l(%) Final Stable Upstream Meter reading	**Acceptance: ≥ 30 meter reading**
Stable Downstream (Cd%) Meter reading = .007 (%)	
Removal Efficiency (%) =.100% - Cd% = 100% - .007 Cd% = 99.993 %	
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	RH	KB
V-852-AA	Closed	RH	KB
TP-852-1	Closed and Capped	RH	KB
TP-852-2	Closed and Capped	RH	KB
TP-852-3	Closed and Capped	RH	KB

6.1.1 ISI 3

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	RH	N/A

Surveillance Test Procedure Acceptance			
Date of Test:	7/13/21	(unless already listed elsewhere on the attachment)	
Test Results:	**SATISFACTORY** / **UNSATISFACTORY** (circle one)		
Surveillance Personnel:	R-B 352694 7/13/21 / [illegible] 7/13/21		
	Signature/Z#/date		
OC Operator:	7/13/21 [illegible] 335126	**OC On-Duty Supervisor:**	306557 7/13/21
	Signature / Z# / Date		Signature / Z# / Date
Surveillance Test Results Review			
System Engineer:	252921 7/16/21		
	Signature / Z# / Date		
Comments			

FOR INFORMATION ONLY

Attachment B, 100 Area Glovebox Exhaust FF-853 Data Sheet

(Page 1 of 3)

Step 3.1[2]	Obtain current copy of STP	Initials	**Step 3.1[3]**	Obtain Permission to conduct STP	Initials
Step 5.1[2]	Plenum (Circle One) **SAT** **UNSAT**	Initials			

Valve	Required Position	Initials Step 5.1[3]
V-853-H	**Closed and Locked**	
V-853-G	**Closed**	
V-853-F	**Closed**	
V-853-D	**Closed**	
V-853-C	**Closed**	
V-853-B	**Closed**	
V-853-A	**Closed**	
V-852-AA	**Closed**	
TP-853-1	**Closed and Capped**	
TP-853-2	**Closed and Capped**	
TP-853-3	**Closed and Capped**	

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

Date: 7/13/21 **5.1[6][a]** **Photometer Cal. Expiration Date:** 12/15/21 **5.1[6][b]** **Photometer File #** 104062 **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 (PDI-816-2)	.59	Inches wc
5.3[1][c]	Second-Stage HEPA Filter ΔP (PDI-816-4)	.54	Inches wc
5.3[1][d]	Third-Stage HEPA Filter ΔP (PDI-816-5)	.58	Inches wc

$	**PLENUM EFFICIENCY TEST [SR #4.1.3.1.A, #4.1.3.1.B]**
Follow the HEPA test procedure	
Cu = 37 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**

FIRST STAGE TEST [defense-in-depth]	
Follow the HEPA test procedure	
Cu = 37 ug/l(%) Final Stable Upstream Meter reading **Acceptance: ≥ 30 meter reading**	
Stable Downstream (Cd%) Meter reading = .004 (%)	
Removal Efficiency (%) =.100% - Cd% = 100% - .004 Cd% = 99.996 %	
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	RM	KB
V-852-AA	Closed	RM	KB
TP-853-1	Closed and Capped	RM	KB
TP-853-2	Closed and Capped	RM	KB
TP-853-3	Closed and Capped	RM	KB

6.1.1 ISI 3

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	RM	N/A

$

Surveillance Test Procedure Acceptance			
Date of Test:	7/13/21	(unless already listed elsewhere on the attachment)	
Test Results:	**SATISFACTORY** / **UNSATISFACTORY** (circle one)		
Surveillance Personnel:	K-B 352699 7/13/21 / KDB 154122 7/13/21		
	Signature/Z#/date		
OC Operator:	7/13/21 335126	**OC On-Duty Supervisor:**	308593 7/13/21
	Signature / Z# / Date		Signature / Z# / Date
Surveillance Test Results Review			
System Engineer:	252921 7/16/21		
	Signature / Z# / Date		
Comments			

FOR INFORMATION ONLY

Attachment B, Surveillance Training Checklist

(Page 1 of 2)

Procedure title:	300 AREA GLOVEBOX EXHAUST IN-RACK HEPA FILTER TESTING
Procedure no.:	TA55-STP-1046, R5
Date of issue:	7-6-21
Working copy issued to:	K. Brauer
Working copy issued by:	T. Stilson
	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. Brauer	TJ	7-6-21
M. Irish	TJ	7-6-21
R. Martinez	TJ	7-6-21

OC Reviews Complete and TSR Status Board Updated

OCO Signature 7/6/21 Date

FOR INFORMATION ONLY

Attachment A, Valve Alignment

(Page 1 of 1)

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]
HV-854-J	**Closed and Locked**		855-J	**Closed and Locked**	
854-H	**Closed**		855-D	**Closed**	
854-G	**Closed**		855-C	**Closed**	
854-D	**Closed**		855-B	**Closed**	
854-C	**Closed**		855-A	**Closed**	
854-B	**Closed**		V-855-8	**Closed and Locked**	
854-A	**Closed**		859-7	**Closed**	
854-8	**Closed and Locked**		859-5	**Closed**	
858-7	**Closed**		859-3	**Closed**	
858-5	**Closed**		859-2	**Closed**	
858-3	**Closed**		859-1	**Closed**	
858-2	**Closed**				
858-1	**Closed**				
HV-854-AA	**Closed**				

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**

FOR INFORMATION ONLY

Attachment B, 300 Area Glovebox Exhaust FF-854 Data Sheet

(Page 1 of 3)

Step 3.1[3]	Obtain current copy of STP.	**Initials** RL	**Step 3.1[3]**	Obtain permission to conduct STP.	**Initials** RL
Step 5.1[2]	Plenum (Circle One) **SAT** **UNSAT**	**Initial** RL			

Date: 7/6/21 **5.1[5][a]**

Photometer Cal. Expiration Date: 12/15/21 **5.1[5][b]**

Photometer File # 104062 **5.1[5][c]**

Step	Item	FF-854
5.2[1]	First-stage HEPA Filter ΔP (PDI-817-2)	.10 Inches wc
5.2[2]	Second-Stage HEPA Filter ΔP (PDI-817-4)	.15 Inches wc
5.2[3]	Third-Stage HEPA Filter ΔP (PDI-817-5)	.13 Inches wc

PLENUM EFFICIENCY TEST

Follow the HEPA test procedure

Cu = 40 ug/l(%) Final Stable Upstream Meter reading **Acceptance: ≥30 meter reading**

Stable Downstream (Cd%) Meter reading = .006 (%)

Removal Efficiency (%) = 100% - Cd% = 100% - .006 Cd% = 99.994%

Acceptance: ≥ 99.95% **Acceptable? (circle one) YES / NO** **[SR #4.1.3.1.A, #4.1.3.1.B]**

FIRST STAGE TEST [defense-in-depth]

Follow the HEPA test procedure

Cu = 40 ug/l(%) Final Stable Upstream Meter reading **Acceptance: ≥30 meter reading**

Stable Downstream (Cd%) Meter reading = .007 (%)

Removal Efficiency (%) = 100% - Cd% = 100% - .007 Cd% = 99.993% RM 7/16/21

Acceptance: ≥ 99.95% **Acceptable? (circle one)** **YES** **NO**

FOR INFORMATION ONLY

Attachment B, 300 Area Glovebox Exhaust FF-854 Data Sheet

(Page 2 of 3)

Valve	Required Position	Initials Step 5.4[8]	Independent Verification Step 5.4[8][b]
854-A	**Closed**	RM	KB
HV-854-AA	**Closed**	RM	KB
V-870A	**Open**	RM	KB
V-890	**Open**	RM	KB
TP-854-1	**Closed and Capped**	RM	KB
TP-854-2	**Closed and Capped**	RM	KB
TP-854-3	**Closed and Capped**	RM	KB
6.1.1 ISI 3			
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	RM / N/A

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FOR INFORMATION ONLY

Attachment B, 300 Area Glovebox Exhaust FF-854 Data Sheet

(Page 3 of 3)

Surveillance Test Procedure Acceptance			
Date of Test:	7-6-21		
Test Results:	SATISFACTORY/UNSATISFACTORY (circle one)		
Surveillance Personnel:	K. B 352699 7-6-21 Signature/Z#/date		
Surveillance Personnel:	184122 7/6/21 Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
OC Operator:	109569 7-6-21 Signature/Z#/date	**OC On-Duty Supervisor:**	248904 7/6/21 Signature/Z#/date
Surveillance & Inspection Test Results Review			
Cognizant System Engineer:	252921 7/16/21 Signature/Z#/date		
Comments			

FOR INFORMATION ONLY

Attachment C, SRL Exhaust FF-858 Data Sheet

(Page 1 of 3)

Step 3.1[3]	Obtain current copy of STP	**Initials** RLL	**Step 3.1[3]**	Obtain Permission to conduct STP	**Initials** RLL
Step 5.1[2]	Plenum (Circle One) **SAT** **UNSAT**	**Initial** RLL			

Date: 7/6/21 **5.1[5][a]**

Photometer Cal. Expiration Date: 12/15/21 **5.1[5][b]**

Photometer File # 104062 **5.1[5][c]**

Step	Item	FF-858
5.3[3]	First-stage HEPA Filter ΔP (PDI-819-1)	.08 Inches wc
5.3[4]	Second-Stage HEPA Filter ΔP (PDI-819-3)	.02 Inches wc
5.3[5]	Third-Stage HEPA Filter ΔP (PDI-819-4)	.02 Inches wc

PLENUM EFFICIENCY TEST
Follow the HEPA test procedure
Cu = 35 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** **[SR #4.1.3.1.A, #4.1.3.1.B]**

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FIRST STAGE TEST [defense-in-depth]
Follow the HEPA test procedure
Cu = 35 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**

FOR INFORMATION ONLY

Attachment C, SRL Exhaust FF-858 Data Sheet

(Page 2 of 3)

Valve	Required Position	Initials Step 5.4[8]	Independent Verification Step 5.4[8][b]
858-1	**Closed**		KB
HV-854-AA	**Closed**		KB
HV-870A	**Open**		KB
HV-890	**Open**		KB
TP-858-1	**Closed and Capped**		KB
TP-858-2	**Closed and Capped**		KB
TP-854-3	**Closed and Capped**		KB

6.1.1 ISI 3

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		N/A

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FOR INFORMATION ONLY

Attachment C, SRL Exhaust FF-858 Data Sheet

(Page 3 of 3)

Surveillance Test Procedure Acceptance			
Date of Test:	7-6-21		
Test Results:	SATISFACTORY/UNSATISFACTORY (circle one)		
Surveillance Personnel:	K B 352699 7-6-21 Signature/Z#/date		
Surveillance Personnel:	184122 7/16/21 Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
OC Operator:	109569 07-06-21 Signature/Z#/date	**OC On-Duty Supervisor:**	258904 7/6/21 Signature/Z#/date
Surveillance & Inspection Test Results Review			
Cognizant System Engineer:	352921 7/16/21 Signature/Z#/date		
Comments			

FOR INFORMATION ONLY

Attachment D, 300 Area Glovebox Exhaust FF-855 Data Sheet

(Page 1 of 3)

Step 3.1[3]	Obtain current copy of STP	Initials RH	**Step 3.1[3]**	Obtain Permission to conduct STP	Initials RH
Step 5.1[2]	Plenum (Circle One) SAT UNSAT	Initial RH			

Date: 7/6/21 **5.5[5][a]**

Photometer Cal. Expiration Date: 12/15/21 **5.5[5][b]**

Photometer File # 104[illegible] **5.5[5][d]**

Step	Item	FF-855
5.6[1]	First-stage HEPA Filter ΔP (PDI-818-2)	.15 Inches wc
5.6[2]	Second-Stage HEPA Filter ΔP (PDI-818-4)	.15 Inches wc
5.6[3]	Third-Stage HEPA Filter ΔP (PDI-818-5)	.15 Inches wc

PLENUM EFFICIENCY TEST

Follow the HEPA test procedure

Cu = 33 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** **[SR #4.1.3.1.A, #4.1.3.1.B]**

FIRST STAGE TEST [defense-in-depth]

Follow the HEPA test procedure

Cu = 33 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**

FOR INFORMATION ONLY

Attachment D, 300 Area Glovebox Exhaust FF-855 Data Sheet

(Page 2 of 3)

Valve	Required Position	Initials Step 5.8[8]	Independent Verification Step 5.8[8][b]
855-A	**Closed**		
HV-854-AA	**Closed**		
HV-870B	**Open**		
HV-891	**Open**		
TP-855-1	**Closed and Capped**		
TP-855-2	**Closed and Capped**		
TP-855-3	**Closed and Capped**		
6.1.1 ISI 3			
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	N/A

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FOR INFORMATION ONLY

Attachment D, 300 Area Glovebox Exhaust FF-855 Data Sheet

(Page 3 of 3)

Surveillance Test Procedure Acceptance			
Date of Test:	7-6-21		
Test Results:	SATISFACTORY/UNSATISFACTORY (circle one)		
Surveillance Personnel:	[illegible] 352699 7-6-21 Signature/Z#/date		
Surveillance Personnel:	[illegible] 184122 7/6/21 Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
OC Operator:	[illegible] WRA 07.06.21 Signature/Z#/date	**OC On-Duty Supervisor:**	[illegible] 7/6/21 Signature/Z#/date
Surveillance & Inspection Test Results Review			
Cognizant System Engineer:	[illegible] 252921 7/16/21 Signature/Z#/date		
Comments			

FOR INFORMATION ONLY

Attachment E, SRL Exhaust FF-859 Data Sheet

(Page 1 of 3)

Step 3.1[3]	Obtain current copy of STP	Initials RM	**Step 3.1[3]**	Obtain Permission to conduct STP	Initials RM
Step 5.1[2]	Plenum (Circle One) **SAT** **UNSAT**	Initial RM			

Date: 7/6/21 **5.5[5][a]**

Photometer Cal. Expiration Date: 12/15/21 **5.5[5][b]**

Photometer File # 104062 **5.5[5][d]**

Step	Item	FF-859
5.7[3]	First-stage HEPA Filter ΔP (PDI-821-1)	.05 Inches wc
5.7[4]	Second-Stage HEPA Filter ΔP (PDI-821-3)	.08 Inches wc
5.7[5]	Third-Stage HEPA Filter ΔP (PDI-821-4)	.06 Inches wc

PLENUM EFFICIENCY TEST

Follow the HEPA test procedure

Cu = 59 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** **[SR #4.1.3.1.A, #4.1.3.1.B]**

FIRST STAGE TEST [defense-in-depth]

Follow the HEPA test procedure

Cu = 59 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 E, SRL Exhaust FF-859 Data Sheet

(Page 2 of 3)

Valve	Required Position	Initials Step 5.8[8]	Independent Verification Step 5.8[8][b]
859-1	**Closed**	RM	KB
HV-854-AA	**Closed**	RM	KB
HV-870B	**Open**	RM	KB
HV-891	**Open**	RM	KB
TP-859-1	**Closed and Capped**	RM	KB
TP-859-2	**Closed and Capped**	RM	KB
TP-855-3	**Closed and Capped**	RM	KB
6.1.1 ISI 3			
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	N/A

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FOR INFORMATION ONLY

Attachment E, SRL Exhaust FF-859 Data Sheet

(Page 3 of 3)

Surveillance Test Procedure Acceptance			
Date of Test:	7-6-21		
Test Results:	SATISFACTORY/UNSATISFACTORY (circle one)		
Surveillance Personnel:	[signature] 352699 7-6-21 Signature/Z#/date		
Surveillance Personnel:	[signature] 184122 7/6/21 Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
Surveillance Personnel:	Signature/Z#/date		
OC Operator:	[signature] 109569 07-06-21 Signature/Z#/date	**QC On-Duty Supervisor:**	[signature] 288949 7/6/21 Signature/Z#/date
Surveillance & Inspection Test Results Review			
Cognizant System Engineer:	[signature] 252921 7/16/21 Signature/Z#/date		
Comments			

FOR INFORMATION ONLY

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 R22
Date of issue:	7-1-2021
Working copy issued to:	J.Cedillo
Working copy issued by:	T.Stilson
	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
Cedillo, John	330354	TS	7-1-21
Chance, Bryan	109569	TS	7-1-21
Cochran, Cory	319862	TS	7-1-21
Heintschel, Dustin	232795	TS	7-1-21
Stilson, Tyler	334315	TS	7-1-21
Wells, Mathew	335126	TS	7-1-21
Jaurigue, Antonio	298308	TS	7-1-21
Miller, Marcus	308593	TS	7-1-21
Price, Ricky	288994	TS	7-1-21

OC Reviews Complete and TSR Status Board Updated

OCO Signature 8-6-21 Date

Attachment B, Surveillance Training Checklist (continued)

(Page 2 of 2)

Training Checklist (continuation sheet)

Workers Performing Surveillance		Applicable Surveillance Training Current	
		Initials	Date
Seybert, Fred	212242	TS	7-1-21
Cantu Albert	097986	TS	7-1-21
Dunlevy, Derek	199876	TS	7-1-21
Connolly Patrick	327245	TS	7-1-21
Tesch, Chuck	152599	TS	7-1-21
Washburn, Michael	304241	TS	7-1-21
Fordham, Brian	235635	TS	7-1-21
Hohner, Rory	095026	TS	7-1-21
Irish, Michael	182680	TS	7-1-21
Langworthy, Thomas	200955	TS	7-1-21
Martinez, Jerome	173968	TS	7-1-21
Martinez, Richard	184122	TS	7-1-21
Brauer, Kevin	352699	TS	7-1-21
Sheldon, Steven	355437	TS	7-1-21
Long, Robert	355879	TS	7-1-21
Vigil, Matthew	239237	TS	7-1-21

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:**							7/1/21		7/2/21		7/3/21		7/4/21	
		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]	DH	M	DH	M	DH	M
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 ≤-1.5 in. wc[1]							-2.00	-2.00	-2.00	-2.00	-2.01	-2.00	-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]							-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]							-1.96	-1.96	-1.96	-1.96	-1.96	-1.97	-1.97	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]							-1.98	-1.98	-1.99	-1.98	-1.98	-1.98	-1.98	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]							-.24	-0.24	-.24	-.24	-.23	-.23	-.24	-.24
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]							-.29	-0.29	-.29	-.29	-.29	-.29	-.29	-.29
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]							-.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]							-.20	-0.19	-.19	-.20	-.19	-.19	-.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc							-.15	-0.15	-.15	-.15	-.16	-.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	-0.09	-.09	-.08	-.09	-.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc							-.09	-0.09	-.09	-.08	-.09	-.09	-.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc							-.091	-0.092	-.108	-.113	-.093	-.095	-.103	-.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:**							7/1/21		7/2/21		7/3/21		7/4/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:							C	[illegible]	DH	M	DH	M	DH	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				Date:							7/1/21		7/2/21		7/3/21		7/4/21	
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.				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]	DH	M	DH	M	DH	M
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									0716	1918	0729	1923	0726	1941	0729	1924
		OCS Daily Review Sign off (initials)									[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: [signature] Date 7/4/21 Time 1924 Reviewed by: [signature] Date: 7/4/21 Time: 1932

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:				7/1/21	7/2/21	7/3/21	7/4/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:				[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
	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:				0742	0711	0702	0705

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Corridor supply (HVP-810) ΔP**	[1]PDI-895-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area glovebox exhaust filter plenum (FF854) ΔP**	[1]PDI-817-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area special recovery glovebox exhaust filter plenum (FF858) ΔP**	PDI-819-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area glovebox exhaust filter plenum (FF855) ΔP**	[1]PDI-818-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area special recovery glovebox exhaust filter plenum (FF859) ΔP**	PDI-821-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**400 area glovebox exhaust filter plenum (FF857) ΔP**	[1]PDI-823-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Basement exhaust filter plenum (FF-829) ΔP**	[1]PDI-830-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.1.7[2]	**300 area re-circulation filter plenum (HVP-805) ΔP**	[1]PDI-836-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu.	Fri.	Sat	Sun.
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Bleed off filter plenum (FF-822A) ΔP**	[1]PDI-810-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Bleed off filter plenum (FF-822B) ΔP**	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time				0742	0719	0710	0712
OC Operator Review and Page Count Complete (initials)							BC <	DH	M	M
OCS Daily Review Sign off (initials)							[illegible]	ARS	[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 7/4/21 Time 0712 Reviewed by: [illegible] Date: 7/4/21 Time: 0725
On-duty Supervisor

Comments 4.4.1.1 O2 meter is out of service, awaiting 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:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1]. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820A) ΔP**	[1]PDI-807-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820B) ΔP**	[1]PDI-809-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.1.7[2]	**100 area re-circulation filter plenum (HVP-803) ΔP**	[1]PDI-833-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF852) ΔP**	[1]PDI-815-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF853) ΔP**	[1]PDI-816-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:				7/1/21	7/2/21	7/3/21	7/4/21
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:				[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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
[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)**		N/A	N/A	N/A	N/A	N/A	N/A
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]

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			Date:				7/1/21	7/2/21	7/3/21	7/4/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:				[illegible]	[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
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				0744	0720	0709	0712
			OC Operator Review and Page Count Complete (initials)				BC	DH	M	M
			OCS Daily Review Sign off (initials)				[illegible]	APJ	[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 7/4/21 Time 0712 Reviewed by: [illegible] Date: 7/4/21 Time: 0725

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:**	7-5-21		7-6-21		7/7/21		7/8/21		7-9-21		7-10-21		7/4/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	JS.	BC	JSL	←	DH	M	DH	M	TS	←	TS	←	~~JS~~	←
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 ≤1.5 in. wc[1]	-2.01	-2.01	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.01	-2.01	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤1.5 in. wc[1]	-1.93	-1.93	-1.94	-1.93	-1.95	-1.93	-1.93	-1.92	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤1.5 in. wc[1]	-1.97	-1.97	-1.96	-1.97	-1.97	-1.96	-1.96	-1.97	-1.96	-1.96	-1.96	-1.97	-1.97	-1.97
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤1.5 in. wc[1]	-1.98	-1.98	-1.98	-1.99	-1.98	-1.98	-1.98	-1.98	-1.96	-1.98	-1.98	-1.97	-1.98	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤0.05 in. wc[1]	-0.24	-.24	-0.23	-.24	-.23	-.20	-.20	-.24	-.23	-.24	-.23	-.25	-0.24	-.25
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤0.05 in. wc[1]	-0.29	-.29	-0.29	-.30	-.26	-.25	-.25	-.29	-.29	-.28	-.28	-.30	-0.30	-.29
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤0.05 in. wc[1]	-0.20	-.20	-0.20	-.11	-.20	-.20	-.20	-.20	-.19	-.20	-.19	-.21	-0.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤0.05 in. wc[1]	-0.19	-.20	-0.20	-.19	-.17	-.19	-.19	-.19	-.18	-.19	-.19	-.20	-0.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤0.05 in. wc	-0.15	-.15	-0.16	-.15	-.15	-.15	-.15	-.15	-.15	-.15	-.16	-.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	-.09	-.09	-.09	-.09	-.09	-.09	-.10	-.08	-0.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-0.09	-.09	-0.09	-.09	-.09	-.09	-.09	-.09	-.09	-.09	-.09	-.08	-0.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-0.095	-.108	-0.101	-.101	-.095	-.097	-.109	-.078	-.102	-.104	-.112	-.113	-0.110	-.102

Attachment A, Per Shift Surveillance Rounds [UET]

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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:	7-5-21		7-6-21		7/7/21		7/8/21		7-9-21		7-10-21		7/11/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	DSC	BC	DSC	C	DH	M	DH	M	TS	C	TS	C		C

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]

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Note				Date:	7-5-21		7-6-21		7/7/21		7/8/21		7-9-21		7-10-21		7/11/21	
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.				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	C	DH	M	DH	M	TS	C	TS	C		C
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			0717	1914	0718	1111	0729	1934	0730	1927	0704	1916	0710	1916	0712	1917
		OCS Daily Review Sign off (initials)					APO	APO			APO							

[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: C Date 7/11/21 Time 1913 Reviewed by: [signature] Date: 7/11/21 Time: 1929

On-duty Supervisor

Comments: _____

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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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:	7/5/21	7/6/21	7/7/21	7/8/21	7/9/21	7/10/21	7/11/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	MV					MV	MV
	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	605	605
	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:	0650	0702	0800	0738	0705	0701	0705

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	7/5/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	mv	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.28	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	.55	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	.39	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	7/5/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	mc	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.55	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.17	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.08	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	7/5/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	MV	N/A	N/A	N/A	N/A	N/A	N/A
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	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.14	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	.78	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	5781	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	5184	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	5181	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	~~0717~~ 0715	0904	0800	0742	0705	0808	0715
OC Operator Review and Page Count Complete (initials)				TS	TS	DH	DH	TS	TS	JSL
OCS Daily Review Sign off (initials)				[signature]	AMS	AMS	AMS	[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 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: MV Date 7/11/21 Time 0715 Reviewed by: [signature] Date: 7/11/21 Time: 0802
On-duty Supervisor

Comments 4.4.1.1 O2 meter is out of service, awaiting 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:	7/5/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	mc	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2 0 & > 0 in[1] wc	.55	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2 0 & > 0[1] in wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2 0 & > 0[1] in wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2 0 & > 0[1] in wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2 0 & > 0[1] in wc	off	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2 0 & > 0[1] in wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2 0 & > 0[1] in wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2 0 & > 0[1] in wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2 0 & > 0[1] in wc	.62	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2 0 & > 0[1] in wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2 0 & > 0[1] in wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2 0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2 0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2 0 & > 0[1] in wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2 0 & > 0[1] in wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2 0 & > 0[1] in wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2 0 & > 0[1] in wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	7/5/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	ML	N/A	N/A	N/A	N/A	N/A	N/A
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	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.55	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.20	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	7/5/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	MV	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	.25	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	.28	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	.35	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.46	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.35	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.35	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	7/5/21 ~~7/25/21~~ mw 7/5/21	7/6/21	7/7/21	7/8/21	7/9/21	7/10/21	7/11/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	mv	[illegible]	[illegible]	[illegible]	[illegible]	mv	mv
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	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.08	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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:	7/5/21	7/6/21	7/7/21	7/8/21	7/9/10	7/10/21	7/11/21
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	MV					MV	MV
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	0730	0904	0800	0745	0814	0745	0730
			OC Operator Review and Page Count Complete (initials)	TS		DH	DH	TS	TS	
			OCS Daily Review Sign off (initials)		ARS	ARS	ARS			

[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: MV Date 7/11/21 Time 0730 Reviewed by: _____ Date: 7/11/21 Time: 0804
On-duty Supervisor

Comments: 4.4.1.1 - System out of service awaiting FSR

Attachment A, Per Shift Surveillance Rounds [UET]

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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:**	7/12/21		7/13/21		7/14/21		7/15/21		7/16/21		7/17/21		7/18/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	OH	M	OH	M	C		BZ		OH	M	OH	M	OH	M
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 ≤1.5 in. wc[1]	-2.00	-2.00	-2.01	-2.00	-2.01	-2.01	-2.00	-2.00	-2.00	-2.00	-2.01	-2.01	-2.01	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤1.5 in. wc[1]	-1.93	-1.93	-1.93	-1.93	-1.92	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤1.5 in. wc[1]	-1.96	-1.97	-1.97	-1.97	-1.96	-1.97	-1.97	-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 ≤1.5 in. wc[1]	-2.00	-1.97	-1.98	-1.98	-1.98	-1.98	-1.97	-1.99	-2.02	-1.98	-1.98	-1.98	-1.99	-1.97
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤0.05 in. wc[1]	-.24	-.24	-.24	-.24	-0.24	-.25	-0.24	-.24	-.24	-.25	-.24	-.25	-.25	-.25
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤0.05 in. wc[1]	-.29	-.29	-.29	-.29	-0.29	-.29	-0.29	-.30	-.30	-.29	-.28	-.30	-.29	-.29
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤0.05 in. wc[1]	-.20	-.20	-.21	-.20	-0.20	-.21	-0.20	-.20	-.20	-.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	-.19	-0.20	-.20	-0.16	-.18	-.19	-.19	-.19	-.19	-.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤0.05 in. wc	-.15	-.15	-.15	-.15	-0.15	-.15	-0.15	-.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	-.09	-.09	-0.09	-.09	-0.09	-.09	-.09	-.09	-.09	-.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.09	-.09	-.09	-.09	-0.09	-.09	-0.09	-.09	-.09	-.09	-.09	-.09	-.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.095	-.096	-.094	-.107	-0.101	-.109	-0.110	-.117	-.096	-.110	-.094 -.096 OH 7/17/21	-.112	-.099	-.106

Attachment A, Per Shift Surveillance Rounds [UET]

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Note		Date:	7/12/21		7/13/21		7/14/21		7/15/21		7/16/21		7/17/21		7/18/21	
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:	DH	M	DH	M				BC	DH	M	DH	M	DH	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	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	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	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	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	Sat Unsat

Attachment A, Per Shift Surveillance Rounds [UET]

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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:	7/10/21		7/13/21		7/14/21		7/15/21		7/16/21		7/17/21		7/18/21	
				Weekday:	Mon		Tue		Wed		Thu		Fri		Sat		Sun	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	DH	M	DH	M				BL	DH	M	DH	M	DH	M
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	1929	0730	1931	0721	1913	0722	1920	0730	1930	0730	1930	0725	1930
		OCS Daily Review Sign off (initials)											AM		AM		AM	

[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: _____ Date 7/18/21 Time 1930 Reviewed by: _____ Date: 7/18/21 Time: 1936
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:	7/12/21	7/13/21	7/14/21	7/15/21	7/16/21	7/17/21	7/18/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	RH	RH		RJ	RH	RJ	RH
	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)	NA	005	005	005	005	005	005	005
	(DET-305-3) – (CP-305H)	Record Calculated Value	005	005	005	005	005	005	005
	(LCD Reading) (LED Reading)	≥ -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:	0735	0809	0720	0725	0720	0808	0730

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	9-12-21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	ZH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.46	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	7-12-21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**400 area glovebox exhaust filter plenum (FF857) ΔP**	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Basement exhaust filter plenum (FF-829) ΔP**	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	7-12-21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	ZH	N/A	N/A	N/A	N/A	N/A	N/A
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	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2 0 & > 0[1] in wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2 0 & > 0[1] in wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2 0 & > 0[1] in wc	.44	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2 0 & > 0[1] in wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2 0 & > 0[1] in wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2 0 & > 0[1] in wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2 0 & > 0[1] in wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2 0 & > 0[1] in wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2 0 & > 0[1] in wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2 0 & > 0[1] in wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2 0 & > 0[1] in wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0634	0740	0745	0740	0725	0835	0806
OC Operator Review and Page Count Complete (initials)				DH	DH	TS	JSL	DH	DH	DH
OCS Daily Review Sign off (initials)				MJW	MJW	MJW		AMO	AMJ	AMJ

[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: ZHines Date 7/18/21 Time 0806 Reviewed by: JAMELINE Date: 7/18/21 Time: 0822
On-duty Supervisor

Comments 4.4.1.1 Awaiting 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:	7-12-21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	ZL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.54	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.37	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.64	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.47	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.13	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	7-12-21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RL	N/A	N/A	N/A	N/A	N/A	N/A
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	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.22	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	7-12-21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	.22	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	.35	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	7-12-21	7-13-21	7/14/21	7/15/21	7/16/21	7/17/21	7/18/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RL	RL	JM	RH	RH	RH	RH
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc	.62	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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]

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			Date:	7-12-21	7-13-21	7/14/21	7/15/21	7/16/21	7/17/21	7/18/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	RH	JM	RH	RH	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	0839	0823	0745	0750	0725	0836	0806
			OC Operator Review and Page Count Complete (initials)	DH	DH	TS	JSL	DH	DH	DH
			OCS Daily Review Sign off (initials)	MJW	MJW			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: RHorne Date: 7/18/21 Time: 0807 Reviewed by: [signature] On-duty Supervisor Date: 7/18/21 Time: 0824

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:**	7-19-21		~~7-20-21~~ 7-20-21		7-21-21		7-22-21		7-23-21		7/24/21		7/25/21	
		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	C	JSL	BC	TB	M	JSL	C	JSL	C	[illegible]	C	[illegible]	C
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 ≤-1.5 in. wc[1]	-2.01	-2.00	-2.00	-2.00	-2.00	-2.00	-1.99	-2.00	-2.00	-2.00	-2.01	-2.01	-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.92	-1.94	-1.93	-1.93	-1.93
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.97	-1.97	-1.97	-1.97	-1.97	-1.97	-1.96	-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 ≤-1.5 in. wc[1]	-1.96	-1.99	-1.96	-1.98	-1.99	-1.98	-1.91	-1.98	-1.98	-1.96	-1.97	-1.98	-1.98	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-0.24	-.25	-0.25	-.24	-.24	-.24	-0.23	-.23	-0.24	-.25	-0.24	-.24	-0.24	-.24
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-0.28	-.30	-0.29	-.30	-.30	-.30	-0.30	-.30	-0.30	-.30	-0.30	-.30	-0.30	-.30
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-0.20	-.25	-0.20	-.18	-.20	-.20	-0.21	-.19	-0.20	-.19	-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	-.22	-0.19	-.19	-.21	-.20	-0.21	-.19	-0.20	-.19	-0.20	-.20	-0.20	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-0.15	-.15	-0.15	-.15	-.15	-.15	-0.15	-.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	-0.09	-.09	-0.09	-.09	-.09	-.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	-0.09	-.09	-0.09	-.09	-.09	-.09	-0.09	-.09	-0.09	-.09	-0.09	-.09	-0.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-0.108	-.106	-0.105	-.111	-.097	-.093	~~-0.107~~ -0.107	-.096	-0.109	-.093	-0.105	-.110	-0.112	-.095

Attachment A, Per Shift Surveillance Rounds [UET]

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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:	7-19-21		7-20-21		7-21-21		7-22-21		7-23-21		7/24/21		7/25/21	
		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	BC	TJ	M	JSL	✓	JSL	✓	✓	✓	✓	✓
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	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	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	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	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	Sat Unsat	Sat Unsat

Attachment A, Per Shift Surveillance Rounds [UET]

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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:	7-19-21		7-20-21		7-21-21		7-22-21		7-23-21		7/24/21		7/25/21	
				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	L	JSL	BC	TS	M	JSL	L	JSL	L	[illegible]	L	[illegible]	L
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	1115	0730	1917	0734	1928	0726	1919	0725	1920	0511	1917	0714	1915
		OCS Daily Review Sign off (initials)			[signature]	[signature]	ARS	ARS	ARS	[signature]	ARS	ARS	[signature]	[signature]	[signature]	[signature]	[signature]	BC

[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.
[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: L Date 7/25/21 Time 1915 Reviewed by: [signature] Date: 07-25-21 Time: 1934
On-duty Supervisor

Comments: _____

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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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:	7/19/21	7/20/21	7-21-21	7-22-21	7/23/21	7/24/21	7/25/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[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:	0730	0710	0714	0702	0730	0820	0830

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	7/19/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JM	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤ 2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
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	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-81 9-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	7/19/24	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	GA	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**400 area glovebox exhaust filter plenum (FF857) ΔP**	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Basement exhaust filter plenum (FF-829) ΔP**	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.25	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.08	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.66	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.44	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	7/19/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	JM	N/A	N/A	N/A	N/A	N/A	N/A
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	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0840	0722	0725	0710	0740	0820	0830
OC Operator Review and Page Count Complete (initials)				TS	JSL	TS 7-21-21	JSL	JSL	TS	JSL
OCS Daily Review Sign off (initials)					AM	AM	AM			

[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: Jesse Date 7/25/21 Time 0830 Reviewed by: _____ Date: 7/25/21 Time: 0834
On-duty Supervisor

Comments 7/19/21 4.4.1.1 not in use. Waiting for 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:	7/19/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JM	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1]. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.37	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.64	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	7/9/24	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JM	N/A	N/A	N/A	N/A	N/A	N/A
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	.08	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.55	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	7/19/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	.21	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	.28	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	.35	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.33	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	7/19/21	7/20/21	7-21-21	7-22-21	7/23/21	7/24/21	7/25/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:							
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.08	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc	.64	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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:	7/19/21	7/20/21	7-21-21	7-22-21	7/23/21	7/24/21	7/25/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:							
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	0810	0845	0730 TCJ	0725	0740	0800	0820
			OC Operator Review and Page Count Complete (initials)	TS	JSC	TS	JSC	JSC	TS	JSC
			OCS Daily Review Sign off (initials)		AM	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: Jesse M Date 7/25/21 Time 0820 Reviewed by: _____ Date: 7/25/21 Time: 0825

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:**	7/26/21		7/27/21		07/28/21		7/29/21		7/30/21		7/31/21			
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	M	L	M	EC	[illegible]	BC	[illegible]	BC	M	OH	M	OH		
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 ≤-1.5 in. wc[1]	-2.01	-2.01	-2.00	-2.01	-2.01	-2.01	-2.01	-2.01	-2.00	-2.00	-2.01	-2.01		
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.92	-1.93		
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.97	-1.96	-1.96	-1.96	-1.96	-1.96	-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 ≤-1.5 in. wc[1]	-2.01	-2.00	-1.99	-1.98	-1.97	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98		
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.25	-.24	-.23	-.20	-0.20	-.21	-0.21	-.20	-.19	-.19	-.19	-.19		
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.27	-.29	-.30	-.26	-0.25	-.27	-0.26	-.26	-.24	-.24	-.24	-.24		
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.20	-.18	-.20	-.21	-0.20	-.20	-0.21	-.22	-.20	-.20	-.20	-.20		
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.19	-.19	-.20	-.20	-0.20	-.20	-0.20	-.21	-.19	-.19	-.20	-.20		
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.16	-.15	-.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	-.09	-.09	-.09	-.10	-0.09	-.09	-0.09	-.09	-.09	-.09	-.09	-.09		
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.09	-.09	-.09	-.09	-0.09	-.09	-0.09	-.09	-.09	-.09	-.09	-.09		
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.106	-.109	-.111	-.113	-0.106	-.104	-0.110	-.099	-.105	-.105	-.111	-.094		

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:	7/26/21		7/27/21		07/28/21		7/29/21		7/30/21		7/31/21			
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	M	[illegible]	M	BC	[illegible]	BC	[illegible]	BC	M	DH	M	DH		
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]

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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:**	7/26/21		7/27/21		07/28/21		7/29/21		7/30/21		7/31/21			
				Weekday:	Mon		Tue		Wed		Thu		Fri		Sat		Sun	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	M	C	M	BC	BC		BC		M	DH	M	DH		
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	1919	0739	1921	0728	1923	0728	1917	0734	1929	0733	1930		
		OCS Daily Review Sign off (initials)			MM	MM	MM	APO				MM		APO	MM	MM		

[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: _____ Date 7/31/21 Time 1930 Reviewed by: _____ Date: 7/31/21 Time: 1935

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:	7/26/21	7/27/21	7/28/21	7/29/21	07/30/21	7/31/21	
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	[illegible]	[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	
	CP-305-H (LED Reading)		005	005	005	005	005	005	
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	005	005	005	005	005	005	
		≥ -0.1; ≤+0.1	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat
		Completion Time:	005 0750	005 0710	005 0712	002 0730	005 0762	005 0730	

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	7/22/24	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JM	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.46	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	7/16/24	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.08	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	.56	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	.69	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.36	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.19	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.69	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	7/26/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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' in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0' in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0' in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0' in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0' in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0' in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0' in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0' in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0' in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0' in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0' in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0' in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0900	0910	0840	0730	0705	0710	
OC Operator Review and Page Count Complete (initials)				M	M	JSC	TS	M	M	
OCS Daily Review Sign off (initials)				[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 7/31/21 Time 0710 Reviewed by: [illegible] Date: 7/31/21 Time: 0818
On-duty Supervisor

Comments 5/26/21 4411 not in use. waiting for 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:	7/26/24	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JM	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1] wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.57	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.64	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820A) ΔP**	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	.66	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820B) ΔP**	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	7/26/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JM	N/A	N/A	N/A	N/A	N/A	N/A
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	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.55	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF852) ΔP**	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF853) ΔP**	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	.54	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	7/26/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	.22	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.36	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.33	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	7/26/21	7/27/21	7/28/21	7/29/21	07/30/21	7/31/21	
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:							
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc	.62	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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	
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	

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	7/26/21	7/27/21	7/28/21	7/29/21	07/30/21	7/31/21	
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:							
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	
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	
			Completion time	0830	0830	0820	0810	0726	0740	
			OC Operator Review and Page Count Complete (initials)	M	M	JSC	TS	M	M	
			OCS Daily Review Sign off (initials)							

[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 7/31/21 Time 0740 Reviewed by: [signature] Date: 7/31/21 Time: 1921

On-duty Supervisor

Comments: _____

Attachment D, Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 1 of 2)

NOTE: his entire attachment is to be treated as Surveillance Requirement implementing actions.

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials	CDV 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.	1433	7/22/21		P
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.	1433	7/22/21		P
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.	1317	7-22-21		P
*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.	1416	7/22/21		P
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.	1416	7/22/21		P
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) goes to the fully closed position via the automatic door closure is ≤ 30 seconds. 5 Seconds	(Sat.) / Unsat.	1416	7/22/21		P

*** 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	CDV 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	1423	7/22/21		
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) goes to the fully closed position via the automatic door closure is ≤ 30 seconds. 6 Seconds	(Sat) Unsat.	1423	7/22/21		
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.	1340	7/22/21		
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.	1722	7/22/21		
						OC Operator Review and Page Count Complete	JSC	

[1] SR 4.1.3.2 applies during both Mode 1 and Mode 2.

Completed by: [signature] Date 7/22/21 Time 1722 Reviewed by: [signature] Date: 7/22/21 Time: 1730

Concurrent Dual Verifier [signature] Date 7/22/21 Time 1440

On-duty Supervisor Comments: [signature] 7/22/21 1722

Attachment B, Surveillance Training Checklist

(Page 1 of 2)

Procedure title:	Surveillance Rounds
Procedure no.:	TA55-STP-004, R22
Date of issue:	8/1/21
Working copy issued to:	A. Jaurigue
Working copy issued by:	D. Heintschel
	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
Cedillo, John	DH	08/01/21
Chance, Brian	DH	08/01/21
Cochran, Cory	DH	08/01/21
Heintschel, Dustin	DH	08/01/21
Stilson, Tyler	DH	08/01/21
Wells, Matt	DH	08/01/21
Jaurigue, Antonio	DH	08/01/21
Miller, Marcus	DH	08/01/21
Price, Ricky	DH	08/01/21

OC Reviews Complete and TSR Status Board Updated

OCO Signature 9/6/21 Date

Attachment B, Surveillance Training Checklist (continued)

(Page 2 of 2)

Training Checklist (continuation sheet)

Workers Performing Surveillance	Applicable Surveillance Training Current	
	Initials	Date
Seybert, Fred	DH	08/01/21
Dunlavy, Derek	DH	08/01/21
Ashley, Keith	DH	08/01/21
Sheldon, Steven	DH	08/01/21
Washburn, Michael	DH	08/01/21
Fordham, Brian	DH	08/01/21
Hohner, Rory	M	08/01/21
Irish, Michael	DH	08/01/21
Langworthy, Thomas	DH	08/01/21
Martinez, Jerome	DH	08/01/21
Martinez, Richard	DH	08/01/21
Connolly, Patrick	DH	08/01/21
Long, Robert	DH	08/01/21
Brauer, Kevin	DH	08/01/21
Cantu, Albert	DH	08/01/21
Vigil, Matthew	DH	08/01/21
Sheldon, Steven	DH	08/01/21

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:**													8/1/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:													M	APJ
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 ≤-1.5 in. wc[1]													-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]													-1.93	-1.93
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]													-1.97	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]													-1.99	-1.98
4.1.1.2 4.1.1.5[3] 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]													-.25	-.25
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]													-.20	-.19
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]													-.20	-.19
	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	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc													-.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc													-.097	-.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:														8/1/21	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.		
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
			Initials:													M	Ary	
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				Date:													8/1/21	
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.				Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:													M	APJ
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	1926
		OCS Daily Review Sign off (initials)															MM	MM

[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: [signature] Date: 8/1/21 Time: 1926 Reviewed by: [signature] Date: 8/1/21 Time: 1930

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).

8/1/24 PM
~~7/31/24~~ 8/1/24

		Date:							
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:							RM
SR 4.4.1.1	**Description / Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
	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 005
		Completion Time:							0725

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 2 of 4)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Corridor supply (HVP-810) ΔP**	[1]PDI-895-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area glovebox exhaust filter plenum (FF854) ΔP**	[1]PDI-817-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area special recovery glovebox exhaust filter plenum (FF858) ΔP**	PDI-819-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area glovebox exhaust filter plenum (FF855) ΔP**	[1]PDI-818-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area special recovery glovebox exhaust filter plenum (FF859) ΔP**	PDI-821-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**400 area glovebox exhaust filter plenum (FF857) ΔP**	[1]PDI-823-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Basement exhaust filter plenum (FF-829) ΔP**	[1]PDI-830-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.1.7[2]	**300 area re-circulation filter plenum (HVP-805) ΔP**	[1]PDI-836-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time							0715
OC Operator Review and Page Count Complete (initials)										
OCS Daily Review Sign off (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: 7/31/22 Date: 7/31/21 8/1/21 Time: 715 Reviewed by: On-duty Supervisor Date: 8/1/21 Time: 0825

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:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**						
4.1.1.7[2]	**Vault re-circulation filter plenum (HVP-811) ΔP**	[1]PDI-840-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1]. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-841-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820A) ΔP**	[1]PDI-807-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820B) ΔP**	[1]PDI-809-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.1.7[2]	**100 area re-circulation filter plenum (HVP-803) ΔP**	[1]PDI-833-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF852) ΔP**	[1]PDI-815-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF853) ΔP**	[1]PDI-816-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

8/1/21 PW 8/1/21 ~~7/31/21~~

			Date:							
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:							
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
[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)**		N/A	N/A	N/A	N/A	N/A	N/A
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]

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8/1/21 RW 8/1/21

			Date:							8/1/21 RW 8/1/21 7/31/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:							RW
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS**						
4.3.2.2[2]	Room 206		0 lb/ft[3] 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/ft[3] 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							0815
			OC Operator Review and Page Count Complete (initials)							
			OCS Daily Review Sign off (initials)							

[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: RW 8/1/21 Date 7/31/21 8/1/21 RW 8/1/21 Time 0815 8/1/21 Reviewed by: _____ Date: 8/1/21 Time: 0826

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:	08.02.21		08.03.21		8/4/21		8/5/21		8/6/21		08.07.21		08.08.21	
		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	JSL	BC	JSL	W	DH	M	DH	M	JSL	BC	JSL	BC	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 ≤-1.5 in. wc[1]	-2.01	-2.01	-2.00	-2.00	-2.01	-2.00	-2.00	-2.00	-2.01	-2.01	-2.01	-2.00	-2.00	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.93	-1.93	-1.94	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.97	-1.96	-1.97	-1.97	-1.97	-1.97	-1.97	-1.96	-1.97	-1.97	-1.97	-1.97	-1.97	-1.97
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]	-1.97	-1.98	-2.02	-1.99	-1.97	-1.99	-1.98	-1.98	-2.03	-1.99	-2.00	-1.98	-1.98	-1.97
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.19	-0.20	-.19	-0.18	-.19	-.20	-.18	-.19	-.19	-0.19	-.18	-0.20	-.19	-0.20
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.25	-0.25	-.25	-0.23	-.25	-.25	-.23	-.25	-.25	-0.24	-.24	-0.25	-.24	-0.26
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.21	-0.21	-.20	-0.18	-.20	-.20	-.19	-.20	-.20	-0.19	-.18	-0.20	-.20	-0.21
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.20	-0.20	-.20	-0.19	-.20	-.20	-.19	-.20	-.20	-0.19	-.18	-0.20	-.20	-0.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-0.16	-.15	-0.15	-.15	-.15	-.15	-.15	-.15	-0.15	-.14	-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	-.09	-.09	-.09	-.09	-.09	-0.09	-.10	-0.10	-.09	-0.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.09	-0.09	-.09	-0.09	-.09	-.09	-.09	-.09	-.09	-0.09	-.10	-0.10	-.10	-0.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.099	-0.100	-.100	-0.100	-.096	-.091	-.113	-.096	-.097	-0.110	-.115	-0.108	-.110	-0.108

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:	08.02.21		08.03.21		8/4/21		8/5/21		8/6/21		08.07.21		08.08.21	
		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	JSL	BC	JSL	[illegible]	CH	M	CH	M	JSL	BC	JSL	BC	JSL
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]

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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:	08-02-21		08-03-21		8/4/15		8/5/21		8/6/21		08-07-21		08-08-21	
				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	JSL	BC	JSL	[illegible]	DH	M	DH	M	JSL	BC	JSL	BC	JSL
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	1908	0719	1910	0721	1930 1900 DH 8/4/15	0738	1930	0734	1914	0724	1905	0717	0705
		OCS Daily Review Sign off (initials)			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	APD	[illegible]	APD	[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.
[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: JSL Date 8-8-21 Time 0705 Reviewed by: [signature] Date: 8/8/21 Time: 1913
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:	8/2/21	8/3/21	8/4/21	8/5/21	8/6/21	8/7/21	8/8/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	RH	RH	RH	R			
	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:	0744	0749	0730	0715	0705	0745	0730

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 2 of 4)

			Date:	8/2/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RJV WE	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.46	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	.39	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	8/2/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	ZH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**400 area glovebox exhaust filter plenum (FF857) ΔP**	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	.62	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Basement exhaust filter plenum (FF-829) ΔP**	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.20	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.64	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.69	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	8/2/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	ZH MG	N/A	N/A	N/A	N/A	N/A	N/A
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	.62	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2 0 & > 0[1] in wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2 0 & > 0[1] in wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2 0 & > 0[1] in wc	.44	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2 0 & > 0[1] in wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2 0 & > 0[1] in wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2 0 & > 0[1] in wc	.16	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2 0 & > 0[1] in wc	.85	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2 0 & > 0[1] in wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2 0 & > 0[1] in wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2 0 & > 0[1] in wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2 0 & > 0[1] in wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0815 *	0829 *	0833 *	0730 *	0715 *	0832 *	0802 *
OC Operator Review and Page Count Complete (initials)				MG	BC	M	M	M	BC	BC
OCS Daily Review Sign off (initials)				M	M	MM	MM	M	M	M

[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: MG Date 8/8/21 Time 0802 Reviewed by: PRICE M Date: 8/8/21 Time: 0831
On-duty Supervisor

Comments 4.4.1.1 Awaiting Calibration

* Visually checked plenums for water

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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NOTE This entire attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	8/2/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	ZH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1]. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.64	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.08	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	8/2/21	~~8/3/21~~ 8/3/21	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	N/A	N/A	N/A	N/A	N/A	N/A
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	.08	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	5.81	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	5.34	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	5.35	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	5.34	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	6/2/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	RH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	.25	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	.35	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.36	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	8/2/21	8/3/21	8/4/21	8/5/21	8/6/21	8/7/21	8/8/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	RH	RH				
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc	.70	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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:	8/2/21	8/3/21	8/4/21	8/5/21	8/6/21	8/7/21	8/8/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	RH/[illegible]	RH/[illegible]	[illegible]	[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	0844*	0829*	0739*	0745*	0800*	0832*	0804*
			OC Operator Review and Page Count Complete (initials)	BC	[illegible]	[illegible]	M	M	BC	BC
			OCS Daily Review Sign off (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 8/8/21 Time 0804 Reviewed by: PRICE [illegible] Date: 8/8/21 Time: 0834
On-duty Supervisor

Comments: *HVP 801, 803, 809 had approx "1/2" to 1" of water, reported to OPS

[illegible]

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:**	8/9/21		8/10/21		08.11.21		08.12.21		8-13-21		8-14-21		8-15-21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	M	JH	M	OH	EC	[illegible]	EC	PD TS	JSL	M	JSL	M	JSL	AMB
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 ≤-1.5 in. wc[1]	-2.01	-2.00	-2.01	-2.00	-2.00	-2.00	-2.00	-2.00	-2.01	-2.00	-2.00	-2.00	-2.00	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.94	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93	-1.93
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.96	-1.97	-1.97	-1.97	-1.96	-1.97	-1.97	-1.97	-1.97	-1.97	-1.96	-1.97	-1.96	-1.97
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]	-1.99	-1.98	-2.00	-1.99	-1.92	-2.01	-1.97	-1.98	-1.98	-1.97	-1.97	-1.98	-1.98	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.19	-.20	-.19	-.19	-.19	0.18	-.20	-0.19	-0.19	-.20	-0.19	-.19	-0.19	-.20
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.25	-.25	-.24	-.25	-.25	0.24	-.23	-0.25	-0.24	-.25	-0.25	-.24	-0.25	-.25
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.20	-.20	-.20	-.19	-.20	0.19	-.20	-0.20	-0.20	-.20	-0.20	-.20	-0.20	-.21
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.19	-.19	-.20	-.20	-.20	0.19	-.19	-0.20	-0.19	-.20	-0.19	-.20	-0.20	-.21
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-.15	-.15	-.15	-.15	0.15	-.15	-0.15	-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	-.10	-.09	-.09	-.09	0.10	-.09	~~-0.09~~ -0.09 8/12/21	-0.09	-.09	-0.09	-.10	-0.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.09	-.10	-.09	-.09	-.09	0.10	-.09	-0.09	-0.09	-.09	-0.09	-.09	-0.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.094	-.095	-.096	-.111	-.095	0.121	-.106	-0.114	-0.094	-.106	-0.100	-.096	-0.112	-.097

Attachment A, Per Shift Surveillance Rounds [UET]

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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:	8/9/21		8/10/21		08-11-21		08-12-21		8-13-21		8-14-21		8-15-21			
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.			
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM		
			Initials:	M	DH	M	DH	BC	[illegible]	BC	PD TS	JSL	M	JSL	M	JSL	A-RS		
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	Sa Unsat		

Attachment A, Per Shift Surveillance Rounds [UET]

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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:	8/9/21		8/10/21		08-11-21		08-12-21		8-13-21		8-14-21		8-15-21	
				Weekday:	Mon		Tue		Wed		Thu		Fri		Sat		Sun	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	M	OH	M	OH	BC	[illegible]	BC	PD TJ	JS	M	JS	M	JS	ARB
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	1930	0731	1932	0716	1915	0714	1934	0717	1919	0720	1925	0712	1919
		OCS Daily Review Sign off (initials)			[illegible]	ARB	ARB	ARB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ARB	[illegible]	ARB	[illegible]	ARB

[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: [signature] Date 8/15/21 Time 1919 Reviewed by: [signature] Date: 8/15/21 Time: 1920

On-duty Supervisor

Comments: _____

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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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:	8/9/21	8/10/21	8/11/21	8/12/21	08/13/21	8/14/21	8/15/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	RLL					MV	MV
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)	Record Calculated Value	005	005	005	005	005	005	005
	(LCD Reading) (LED Reading)	≥ -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:	0830	0701	0711	0710	0810	07:02	0710

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	8/9/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH YL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.75	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	8/9/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**400 area glovebox exhaust filter plenum (FF857) ΔP**	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	.63	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Basement exhaust filter plenum (FF-829) ΔP**	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.19	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	8/9/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	RH YL	N/A	N/A	N/A	N/A	N/A	N/A
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	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.54	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.14	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	.83	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	*0909	0711*	0720*	0820*	0718*	0702*	0710*
OC Operator Review and Page Count Complete (initials)				M	DH	BC	C	JSC	JSC	JSC
OCS Daily Review Sign off (initials)				[illegible]	ARO	"	[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: MV Date 8/15/21 Time 0710 Reviewed by: PRICE [signature] Date: 8/15/21 Time: 0738

On-duty Supervisor

Comments * Planums inspected for water [illegible] of water

YL 8/9/21

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:	8/9/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH YL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1]. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.37	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.64	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.08	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	8/9/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH YL	N/A	N/A	N/A	N/A	N/A	N/A
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	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF852) ΔP**	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF853) ΔP**	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	8/9/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH GL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	.25	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	.37	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.39	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	8/9/21	8/10/21	8/11/21	8/12/21	08/13/21	8/14/21	8/15/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH TL	TL	TL	TL	MM	MV	MV
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc	.71	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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:	8/9/21	8/10/21	8/11/21	8/12/21	08/13/21	8/14/21	8/15/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RL					MV	MV
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	*0903	0711 *	0720*	0830 *	0745*	0723 *	0705 *
			OC Operator Review and Page Count Complete (initials)	JV	DH	BK	CA	JSL	JSL	JSL
			OCS Daily Review Sign off (initials)	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: MV Date 8/15/21 Time 0705 Reviewed by: PRICE Date: 8/15/21 Time: 0740

On-duty Supervisor

Comments: * Plenums inspected for water, 801, 803, 809. ½" to 1" of water, No condensate in 809 condensate Tank → thus No draining from Hose.

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:	08-16-21		8/17/21		8-18-21		8-19-21		8/20/21		08-21-21		8/22/21	
		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	TS	[illegible]		DSL	TS	JL	[illegible]	[illegible]	TS	BC	TS	[illegible]	PD
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 ≤-1.5 in. wc[1]	-2.01	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.01	-2.01	-2.00	-2.00	-2.01	-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.93	-1.93	-1.93	-1.92	-1.92	-1.93	-1.92	-1.93	-1.92	-1.92	-1.92	-1.92 (-1.92)	-1.92	-1.92
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.98	-1.97	-1.97	-1.96	-1.96	-1.97	-1.96	-1.97	-1.97	-1.96	-1.97	-1.97	-1.97	-1.97
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]	-1.98	-1.99	-1.98	-1.98	-1.98	-1.97	-1.99	-2.00	-1.98	-1.98	-1.98	-1.98	-1.99	-1.97
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.19	-.24	-.24	-0.24	-0.24	-.23	-0.23	-0.24	-.23	-.24	-.23	-.24	-.23	-0.24
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.24	-.29	-.29	-0.29	-0.30	-.31	-0.30	-0.30	-.30	-.31	-.30	-.30	-.29	-0.29
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.19	-.19	-.21	-0.20	-0.21	-.21	-0.20	-0.20	-.20	-.20	-.20	-.20	-.20	-0.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.20	-.19	-.20	-0.19	-0.22	-.21	-0.19	-0.20	-.20	-.20	-.20	-.20	-.19	-0.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-.15	-.15	-0.15	-0.15	-.16	-0.15	-0.15	-.15	-.15	-.15	-.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	-0.09	-0.09	-.10	-0.09	-0.09	-.09	-.09	-.09	-.09	-.09	-0.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.10	-.09	-.09	-0.09	-0.09	-.10	-0.09	-0.09	-.09	-.09	-.09	-.09	-.09	-0.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.110	-.111	-.113	-0.112	-0.110	-.108	-0.109	-0.09	-.091	-.109	-.107	-.018	-.097	-0.107

Attachment A, Per Shift Surveillance Rounds [UET]

(Page 2 of 3)

Note				Date:	08.16.21		8/17/21		8-18-21		8-19-21		8/20/21		08.21.21		8/22/21	
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	TS	[illegible]	[illegible]	JSL	TS	JSL	[illegible]	[illegible]	TS	BC	TS	[illegible]	PD
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	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	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	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	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	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:	08-16-21		8/17/21		8-18-21		8-19-21		8/20/21		08-21-21		8/22/21	
				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	TJ	C		JSL	KS	JSL		C	TJ	BC	TT	C	PD
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			0722	1925 0715 8-18-21	0722	1919	0720	1915	0720	1915	0718	1920	0719	1921	0716	0717
		OCS Daily Review Sign off (initials)			BC		BC			AM			BC		BC			

[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.
[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: PD (UET) Date 8/22/21 Time 1917 Reviewed by: _____ Date: 8/22/21 Time: 1920
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:	8/16/21	8/17/21	8/18/21	8/19/21	8/20/21	8/21/21	8/22/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:							
	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	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat
			005	005	005	005	005	005	005
		Completion Time:	0757	0705	0715	~~0735~~ 0735 AC 8/19/21	0745	0817	0800

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	8/16/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.75	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.46	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	8/16/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.18	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.68	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.47	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	8/16/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.88	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	.17	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0828*	0730*	0745*	0810*	0745*	0840*	0825*
OC Operator Review and Page Count Complete (initials)				✓	✓	JSC	JSC	✓	✓	✓
OCS Daily Review Sign off (initials)				BC	BC	[illegible]	[illegible]	BC	BC	BC

[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 8/22/21 Time 0825 Reviewed by: _____ Date: 08.22.21 Time: 0850
On-duty Supervisor

Comments * Inspect plenums for water, none noted. 4.4.1.1 meter is OOS awaiting 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:	8/16/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**						
4.1.1.7[2]	**Vault re-circulation filter plenum (HVP-811) ΔP**	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1]. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
	Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.37	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.64	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820A) ΔP**	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820B) ΔP**	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	8/16/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu	Fri	Sat.	Sun
			Initials:	YL	N/A	N/A	N/A	N/A	N/A	N/A
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	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	.55	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	8/16/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	YL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	.23	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	.35	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.36	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	8/16/21	8/17/21	8/18/21	8/19/21	8/20/21	8/21/21	8/22/21
			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	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc	.70	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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]

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			Date:	8/16/21	8/17/21	8/18/21	8/19/21	8/20/21	8/21/21	8/22/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:							
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	0855*	0720*	0730*	0750*	0745*	0840*	0825*
			OC Operator Review and Page Count Complete (initials)			JSc	JSc			
			OCS Daily Review Sign off (initials)							

[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 8/22/21 Time 0825 Reviewed by: _____ Date: 08.22.21 Time: 0831
On-duty Supervisor

Comments: * 801, 803, 809 Plenums have ½" to 1" water, 801 draining properly.

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:**	8/23/21		8/24/21		8/25/21		8/26/21		8/27/21		8/28/21		8/29/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	OH	[illegible]	OH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	OH	[illegible]	AMJ	[illegible]	DW	[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 ≤-1.5 in. wc[1]	-2.01	-2.01	-2.00	-2.01	-2.01	-2.01	-2.00	-2.00	-2.00	-2.01	-2.00	-2.01	-2.01	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.93	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.97	-1.96	-1.96	-1.97	-1.97	-1.96	-1.96	-1.96	-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 ≤-1.5 in. wc[1]	-1.97	-1.98	-1.98	-1.98	-1.98	-1.98	-1.97	-1.99	-1.99	-1.99	-1.98	-1.98	-1.98	-1.96
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-0.24	-0.24	-0.23	-0.25	-.24	-0.23	-.24	-0.21	-0.19	-0.20	-.19	-0.24	-0.24	-0.25
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-0.29	-0.30	-0.29	-0.30	-.29	-0.29	-.29	-0.27	-0.25	-0.25	-.24	-0.30	-0.30	-0.30
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-0.20	-0.21	-0.20	-0.19	-.19	-0.20	-.22	-0.21	-0.20	-0.20	-.20	-0.20	-0.20	-0.21
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-0.19	-0.21	-0.20	-0.19	-.19	-0.21	-.21	-0.21	-0.19	-0.20	-.19	-0.20	-0.20	-0.21
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-0.15	-0.15	-0.15	-0.14	-.14	-0.15	-.15	-0.15	-0.15	-0.15	-.15	-0.15	-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	-0.09	-0.09	-0.09	-0.09	-.09	-0.09	-.09	-0.09	-0.09	-0.09	-.09	-0.09	-0.09	-0.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-0.09	-0.09	-0.09	-0.09	-.09	-0.09	-.09	-0.09	-0.09	-0.09	-.09	-0.09	-0.09	-0.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-0.095	-0.095	-0.095	-0.109	-.096	-0.092	-.108	-0.088	-0.095	-0.094	-.107	-0.112	-0.099	-0.105

Attachment A, Per Shift Surveillance Rounds [UET]

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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:	8/23/21		8/24/21		8/25/21		8/26/21		8/27/21		8/28/21		8/29/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	DW	JSL	DH	JSL	[illegible]	JSL	[illegible]	JSL	DH	JSL	APJ	JSL	DH	JSL
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	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	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	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	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	Sat Unsat

Attachment A, Per Shift Surveillance Rounds [UET]

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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:	8/23/21		8/24/21		8/25/21		8/26/21		8/27/21		8/28/21		8/29/21	
				Weekday:	Mon		Tue		Wed		Thu		Fri		Sat		Sun	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	DH	JSL	DH	JSL	↳	JSL	↳	JSL	DH	JSL	ARJ	JSL	DH	JSL
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	1908	0729	1912	0716	1913	0721	1915	0725	1926	0724	1913	0723	1917
		OCS Daily Review Sign off (initials)			ARJ				BC		BC		ARJ					

[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.
[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: JSL Date 8-29-21 Time 1917 Reviewed by: [signature] Date: 8/29/21 Time: 0732
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:	8/23/21	8/24/21	8/25/21	8/26/21	8/27/21	8/28/21	8/29/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:							
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	003	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:	1000	0710	0707	0712	0619	0701	0720

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	8/23/21	8/24/21	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JM	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.26	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.44	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	8/23/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.24	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.15	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.56	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	8/23/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JM	N/A	N/A	N/A	N/A	N/A	N/A
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	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0830 *	0820 *	0756 *	0712 *	0640 *	0701 *	0720 *
OC Operator Review and Page Count Complete (initials)				M	DH	C	C	ASC	M	M DH
OCS Daily Review Sign off (initials)				ARS	MM	BC	BC	ARS	ARS	DHO

[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: ~~Jason~~ Date 8/23/21 Time 0720 Reviewed by: _____ Date: 8/29/21 Time: 1030
On-duty Supervisor

Comments 8/23/21 4.4.1.1 VBC in service. Waiting for calibration. * Tripped plenum for work

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:	9/13/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JM	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.54	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.37	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	~~.37~~ .64	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820A) ΔP**	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.13	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820B) ΔP**	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	8/23/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed	Thu.	Fri.	Sat	Sun.
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.39	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.55	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.28	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	8/[illegible] [illegible]	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JL	N/A	N/A	N/A	N/A	N/A	N/A
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	.13	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	.28	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.62	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.35	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	8/23/21 8/24/21 8/25/21	8/24/21	8/25/21	8/26/21	8/27/21	8/28/21	8/29/21
			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	.13	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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:	8/23/21 8/23/21 8/24/21	8/24/21	8/25/21	8/26/21	8/27/21	8/28/21	8/29/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:							
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	0900 *	0840	0745 *	0820 *	0630 *	0730	0730
			OC Operator Review and Page Count Complete (initials)		DH			JS		DH
			OCS Daily Review Sign off (initials)	AMS	PM	PK	PK	AMS	AMS	GAO

[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 8/29/21 Time 0730 Reviewed by: [signature] Date: 8/29/21 Time: 1031

On-duty Supervisor

Comments: * Plenum have 1 to 1½ inch of water 801 803 809. 809 drawing properly.

Attachment D, Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 1 of 2)

NOTE: his entire attachment is to be treated as Surveillance Requirement implementing actions.

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials	CDV 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.	0955	8/19/21		
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.	0955	8/19/21		
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.	0942	8/19/21		
*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.	0920	8/19/21		
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.	0920	8/19/21		
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) goes to the fully closed position via the automatic door closure is ≤ 30 seconds. 4 Seconds	(Sat.) / Unsat.	0920	8/19/21		

*** 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	CDV Initial
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.	0910	8/19/21	[illegible]	R
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) goes to the fully closed position via the automatic door closure is ≤ 30 seconds. 5 Seconds	(Sat.) / Unsat.	0910	8/19/21	[illegible]	R
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.	0928	8/19/21	[illegible]	R
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.	0858	8/19/21	[illegible]	R
					OC Operator Review and Page Count Complete		JSC	

[1] SR 4.1.3.2 applies during both Mode 1 and Mode 2.

Completed by: [illegible] Date 8/19/21 Time 0959 Reviewed by: PRICE Date: 8/19/21 Time: 1000

Concurrent Dual Verifier [illegible] Date 8/19/21 Time 0959

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:	8/30/21	8/31/21					
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	P	RH					
	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)		003	005					
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	003	005					
		≥ -0.1; ≤+0.1	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat
		Completion Time:	0705	0801					

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 2 of 4)

			Date:	8/30/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	@	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Corridor supply (HVP-810) ΔP**	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area glovebox exhaust filter plenum (FF854) ΔP**	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area glovebox exhaust filter plenum (FF855) ΔP**	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.26	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	8/30/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	(A)	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**400 area glovebox exhaust filter plenum (FF857) ΔP**	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Basement exhaust filter plenum (FF-829) ΔP**	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.68	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	8/30/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	(P	N/A	N/A	N/A	N/A	N/A	N/A
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	.62	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.44	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0805*	**0915					
OC Operator Review and Page Count Complete (initials)				TS	TS					
OCS Daily Review Sign off (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 4.1.3.4 apply during both Mode 1 and Mode 2 as stated in LCO 3.1.3.

Completed by: [illegible] Date 8/31/21 Time 0915 Reviewed by: [illegible] Date: 08-31-21 Time: 1107

On-duty Supervisor

Comments 4.4.1.1 meter out of Service, awaiting Calibration ** Checked Plenums for water

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:	8/30/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	@	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc @ 8/30/21	.54 stby	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.37	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	off	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	8/30/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF852) ΔP**	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.03	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF853) ΔP**	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	8/30/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	@	N/A	N/A	N/A	N/A	N/A	N/A
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	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	.27	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	8/30/21	8/31/21				
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	(P	RH					
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc	.64	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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:	8/30/21	8/31/21					
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	P	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					
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	0745*	*0929					
			OC Operator Review and Page Count Complete (initials)	TS	TS					
			OCS Daily Review Sign off (initials)	ATM	ATM					

[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 8/31/21 Time 0930 Reviewed by: _____ Date: 08.31.21 Time: 1105

On-duty Supervisor

Comments: *Checked Plenums for Water, 801, 803 very little water on Floor.

809, 1 to 1½ inches of water on floor, Pump working properly

NC 8/30/21

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:**	8-30-21		8-31-21 (8-31-21)											
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	JS	BC	TS	~										
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 ≤-1.5 in. wc[1]	-2.00	-2.00	-2.00	-2.00										
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.92	-1.92	-1.92	-1.92										
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.96	-1.97	-1.96	-1.97										
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]	-1.96	-1.98	-1.98	-1.98										
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.24	-.26	-.24	-.25										
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.30	-.30	-.29	-.30										
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.19	-.20	-.20	-.19										
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.19	-.20	-.19	-.19										
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-.15	-.15	-.14										
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										
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.09	-.09	-.09	-.09										
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.109	-.113	-.112	-.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:	8-30-21		8-31-21											
				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				Date:	8-30-21		8-31-21											
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.				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	TS	[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	1922	0719	1921										
		OCS Daily Review Sign off (initials)			APJ	APJ	APJ	BL										

[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: [illegible] Date 8/31/21 Time 1922 Reviewed by: [signature] Date: 08-31-2021 Time 2102

On-duty Supervisor

Comments: _____

Attachment B, Surveillance Training Checklist

(Page 1 of 2)

Procedure title:	SURVEILLANCE ROUNDS
Procedure no.:	TA 55 - STP-004 R22
Date of issue:	09.01.21
Working copy issued to:	CORY COCHRAN
Working copy issued by:	BRYAN 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
CEDILLO, JOHN	BC	9.1.21
CHANCE, BRYAN	BC	9.1.21
COCHRAN, CORY	BC	9.1.21
STILSON, TYLER	BC	9.1.21
WELLS, MATTHEW	BC	9.1.21
JAURIGUE, TONY	BC	9.1.21
PRICE, RICKY	BC	9.1.21
SEYFERT, FRED	BC	9.1.21
Miller, James	JM	9/1/21

OC Reviews Complete and TSR Status Board Updated

OCO Signature Date 11/1/21

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
CANTU, ALBERT	BC	9.1.21
CONNOLLY, PATRICK	BC	9.1.21
HOFFNER, RORY	BC	9.1.21
LANGWORTHY, THOMAS	BC	9.1.21
LONG, BOBBY	BC	9.1.21
MARTINEZ, JEROME	BC	9.1.21
MARTINEZ, RICHARD	BC	9.1.21
SHELDON, STEVEN	BC	9.1.21
VIGIL, MATHEW	BC	9.1.21
CARDONA, MICHAEL		
DERRICK, PHILIP		

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:					9/1/21		9/2/21		9/3/21		9-4-21		9-5-21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:					DH	JSL	DH	JSL	[illegible]	BC	TJ	[illegible]	TJ	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 ≤-1.5 in. wc[1]					-2.01	-2.01	-2.01	-2.00	-2.01	-2.01	-2.00	-2.00	-2.00	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]					-1.93	-1.92	-1.92	-1.92	-1.93	-1.92	-1.92	-1.92	-1.92	-1.92
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]					-1.97	-1.96	-1.97	-1.97	-1.97	-1.96	-1.97	-1.96	-1.96	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]					-1.98	-1.94	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]					-0.23	-0.25	-0.24	-0.25	-0.24	-.25	-.24	-.25	-.24	-.25
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]					-0.30	-0.31	-0.30	-0.30	-0.30	-.30	-.30	-.31	-.30	-.30
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]					-0.20	-0.20	-0.20	-0.21 -0.22	-0.22	-.20	-.20	-.21	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]					-0.20	-0.20	-0.20	-0.22	-0.22	-.20	-.19	-.20	-.20	-.20
	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	-.15	-.16	-.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	-0.10	-.09	-.09	-.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc					-0.09	-0.09	-0.09	-0.09	-0.09	-.09	-.09	-.09	-.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc					-0.108	-0.106	-0.095	-0.107	-0.103	-.108	-.110	-.111	-.092	-.108

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:**					9/1/21		9/2/21		9/3/21		9-4-21		9-5-21	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:					DH	DSC	DH	DSC		BC	RS	C	TJS	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)

FOR INFORMATION ONLY

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:				9/1/21		9/2/21		9/3/21		9-4-21		9-5-21	
					Weekday:	Mon		Tue		Wed		Thu		Fri		Sat		Sun	
					Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
					Initials:					OH	SSL	OH	SSL	[illegible]	BC	BS	[illegible]	BS	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							0730	1916	0728	1918	0726	1920	0718	1917	0708	1905
		OCS Daily Review Sign off (initials)							AHS	[illegible]	[illegible]	AHS	[illegible]	[illegible]	[illegible]	BC	[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: [illegible] Date 09.06.21 Time 1935 ~~1905~~ Reviewed by: [illegible] Date: 9/5/21 Time: 1931

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:			9/1/21	9/2/21	9/3/21	9/4/21	9/5/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:			PSC				
	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
	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	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat
		Completion Time:			~~005~~ 0834 PSC 9/1/21	0703	0705	0710	0705

FOR INFORMATION ONLY

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 2 of 4)

FOR INFORMATION ONLY

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Corridor supply (HVP-810) ΔP**	[1]PDI-895-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area glovebox exhaust filter plenum (FF854) ΔP**	[1]PDI-817-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area special recovery glovebox exhaust filter plenum (FF858) ΔP**	PDI-819-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area glovebox exhaust filter plenum (FF855) ΔP**	[1]PDI-818-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area special recovery glovebox exhaust filter plenum (FF859) ΔP**	PDI-821-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**400 area glovebox exhaust filter plenum (FF857) ΔP**	[1]PDI-823-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Basement exhaust filter plenum (FF-829) ΔP**	[1]PDI-830-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.1.7[2]	**300 area re-circulation filter plenum (HVP-805) ΔP**	[1]PDI-836-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

FOR INFORMATION ONLY

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time			1018	*0800	0705*	0750	0735
OC Operator Review and Page Count Complete (initials)						DH	[illegible]	TJ	JJ	TJ
OCS Daily Review Sign off (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: RJM ~~[illegible]~~ PSC 9/15/21 Date 9/5/21 Time 0755 Reviewed by: [illegible] Date: 9/5/21 Time: 0801

On-duty Supervisor

PSC 9/11/21 PSC 9/11/21

Comments 4.4.4.11 is out of service due to calibration, * Checked for water in Plenums

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:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**						
4.1.1.7[3]	Vault re-circulation filter plenum (HVP-811) ΔP Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-840-1	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[4] wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[4] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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FOR INFORMATION ONLY

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.1.7[2]	**100 area re-circulation filter plenum (HVP-803) ΔP**	[1]PDI-833-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF852) ΔP**	[1]PDI-815-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF853) ΔP**	[1]PDI-816-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

FOR INFORMATION ONLY

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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FOR INFORMATION ONLY

			Date:			9/1/21	9/2/21	9/3/21	9/4/21	9/5/21
			Weekday:	Mon.	Tue.	Wed	Thu.	Fri	Sat	Sun
			Initials:			PSC				
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
[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)**		N/A	N/A	N/A	N/A	N/A	N/A
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)

FOR INFORMATION ONLY

			Date:			9/1/21	9/2/21	9/3/21	9/4/21	9/5/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:			PSC				
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft[3] 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			PSC SAT	SAT	SAT	SAT	SAT
4.3.2.2[2]	Room 207		0 lb/ft[3] 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			PSC SAT ex 9/1/21	SAT	SAT	SAT	SAT
Completion time						9:44 0949 *	0820	0805 **	0810	0755
OC Operator Review and Page Count Complete (initials)						DH	OH	TS	TS	TS
OCS Daily Review Sign off (initials)							ATJ			

[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: PSC Date 9/5/21 Time 0755 Reviewed by: _____ Date: 9/5/21 Time: 0802

On-duty Supervisor

Comments: * 801, 802, 803 and 804 have standing water as well as recirc

* 809 1 to 1½ inches of water, Pump working properly

Attachment C, Non-PF-4 Daily Surveillance Rounds [UET]

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FOR INFORMATION ONLY

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.:	111165	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103763
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	8/16/22
	PF-11 Thermometer File No.:	111163	PF-11 Thermistor File No.:	105352	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	7/12/22

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:			9/1/21	9/2/21	9/3/21	9/4/21	9/5/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:			[illegible]	[illegible]	PJC	[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			70.6	69.7	69.2	69.42	69.28
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F			72.4	71.3	72.1	73.24	71.14
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F			70.9	66.3	67.9	71.201	67.31
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F			74.7	70.8	70.9	69.63	73.43
		Completion Time:			0750	0732	0713	0835	0830
		OC Operator Review and Page Count Complete (initials)			DH	DH	TS	TS	TS
		OCS Daily Review Sign off (initials)			Ars	Ars			

[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: Richard L Martinez Date 9/5/21 Time 0830

Reviewed by: _____ Date: 9/5/21 Time: 0855
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.

FOR INFORMATION ONLY

Note Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		**Date:**	9/6/21		9/7/21		9-8-21		9-9-21		9/10/21		9/11/21		9/12/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	M	JSL	M	JSL	RS	JSL	PD	JSL	M	JSL	M	JSL	M	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 ≤-1.5 in. wc[1]	-2.01	-2.00	-2.01	-2.01	-2.01	-2.01	-2.01	-2.00	-2.01	-2.01	-2.00	-2.01	-2.01	-2.00
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.92	-1.92	-1.93	-1.93	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.93
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.96	-1.97	-1.96	-1.97	-1.96	-1.95	-1.96	-1.96	-1.96	-1.97	-1.96	-1.97	-1.96	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]	-1.98	-1.98	-1.99	-1.94	-1.98	-1.99	-1.98	-1.98	-1.99	-1.99	-1.98	-1.98	-1.98	-1.99
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.24	-0.25	-.24	-0.25	-.25	-0.24	-0.25	-0.23	-.25	-0.25	-.25	-0.25	-.24	-0.24
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.30	-0.31	-.30	-0.31	-.30	-0.29	-0.30	-0.29	-.30	-0.30	-.30	-0.30	-.30	-0.30
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.20	-0.20	-.19	-0.21	-.21	-0.20	-0.20	-0.18	-.20	-0.20	-.20	-0.20	-.19	-0.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.20	-0.19	-.19	-0.20	-.21	-0.19	-0.20	-0.20	-.20	-0.19	-.20	-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	-.15	-0.15	-0.15	-0.15	-.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	-.09	-0.09	-.09	-0.09	-.09	-0.09	-0.09	-0.09	-.09	-0.09	-.09	-0.09	-.09	-0.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.09	-0.09	-.09	-0.09	-.09	-0.09	-0.09	-0.09	-.09	-0.09	-.09	-0.09	-.09	-0.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.106	-0.093	-.095	-0.097	-.108	-0.093	-0.094	-0.109	-.095	-0.116	-.093	-0.092	-.109	-0.097

Attachment A, Per Shift Surveillance Rounds [UET]

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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:	9/6/21		9/7/21		9-8-21		9-9-21		9/10/21		9/11/21		9/12/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	M	JSL	M	JSL	TS	JSL	PND	JSL	M	JSL	M	JSL	M	JSL
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	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	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	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	Sat Unsat

Attachment A, Per Shift Surveillance Rounds [UET]

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FOR INFORMATION ONLY

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:	9/6/21		9/7/21		9-8-21		9-9-21		9/10/21		9/11/21		9/12/21	
Weekday:	Mon		Tue		Wed		Thu		Fri		Sat		Sun	
Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Initials:	M	JSL	M	JSL	TS	JSL	MM	JSL	M	JSL	M	JSL	M	JSL

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	1903	0736	1921	0729	1921	0722	1914	0727	1919	0731	1915	0723	1921
		OCS Daily Review Sign off (initials)			APJ	APJ	APJ	BL	BL	BL	PJD	BL	APJ	APJ	APJ		APJ	

[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.
[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: JSL Date 9-12-21 Time 1921 Reviewed by: PRIM Date: 9/12/21 Time: 1927
On-duty Supervisor

Comments: _____

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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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:	9/6/21	9/7/21	9/8/21	9/9/21	9/10/21	9/11/21	9/12/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	ZH	ZH	ZH	ZH	PJC	ZH	ZH
	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	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat
			005	005	005	005	005	005	005
		Completion Time:	0917	0731	0719	0746	0727	0717	0714

FOR INFORMATION ONLY

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/6/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	ZL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	9/4/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.19	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A

FOR INFORMATION ONLY

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/6/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	BH	N/A	N/A	N/A	N/A	N/A	N/A
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	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.44	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0953	0732	0830	0815	0744	0740	0743
OC Operator Review and Page Count Complete (initials)				M	M	D	TS	M	M	M
OCS Daily Review Sign off (initials)				APS	APS	APS		APS	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: BHuhner Date 9/7/21 Time 0743 Reviewed by: _____ Date: 9/12/21 Time: 0803
On-duty Supervisor

Comments 4.4.1.1 Awaiting Calibration

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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NOTE This entire attachment is to be treated as Surveillance Requirement implementing actions.

FOR INFORMATION ONLY

			Date:	9/6/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	ZH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.37	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/6/24	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	N/A	N/A	N/A	N/A	N/A	N/A
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	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/6/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	N/A	N/A	N/A	N/A	N/A	N/A
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	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	.27	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	.21	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	.25	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/6/21	9/7/21	9/8/21	9/9/21	9/10/21	9/11/21	9/12/21
			Weekday:	Mon.	Tue.	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	RH	RH	RH	PJC	RH	RH
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤ 2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤ 2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤ 2.0 & > 0[1] in. wc	.68	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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]

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FOR INFORMATION ONLY

			Date:	9/6/21	9/7/21	9/8/21	9/9/21	9/10/21	9/11/21	9/12/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	RH	RH	RH	PJC	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	1030	0801	0753	0816	0735	0741	0802
			OC Operator Review and Page Count Complete (initials)	M	M	TS	TS	M	M	M
			OCS Daily Review Sign off (initials)	AM	AM	AM		AM	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: ~~RH~~ [illegible] Date 9/12/21 Time 0802 Reviewed by: [signature] Date: 9/12/21 Time: 0805

On-duty Supervisor

* Comments: 4.1.1.7[2] HVP801 "¼" to "½" of water on floor. HVP803 A little water showing in the low lying areas on floor. HVP809 approximately ½" of water on floor. ON 9/12/21 HVP 801 the floor appears to be dry, water still fills the water trough. HVP 803 same condition as HVP 801 (9/12/21). HVP 809 still appears to have approximately ½" of water on the floor (9/12/21).

Attachment C, Non-PF-4 Daily Surveillance Rounds [UET]

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FOR INFORMATION ONLY

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.:	111165	PF-10 Thermistor File No.:	103745	V-701 Thermistor File No.:	103763
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	8/14/22
	PF-11 Thermometer File No.:	111163	PF-11 Thermistor File No.:	105352	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	7/12/22

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	9/6/21	9/7/21	9/8/21	9/9/21	9/10/21	9/11/21	9/12/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	RH	JH	PK	M	M	M	RH
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	69.4	69.8	70.2	70.6	78.2	71.4	71.7
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	71.4	71.8	72.3	72.5	72.6	77.1	76.4
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	69.0	69.5	75.7	76.2	76.6	76.5	75.9
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	73.7	75.3	76.1	76.1	76.0	73.7	73.8
		Completion Time:	0854	0807	0709	0712	0740	0924	0858
	OC Operator Review and Page Count Complete (initials)		M	M	JSL	JSL	M	M	M
	OCS Daily Review Sign off (initials)		APS	APS			APS	APS	APS

[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: R Hahn Date 9/12/21 Time 0859

Reviewed by: _____ Date: 9/12/21 Time: 0912
On-duty Supervisor

Comments: _____

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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NOTE This entire attachment is to be treated as Surveillance Requirement implementing actions.

FOR INFORMATION ONLY

			Date:	9/13/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1] wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.37	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.66	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/13/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.55	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.25	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/13/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in wc	.28	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in wc	.28	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in wc	.25	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in wc	.34	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in wc	.33	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	9/13/21	9/14/21	9/15/21	9/16/21	9/17/21	09/18/21	9/19/21
			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	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤ 2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤ 2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤ 2.0 & > 0[1] in. wc	.66	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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]

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			Date:	9/13/21	9/14/21	9/15/21	9/16/21	9/17/21	09/18/21	9/18/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:							
SRs	Description	Gauge	Acceptance Criteria	SURVEILLANCE RESULTS						
4.3.2.2[2]	Room 206		0 lb/ft^3 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	
4.3.2.2[2]	Room 207		0 lb/ft^3 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	
			Completion time	0915*	0900*	0745*	0815*	0830*	0915	0725
			OC Operator Review and Page Count Complete (initials)	TS	TS	M	M	TS	TS	TS
			OCS Daily Review Sign off (initials)			APD	APD			APD

[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: Patrick Connolly Date 9/18/21 Time 0725 Reviewed by: _____ Date: 9/21/21 Time: 0648

On-duty Supervisor

Comments: * Person 801, 803, 809 have trace to 1" water on floor, 809 draining properly, almost no water in 809 drain pans - and no water in condensate tank.

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:**	9-13-21		9/14/21		9/15/21		9/16/21		9-17-21		9-18-21		9-19-21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	TJ	BC	PD	BC	AMS	JSL	M	JSL	TJ	C	TJ	C	JSL	C
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 ≤-1.5 in. wc[1]	-2.01	-2.01	-2.01	-2.01	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.00	-2.01	-2.00	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.96	-1.96	-1.97	-1.96	-1.96	-1.96	-1.96	-1.95	-1.96	-1.97	-1.95	-1.95	-1.96	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]	-1.98	-1.98	-1.99	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	200 area laboratory header ΔP	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.24	-.25	-0.24	-.24	-.24	-0.25	-.24	-0.24	-.24	-.25	-.24	-.24	-0.24	-.24
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.30	-.31	-0.30	-.30	-.29	-0.30	-.29	-0.30	-.30	-.30	-.30	-.30	-0.30	-.30
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.21	-.21	-0.20	-.20	-.20	-0.19	-.20	-0.22	-.20	-.21	-.20	-.20	-0.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.20	-.21	-0.20	-.20	-.20	-0.19	-.19	-0.22	-.20	-.21	-.20	-.20	-0.20	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-.14	-0.14	-.15	-.15	-0.15	-.15	-0.15	-.15	-.15	-.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	-.09	-0.09	-.09	-0.10	-.09	-.09	-.09	-.09	-0.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.09	-.09	-0.09	-.09	-.09	-0.09	-.09	-0.09	-.09	-.09	-.09	-.09	-0.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.110	-.112	-0.109	-.101	-.093	-0.092	-.089	-0.110	-.096	-.091	-.103	-.094	-0.095	-.107

Attachment A, Per Shift Surveillance Rounds [UET]

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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:	9-13-21		9/14/21		9/15/21		9/16/21		9-17-21		9-18-21		9-19-21	
			Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
			Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
			Initials:	TS	BC	RD [illegible]	BC	ATS	JSC	M	JSC	TS	C	TS	C	JSC	C
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]

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FOR INFORMATION ONLY

Note				Date:	9-13-21		9/14/21		9/15/21		9/16/21		9-17-21		9-17-21		9-19-21	
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.				Weekday:	Mon.		Tue.		Wed		Thu		Fri		Sat		Sun	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:	TS	BC	[illegible]	BC	ADJ	JSC	M	JSC	TS	C	TS	C	JSC	C
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			0722	1919	0725	1921	0729	1911	0729	1919	0746	1116	0731	1917	0717	1917
		OCS Daily Review Sign off (initials)			[illegible]	BC	[illegible]	BC	BC	[illegible]	ADJ	[illegible]	[illegible]	BC	[illegible]	BC	[illegible]	BC

[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: C Date 9/19/21 Time 1919 Reviewed by: [signature] Date: 9-19-21 Time: 1935

On-duty Supervisor

Comments: _____

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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FOR INFORMATION ONLY

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:	9/13/21	9/14/21	9/15/21	9/16/21	9/17/21	09/18/21	9/19/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	TL	JL	CP	TL	TL	MM	PSC
	Description / Gauge	**Acceptance Criteria**	**SURVEILLANCE RESULTS (percentage)**						
SR	**Flammable Gas Channel Check DET-305-3 (LCD Reading)**	NA	005	005	005	005	005	005	005
4.4.1.1	**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:	0800	0745	0728	0752	0830	0741	0710

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/13/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	.46	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/13/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	.62	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.16	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.56	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.57	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	9/13/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.44	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.15	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	.80	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0915*	0745*	0801*	0815*	0830*	0913*	0715 PSC
OC Operator Review and Page Count Complete (initials)				TS	TS	@ M	M	TS	TJ	PSC 9/14/21 TS
OCS Daily Review Sign off (initials)						M AMS	AMS			

[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: PSC Date 0742 Time 9/19/21 Reviewed by: _____ Date: 9/19/21 Time: 0945
On-duty Supervisor

Comments *Inspect Plenums - no water on floors.

FOR INFORMATION ONLY

Attachment C, Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

FOR INFORMATION ONLY

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.:	111165	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103763
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	8/16/22
	PF-11 Thermometer File No.:	111163	PF-11 Thermistor File No.:	105352	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	07/12/22

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	9/13/21	9/14/21	9/15/21	9/16/21	9-17-21	9/18/21	9/19/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:						PSC	PSC
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	71.7	71.9	71.7	71.5	71.5	71.1	71.0
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	73.8	74.1	73.8	73.6	73.5	73.2	73.0
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	75.9	~~76.3~~ 78.1	75.1	74.9	75.2	74.2	74.4
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	76.3	77.7	75.7	76.2	75.5	74.4	74.5
		Completion Time:	0755	0747	0722	0720	1010	7:10	0829
OC Operator Review and Page Count Complete (initials)			TS	TS	BW	JSL	TS	TS	TS
OCS Daily Review Sign off (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: Patrick Connolly 327245 Date 9/19/21 Time 9:15

Reviewed by: 305593 Date: 9/19/21 Time: 1039
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.

FOR INFORMATION ONLY

Note Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		**Date:**	9-20-21		9-21-21		9-22-21		9-23-21		9/24/21		9-25-21		9-26-21	
		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	M	JSL	M	JSL	<	TS	[illegible]	K	M	JSL	M 26/09/21	JSL	M
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 ≤-1.5 in. wc[1]	-2.01	-2.02	-2.01	-2.01	-2.01	-2.01	-2.00	-2.00	-2.01	-2.01	-2.00	-2.01	-2.01	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.92	-1.94	-1.93	-1.92	-1.92	-1.92	-1.93	-1.92	-1.92	-1.92	-1.92	-1.93	-1.92	-1.92
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.97	-1.97	-1.96	-1.97	-1.97	-1.96	-1.96	-1.97	-1.96	-1.96	-1.96	-1.96	-1.96	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]	-1.98	-1.97	-1.98	-1.98	-1.99	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-0.24	-.20	-0.17	-.19	-0.19	-.18	-.18	-.19	-.19	-.21	-0.20	-0.21	-0.20	-.20
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-0.30	-.26	-0.25	-.25	-0.25	-.24	-.25	-.25	-.26	-.28	-0.26	-0.26	-0.25	-.26
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-0.21	-.22	-0.20	-.20	-0.20	-.20	-.18	-.18	-.20	-.22	-0.26	-0.20	-0.20	-.19
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-0.18	-.21	-0.19	-.19	-0.19	-.19	-.18	-.18	-.18	-.22	-0.19	-0.20	-0.20	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-0.15	-.15	-0.15	-.15	-0.15	-.15	-.15	-.15	-.15	-.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	-0.09	-.09	-0.09	-.10	-0.09	-.09	-.09	-.10	-.09	-.09	-0.09	-0.09	-0.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-0.09	-.09	-0.09	-.09	-0.09	-.09	-.09	-.10	-.09	-.09	-0.09	-0.09	-0.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-0.098	-.076	-0.091	-.107	-0.107	-.091	-.091	-.096	-.096	-.093	-0.092	-0.096	-0.103	-.108

Attachment A, Per Shift Surveillance Rounds [UET]

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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:	9-20-21		9-21-21		9-22-21		9-23-21		9/24/21		9-25-21		9-26-21	
		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	M	JSL	M	JSL	C	RJ	C	ik	M	JSL	M	JSL	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	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	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	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	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	Sat Unsat

Attachment A, Per Shift Surveillance Rounds [UET]

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FOR INFORMATION ONLY

Note				Date:	9-20-21		9-21-21		9-22-21		9-23-21		9/24/21		9-25-21		9-26-21	
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.				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	M	JSL	M	JSL	L	RJ	RC	L	M	JSL	10 (9/27) M	JSL	M
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	1926	0721	1924	0722	1916	0731	1929	0736	1915	0722	1930	0714	1923
		OCS Daily Review Sign off (initials)			L	AMJ	AMJ	AMJ	MH	BC	L	AMJ	MH	K	AMJ	AMJ	L	AMJ

[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: ~~Date~~ 9/26/21 Time 1923 Reviewed by: A JARAMILLO Date: 9/26/21 Time: 1929

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:	9/20/21	9/21/21	9/22/21	9/23/21	9/24/21	9/25/21	9/26/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	RH	RH	RH	RH	RH	PJC	RH
	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:	0716	0803	0712	0727	0751	0834	0811

FOR INFORMATION ONLY

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/20/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.46	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/20/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	PH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**400 area glovebox exhaust filter plenum (FF857) ΔP**	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Basement exhaust filter plenum (FF-829) ΔP**	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.20	N/A	N/A	N/A	N/A	N/A	N/A
4.1.1.7[2]	**300 area re-circulation filter plenum (HVP-805) ΔP**	[1]PDI-836-1	≤2.0 & > 0[1] in. wc	.17	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	9/20/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	N/A	N/A	N/A	N/A	N/A	N/A
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	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.44	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.15	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	.80	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI-811-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-811-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-811-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0754	0724	0738	0741	0753	0836	0812
OC Operator Review and Page Count Complete (initials)				JSL	JSL	JSL	JSL	JSL	JSL	JSL
OCS Daily Review Sign off (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: RH Date 9/20/21 Time 0812 Reviewed by: PRICE Date: 9/26/21 Time: 0822
On-duty Supervisor

Comments _____

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:	9/20/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.34	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.64	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A

FOR INFORMATION ONLY

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

FOR INFORMATION ONLY

			Date:	8/20/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	BH	N/A	N/A	N/A	N/A	N/A	N/A
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	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.87	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.28	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	9/20/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RAL	N/A	N/A	N/A	N/A	N/A	N/A
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	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	.27	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	.22	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A

FOR INFORMATION ONLY

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	9/20/21	9/21/21	9/22/21	9/23/21	9/24/21	9/25/21	9/26/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	RH	RH	RH	RH	RH	PJC	RH
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤ 2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤ 2.0 & > 0[1] in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤ 2.0 & > 0[1] in. wc	.62	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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:	9/20/21	9/21/21	9/22/21	9/23/21	9/24/21	9/25/21	9/26/21
			Weekday:	Mon.	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	PJC	[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	PJC 9/25/21 PJ 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	0755	0817	0739	0742	0754	0843	0813
			OC Operator Review and Page Count Complete (initials)	JSL	JSL	JSL	[illegible]	JSL	JSL	JSL
			OCS Daily Review Sign off (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: RH Date 9/26/21 Time 0813 Reviewed by: [illegible] Date: 9/26/21 Time: 0823

On-duty Supervisor

Comments: _____

FOR INFORMATION ONLY

Attachment C, Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

FOR INFORMATION ONLY

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.:	111165	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103763
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	07/12/22	Calibration Expiration Date:	8/16/22
	PF-11 Thermometer File No.:	111163	PF-11 Thermistor File No.:	105352	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	7/12/22

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	9/20/21	9/21/21	9/22/21	9/23/21	9/24/21	9/25/21	9/26/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:						PJC	~~RH~~
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	70.7	70.0	68.7	68.2	67.9	67.7	67.5
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	72.6	70.9	70.6	69.5	70.6	69.7	69.5
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	73.2	71.6	68.6	70.1	71.0	71.7	70.1
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	73.4	71.9	66.9	70.1	69.8	71.2	69.7
		Completion Time:	0810	0712	0756	0745	0753	0703	0755
		OC Operator Review and Page Count Complete (initials)	JSL	JSL	JSL	TS	JSL	JSL	JSL
		OCS Daily Review Sign off (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: Rory Hohner ~~RH~~ Date 9/26/21 Time 0754

Reviewed by: [signature] Date: 9/26/21 Time: 0802
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.

FOR INFORMATION ONLY

Note Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		**Date:**	9/1/21		~~9/29/21~~ 9/28/21 9/29/21		9-29-21		9-30-21							
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	<	RAD TS	<	RAD	[illegible]	M	[illegible]	M						
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 ≤-1.5 in. wc[1]	-2.00	-2.01	-2.01	-2.01	-2.01	-2.01	-2.00	-2.00						
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.92	-1.92	-1.93	-1.92	-1.92	-1.92	-1.92	-1.92						
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.97	-1.96	-1.96	-1.96	-1.96	-1.96	-1.96	-1.96						
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98						
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.20	-0.21	-.21	-0.20	-0.19	-.20	-0.20	-.20						
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.26	-0.26	-.26	-0.26	-0.25	-.26	-0.26	-.26						
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.20	-0.20	-.22	-0.20	-0.20	-.20	-0.20	-.20						
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.20	-0.17	-.21	-0.20	-0.20	-.19	-0.20	-.20						
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-0.15	-.15	~~-0.22~~ -0.15 9/28/21	-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	-.10	-0.09	-.09	-.09	-0.09	-.09	-0.09	-.09						
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.09	-0.09	-.09	-.09	-0.09	-.09	-0.09	-.09						
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.098	-0.095	-.096	-0.091	-0.103	-.093	-0.099	-.093						

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:**	9/27/21		9/28/21		9-29-21		9-30-21							
		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]	PND TS	[illegible]	PND [illegible]	JSL	M	JSL	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]

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FOR INFORMATION ONLY

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:**	9/27/21		9/28/21		9-29-21		9-30-21							
				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]	PND TS	[illegible]	PND	JSC	M	JSC	M						
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			0712	0729 1924	0721	1913	0723	1921	0717	1923						
		OCS Daily Review Sign off (initials)			[illegible]	PND [illegible]	[illegible]	PND [illegible]	[illegible]	[illegible]	[illegible]	AMS						

[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by [signature] Date 9/30/21 Time 1923 Reviewed by: [signature] Date: 9/30/21 Time: 1931
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:	9/27/21	9/28/21	9/29/21	9/30/21			
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	TL	AR	JM	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			
	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 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat 005	Sat / Unsat	Sat / Unsat	Sat / Unsat
		Completion Time:	0745	0750	0705	0751			

FOR INFORMATION ONLY

4B 1245
4D 1235

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 2 of 4)

FOR INFORMATION ONLY

			Date:	9/27/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.14	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.72	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.26	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	46	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/27/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.13	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.20	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/27/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	.62	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0841 *	0820 *	0720 *	* 0805			
OC Operator Review and Page Count Complete (initials)				<	<	JSC	JSC			
OCS Daily Review Sign off (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 [illegible] Date 9/30/21 Time 0845 Reviewed by: [illegible] Date: 10/5/21 Time: 0710
On-duty Supervisor

Comments 4.4.1.1 0[2] Meter is Out of Service, awaiting Calebration. * Plenum floors clear of water.

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:	9/27/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0[1] in. wc	.54	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.37	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.64	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.66	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/27/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in wc	.56	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in wc	.52	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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FOR INFORMATION ONLY

			Date:	9/27/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	YL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	.22	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	.33	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.35	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

FOR INFORMATION ONLY

			Date:	9/27/21	9/28/21	9/29/21	9/30/21			
			Weekday:	Mon.	Tue.	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	CR	MH	EN			
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤ 2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤ 2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤ 2.0 & > 0[1] in. wc	.70	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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)

FOR INFORMATION ONLY

			Date:	9/27/21	9/28/21	9/29/21	9/30/21			
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	[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			
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	0841 *	0810 *	*0730	*0804			
			OC Operator Review and Page Count Complete (initials)	<	<	JSC	JSC			
			OCS Daily Review Sign off (initials)	[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: RH Date 9/30/21 Time 0845 Reviewed by: [illegible] Date: 10/6/21 Time: 0710

On-duty Supervisor

Comments: * Plenums clear of water on floors.

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.

FOR INFORMATION ONLY

M&TE Calibrated Data						
Record September through April only	PF-10 Thermometer File No.:	111165	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103763
	Calibration Expiration Date:	07/22/22	Calibration Expiration Date:	07/12/22	Calibration Expiration Date:	08/16/22
	PF-11 Thermometer File No.:	111163	PF-11 Thermistor File No.:	105352	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	07/22/22	Calibration Expiration Date:	07/12/22	Calibration Expiration Date:	07/12/22

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	09/27/21	9/28/21	9/28/21 PSC 9/29/21	9/30/21			
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun
		Initials:	hs		PSC				
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	67.0	66.8	65.7	65.2			
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	68.9	68.5	67.2	66.6			
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	69.5	68.9	66.3	66.3			
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	69.5	67.8	65.2	65.0			
		Completion Time:	1030	0705	0738	0738			
	OC Operator Review and Page Count Complete (initials)		<	<	JSC	JSC			
	OCS Daily Review Sign off (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 9/30/21 Time 0738

Reviewed by: _____ Date: 10/5/21 Time: 0639
On-duty Supervisor

Comments: _____

Attachment D, Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 1 of 2)

NOTE: his entire attachment is to be treated as Surveillance Requirement implementing actions.

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials	CDV 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.	1432	9/16/21		
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.	1432	9/16/21		
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.	1424	9/16/21		
*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.	1416	9/16/21		
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.	1416	9/16/21		
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) goes to the fully closed position via the automatic door closure is ≤ 30 seconds. 5 Seconds	(Sat.) / Unsat.	1415	9/16/21		

* **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	CDV 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.	1411	9/16/21		
4.1.3.2[1]	Confinement Door DR-302	Southwest	AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) goes to the fully closed position via the automatic door closure is ≤ 30 seconds. 7 Seconds	(Sat) / Unsat.	1411	9/16/21		
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.	1313	9/16/21		
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.	1354	9/16/21		
						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 9/16/21 Time 1432 Reviewed by: [signature] Date: 9/16/21 Time: 1437

Concurrent Dual Verifier [signature] Date 9/16/21 Time 1432

On-duty Supervisor Comments: _____

FOR INFORMATION ONLY

Attachment B, Surveillance Training Checklist

(Page 1 of 2)

Procedure title:	SURVEILLANCE ROUNDS
Procedure no.:	TA-55-STP-004 R22
Date of issue:	10/01/2021
Working copy issued to:	Jaurigue, Tony
Working copy issued by:	Wells, Matthew
	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
Cedillo, John	JC M	10/01/21
Chance, Brian BCW 10.31.21	JC M	10/01/21
Cochran, Cory	JC M	10/01/21
Stilson, Tyler	JC M	10/01/21
Wells, Matthew	JC M	10/01/21
Jaurigue, Tony	JC M	10/01/21
Price, Ricky	JC M	10/01/21
Seybert, Fred	JC M	10/01/21
Miller, Marcus	JC M	10/01/21

OC Reviews Complete and TSR Status Board Updated

[signature] 10.31.21

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
Cantu, Albert	M	10/5/21
Connolly, Patrick	JL M	10·01·21 MC
Hohner, Rory	JL M	10·01·21 MC
Langworthy, Thomas	JL M	10·01·21 MC
Long, Bobby	M	10·01·21 MC
Martinez, Jerome	JL M	10·01·21 MC
Martinez, Richard	JL M	10·01·21 MC
Sheldon, Steven	JL M	10·01·21 MC
Vigil, Matthew	JL M	10·01·21 MC
Cardona, Michael	C	10/15/21
Derrick, Philip		
Sanchez, Leah		
Sagapolutele, Deborah		

For Information Only

Attachment D, Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 1 of 2)

NOTE: his entire attachment is to be treated as Surveillance Requirement implementing actions.

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials	CDV 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.	1110	10/14/21	[illegible]	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.	1110	10/14/21	[illegible]	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.	1003	10/14/21	[illegible]	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.	1036	10/14/21	[illegible]	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.	1036	10/14/21	[illegible]	RH
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) goes to the fully closed position via the automatic door closure is ≤ 30 seconds. 4.4 Seconds	(Sat.) Unsat.	1034	10/14/21	[illegible]	RH

Non-Controlled Distribution

*** 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	CDV Initial
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.	1044	10/14/21		
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) goes to the fully closed position via the automatic door closure is ≤ 30 seconds. 6.3 Seconds	(Sat.) Unsat.	1042	10/14/21		
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.	1013	10/14/21		
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.	1054	10/14/21		
						OC Operator Review and Page Count Complete	BC	

[1] SR 4.1.3.2 applies during both Mode 1 and Mode 2.

Completed by: [signature] Date 10/14/21 Time 1110 Reviewed by: [signature] Date: 10-14-21 Time: 1121

Concurrent Dual Verifier [signature] Date 10/14/21 Time 1110

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.

Note Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		**Date:**									10/1/21		10/2/21		10/3/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:									C	DJ	[illegible] C	PND TS	[illegible] C	DJ
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 ≤-1.5 in. wc[1]									-2.01	-2.01	-2.00	-2.00	-2.00	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]									-1.92	-1.92	-1.92	-1.92	-1.92	-1.92
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]									-1.97	-1.97	-1.96	-1.96	-1.96	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]									-1.97	-1.98	-1.98	-1.98	-1.98	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]									-.20	-.19	-.19	-0.20	-.20	-.20
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]									-.26	-.26	-.26	-0.27	-.27	-.27
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]									-.20	-.18	-.20	-0.20	-.21	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]									-.20	-.18	-.19	-0.20	-.20	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc									-.15	-.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	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc									-.09	-.09	-.09	-.09	-.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc									-.104	-.104	-.094	-0.094	-.095	-.104

FOR Information Only

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:**									10/1/21		10/2/21		10/3/21	
		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**	**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

Non-Controlled for Training Only

Attachment A, Per Shift Surveillance Rounds [UET]

(Page 3 of 3)

Note				Date:									10/1/21		10/2/21		10/3/21	
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.				Weekday:	Mon		Tue		Wed		Thu		Fri		Sat		Sun	
				Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
				Initials:									C	KS	[illegible]	PM TS	[illegible]	TS
SRs	**Description**	**Area**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS Sat / Unsat (circle one)**													
4.1.1.4	**Glovebox exhaust header APs < laboratory APs < basement APs 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	1905	0729	1926	0718	1913
		OCS Daily Review Sign off (initials)											BC	KS	BC	BC	BC	

[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: KS Date 10-3-21 Time 1913 Reviewed by: _____ Date: 10/3/21 Time: 1919

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).

For Information Only

		Date:					10/1/21	10/2/21	10/3/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:					TH	MH	MH
	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
	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	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat
		Completion Time:					0700	0940	1146

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 2 of 4)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Corridor supply (HVP-810) ΔP**	[1]PDI-895-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area glovebox exhaust filter plenum (FF854) ΔP**	[1]PDI-817-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area special recovery glovebox exhaust filter plenum (FF858) ΔP**	PDI-819-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area glovebox exhaust filter plenum (FF855) ΔP**	[1]PDI-818-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**300 area special recovery glovebox exhaust filter plenum (FF859) ΔP**	PDI-821-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A

For Information Only

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**400 area glovebox exhaust filter plenum (FF857) ΔP**	[1]PDI-823-1	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Basement exhaust filter plenum (FF-829) ΔP**	[1]PDI-830-1	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.1.7[2]	**300 area re-circulation filter plenum (HVP-805) ΔP**	[1]PDI-836-1	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in wc		N/A	N/A	N/A	N/A	N/A	N/A

For Information Only

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:		N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:		N/A	N/A	N/A	N/A	N/A	N/A
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		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Bleed off filter plenum (FF-822A) ΔP**	[1]PDI-810-1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Bleed off filter plenum (FF-822B) ΔP**	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc		N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time					0725 *	0940 *	0158 *
OC Operator Review and Page Count Complete (initials)								M	<	<
OCS Daily Review Sign off (initials)								BL	BL	BL

[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: Irish Date 10/8/21 Time 0635 Reviewed by: [signature] Date: 10-3-21 Time: 0835
On-duty Supervisor

Comments 4.4.1.1 O² meter is Out of Service awaiting calibration. * Inspect Plenums for water on floor.

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.

Note Gauge readings should be taken on rack #4 in the OC. whenever possible. Document if alternate PDIs are used.		**Date:**	10-4-21		10-5-21		10/6/21		10/7/21		10-8-21		10-9-21		10-10-21	
		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	M	JSC	M	[illegible]	JJ	[illegible]	[illegible]	JSC	M	JSC	M WIT	JSC	M
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 ≤-1.5 in. wc[1]	-2.01	-2.01	-2.01	-2.01	-2.01	-2.01	-2.01	-2.01	-2.02	-2.01	-2.01	-2.01	-2.00	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.93	-1.93
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.97	-1.96	-1.96	-1.96	-1.98	-1.96	-1.96	-1.96	-1.96	-1.96	-1.97	-1.96	-1.96	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]	-1.98	-1.98	-1.98	-1.98	-1.99	-1.99	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-0.19	-.20	-0.19	-0.19	-.18	-0.19	-.19	-0.18	-0.19	-.18	-0.19	-0.19	-0.18	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-0.26	-.27	-0.26	-0.26	-.25	-0.26	-.26	-0.26	-0.25	-.23	-0.24	-0.23	-0.24	-.24
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-0.18	-.20	-0.20	-0.20	-.16	-0.20	-.20	-0.20	-0.19	-.19	-0.19	-0.19	-0.20	-.19
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-0.17	-.20	-0.19	-0.20	-.16	-0.19	-.19	-0.20	-0.19	-.19	-0.24	-0.19	-0.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-0.15	-.15	-0.15	-0.15	-.14	-0.15	-.15	-0.15	-0.15	-.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	-0.09	-.09	-0.09	-0.09	-.10	-0.09	-.09	-0.09	-0.09	-.09	-0.09	-0.09	-0.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-0.09	-.09	-0.09	-0.09	-.09	-0.09	-.09	-0.09	-0.09	-.09	-0.09	-0.08	-0.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-0.093	-.095	-0.098	-0.106	-.096	-0.012	-.110	-0.092	-0.107	-.093	-0.089	-0.097	-0.096	-.096

For Information Only

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:	10/04/202		10/05/2021		10/6/21		10/7/21		10-8-21		10-9-21		10-10-21	
		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	M	JSL	M	C	B	C		JSL	M	JSL	M 24 4/1	JSL	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	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	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	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	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	Sat Unsat

Контролируемый

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:	10/04/2021		10/5/2021		10/6/21		10/7/21		10-8-21		10-9-21		10-10-21	
				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	M	JSL	M					JSL	M	JSL	M	JSL	M
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			0736	1926	0731	193	0726	1920	0720	1921	0719	1920	0726	1931	0723	1924
		OCS Daily Review Sign off (initials)			AMJ	AMJ	AMJ	AMJ	BL		BL		AMJ	AMJ	AMJ	AMJ	MRS	AMJ

[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.
[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: _____ Date 10/10/21 Time 1929 Reviewed by: _____ Date: 10/10/21 Time: 1935
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:	10-4-21	10/5/21	10/6/21	10/7/21	10/8/21	10/9/21	10/10/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	[illegible]	[illegible]	PJC	[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	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat	Sat / Unsat
			005	005	005	005	005	005	005
		Completion Time:	0705	0729	0727	0710	0726	0745	0715

For Information Only

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 2 of 4)

			Date:	10/4/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	@	N/A	N/A	N/A	N/A	N/A	N/A
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	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.03	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.03	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.25 STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-81 9-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.25	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A

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Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	10/4/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat.	Sun
			Initials:	R	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**400 area glovebox exhaust filter plenum (FF857) ΔP**	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Basement exhaust filter plenum (FF-829) ΔP**	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.68	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A

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Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	10/4/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	(P)	N/A	N/A	N/A	N/A	N/A	N/A
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	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.44	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0828*	0750*	*1010	0710*	*0731	*0758	*0725
OC Operator Review and Page Count Complete (initials)				JSL	JSL	←	←	JSL	JSL	JSL
OCS Daily Review Sign off (initials)				←	BL	BL	BL	BL	AB	AB

[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 10/10/21 Time 0725 Reviewed by: [signature] Date: 10/10/21 Time: 1935
On-duty Supervisor

Comments 4.4.1.1 Awaiting Calibration * Visually checked Plenums for water

For Information Only

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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NOTE This entire attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	10/4/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[signature]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.35	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.62	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.63	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A

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Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	10/4/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	R	N/A	N/A	N/A	N/A	N/A	N/A
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	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A

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Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	10/4/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat.	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	@10-4-21 .07 .08	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	@10-4-21 .02 .21	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	@10-4-21 .03 .30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.39	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A

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Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	10/4/21	10/5/21	10/6/21	10/7/21	10/8/21	10/8/21	10/10/21
			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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc	.69	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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~~ [illegible] 10/4/21	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~~ [illegible] 10/4/21	SAT	SAT	SAT	SAT	SAT

For Information Only

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 5 of 5)

			Date:	10/4/21	10/5/21	10/6/21	10/7/21	10/8/21	10/9/21	10/10/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	R	R	RH	JN	RH	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	0813 *	0740 *	1011 *	0750 *	0815 *	0805 *	0745 *
			OC Operator Review and Page Count Complete (initials)	JSL	JSL			JSL	JSL	JSL
			OCS Daily Review Sign off (initials)						APJ	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: R. Martinez Date 10/10/21 Time 0745 Reviewed by: _____ Date: 10/10/21 Time: 1940
On-duty Supervisor

Comments: * Visually checked Plenums for water
Unclassified waste item identified 10/4/21 still in same location. Notified Ops, per Ops Known issue.
Looks like liquid in fingers of gloves. gloves are degrading and may start leaking.

FOR INFORMATION ONLY

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.:	111165	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103763
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	8/16/22
	PF-11 Thermometer File No.:	111163	PF-11 Thermistor File No.:	105352	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	7/12/22

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	10/4/21	10/5/21	10/6/21	10/7/21	10/8/21	10/9/21	10/10/21
		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	61.3	61.5	62.0	61.2	61.7	62.118	61.85
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	62.4	61.6	62.9	62.7	62.7	63.15	62.72
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	69.3	70.0	69.7	69.8	69.5	69.8	63.24
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	69.4	66.7	66.3	65.1	65.4	66.22	68.47
		Completion Time:	0748	0721	0728	0715	0804	0838 8/24	0830
		OC Operator Review and Page Count Complete (initials)	JSL	JSL			JSL	JSL	JSL
		OCS Daily Review Sign off (initials)						ARJ	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 10/10/21 Time 0830

Reviewed by: [signature] Date: 10/10/21 Time: 1945
On-duty Supervisor

Comments:

Auto uploaded to IOT

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:**	10/11/21		10/12/21		10/13/21		10.14.21		10/15/21		10/16/21		10/17/21	
		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]	TS	[illegible]	[illegible]	[illegible]	[illegible]	BC	[illegible] 2/10/15	[illegible]	TS	[illegible]	PD	[illegible]	TS
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 ≤-1.5 in. wc[1]	-2.00	-2.01	-2.01	-2.00	-2.01	-2.01	-2.01	-2.01	-2.00	-2.00	-2.00	-2.01	-2.01	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.92	-1.93	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.93	-1.93	-1.92	-1.93	-1.92
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.96	-1.97	-1.96	-1.97	-1.97	-1.96	-1.96	-1.96	-1.96	-1.96	-1.95	-1.97	-1.96	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]	-1.98	-1.98	-1.98	-1.98	-1.98	-1.99	-1.99	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.18	-.19	-.20	-0.19	-.18	-.19	-.18	-0.18	-.18	-.18	-.18	-0.18	-.18	-.18
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.24	-.26	-.26	-0.25	-.24	-.24	-.24	-0.24	-.24	-.23	-.23	-0.23	-.23	-.23
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.19	-.20	-.19	-0.20	-.20	-.20	-.20	-0.20	-.20	-.20	-.20	-0.20	-.20	-.20
	400 area laboratory header ΔP	PDI-852-1 or PDI-852-2 ≤-0.05 in. wc[1]	-.18	-.20	-.19	-0.19	-.19	-.19	-.19	-0.19	-.19	-.19	-.19	-0.19	-.19	-.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	~~-.14~~ -.15	-.16	-.14	-0.15	-.15	-.15	-.15	-0.15	-.15	-.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	-.11	-0.09	-.09	-.09	-.09	-0.09	-.09	-.09	-.09	-0.09	-.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.09	-.10	-.11	-0.09	-.09	-.09	-.09	-0.09	-.09	-.09	-.10	-0.09	-.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.099	-.103	-.107	-0.098	-.098	-.096	-.109	-0.104	-.097	-.099	-.098	-0.107	-.098	-.099

For Information Only

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:	10/11/21		10/12/21		10/13/21		10/14/21		10/15/21		10/16/21		10/17/21	
		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]	PD	[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	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	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	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	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	Sat Unsat

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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:	10/11/21		10/12/21		10/13/21		10 14.21		10/15/21		10/16/21		10/17/21	
					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	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			0720	1908	0733	1910	0730	1925	0717	1930	0728	1917	0721	1925	0723	1908	
		OCS Daily Review Sign off (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.
[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: TS Date 10-17-21 Time 1908 Reviewed by: _____ Date: 10/17/21 Time: 1920
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:	10/11/21	10/12/21	10/13/21	10/14/21	10/15/21	10/16/21	10/17/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:							
	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	.003	.005	.005	.005
	CP-305-H (LED Reading)		.005	.005	.005	.003	.005	.005	.005
	(DET-305-3) – (CP-305H) (LCD Reading) (LED Reading)	Record Calculated Value	.005	.005	.005	.003	.005	.005	.005
		≥ -0.1; ≤+0.1	Sat / Unsat .005	Sat / Unsat .005	Sat / Unsat .005	Sat / Unsat .003	Sat / Unsat .005	Sat / Unsat .005	Sat / Unsat .005
		Completion Time:	0705	0710	0707	0710	0710	0901	0832

For Information Only

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 2 of 4)

			Date:	10/11/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	JM	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.13	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.71	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.27	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.44	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	.47	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	.41	N/A	N/A	N/A	N/A	N/A	N/A

For Information Only

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	10/11/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**400 area glovebox exhaust filter plenum (FF857) ΔP**	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	.56	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	.62	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**South Basement exhaust filter plenum (FF-829) ΔP**	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.17	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.66	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	10/14/21 .04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A

Non-Confidential Information For Public Release

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	10/11/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in wc	off	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in wc	off	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in wc	.54	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0810 *	*0725	0745*	0732 *	0830*	0901 *	0832*
OC Operator Review and Page Count Complete (initials)				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
OCS Daily Review Sign off (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 10/17/21 Time 0832 Reviewed by: [illegible] Date: 10-17-21 Time: 0832
On-duty Supervisor

Comments 10/11/21 4.4.1 Not in use. Waiting for calibration * Inspect Plenums for water on Floor.

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:	10/11/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	JM	N/A	N/A	N/A	N/A	N/A	N/A
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**						
4.1.1.7[2]	**Vault re-circulation filter plenum (HVP-811) ΔP**	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	.37	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1]. wc	.54	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.37	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.63	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.64	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.62	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820A) ΔP**	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820B) ΔP**	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A

For Information Only

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	10/11/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AR	N/A	N/A	N/A	N/A	N/A	N/A
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	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.46	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF852) ΔP	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	100 area glovebox exhaust filter plenum (FF853) ΔP	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	.54	N/A	N/A	N/A	N/A	N/A	N/A

FOR INFORMATION ONLY

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	10/11/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.08	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	.22	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.38	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A

For Information Only

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	10/11/21	10/12/21	10/13/21	10/14/21	10/15/21	10/16/21	10/17/21
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	PJC	[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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤ 2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤ 2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤ 2.0 & > 0[1] in. wc	.68	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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) YM 10/12/21

			Date:	10/11/21	10/12/21	10/13/21	10/14/21	10/15/21	10/16/21	10/17/21
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	YM	YL	YL	YL	YL	PJC	YL
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 PJC	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 PJC	Sat
			Completion time	0840*	0852*	0730*	0720*	1013*	1054*	0832*
			OC Operator Review and Page Count Complete (initials)	✓	✓	✓	PJC	✓	✓	✓
			OCS Daily Review Sign off (initials)	PJC	PJC	✓	✓	PJC	PJC	PJC

[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: YL Date 10/17/21 Time 0832 Reviewed by: [signature] Date: 10.17.21 Time: 0832
On-duty Supervisor

*Comments: 10/11/21 No water on floors of Rear plenums.

FOR INFORMATION ONLY

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.:	111165	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103763
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	7/16/22
	PF-11 Thermometer File No.:	111163	PF-11 Thermistor File No.:	105352	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	~~7/12/22~~ PJC 7/12/22

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	10/11/21	10/12/21	10/13/21	10/14/21	10/15/21	10/16/21	10/17/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	PJC						
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	60.4	57.8	57.9	57.0	56.0	55.1	54.9
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	61.2	60.7	58.7	57.8	57.5	56.0	55.8
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	66.9	67.2	66.9	67.9	67.4	67.7	68.4
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	58.5	59.5	69.2	67.7	~~67~~ 56.9	56.7	66.1
		Completion Time:	0747	0739	0821	0759	0745	0748	0714
		OC Operator Review and Page Count Complete (initials)							
		OCS Daily Review Sign off (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: T. Ramanath Date 10/17/21 Time 0714

Reviewed by: _____ Date: 10.17.21 Time: 0741
On-duty Supervisor

Comments: _____

Audio Duplication Not Allowed

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:**	10/18/21		10/19/21		10/20/21		10/21/21		10/22/21		10/23/21		10/24/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	M	[illegible]	[illegible]	[illegible]	BL	TS	[illegible]	[illegible]	M	[illegible]	M	[illegible]	M	[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 ≤-1.5 in. wc[1]	-2.00	-2.01	-2.01	-2.01	-2.01	-2.01	-2.01	-2.01	-2.01	-2.00	-2.01	-2.01	-2.01	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.92	-1.92	-1.93	-1.92	-1.92	-1.92	-1.92	-1.93	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.96	-1.97	-1.97	-1.97	-1.97	-1.97	-1.97	-1.97	-1.97	-1.96	-1.96	-1.96	-1.97	-1.97
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.97	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.18	-0.22	-0.22	-0.22	-.21	-.22	-.22	-0.21	-.22	-0.22	-.22	-0.22	-.22	-0.22
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.23	-0.28	-0.28	-0.28	-.27	-.27	-.27	-0.27	-.27	-0.27	-.28	-0.28	-.27	-0.28
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.20	-0.20	-0.20	-0.21	-.20	-.20	-.21	-0.20	-.20	-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	-0.20	-0.19	-0.21	-.20	-.19	-.20	-0.19	-.19	-0.19	-.20	-0.20	-.18	-0.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-0.16	-0.15	-0.15	-.15	-.15	-.15	-0.15	-.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	-.09	-0.09	-0.09	-0.09	-.09	-.09	-.09	-0.09	-.09	-0.07	-.09	-0.09	-.09	-0.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.09	-0.09	-0.09	-0.09	-.09	-.09	-.09	-0.10	-.09	-0.09	-.09	-0.09	-.09	-0.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.093	-0.093	-0.093	-0.094	-.094	-.109	-.094	-0.096	-.095	-0.092	-.102	-0.107	-.096	-0.093

For Information Only

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:	10/18/21		10/19/21		10/20/21		10/21/21		10/22/21		10/23/21		10/24/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	M	JSC	[illegible] 2BWIT	JSC	BL	TS	M		M	JSC	M	JSC	M	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	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	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	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	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	Sat Unsat

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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:	10/18/21		10/19/21		10/20/21		10/21/21		10/22/21		10/23/21		10/24/21	
					Weekday:	Mon		Tue		Wed		Thu		Fri		Sat		Sun	
					Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
					Initials:	M	JSC	M [illegible]	JSC [illegible]	BC	JS	[illegible]	[illegible]	M	JSC	M	JSC	M	CLC
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			0726	1914	0723 ~~1443~~	1919	0719	1910	0722	1921	~10/19/21 to 0724	1915	0720	1916	0729	1915	
		OCS Daily Review Sign off (initials)			ARS		ARS				BC	BC	ARS	ARS	ARS		ARS		

[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.
[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: JSC Date 10-24-21 Time 1915 Reviewed by: PRICE Date: 10/24/21 Time: 1926
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:	10/18/21	10/19/21	10/20/21	10/21/21	10/22/21	10/23/21	10/24/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	R	[illegible]	[illegible]	PJC	[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:	0715	0720	0820	0713	0808	0930	0930

For Information Only

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	10/18/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	YL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.13	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.72	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	.26	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF859) ΔP	PDI-821-1	≤2.0 & > 0[1] in. wc	.44	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	.47	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A

Non-Proliferation Only For Information

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

			Date:	10/18/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	.62	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.27	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A

For Information Only

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 4 of 4)

			Date:	10/18/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	ar	N/A	N/A	N/A	N/A	N/A	N/A
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	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0824*	0845*	0820*	0835*	0809	0810	0805
OC Operator Review and Page Count Complete (initials)				M	M	C	C	M	M	M
OCS Daily Review Sign off (initials)				ARS	ARS	BC	BC	ARS	ARS	ARS

[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: 184 1122 Rivera-Figueroa Date: 10/24/21 Time 0809 Reviewed by: _____ Date: 10/24/21 Time: 0910
On-duty Supervisor

Comments 4.4.1.1 Meter is Out of Service. *Inspect Plenum floors for water.

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:	10/18/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1] wc	.54	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		[1]PDI-841-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.36	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820A) ΔP	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North Bleed off filter plenum (FF-820B) ΔP	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	.55	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A

Non-Proprietary Information

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

			Date:	10/18/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF852) ΔP**	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF853) ΔP**	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A

FOR INFORMATION ONLY

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

			Date:	10/18/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	.22	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	.36	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.33	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A

For Information Only

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

			Date:	10/18/21	10/19/21	10/20/21	10/21/21	10/22/21	10/23/21	10/24/21
			Weekday:	Mon.	Tue. 10/19-21	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	YL	CA	YL	YL	PJC	[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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤ 2.0 & > 0[1] in. wc	.47	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤ 2.0 & > 0[1] in. wc	.69	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤ 2.0 & > 0[1] in. wc	.13	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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:	10/18/21	10/19/21	10/20/21	10/21/21	10/22/21	10/23/21	10/24/21 10/24/21 0841 2
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	TR	@			PJL		
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	0824 *	0855*	0820*	0835**	0812	0830	0930
			OC Operator Review and Page Count Complete (initials)	M	M	<	<	M	M	M
			OCS Daily Review Sign off (initials)	ARJ	ARJ	PK		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: RJ/184127 RICHARD J. MARTINEZ Date 10/24/21 Time 0930 Reviewed by: _____ Date: 10/24/21 Time: 0910

On-duty Supervisor

Comments: * Inspect Plenums for water on floors. ** High levels of Contamination in North Basement, RCT has limited Access.

FOR INFORMATION ONLY

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.:	111165	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103763
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	8/16/22
	PF-11 Thermometer File No.:	111163	PF-11 Thermistor File No.:	105352	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	7/12/22

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	10/18/21	10/19/21	10/20/21	10/21/21	10/22/21	10/23/21	10/24/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	PJC	[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	55.1	55.4	55.0	54.8	54.7	55.0	55.0
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	55.9	~~54.7~~ 56.2	55.9	56.1	56.1	56.3	per 10/24/21 56.2
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	70.5	70.1	61.4	62.4	61.8	62.8	61.8
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	64.9	~~56.7~~ 64.9	64.9	61.5	63.8	65.3	per 10/24/21 73.4
		Completion Time:	0803	0739	0745	0745	0820	0840	0810
	OC Operator Review and Page Count Complete (initials)		M	M	[illegible]	[illegible]	M	M	M
	OCS Daily Review Sign off (initials)		ARS	ARS	BC	BC	ARS	ARS	ARS

[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: Richard L Martinez 10/11/22 Date 10/24/21 Time 0810

Reviewed by: [signature] SANCHEZ Date: 10/24/21 Time: 0900
On-duty Supervisor

Comments:

Auto updated for UET

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:**	10/25/21		10/26/21		10/27/21		10/28/21		10/29/21		10/30/21		10/31/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	BW	[illegible]	BW	[illegible]	ARJ	JSL	M	JSL	BW	[illegible]	BW	M	BW	[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 ≤-1.5 in. wc[1]	-2.01	-2.01	-2.00	-2.01	-2.00	-2.01	-2.00	-2.00	-2.01	-2.01	-2.01	-2.01	-2.00	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.92	-1.92	-1.92	-1.93	-1.92	-1.92	-1.92	-1.92	-1.93	-1.92	-1.93	-1.93	-1.92	-1.92
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.97	-1.97	-1.96	-1.98	-1.97	-1.97	-1.97	-1.97	-1.97	-1.96	-1.96	-1.97	-1.97	-1.96
	400 area glovebox exhaust header ΔP	PDI-864-1 or PDI-864-2 ≤-1.5 in. wc[1]	-1.98	-1.98	-1.97	-1.98	-1.98	-1.98	-1.99	-1.99	-1.99	-1.99	-1.98	-1.98	-1.98	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-0.22	-.21	-.20	-.19	-.22	-0.21	-.20	-0.22	-0.22	-.22	-0.21	-0.21	-0.21	-.22
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-0.27	-.25	-.26	-.24	-.27	-0.27	-.26	-0.26	-0.27	-.27	-0.27	-0.27	-0.27	-.27
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-0.20	-.22	-.20	-.24	-.20	-0.20	-.19	-0.19	-0.20	-.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]	-0.19	-.19	-.19	-.23	-.20	-0.20	-.19	-0.19	-0.19	-.20	-0.19	-0.19	-0.19	-.20
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-0.15	-.15	-.16	-.15	-.15	-0.14	-.14	-0.15 -0.14	-0.14	-.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	-0.09	-.09	-.09	-.09	-.09	-0.09	-.09	-0.09	-0.09	-.09	-0.09	-0.09	-0.09	-.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-0.09	-.09	-.09	-.09	-.09	-0.09	-.09	-0.09 -0.09	-0.09	-.09	-0.09	-0.09	-0.09	-.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-1.07 -0.107	-.102	-0.070	-.091	-.111	-0.085	-.097	-0.107 -0.097	-.107	-.094	-.108	-0.091	-0.094	-.091

For Information Only

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:	10/25/21		10/26/21		10/27/21		10/28/21		10/29/21		10/30/21		10/31/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	PMD	C	PMD	[illegible]	AFS	JSC	[illegible]	JSC	PMD	C	PMD	[illegible]	PMD	[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	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	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	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	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	Sat Unsat

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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:	10/25/21		10/26/21		10/27/21		10/28/21		10/29/21		10/30/21		10/31/21	
					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	JSL	M	JSL						
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	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	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	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	Sat Unsat
		Completion Time			0717	1920	0712	1923	0732	1913	0729	1924	0717	1924	0704	1920	0704	1919		
		OCS Daily Review Sign off (initials)				BC		BC	BC											

[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.

[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: _____ Date 10/31/21 Time 1919 Reviewed by: _____ Date: 10.31.21 Time: 1923
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:	10/25/21	10/26/21	10/27/21	10/28/21	10/29/21	10/30/21	10/31/21
		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)	Record Calculated Value	005	005	005	005	005	005	005
	(LCD Reading) (LED Reading)	≥ -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:	0800	0746	0720	0715	0801	0800	0810

For Information Only

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	10/25/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	YL	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	.33	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

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Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	10/25/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**						
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF856) ΔP	1PDI-822-1	≤2.0 & > 0" in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0" in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0" in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0" in. wc	.58	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	1PDI-823-1	≤2.0 & > 0" in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0" in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0" in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0" in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	1PDI-830-1	≤2.0 & > 0" in. wc	.25	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0" in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0" in. wc	.10	N/A	N/A	N/A	N/A	N/A	N/A
4.1.1.7[2]	300 area re-circulation filter plenum (HVP-805) ΔP	1PDI-836-1	≤2.0 & > 0" in. wc	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0" in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0" in. wc	.68	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	1PDI-837-1	≤2.0 & > 0" in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0" in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0" in. wc	.44	N/A	N/A	N/A	N/A	N/A	N/A

Non-Confidential For Information Only

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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			Date:	10/25/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
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	.61	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.53	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.15	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	.81	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0915 *	*0744	*0820	*0829	*0828 *	0810	*0810
OC Operator Review and Page Count Complete (initials)						M	M	ES	TS	TS
OCS Daily Review Sign off (initials)						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: [signature] Date 10/31/21 Time 0810 Reviewed by: [signature] Date: 10/31/21 Time: 0829
On-duty Supervisor

Comments 4.4.1.1 Meter is Out of Service. * Plenum ~~skipped~~ inspected for water on floor.

Controlled Information

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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NOTE This entire attachment is to be treated as Surveillance Requirement implementing actions.

			Date:	10/25/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	TL	N/A	N/A	N/A	N/A	N/A	N/A
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**						
4.1.1.7[2]	**Vault re-circulation filter plenum (HVP-811) ΔP**	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1]. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
	Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.36	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.66	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.68	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820A) ΔP**	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820B) ΔP**	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A

Non-Nuclear Information Only

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	10/25/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF852) ΔP**	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.23	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	.54	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	.47	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF853) ΔP**	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

For Information Only

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	10/25/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	.26	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.39	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.34	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.32	N/A	N/A	N/A	N/A	N/A	N/A

For Information Only

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

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			Date:	10/25/21	10/26/21	10/27/21	10/28/21	10/29/21	10/30/21	10/31/21
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:							
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤ 2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤ 2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤ 2.0 & > 0[1] in. wc	.81	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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]

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			Date:	10/25/21	10/26/21	10/27/21	10/28/21	10/29/21	10/30/21	10/31/21
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	[illegible]	[illegible]	[illegible]	[illegible]	[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	*0100	*0836	*0825	*0830	*0828	*0800	*0810
			OC Operator Review and Page Count Complete (initials)	[illegible]	[illegible]	M	M	TJ	TJ	TJ
			OCS Daily Review Sign off (initials)	C	[illegible]	AMS	[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: 10/31/21 Time: 0810 Reviewed by: [illegible] Date: 10/31/21 Time: 0830

On-duty Supervisor

Comments: * Inspect for water on Plenum floors.

FOR INFORMATION ONLY

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.:	111165	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103763
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	8/16/22
	PF-11 Thermometer File No.:	111163	PF-11 Thermistor File No.:	105352	V-704 Thermistor File No.:	040375
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	7/12/22

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	10/25/21	10/26/21	10/27/21	10/28/21	10/29/21	10/30/21	10/31/21
		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	55.1	55.6	54.4	54.2	54.6	54.8	54.8
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	56.3	56.8	55.6	54.6	54.4	54.5	54.6
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	63.0	64.0	64.1	64.8	67.2	67.1	67.2
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	61.9	63.4	62.8	62.9	56.6	58.6	59.5
		Completion Time:	0717	0815	0810	0810	0735	0720	0710
	OC Operator Review and Page Count Complete (initials)				M	M	TS	TS	TS
	OCS Daily Review Sign off (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: [signature] Date 10/31/21 Time 0710

Reviewed by: [signature] Date: 10/31/21 Time: 0829
On-duty Supervisor

Comments:

Must not be published

Attachment B, Surveillance Training Checklist

(Page 1 of 2)

Procedure title:	SURVEILLANCE ROUNDS
Procedure no.:	TA55-STP-004, R22
Date of issue:	11/1/21
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
J. CEDILLO		11/1/21
B. CHANCE		11/1/21
C. COCHRAN		11/1/21
T. STILSON		11/1/21
M. WELLS		11/1/21
D. HEINTSCHEL		11/1/21
L. SANCHEZ		
M. CARDONA		11/1/21
K. ASHLEY		11/1/21

OC Reviews Complete and TSR Status Board Updated

OCO Signature 11/30/21 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
D. DUNLAVY		
A. DUNSEITH		
A. JARIQUE		11/1/21
M. MILLER		11/1/21
R. PRICE		11/1/21
F. SEYBERT		11/1/21
C. TESCH		
M. WASHBURN		11/1/21
A. CANTU		11/1/21
K. BAILEY		
B. FORDHAM		
R. HOHNER		11/1/21
M. IRISH		11/1/21
T. LANGWORTHY		11/1/21
J. MARTINEZ		11/1/21
R. MARTINEZ		11/1/21
A. SANCHEZ		
M. VIGIL		11/1/21
K. BRAUER		11/1/21
R. LONG		11/1/21
P. CONNOLLY		11/1/21
S. SHELDON		11/1/21

FOR INFORMATION ONLY

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
TA55-STP-004 DD	11NOV21	18NOV21	~~28NOV21~~ PTED 11/3/21 21NOV21

Justification:

Current due date is on a holiday. Extending to align with maintenance schedule.

Prepared by: R. Phil Demuth / Gilson Tyler 11/3/21
Preparer/System Engineer Date

Reviewed by: [signature] 11/3/21
Operations Center On-Duty Supervisor Date

Approved by: [signature] 11/3/21
Operations Manager Date

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:**	11/1/21		11/2/21		11/3/21		11/4/21		11/5/21		11/6/21		11/7/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	M	JSC	MM	JSC	PMD TS	~	PMD	~	M	JSC	M	JSC	M	JSC
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 ≤-1.5 in. wc[1]	-2.01	-2.01	-2.00	-2.01	-2.01	-2.00	-2.01	-2.01	-2.01	-2.01	-2.01	-2.01	-2.00	-2.01
	100 area glovebox exhaust header ΔP	PDI-820-1 or PDI-820-2 ≤-1.5 in. wc[1]	-1.92	-1.92	-1.92	-1.92	-1.93	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92	-1.92
	300 area glovebox exhaust header ΔP	PDI-870-1 or PDI-870-2 ≤-1.5 in. wc[1]	-1.97	-1.96	-1.97	-1.96	-1.96	-1.96	-1.96	-1.96	-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 ≤-1.5 in. wc[1]	-1.98	-1.98	-1.98	-1.98	-1.99	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.98	-1.99	-1.98
4.1.1.2 4.1.1.5[3] 4.1.2.2[2]	**200 area laboratory header ΔP**	PDI-803-1 or PDI-803-2 ≤-0.05 in. wc[1]	-.20	-0.22	-0.22	-0.22	-0.22	-.21	-0.19	-.21	-.21	-0.22	-.21	-0.22	-.22	-0.21
	100 area laboratory header ΔP	PDI-802-1 or PDI-802-2 ≤-0.05 in. wc[1]	-.26	-.27	-0.27	-0.28	-0.26	-.27	-0.27	-.26	-.26	-0.27	-.27	-0.27	-.27	-0.27
	300 area laboratory header ΔP	PDI-853-1 or PDI-853-2 ≤-0.05 in. wc[1]	-.20	-0.19	-0.20	-0.20	-0.20	-.19	-.20	-.20	-.20	-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]	-.17	-0.17	-0.20	-0.20	-0.19	-.18	-.20	-.20	-.21	-0.19	-.20	-0.20	-.20	-0.19
	IFIT Facility ΔP	PDI-865-4 or PDI-865-5 ≤-0.05 in. wc	-.15	-0.15	-0.15	-0.14	-0.15	-.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	-.09	-0.09	-0.09	-0.09	-0.09	-.09	-0.09	-.09	-.09	-0.09	-.09	-0.09	-.09	-0.09
	South basement ΔP	PDI-854-1 or PDI-854-2 < 0.00 in. wc	-.09	-0.09	-0.09	-0.09	-0.09	-.09	-0.09	-.09	-.09	-0.09	-.09	-0.09	-.09	-0.09
	IRT Tunnel ΔP	PDT-901 or PDI-901 < 0.00 in. wc	-.094	-0.103	-0.095	-0.105	-0.110	-.106	-0.108	-.108	-.093	-0.108	-.095	-0.098	-.097	-0.094

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:**	11/1/21		11/2/21		11/3/21		11/4/21		11/5/21		11/6/21		11/7/21	
		Weekday:	Mon.		Tue.		Wed.		Thu.		Fri.		Sat.		Sun.	
		Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
		Initials:	M	JSL	MM	JSL	PND	—	PND	—	M	JSL	M	JSL	M	JSL
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:	11/1/21		11/2/21		11/3/21		11/4/21		11/5/21		11/6/21		11/7/21	
					Weekday:	Mon		Tue		Wed		Thu		Fri		Sat		Sun	
					Shift:	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
					Initials:	M	JSC	[illegible]	JSC	[illegible]	[illegible]	[illegible]	[illegible]	M	JSC	M	JSC	M	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	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			0723	1924	0732	1930	0720	1914	0728	1924	0724	1918	0723	1914	0723	1921	
		OCS Daily Review Sign off (initials)			ARS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ARS	ARS	ARS	[illegible]	ARS	ARS	ARS	[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.
[3] SRs 4.1.1.5 is only applicable when MAR is in the IFIT Facility

Completed by: JSC Date 11-7-21 Time 1921 Reviewed by: [signature] Date: 11/7/21 Time: 0806
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:	11-1-21	11/2/21	11/3/21	11/4/21	11/5/21	11/6/21	11/7/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	~~24~~	PJC	PJC	PJC	PJC	KM	KM
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)	Record Calculated Value	005	005	005	005	005	005	005
	(LCD Reading) (LED Reading)	≥ -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:	0743	0727	0744	0713	0720	0928	0810

FOR INFORMATION ONLY

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 2 of 4)

FOR INFORMATION ONLY

			Date:	11/1/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-894-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Corridor supply (HVP-810) ΔP	[1]PDI-895-1	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-895-2	≤2.0 & > 0[1] in. wc	.70	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF854) ΔP	[1]PDI-817-1	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-2	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-4	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-817-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area special recovery glovebox exhaust filter plenum (FF858) ΔP	PDI-819-1	≤2.0 & > 0[1] in. wc	.46	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-3	≤2.0 & > 0[1] in. wc	.45	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-819-4	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	300 area glovebox exhaust filter plenum (FF855) ΔP	[1]PDI-818-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-818-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-821-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

(Page 3 of 4)

FOR INFORMATION ONLY

			Date:	11/1/21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	RH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-4	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-822-5	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	400 area glovebox exhaust filter plenum (FF857) ΔP	[1]PDI-823-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-823—5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Basement exhaust filter plenum (FF-829) ΔP	[1]PDI-830-1	≤2.0 & > 0[1] in. wc	.25	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-2	≤2.0 & > 0[1] in. wc	.09	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-830-3	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-2	≤2.0 & > 0[1] in. wc	.65	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-836-3	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
	300 area re-circulation filter plenum (HVP-806) ΔP	[1]PDI-837-1	≤2.0 & > 0[1] in. wc	.04	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-837-3	≤2.0 & > 0[1] in. wc	.42	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-1, Daily Surveillance Rounds (PF-4 South Side) [UET]

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FOR INFORMATION ONLY

			Date:	11-1-21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	RH	N/A	N/A	N/A	N/A	N/A	N/A
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	.60	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-838-3	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
	400 area re-circulation filter plenum (HVP-808) ΔP	[1]PDI-839-1	≤2.0 & > 0[1] in. wc	.43	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-2	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-839-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822A) ΔP	[1]PDI-810-1	≤2.0 & > 0[1] in. wc	.15	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-2	≤2.0 & > 0[1] in. wc	.80	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-810-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	South Bleed off filter plenum (FF-822B) ΔP	[1]PDI -811 - 1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI -811 -3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
			Completion Time	0722	0704	0745	0731	0735	0830	0820
OC Operator Review and Page Count Complete (initials)				M	MM	TS	PD	M	M	M
OCS Daily Review Sign off (initials)				AM	MSW	MM	APD	AM	AM	AM

[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: Richard J. Martinez Date 11/1/21 Time 0820 Reviewed by: _____ Date: 11/1/21 Time: 0912
On-duty Supervisor

Comments 4.4.1.1 Awaiting 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.

FOR INFORMATION ONLY

			Date:	11-1-21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	ZH	N/A	N/A	N/A	N/A	N/A	N/A
SRs	**Description**	**Gauge**	**Acceptance Criteria**	**SURVEILLANCE RESULTS (in. wc)**						
4.1.1.7[2]	**Vault re-circulation filter plenum (HVP-811) ΔP**	[1]PDI-840-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-2	≤2.0 & > 0 in[1] wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-840-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
	Vault re-circulation filter plenum (HVP-812) ΔP	[1]PDI-841-1	≤2.0 & > 0[1] in. wc	.48	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-2	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-841-3	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-801) ΔP	[1]PDI-831-1	≤2.0 & > 0[1] in. wc	.36	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-2	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-831-3	≤2.0 & > 0[1] in. wc	.40	N/A	N/A	N/A	N/A	N/A	N/A
	200 area re-circulation filter plenum (HVP-802) ΔP	[1]PDI-832-1	≤2.0 & > 0[1] in. wc	.66	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-2	≤2.0 & > 0[1] in. wc	.67	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-832-3	≤2.0 & > 0[1] in. wc	.60	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820A) ΔP**	[1]PDI-807-1	≤2.0 & > 0[1] in. wc	.12	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-2	≤2.0 & > 0[1] in. wc	.59	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-807-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**North Bleed off filter plenum (FF-820B) ΔP**	[1]PDI-809-1	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-2	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-809-3	≤2.0 & > 0[1] in. wc	OFF	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 2 of 5)

FOR INFORMATION ONLY

			Date:	11-1-21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	AH	N/A	N/A	N/A	N/A	N/A	N/A
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	.07	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-829-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-2	≤2.0 & > 0[1] in. wc	.51	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-833-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
	100 area re-circulation filter plenum (HVP-804) ΔP	[1]PDI-835-1	≤2.0 & > 0[1] in. wc	.06	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-2	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-835-3	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF852) ΔP**	[1]PDI-815-1	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-2	≤2.0 & > 0[1] in. wc	.52	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-4	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-815-5	≤2.0 & > 0[1] in. wc	.50	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	**100 area glovebox exhaust filter plenum (FF853) ΔP**	[1]PDI-816-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-816-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 3 of 5)

FOR INFORMATION ONLY

			Date:	1-1-21	N/A	N/A	N/A	N/A	N/A	N/A
			Weekday:	Mon	Tue	Wed	Thu	Fri	Sat	Sun
			Initials:	AH	N/A	N/A	N/A	N/A	N/A	N/A
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-2	≤2.0 & > 0[1] in. wc	.29	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-3	≤2.0 & > 0[1] in. wc	.25	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-4	≤2.0 & > 0[1] in. wc	.28	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-812-5	≤2.0 & > 0[1] in. wc	.30	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	200 area glovebox exhaust filter plenum (FF851) ΔP	[1]PDI-813-1	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-2	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-3	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-4	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-813-5	≤2.0 & > 0[1] in. wc	STBY	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT exhaust filter plenum (FF-865) ΔP	[1]PDI-865-1	≤2.0 & > 0[1] in. wc	.02	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-2	≤2.0 & > 0[1] in. wc	.39	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-865-3	≤2.0 & > 0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	IFIT supply filter plenum (HVP-863) ΔP	[1]PDI-863-1	≤2.0 & > 0[1] in. wc	.05	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-863-2	≤2.0 & >0[1] in. wc	.31	N/A	N/A	N/A	N/A	N/A	N/A

Attachment B-2, Daily Surveillance Rounds (PF-4 North Side) [UET]

(Page 4 of 5)

FOR INFORMATION ONLY

			Date:	11-1-21	11/2/21	11/3/21	11/4/21	11/5/21	11/6/21	11/7/21
			Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
			Initials:	BH	PJC	PJC	PJC	PJC	RW	RW
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	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-857-2	≤2.0 & > 0[1] in. wc	.49	N/A	N/A	N/A	N/A	N/A	N/A
4.1.3.4[2]	North corridor supply filter plenum (HVP-809) ΔP	[1]PDI-856-1	≤2.0 & > 0[1] in. wc	.11	N/A	N/A	N/A	N/A	N/A	N/A
		PDI-856-2	≤2.0 & > 0[1] in. wc	.61	N/A	N/A	N/A	N/A	N/A	N/A
[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	N/A	N/A	N/A	N/A	N/A	N/A
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:	11-1-21	11/2/21	11/3/21	11/4/21	11/5/21	11/6/21	11/7/21
			Weekday:	Mon	Tue	Wed.	Thu.	Fri	Sat	Sun
			Initials:	~~ZH~~	PSC	PSC	PSC	PSC		
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~~	0744	0750	0743	0750	0810	0830
			OC Operator Review and Page Count Complete (initials)	M	ML	TS	TS	M	M	M
			OCS Daily Review Sign off (initials)	AMS	MSW	ML	AMS	AMS	AMS	AMS

[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: RICHARD J MARTINEZ 184122 Date 11/7/21 Time 0830 Reviewed by: _____ Date: 11/7/21 Time: 0914

On-duty Supervisor

Comments: _____

FOR INFORMATION ONLY

Attachment C, Non-PF-4 Daily Surveillance Rounds [UET]

(Page 1 of 1)

FOR INFORMATION ONLY

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.:	111165	PF-10 Thermistor File No.:	103765	V-701 Thermistor File No.:	103763
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	8/16/22
	PF-11 Thermometer File No.:	111163	PF-11 Thermistor File No.:	105352	V-704 Thermistor File No.:	040275
	Calibration Expiration Date:	7/22/22	Calibration Expiration Date:	7/12/22	Calibration Expiration Date:	7/12/22

PF-10 & PF-11 Pump house Room Temperature and V-701 & V-704 Fire Water Storage Tank Temperature									
Daily (September through April only)		Date:	11/1/21	11/2/21	11/3/21	11/4/21	11/5/21	11/6/21	11/7/21
		Weekday:	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	Sun.
		Initials:	RH	M	M	M	M	RH	RH
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	54.5	54.7	55.0	54.5	54.6	54.6	55.0
4.3.1.1[1]	RECORD fire water storage tank V-704 temperature	≥ 42.1 F	54.2	54.3	53.9	53.3	53.3	53.4	53.8
4.3.1.3[1]	RECORD PF-10 room temperature	≥ 50.1 F	67.1	67.0	66.1	65.7	66.5	65.3	67.3
4.3.1.3[1]	RECORD PF-11 room temperature	≥ 50.1 F	56.5	67.7	69.0	67.8	69.5	67.3	66.80
		Completion Time:	0739	0744	0735	0807	0736	0730	0845
		OC Operator Review and Page Count Complete (initials)	M	MM	TS	TS	M	M	M
		OCS Daily Review Sign off (initials)	AM	MSW	MM	AM	AM	AM	AM

[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: Richard J Marence 184122 11/7/21 Date 11/7/21 Time 0845

Reviewed by: [signature] Date: 11/7/21 Time: 0915
On-duty Supervisor

Comments: _____

Attachment D, Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 2 of 2)

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials	CDV Initial
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.	0907	11/18/21	RH	
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) goes to the fully closed position via the automatic door closure is ≤ 30 seconds. 6.5 Seconds	(Sat.) / Unsat.	0905	11/18/21	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.	0927	11/18/21	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.	0917	11/18/21	RH	
					OC Operator Review and Page Count Complete			

[1] SR 4.1.3.2 applies during both Mode 1 and Mode 2.

Completed by: R Holmes Date 11/18/21 Time 0948 Reviewed by: [signature] Date: 11/19/21 Time: 1010

Concurrent Dual Verifier Z. Rasmussen Date 11/18/21 Time 0948

On-duty Supervisor Comments: No comments [signature] 308593 11/19/21

FOR INFORMATION ONLY

Attachment D, Monthly Surveillance Rounds (Confinement Doors) [UET]

(Page 1 of 2)

NOTE: his entire attachment is to be treated as Surveillance Requirement implementing actions.

FOR INFORMATION ONLY

SRs	Equipment	Location	Acceptance criteria	Sat or Unsat.	Completion Time:	Date:	Initials	CDV 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.	0946	11/18/21	RL	
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.	0946	11/18/21	RL	
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.	0841	11/18/21	RL	
*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.	0857	11/18/21	RL	
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.	0857	11/18/21	RL	
			AND VERIFY and RECORD the time (using calibrated stop watch) that the door(s) goes to the fully closed position via the automatic door closure is ≤ 30 seconds. 4.5 Seconds	(Sat.) / Unsat.	0855	11/18/21	RL	

*** 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*

Tour Readings

Facility-FO01 1/5/2022

Sorted by Station, Equipment, Date, Shift

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area glovebox exhaust header delta P (PDI-814-1 or PI						
		-1.5		-2.00	11/8/2021 11:01:20AM	Days
		-1.5		-2.01	11/8/2021 7:18:49PM	Nights
		-1.5		-2.00	11/9/2021 7:14:50AM	Days
		-1.5		-2.00	11/9/2021 7:19:14PM	Nights
		-1.5		-2.01	11/10/2021 7:25:32AM	Days
		-1.5		-2.01	11/10/2021 7:16:23PM	Nights
		-1.5		-2.00	11/11/2021 7:26:08AM	Days
		-1.5		-2.01	11/11/2021 7:15:45PM	Nights
		-1.5		-2.01	11/12/2021 7:10:02AM	Days
		-1.5			11/12/2021 7:09:42PM	Nights
		-1.5		-2.00	11/12/2021 7:10:14PM	Nights
		-1.5		-2.00	11/13/2021 7:22:03AM	Days
		-1.5		-2.01	11/13/2021 7:04:09PM	Nights
		-1.5		-2.01	11/14/2021 7:15:40AM	Days
		-1.5		-2.00	11/14/2021 7:15:35PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area glovebox exhaust header delta P (PDI-814-1 or Pl						
		-1.5		-2.01	11/15/2021 7:28:37AM	Days
		-1.5		-2.01	11/15/2021 7:24:24PM	Nights
		-1.5		-2.01	11/16/2021 7:23:44AM	Days
		-1.5		-2.01	11/16/2021 7:23:14PM	Nights
		-1.5		-201	11/17/2021 7:21:42AM	Days
		-1.5		-2.01	11/17/2021 7:22:41PM	Nights
		-1.5		-2.00	11/18/2021 7:14:44AM	Days
		-1.5		-2.01	11/18/2021 7:10:13PM	Nights
		-1.5		-2.01	11/19/2021 7:12:28AM	Days
		-1.5		-2.01	11/19/2021 7:27:05PM	Nights
		-1.5		-2.00	11/20/2021 7:23:53AM	Days
		-1.5		-2.01	11/20/2021 7:23:36PM	Nights
		-1.5		-2.01	11/21/2021 7:18:50AM	Days
		-1.5		-2.01	11/21/2021 7:24:50PM	Nights
		-1.5		-2.01	11/22/2021 7:22:28AM	Days
		-1.5		-2.01	11/22/2021 7:17:40PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area glovebox exhaust header delta P (PDI-814-1 or PI						
		-1.5		-2.00	11/23/2021 7:21:48AM	Days
		-1.5		-2.01	11/23/2021 7:15:28PM	Nights
		-1.5		-2.01	11/24/2021 7:23:41AM	Days
		-1.5		-2.01	11/24/2021 7:26:37PM	Nights
		-1.5		-2.01	11/25/2021 7:29:07AM	Days
		-1.5		-2.00	11/25/2021 7:25:29PM	Nights
		-1.5		-2.01	11/26/2021 7:24:26AM	Days
		-1.5		-2.00	11/26/2021 7:05:10PM	Nights
		-1.5		-2.00	11/27/2021 7:25:57AM	Days
		-1.5		-2.00	11/27/2021 7:18:29PM	Nights
		-1.5		-2.01	11/28/2021 7:11:56AM	Days
		-1.5		-2.00	11/28/2021 7:18:04PM	Nights
		-1.5		-2.01	11/29/2021 7:22:30AM	Days
		-1.5		-2.01	11/29/2021 7:23:55PM	Nights
		-1.5		-2.01	11/30/2021 7:27:09AM	Days
		-1.5		-2.01	11/30/2021 7:28:38PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area glovebox exhaust header delta P (PDI-814-1 or PI						
		-1.5		-2.01	12/1/2021 7:24:27AM	Days
		-1.5		-2.01	12/1/2021 7:19:10PM	Nights
HVAC: 100 area glovebox exhaust header delta P (PDI-820-1 or PI						
		-1.5		-1.92	11/8/2021 11:02:48AM	Days
		-1.5		-1.92	11/8/2021 7:18:55PM	Nights
		-1.5		-1.92	11/9/2021 7:14:58AM	Days
		-1.5		-1.92	11/9/2021 7:19:17PM	Nights
		-1.5		-1.92	11/10/2021 7:25:45AM	Days
		-1.5		-1.92	11/10/2021 7:16:47PM	Nights
		-1.5		-1.92	11/11/2021 7:26:17AM	Days
		-1.5		-1.92	11/11/2021 7:15:53PM	Nights
		-1.5		-1.92	11/12/2021 7:10:12AM	Days
		-1.5		-1.92	11/12/2021 7:10:21PM	Nights
		-1.5		-1.92	11/13/2021 7:22:13AM	Days
		-1.5		-1.92	11/13/2021 7:04:14PM	Nights
		-1.5		-1.92	11/14/2021 7:15:51AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area glovebox exhaust header delta P (PDI-820-1 or PI						
		-1.5		-1.92	11/14/2021 7:15:40PM	Nights
		-1.5		-1.92	11/15/2021 7:28:44AM	Days
		-1.5		-1,92	11/15/2021 7:24:34PM	Nights
		-1.5		-1.92	11/16/2021 7:23:53AM	Days
		-1.5		-1.92	11/16/2021 7:23:19PM	Nights
		-1.5		-1.92	11/17/2021 7:21:49AM	Days
		-1.5		-1.93	11/17/2021 7:22:46PM	Nights
		-1.5		-1.92	11/18/2021 7:14:54AM	Days
		-1.5		-1.92	11/18/2021 7:10:17PM	Nights
		-1.5		-1.92	11/19/2021 7:12:34AM	Days
		-1.5		-1.921	11/19/2021 7:27:10PM	Nights
		-1.5		-1.92	11/20/2021 7:23:59AM	Days
		-1.5		-1.92	11/20/2021 7:23:43PM	Nights
		-1.5		-1.92	11/21/2021 7:18:56AM	Days
		-1.5		-1.92	11/21/2021 7:24:55PM	Nights
		-1.5		-1.92	11/22/2021 7:22:32AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area glovebox exhaust header delta P (PDI-820-1 or PI						
		-1.5		-1.92	11/22/2021 7:17:44PM	Nights
		-1.5		-1.92	11/23/2021 7:21:52AM	Days
		-1.5		-1.92	11/23/2021 7:15:37PM	Nights
		-1.5		-1.92	11/24/2021 7:23:46AM	Days
		-1.5		-1.92	11/24/2021 7:26:44PM	Nights
		-1.5		-1.92	11/25/2021 7:29:12AM	Days
		-1.5		-1.92	11/25/2021 7:25:35PM	Nights
		-1.5		-1.92	11/26/2021 7:24:30AM	Days
		-1.5		-1.92	11/26/2021 7:05:19PM	Nights
		-1.5		-1.92	11/27/2021 7:26:03AM	Days
		-1.5		-1.92	11/27/2021 7:18:37PM	Nights
		-1.5		-1.92	11/28/2021 7:12:02AM	Days
		-1.5		-1.92	11/28/2021 7:18:09PM	Nights
		-1.5		-1.92	11/29/2021 7:22:35AM	Days
		-1.5		-1.92	11/29/2021 7:24:03PM	Nights
		-1.5		-1.92	11/30/2021 7:27:14AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area glovebox exhaust header delta P (PDI-820-1 or PI						
		-1.5		-1.92	11/30/2021 7:28:46PM	Nights
		-1.5		-1.93	12/1/2021 7:24:32AM	Days
		-1.5		-1.92	12/1/2021 7:19:19PM	Nights
HVAC: 300 area glovebox exhaust header delta P (PDI-870-1 or PI						
		-1.5		-1.96	11/8/2021 11:02:53AM	Days
		-1.5		-1.97	11/8/2021 7:19:02PM	Nights
		-1.5		-1.97	11/9/2021 7:15:10AM	Days
		-1.5		-1.97	11/9/2021 7:19:22PM	Nights
		-1.5		-1.96	11/10/2021 7:25:56AM	Days
		-1.5		-1.96	11/10/2021 7:16:58PM	Nights
		-1.5		-1.96	11/11/2021 7:26:25AM	Days
		-1.5		-1.96	11/11/2021 7:16:01PM	Nights
		-1.5		-1.96	11/12/2021 7:10:18AM	Days
		-1.5		-1.97	11/12/2021 7:10:27PM	Nights
		-1.5		-1.97	11/13/2021 7:22:20AM	Days
		-1.5		-1.97	11/13/2021 7:04:19PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area glovebox exhaust header delta P (PDI-870-1 or PI						
		-1.5		-1.97	11/14/2021 7:15:57AM	Days
		-1.5		-1.97	11/14/2021 7:15:45PM	Nights
		-1.5		-1.97	11/15/2021 7:28:50AM	Days
		-1.5		-1.97	11/15/2021 7:24:40PM	Nights
		-1.5		-1.96	11/16/2021 7:23:58AM	Days
		-1.5		-1.96	11/16/2021 7:23:25PM	Nights
		-1.5		-1.97	11/17/2021 7:21:53AM	Days
		-1.5		-1.96	11/17/2021 7:22:50PM	Nights
		-1.5		-1.97	11/18/2021 7:15:01AM	Days
		-1.5		-1.97	11/18/2021 7:10:24PM	Nights
		-1.5		-1.97	11/19/2021 7:12:39AM	Days
		-1.5		-1.97	11/19/2021 7:27:16PM	Nights
		-1.5		-1.96	11/20/2021 7:24:03AM	Days
		-1.5		-1.96	11/20/2021 7:23:49PM	Nights
		-1.5		-1.96	11/21/2021 7:19:03AM	Days
		-1.5		-1.96	11/21/2021 7:25:02PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area glovebox exhaust header delta P (PDI-870-1 or PI						
		-1.5		-1.97	11/22/2021 7:22:36AM	Days
		-1.5		-1.96	11/22/2021 7:17:48PM	Nights
		-1.5		-1.97	11/23/2021 7:22:00AM	Days
		-1.5		-1.96	11/23/2021 7:15:44PM	Nights
		-1.5		-1.99	11/24/2021 7:24:00AM	Days
		-1.5		-1.97	11/24/2021 7:26:55PM	Nights
		-1.5		-1.96	11/25/2021 7:29:17AM	Days
		-1.5		-1.97	11/25/2021 7:25:41PM	Nights
		-1.5		-1.97	11/26/2021 7:24:36AM	Days
		-1.5		-1.97	11/26/2021 7:05:29PM	Nights
		-1.5		-1.96	11/27/2021 7:26:07AM	Days
		-1.5		-1.97	11/27/2021 7:18:42PM	Nights
		-1.5		-1.97	11/28/2021 7:12:07AM	Days
		-1.5		-1.96	11/28/2021 7:18:17PM	Nights
		-1.5		-1.96	11/29/2021 7:22:40AM	Days
		-1.5		-1.96	11/29/2021 7:24:10PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area glovebox exhaust header delta P (PDI-870-1 or PI						
		-1.5		-1.96	11/30/2021 7:27:19AM	Days
		-1.5		-1.96	11/30/2021 7:28:53PM	Nights
		-1.5		-1.96	12/1/2021 7:24:37AM	Days
		-1.5		-1.96	12/1/2021 7:19:26PM	Nights
HVAC: 400 area glovebox exhaust header delta P (PDI-864-1 or PI						
		-1.5		-1.98	11/8/2021 11:03:00AM	Days
		-1.5		-1.98	11/8/2021 7:19:06PM	Nights
		-1.5		-1.98	11/9/2021 7:15:26AM	Days
		-1.5		-1.98	11/9/2021 7:19:25PM	Nights
		-1.5		-1.98	11/10/2021 7:26:05AM	Days
		-1.5		-1.98	11/10/2021 7:17:06PM	Nights
		-1.5		-1.98	11/11/2021 7:26:33AM	Days
		-1.5		-1.99	11/11/2021 7:16:06PM	Nights
		-1.5		-1.98	11/12/2021 7:10:25AM	Days
		-1.5		-1.98	11/12/2021 7:10:34PM	Nights
		-1.5		-1.98	11/13/2021 7:22:34AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area glovebox exhaust header delta P (PDI-864-1 or PI						
		-1.5		-1.99	11/13/2021 7:04:25PM	Nights
		-1.5		-1.98	11/14/2021 7:16:05AM	Days
		-1.5		-1.98	11/14/2021 7:15:54PM	Nights
		-1.5		-1.98	11/15/2021 7:28:57AM	Days
		-1.5		-1.98	11/15/2021 7:24:48PM	Nights
		-1.5		-1.98	11/16/2021 7:24:05AM	Days
		-1.5		-1.98	11/16/2021 7:23:32PM	Nights
		-1.5		-1.98	11/17/2021 7:22:00AM	Days
		-1.5		-1.98	11/17/2021 7:22:56PM	Nights
		-1.5		-1.98	11/18/2021 7:15:08AM	Days
		-1.5		-1.98	11/18/2021 7:10:29PM	Nights
		-1.5		-1.99	11/19/2021 7:12:47AM	Days
		-1.5		-1.98	11/19/2021 7:27:21PM	Nights
		-1.5		-1.98	11/20/2021 7:24:07AM	Days
		-1.5		-1.98	11/20/2021 7:23:54PM	Nights
		-1.5		-1.99	11/21/2021 7:19:10AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area glovebox exhaust header delta P (PDI-864-1 or PI						
		-1.5		-1.98	11/21/2021 7:25:10PM	Nights
		-1.5		-1.98	11/22/2021 7:22:41AM	Days
		-1.5		-1.98	11/22/2021 7:17:56PM	Nights
		-1.5		-1.98	11/23/2021 7:22:04AM	Days
		-1.5		-1.98	11/23/2021 7:15:58PM	Nights
		-1.5		-1.98	11/24/2021 7:24:05AM	Days
		-1.5		-1.98	11/24/2021 7:27:02PM	Nights
		-1.5		-1.98	11/25/2021 7:29:22AM	Days
		-1.5		-1.98	11/25/2021 7:25:55PM	Nights
		-1.5		-1.98	11/26/2021 7:24:42AM	Days
		-1.5		-1.98	11/26/2021 7:05:38PM	Nights
		-1.5		-1.98	11/27/2021 7:26:13AM	Days
		-1.5		-1.98	11/27/2021 7:18:48PM	Nights
		-1.5		-1.99	11/28/2021 7:12:12AM	Days
		-1.5		-1.98	11/28/2021 7:18:29PM	Nights
		-1.5		-1.98	11/29/2021 7:22:49AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area glovebox exhaust header delta P (PDI-864-1 or PI						
		-1.5		-1.98	11/29/2021 7:24:17PM	Nights
		-1.5		-1.98	11/30/2021 7:27:27AM	Days
		-1.5		-1.98	11/30/2021 7:28:59PM	Nights
		-1.5		-1.97	12/1/2021 7:24:43AM	Days
		-1.5		-1.99	12/1/2021 7:20:06PM	Nights
HVAC: 200 area laboratory header delta P (PDI-803-1 or PDI-803-2						
		-0.05		-.21	11/8/2021 11:03:10AM	Days
		-0.05		-.22	11/8/2021 7:19:13PM	Nights
		-0.05		-0.20	11/9/2021 7:15:39AM	Days
		-0.05		-.21	11/9/2021 7:19:30PM	Nights
		-0.05		-.22	11/10/2021 7:26:14AM	Days
		-0.05		-0.22	11/10/2021 7:17:32PM	Nights
		-0.05		-.22	11/11/2021 7:26:41AM	Days
		-0.05		-0.22	11/11/2021 7:16:20PM	Nights
		-0.05		-0.21	11/12/2021 7:10:30AM	Days
		-0.05		-0.22	11/12/2021 7:10:40PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area laboratory header delta P (PDI-803-1 or PDI-803-2						
		-0.05		-.21	11/13/2021 7:22:44AM	Days
		-0.05		-0.22	11/13/2021 7:04:31PM	Nights
		-0.05		-0.21	11/14/2021 7:16:12AM	Days
		-0.05		-.22	11/14/2021 7:15:59PM	Nights
		-0.05		-0.22	11/15/2021 7:29:08AM	Days
		-0.05		-.22	11/15/2021 7:24:55PM	Nights
		-0.05		-0.22	11/16/2021 7:24:12AM	Days
		-0.05		-.22	11/16/2021 7:23:36PM	Nights
		-0.05		-0.21	11/17/2021 7:22:06AM	Days
		-0.05		-.22	11/17/2021 7:23:00PM	Nights
		-0.05		-0.21	11/18/2021 7:15:13AM	Days
		-0.05		-.22	11/18/2021 7:10:36PM	Nights
		-0.05		-0.20	11/19/2021 7:12:53AM	Days
		-0.05		-.21	11/19/2021 7:27:28PM	Nights
		-0.05		-.21	11/20/2021 7:24:13AM	Days
		-0.05		-.21	11/20/2021 7:24:03PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area laboratory header delta P (PDI-803-1 or PDI-803-2						
		-0.05		-0.20	11/21/2021 7:19:14AM	Days
		-0.05		-.21	11/21/2021 7:25:15PM	Nights
		-0.05		-.20	11/22/2021 7:22:45AM	Days
		-0.05		-0.19	11/22/2021 7:18:07PM	Nights
		-0.05		-0.18	11/23/2021 7:22:10AM	Days
		-0.05		-.19	11/23/2021 7:16:04PM	Nights
		-0.05		-0.18	11/24/2021 7:24:13AM	Days
		-0.05		-.18	11/24/2021 7:27:13PM	Nights
		-0.05		-0.18	11/25/2021 7:29:27AM	Days
		-0.05		-.19	11/25/2021 7:26:08PM	Nights
		-0.05		-0.18	11/26/2021 7:24:49AM	Days
		-0.05		-.18	11/26/2021 7:05:50PM	Nights
		-0.05		-0.19	11/27/2021 7:26:19AM	Days
		-0.05		-.18	11/27/2021 7:18:53PM	Nights
		-0.05		-.18	11/28/2021 7:12:24AM	Days
		-0.05		-.18	11/28/2021 7:18:34PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area laboratory header delta P (PDI-803-1 or PDI-803-2						
		-0.05		-0.18	11/29/2021 7:22:54AM	Days
		-0.05		-.18	11/29/2021 7:24:28PM	Nights
		-0.05		-.18	11/30/2021 7:27:35AM	Days
		-0.05		-.18	11/30/2021 7:29:03PM	Nights
		-0.05		-0.19	12/1/2021 7:24:48AM	Days
		-0.05		-0.19	12/1/2021 7:20:14PM	Nights
HVAC: 100 area laboratory header delta P (PDI-802-1 or PDI-802-2						
		-0.05		-.27	11/8/2021 11:03:16AM	Days
		-0.05		-.27	11/8/2021 7:19:17PM	Nights
		-0.05		-0.27	11/9/2021 7:15:52AM	Days
		-0.05		-.27	11/9/2021 7:19:36PM	Nights
		-0.05		-.26	11/10/2021 7:26:20AM	Days
		-0.05		-0.28	11/10/2021 7:17:52PM	Nights
		-0.05		-.27	11/11/2021 7:26:57AM	Days
		-0.05		-0.27	11/11/2021 7:16:30PM	Nights
		-0.05		-0.27	11/12/2021 7:10:35AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area laboratory header delta P (PDI-802-1 or PDI-802-2						
		-0.05		-0.27	11/12/2021 7:10:47PM	Nights
		-0.05		-.27	11/13/2021 7:23:21AM	Days
		-0.05		-0.28	11/13/2021 7:04:36PM	Nights
		-0.05		-0.27	11/14/2021 7:16:17AM	Days
		-0.05		-.27	11/14/2021 7:16:04PM	Nights
		-0.05		-0.27	11/15/2021 7:29:16AM	Days
		-0.05		-.28	11/15/2021 7:25:05PM	Nights
		-0.05		-0.27	11/16/2021 7:24:19AM	Days
		-0.05		-.28	11/16/2021 7:23:41PM	Nights
		-0.05		-0.26	11/17/2021 7:22:13AM	Days
		-0.05		-.27	11/17/2021 7:23:06PM	Nights
		-0.05		-0.26	11/18/2021 7:15:18AM	Days
		-0.05		-.27	11/18/2021 7:10:43PM	Nights
		-0.05		-0.26	11/19/2021 7:13:00AM	Days
		-0.05		-.27	11/19/2021 7:27:34PM	Nights
		-0.05		-0.26	11/20/2021 7:24:19AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area laboratory header delta P (PDI-802-1 or PDI-802-2						
		-0.05		-.27	11/20/2021 7:24:14PM	Nights
		-0.05		-0.27	11/21/2021 7:19:24AM	Days
		-0.05		-.26	11/21/2021 7:25:20PM	Nights
		-0.05		-.26	11/22/2021 7:22:50AM	Days
		-0.05		-0.24	11/22/2021 7:18:16PM	Nights
		-0.05		-0.24	11/23/2021 7:22:16AM	Days
		-0.05		-.24	11/23/2021 7:16:13PM	Nights
		-0.05		-0.24	11/24/2021 7:24:23AM	Days
		-0.05		-.23	11/24/2021 7:27:19PM	Nights
		-0.05		-0.23	11/25/2021 7:29:34AM	Days
		-0.05		-.24	11/25/2021 7:26:50PM	Nights
		-0.05		-0.23	11/26/2021 7:24:55AM	Days
		-0.05		-.24	11/26/2021 7:05:57PM	Nights
		-0.05		-0.24	11/27/2021 7:26:23AM	Days
		-0.05		-.24	11/27/2021 7:19:01PM	Nights
		-0.05		-.24	11/28/2021 7:12:28AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area laboratory header delta P (PDI-802-1 or PDI-802-2						
		-0.05		-.24	11/28/2021 7:18:39PM	Nights
		-0.05		-0.24	11/29/2021 7:23:00AM	Days
		-0.05		-.24	11/29/2021 7:24:36PM	Nights
		-0.05		-0.24	11/30/2021 7:27:40AM	Days
		-0.05			11/30/2021 7:28:27PM	Nights
		-0.05		-0.24	12/1/2021 7:24:52AM	Days
		-0.05		-0.24	12/1/2021 7:20:20PM	Nights
HVAC: 300 area laboratory header delta P (PDI-853-1 or PDI-853-2						
		-0.05		-.19	11/8/2021 11:03:22AM	Days
		-0.05		-.20	11/8/2021 7:19:22PM	Nights
		-0.05		-0.20	11/9/2021 7:15:58AM	Days
		-0.05		-.20	11/9/2021 7:19:41PM	Nights
		-0.05		-.19	11/10/2021 7:26:30AM	Days
		-0.05		-0.20	11/10/2021 7:18:00PM	Nights
		-0.05		-.20	11/11/2021 7:27:06AM	Days
		-0.05		-0.20	11/11/2021 7:17:08PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area laboratory header delta P (PDI-853-1 or PDI-853-2						
		-0.05		-0.20	11/12/2021 7:10:42AM	Days
		-0.05		-0.20	11/12/2021 7:10:53PM	Nights
		-0.05		-.20	11/13/2021 7:23:31AM	Days
		-0.05		-0.20	11/13/2021 7:04:41PM	Nights
		-0.05		-0.20	11/14/2021 7:16:26AM	Days
		-0.05		-.20	11/14/2021 7:16:11PM	Nights
		-0.05		-0.20	11/15/2021 7:29:20AM	Days
		-0.05		-.21	11/15/2021 7:25:13PM	Nights
		-0.05		-0.19	11/16/2021 7:24:26AM	Days
		-0.05		-.20	11/16/2021 7:23:47PM	Nights
		-0.05		-0.20	11/17/2021 7:22:19AM	Days
		-0.05		-.20	11/17/2021 7:23:11PM	Nights
		-0.05		-0.20	11/18/2021 7:17:36AM	Days
		-0.05		-.20	11/18/2021 7:10:47PM	Nights
		-0.05		-0.20	11/19/2021 7:13:09AM	Days
		-0.05		-.20	11/19/2021 7:27:40PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area laboratory header delta P (PDI-853-1 or PDI-853-2						
		-0.05		-0.20	11/20/2021 7:24:24AM	Days
		-0.05		-.20	11/20/2021 7:24:20PM	Nights
		-0.05		-0.20	11/21/2021 7:19:29AM	Days
		-0.05		-.20	11/21/2021 7:25:27PM	Nights
		-0.05		-.19	11/22/2021 7:22:53AM	Days
		-0.05		-0.20	11/22/2021 7:18:20PM	Nights
		-0.05		-0.19	11/23/2021 7:22:22AM	Days
		-0.05		-.19	11/23/2021 7:16:20PM	Nights
		-0.05		-0.20	11/24/2021 7:24:30AM	Days
		-0.05		-.19	11/24/2021 7:27:25PM	Nights
		-0.05		-0.19	11/25/2021 7:29:41AM	Days
		-0.05		-.20	11/25/2021 7:26:55PM	Nights
		-0.05		-0.20	11/26/2021 7:25:01AM	Days
		-0.05		-.20	11/26/2021 7:06:04PM	Nights
		-0.05		-0.20	11/27/2021 7:26:28AM	Days
		-0.05		-.20	11/27/2021 7:19:06PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area laboratory header delta P (PDI-853-1 or PDI-853-2						
		-0.05		-.20	11/28/2021 7:12:33AM	Days
		-0.05		-.20	11/28/2021 7:18:44PM	Nights
		-0.05		-0.20	11/29/2021 7:23:07AM	Days
		-0.05		-.20	11/29/2021 7:24:44PM	Nights
		-0.05		-0.20	11/30/2021 7:27:44AM	Days
		-0.05		-.24	11/30/2021 7:29:08PM	Nights
		-0.05		-0.20	12/1/2021 7:24:57AM	Days
		-0.05		-0.20	12/1/2021 7:20:28PM	Nights
HVAC: 400 area laboratory header delta P (PDI-852-1 or PDI-852-2						
		-0.05		-.19	11/8/2021 11:03:28AM	Days
		-0.05		-.19	11/8/2021 7:19:29PM	Nights
		-0.05		-0.20	11/9/2021 7:16:04AM	Days
		-0.05		-.20	11/9/2021 7:19:45PM	Nights
		-0.05		-.19	11/10/2021 7:26:36AM	Days
		-0.05		-0.19	11/10/2021 7:18:09PM	Nights
		-0.05		-.20	11/11/2021 7:27:14AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area laboratory header delta P (PDI-852-1 or PDI-852-2						
		-0.05		-0.19	11/11/2021 7:17:58PM	Nights
		-0.05		-0.19	11/12/2021 7:10:49AM	Days
		-0.05		-0.19	11/12/2021 7:11:03PM	Nights
		-0.05		-.19	11/13/2021 7:23:40AM	Days
		-0.05		-0.19	11/13/2021 7:04:48PM	Nights
		-0.05		-0.20	11/14/2021 7:16:30AM	Days
		-0.05		-.20	11/14/2021 7:16:17PM	Nights
		-0.05		-0.20	11/15/2021 7:29:25AM	Days
		-0.05		-.20	11/15/2021 7:25:20PM	Nights
		-0.05		-0.18	11/16/2021 7:24:31AM	Days
		-0.05		-.19	11/16/2021 7:23:52PM	Nights
		-0.05		-0.19	11/17/2021 7:22:23AM	Days
		-0.05		-.19	11/17/2021 7:23:20PM	Nights
		-0.05		-0.20	11/18/2021 7:15:23AM	Days
		-0.05		-.18	11/18/2021 7:10:51PM	Nights
		-0.05		-0.19	11/19/2021 7:13:15AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area laboratory header delta P (PDI-852-1 or PDI-852-2						
		-0.05		-.20	11/19/2021 7:27:45PM	Nights
		-0.05		-0.19	11/20/2021 7:24:29AM	Days
		-0.05		-.20	11/20/2021 7:24:25PM	Nights
		-0.05		-0.19	11/21/2021 7:19:33AM	Days
		-0.05		-.19	11/21/2021 7:25:33PM	Nights
		-0.05		-.19	11/22/2021 7:22:58AM	Days
		-0.05		-0.20	11/22/2021 7:18:25PM	Nights
		-0.05		-0.19	11/23/2021 7:22:25AM	Days
		-0.05		-.19	11/23/2021 7:16:32PM	Nights
		-0.05		-0.19	11/24/2021 7:24:35AM	Days
		-0.05		-.19	11/24/2021 7:27:31PM	Nights
		-0.05		-0.19	11/25/2021 7:29:46AM	Days
		-0.05		-.20	11/25/2021 7:27:01PM	Nights
		-0.05		-0.19	11/26/2021 7:25:05AM	Days
		-0.05		-.19	11/26/2021 7:06:13PM	Nights
		-0.05		-0.20	11/27/2021 7:26:34AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area laboratory header delta P (PDI-852-1 or PDI-852-2						
		-0.05		-.19	11/27/2021 7:19:11PM	Nights
		-0.05		-.20	11/28/2021 7:12:37AM	Days
		-0.05		-.20	11/28/2021 7:18:49PM	Nights
		-0.05		-0.19	11/29/2021 7:23:13AM	Days
		-0.05		-.20	11/29/2021 7:24:51PM	Nights
		-0.05		-0.20	11/30/2021 7:27:49AM	Days
		-0.05		-.20	11/30/2021 7:29:13PM	Nights
		-0.05		-0.20	12/1/2021 7:25:02AM	Days
		-0.05		-0.20	12/1/2021 7:20:35PM	Nights
HVAC: IFIT Facility delta P (PDI-865-4 or PDI-865-5)						
		-0.05		-.15	11/8/2021 11:03:36AM	Days
		-0.05		-.15	11/8/2021 7:19:36PM	Nights
		-0.05		-0.15	11/9/2021 7:19:53AM	Days
		-0.05		-.15	11/9/2021 7:19:48PM	Nights
		-0.05		-.14	11/10/2021 7:26:42AM	Days
		-0.05		-0.15	11/10/2021 7:18:47PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IFIT Facility delta P (PDI-865-4 or PDI-865-5)						
		-0.05		-.15	11/11/2021 7:27:22AM	Days
		-0.05		-0.15	11/11/2021 7:18:06PM	Nights
		-0.05		-0.15	11/12/2021 7:11:18AM	Days
		-0.05		-0.15	11/12/2021 7:11:09PM	Nights
		-0.05			11/13/2021 7:21:53AM	Days
		-0.05		-0.14	11/13/2021 7:05:01PM	Nights
		-0.05		-0.15	11/14/2021 7:16:36AM	Days
		-0.05		-.15	11/14/2021 7:16:24PM	Nights
		-0.05		-0.15	11/15/2021 7:29:34AM	Days
		-0.05		-.15	11/15/2021 7:25:27PM	Nights
		-0.05		-0.15	11/16/2021 7:24:40AM	Days
		-0.05		-.15	11/16/2021 7:23:58PM	Nights
		-0.05		-0.15	11/17/2021 7:22:28AM	Days
		-0.05		-.15	11/17/2021 7:23:24PM	Nights
		-0.05		-0.15	11/18/2021 7:15:50AM	Days
		-0.05		-.15	11/18/2021 7:10:56PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IFIT Facility delta P (PDI-865-4 or PDI-865-5)						
		-0.05		-0.15	11/19/2021 7:13:20AM	Days
		-0.05		-.15	11/19/2021 7:27:52PM	Nights
		-0.05		-0.15	11/20/2021 7:24:34AM	Days
		-0.05		-.15	11/20/2021 7:24:30PM	Nights
		-0.05		-0.15	11/21/2021 7:19:39AM	Days
		-0.05		-.15	11/21/2021 7:25:40PM	Nights
		-0.05		-.15	11/22/2021 7:23:03AM	Days
		-0.05		-0.14	11/22/2021 7:18:31PM	Nights
		-0.05		-0.15	11/23/2021 7:22:32AM	Days
		-0.05		-.15	11/23/2021 7:16:37PM	Nights
		-0.05		-0.15	11/24/2021 7:24:42AM	Days
		-0.05		-.15	11/24/2021 7:27:43PM	Nights
		-0.05		-0.15	11/25/2021 7:29:52AM	Days
		-0.05		-.15	11/25/2021 7:27:06PM	Nights
		-0.05		-0.15	11/26/2021 7:25:12AM	Days
		-0.05		-.15	11/26/2021 7:06:17PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IFIT Facility delta P (PDI-865-4 or PDI-865-5)						
		-0.05		-0.15	11/27/2021 7:26:52AM	Days
		-0.05		-.15	11/27/2021 7:19:17PM	Nights
		-0.05		-.15	11/28/2021 7:39:17AM	Days
		-0.05		-.15	11/28/2021 7:18:53PM	Nights
		-0.05		-0.15	11/29/2021 7:23:26AM	Days
		-0.05		-.15	11/29/2021 7:24:58PM	Nights
		-0.05		-0.16	11/30/2021 7:27:56AM	Days
		-0.05		-.19	11/30/2021 7:29:20PM	Nights
		-0.05		-0.16	12/1/2021 7:25:08AM	Days
		-0.05		-0.15	12/1/2021 7:20:49PM	Nights
HVAC: North Basement delta P (PDI-804-1 or PDI-804-2)						
		0.00		-.09	11/8/2021 11:03:45AM	Days
		0.00		-.09	11/8/2021 7:19:41PM	Nights
		0.00		-0.09	11/9/2021 7:19:58AM	Days
		0.00		-.09	11/9/2021 7:19:53PM	Nights
		0.00		-.09	11/10/2021 7:26:51AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: North Basement delta P (PDI-804-1 or PDI-804-2)						
		0.00		-0.09	11/10/2021 7:19:02PM	Nights
		0.00		-.09	11/11/2021 7:27:28AM	Days
		0.00		-0.09	11/11/2021 7:18:18PM	Nights
		0.00		-0.09	11/12/2021 7:11:07AM	Days
		0.00		-0.09	11/12/2021 7:11:15PM	Nights
		0.00		-.09	11/13/2021 7:23:48AM	Days
		0.00		-0.09	11/13/2021 7:05:11PM	Nights
		0.00		-0.09	11/14/2021 7:16:45AM	Days
		0.00		-.09	11/14/2021 7:16:30PM	Nights
		0.00		-0.09	11/15/2021 7:29:47AM	Days
		0.00		-.09	11/15/2021 7:25:35PM	Nights
		0.00		-0.10	11/16/2021 7:24:45AM	Days
		0.00		-.09	11/16/2021 7:24:06PM	Nights
		0.00		-0.09	11/17/2021 7:22:35AM	Days
		0.00		-.09	11/17/2021 7:23:28PM	Nights
		0.00		-0.10	11/18/2021 7:15:56AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: North Basement delta P (PDI-804-1 or PDI-804-2)						
		0.00		-.09	11/18/2021 7:11:00PM	Nights
		0.00		-0.09	11/19/2021 7:13:29AM	Days
		0.00		-.09	11/19/2021 7:27:57PM	Nights
		0.00		-0.09	11/20/2021 7:24:39AM	Days
		0.00		-.09	11/20/2021 7:24:36PM	Nights
		0.00		-0.09	11/21/2021 7:19:44AM	Days
		0.00		-.09	11/21/2021 7:25:46PM	Nights
		0.00		-.09	11/22/2021 7:23:07AM	Days
		0.00		-0.09	11/22/2021 7:18:35PM	Nights
		0.00		-0.09	11/23/2021 7:22:37AM	Days
		0.00		-.09	11/23/2021 7:16:42PM	Nights
		0.00		-0.09	11/24/2021 7:24:48AM	Days
		0.00		-.09	11/24/2021 7:27:49PM	Nights
		0.00		-0.09	11/25/2021 7:29:57AM	Days
		0.00		-.09	11/25/2021 7:27:15PM	Nights
		0.00		-0.09	11/26/2021 7:25:16AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: North Basement delta P (PDI-804-1 or PDI-804-2)						
		0.00		-.09	11/26/2021 7:06:23PM	Nights
		0.00		-0.09	11/27/2021 7:26:46AM	Days
		0.00		-.09	11/27/2021 7:19:22PM	Nights
		0.00		-.09	11/28/2021 7:12:41AM	Days
		0.00		-.09	11/28/2021 7:18:58PM	Nights
		0.00		-0.09	11/29/2021 7:23:36AM	Days
		0.00		-.09	11/29/2021 7:25:03PM	Nights
		0.00		-0.09	11/30/2021 7:28:02AM	Days
		0.00		-.09	11/30/2021 7:30:13PM	Nights
		0.00		-0.09	12/1/2021 7:25:12AM	Days
		0.00		-0.11	12/1/2021 7:20:57PM	Nights
HVAC: IRT Tunnel delta P (PDT-901 or PDI-901)						
		0.00		-.108	11/8/2021 11:03:57AM	Days
		0.00		-.097	11/8/2021 7:19:57PM	Nights
		0.00		-0.093	11/9/2021 7:20:11AM	Days
		0.00		-.100	11/9/2021 7:20:04PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IRT Tunnel delta P (PDT-901 or PDI-901)						
		0.00		-.129	11/10/2021 7:27:15AM	Days
		0.00		-0.112	11/10/2021 7:19:28PM	Nights
		0.00		-.096	11/11/2021 7:28:04AM	Days
		0.00		-0.095	11/11/2021 7:18:44PM	Nights
		0.00		-0.108	11/12/2021 7:11:47AM	Days
		0.00		-0.108	11/12/2021 7:11:39PM	Nights
		0.00		-.094	11/13/2021 7:24:21AM	Days
		0.00		-0.095	11/13/2021 7:05:50PM	Nights
		0.00		-0.096	11/14/2021 7:17:21AM	Days
		0.00		-.097	11/14/2021 7:17:06PM	Nights
		0.00		-0.096	11/15/2021 7:30:17AM	Days
		0.00		-.097	11/15/2021 7:26:04PM	Nights
		0.00		-0.105	11/16/2021 7:25:11AM	Days
		0.00		-.095	11/16/2021 7:24:32PM	Nights
		0.00		-0.096	11/17/2021 7:23:07AM	Days
		0.00		-.093	11/17/2021 7:23:44PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IRT Tunnel delta P (PDT-901 or PDI-901)						
		0.00		-0.101	11/18/2021 7:16:28AM	Days
		0.00		-.103	11/18/2021 7:11:22PM	Nights
		0.00		-0.095	11/19/2021 7:13:51AM	Days
		0.00		-.096	11/19/2021 7:28:19PM	Nights
		0.00		-0.094	11/20/2021 7:25:00AM	Days
		0.00		-.095	11/20/2021 7:24:57PM	Nights
		0.00		-0.099	11/21/2021 7:20:04AM	Days
		0.00		-.092	11/21/2021 7:26:27PM	Nights
		0.00		-.095	11/22/2021 7:23:23AM	Days
		0.00		-0.093	11/22/2021 7:18:55PM	Nights
		0.00		-0.096	11/23/2021 7:22:52AM	Days
		0.00		-.097	11/23/2021 7:17:05PM	Nights
		0.00		-0.106	11/24/2021 7:25:08AM	Days
		0.00		-.104	11/24/2021 7:28:09PM	Nights
		0.00		-0.099	11/25/2021 7:30:22AM	Days
		0.00		-.095	11/25/2021 7:27:39PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IRT Tunnel delta P (PDT-901 or PDI-901)						
		0.00		-0.095	11/26/2021 7:25:38AM	Days
		0.00		-.097	11/26/2021 7:06:52PM	Nights
		0.00		-0.097	11/27/2021 7:27:27AM	Days
		0.00		-.098	11/27/2021 7:19:55PM	Nights
		0.00		-.095	11/28/2021 7:12:50AM	Days
		0.00		-.105	11/28/2021 7:19:18PM	Nights
		0.00		-0.107	11/29/2021 7:24:35AM	Days
		0.00		-.117	11/29/2021 7:25:33PM	Nights
		0.00		-0.096	11/30/2021 7:28:20AM	Days
		0.00		-.107	11/30/2021 7:30:25PM	Nights
		0.00		-0.099	12/1/2021 7:25:43AM	Days
		0.00		-0.097	12/1/2021 7:21:30PM	Nights
HVAC: 200 area re-circulation fan/plenum (PDT-831 or PDT-832)						
	.050			SAT	11/8/2021 11:04:02AM	Days
	.050			SAT	11/8/2021 7:20:01PM	Nights
	.050			SAT	11/9/2021 7:17:48AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area re-circulation fan/plenum (PDT-831 or PDT-832)						
	.050			SAT	11/9/2021 7:46:10PM	Nights
	.050			SAT	11/10/2021 7:27:18AM	Days
	.050			SAT	11/10/2021 7:22:58PM	Nights
	.050			SAT	11/11/2021 7:28:07AM	Days
	.050			SAT	11/11/2021 7:20:15PM	Nights
	.050			SAT	11/12/2021 7:11:57AM	Days
	.050			SAT	11/12/2021 7:11:57PM	Nights
	.050			SAT	11/13/2021 7:24:26AM	Days
	.050			SAT	11/13/2021 7:05:54PM	Nights
	.050			SAT	11/14/2021 7:17:28AM	Days
	.050			SAT	11/14/2021 7:17:15PM	Nights
	.050			SAT	11/15/2021 7:30:44AM	Days
	.050			SAT	11/15/2021 7:26:05PM	Nights
	.050			SAT	11/16/2021 8:31:36AM	Days
	.050			SAT	11/16/2021 7:24:34PM	Nights
	.050			SAT	11/17/2021 7:23:10AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area re-circulation fan/plenum (PDT-831 or PDT-832)						
	.050			SAT	11/17/2021 7:23:55PM	Nights
	.050			SAT	11/18/2021 7:16:38AM	Days
	.050			SAT	11/18/2021 7:11:30PM	Nights
	.050			SAT	11/19/2021 7:14:07AM	Days
	.050			SAT	11/19/2021 7:28:27PM	Nights
	.050			SAT	11/20/2021 7:25:10AM	Days
	.050			SAT	11/20/2021 7:24:59PM	Nights
	.050			SAT	11/21/2021 7:20:15AM	Days
	.050			SAT	11/21/2021 7:26:29PM	Nights
	.050			SAT	11/22/2021 7:23:26AM	Days
	.050			SAT	11/22/2021 7:19:21PM	Nights
	.050			SAT	11/23/2021 7:23:42AM	Days
	.050			SAT	11/23/2021 7:21:19PM	Nights
	.050			SAT	11/24/2021 7:25:20AM	Days
	.050			SAT	11/24/2021 7:28:11PM	Nights
	.050			SAT	11/25/2021 7:30:23AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area re-circulation fan/plenum (PDT-831 or PDT-832)						
	.050			SAT	11/25/2021 7:27:41PM	Nights
	.050			SAT	11/26/2021 7:25:55AM	Days
	.050			SAT	11/26/2021 7:07:04PM	Nights
	.050			SAT	11/27/2021 7:27:29AM	Days
	.050			SAT	11/27/2021 7:19:59PM	Nights
	.050			SAT	11/28/2021 7:12:58AM	Days
	.050			SAT	11/28/2021 7:19:29PM	Nights
	.050			SAT	11/29/2021 7:25:51AM	Days
	.050			SAT	11/29/2021 7:25:35PM	Nights
	.050			SAT	11/30/2021 7:28:38AM	Days
	.050			SAT	11/30/2021 7:29:41PM	Nights
	.050			SAT	12/1/2021 7:25:50AM	Days
	.050			SAT	12/1/2021 7:21:44PM	Nights
HVAC: 100 area re-circulation fan/plenum (PDT-833 or PDT-835)						
	.050			SAT	11/8/2021 11:04:04AM	Days
	.050			SAT	11/8/2021 7:20:04PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area re-circulation fan/plenum (PDT-833 or PDT-835)						
	.050			SAT	11/9/2021 7:17:04AM	Days
	.050			SAT	11/9/2021 7:20:10PM	Nights
	.050			SAT	11/10/2021 7:27:20AM	Days
	.050			SAT	11/10/2021 7:23:04PM	Nights
	.050			SAT	11/11/2021 7:28:13AM	Days
	.050			SAT	11/11/2021 7:20:18PM	Nights
	.050			SAT	11/12/2021 7:12:02AM	Days
	.050			SAT	11/12/2021 7:12:03PM	Nights
	.050			SAT	11/13/2021 7:24:30AM	Days
	.050			SAT	11/13/2021 7:05:57PM	Nights
	.050			SAT	11/14/2021 7:17:31AM	Days
	.050			SAT	11/14/2021 7:17:17PM	Nights
	.050			SAT	11/15/2021 7:30:50AM	Days
	.050			SAT	11/15/2021 7:26:08PM	Nights
	.050			SAT	11/16/2021 7:25:15AM	Days
	.050			SAT	11/16/2021 7:24:37PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area re-circulation fan/plenum (PDT-833 or PDT-835)						
	.050			SAT	11/17/2021 7:23:13AM	Days
	.050			SAT	11/17/2021 7:23:57PM	Nights
	.050			SAT	11/18/2021 7:16:43AM	Days
	.050			SAT	11/18/2021 7:11:31PM	Nights
	.050			SAT	11/19/2021 7:14:11AM	Days
	.050			SAT	11/19/2021 7:28:29PM	Nights
	.050			SAT	11/20/2021 7:25:12AM	Days
	.050			SAT	11/20/2021 7:25:01PM	Nights
	.050			SAT	11/21/2021 7:20:18AM	Days
	.050			SAT	11/21/2021 7:26:34PM	Nights
	.050			SAT	11/22/2021 7:23:29AM	Days
	.050			SAT	11/22/2021 7:19:25PM	Nights
	.050			SAT	11/23/2021 7:23:43AM	Days
	.050			SAT	11/23/2021 7:21:27PM	Nights
	.050			SAT	11/24/2021 7:25:23AM	Days
	.050			SAT	11/24/2021 7:28:14PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area re-circulation fan/plenum (PDT-833 or PDT-835)						
	.050			SAT	11/25/2021 7:30:29AM	Days
	.050			SAT	11/25/2021 7:27:43PM	Nights
	.050			SAT	11/26/2021 7:25:58AM	Days
	.050			SAT	11/26/2021 7:07:08PM	Nights
	.050			SAT	11/27/2021 7:27:32AM	Days
	.050			SAT	11/27/2021 7:20:02PM	Nights
	.050			SAT	11/28/2021 7:13:00AM	Days
	.050			SAT	11/28/2021 7:19:33PM	Nights
	.050			SAT	11/29/2021 7:25:58AM	Days
	.050			SAT	11/29/2021 7:25:38PM	Nights
	.050			SAT	11/30/2021 7:28:40AM	Days
	.050			SAT	11/30/2021 7:29:44PM	Nights
	.050			SAT	12/1/2021 7:25:52AM	Days
	.050			SAT	12/1/2021 7:21:51PM	Nights
HVAC: 400 area re-circulation fan/plenum (PDT-838 or PDT-839)						
	.050			SAT	11/8/2021 11:04:09AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area re-circulation fan/plenum (PDT-838 or PDT-839)						
	.050			SAT	11/8/2021 7:20:11PM	Nights
	.050			SAT	11/9/2021 7:17:10AM	Days
	.050			SAT	11/9/2021 7:20:14PM	Nights
	.050			SAT	11/10/2021 7:27:26AM	Days
	.050			SAT	11/10/2021 7:23:15PM	Nights
	.050			SAT	11/11/2021 7:28:26AM	Days
	.050			SAT	11/11/2021 7:20:24PM	Nights
	.050			SAT	11/12/2021 7:12:10AM	Days
	.050			SAT	11/12/2021 7:12:12PM	Nights
	.050			SAT	11/13/2021 7:24:34AM	Days
	.050			SAT	11/13/2021 7:06:09PM	Nights
	.050			SAT	11/14/2021 7:17:39AM	Days
	.050			SAT	11/14/2021 7:17:23PM	Nights
	.050			SAT	11/15/2021 7:30:55AM	Days
	.050			SAT	11/15/2021 7:26:13PM	Nights
	.050			SAT	11/16/2021 7:25:22AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area re-circulation fan/plenum (PDT-838 or PDT-839)						
	.050				11/16/2021 7:22:58PM	Nights
	.050			SAT	11/17/2021 7:23:24AM	Days
	.050			SAT	11/17/2021 7:24:05PM	Nights
	.050			SAT	11/18/2021 7:16:50AM	Days
	.050			SAT	11/18/2021 7:11:37PM	Nights
	.050			SAT	11/19/2021 7:14:24AM	Days
	.050			SAT	11/19/2021 7:28:34PM	Nights
	.050			SAT	11/20/2021 7:25:17AM	Days
	.050			SAT	11/20/2021 7:25:07PM	Nights
	.050			SAT	11/21/2021 7:20:23AM	Days
	.050			SAT	11/21/2021 7:26:44PM	Nights
	.050			SAT	11/22/2021 7:23:34AM	Days
	.050			SAT	11/22/2021 7:19:32PM	Nights
	.050			SAT	11/23/2021 7:23:47AM	Days
	.050			SAT	11/23/2021 7:21:39PM	Nights
	.050			SAT	11/24/2021 7:25:34AM	Days

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area re-circulation fan/plenum (PDT-838 or PDT-839)						
	.050			SAT	11/24/2021 7:28:27PM	Nights
	.050			SAT	11/25/2021 7:30:32AM	Days
	.050			SAT	11/25/2021 7:27:49PM	Nights
	.050			SAT	11/26/2021 7:26:02AM	Days
	.050			SAT	11/26/2021 7:07:17PM	Nights
	.050			SAT	11/27/2021 7:27:38AM	Days
	.050			SAT	11/27/2021 7:20:53PM	Nights
	.050			SAT	11/28/2021 7:13:04AM	Days
	.050			SAT	11/28/2021 7:19:41PM	Nights
	.050			SAT	11/29/2021 7:26:05AM	Days
	.050			SAT	11/29/2021 7:25:45PM	Nights
	.050			SAT	11/30/2021 7:28:46AM	Days
	.050			SAT	11/30/2021 7:30:37PM	Nights
	.050			SAT	12/1/2021 7:25:56AM	Days
	.050			SAT	12/1/2021 7:22:03PM	Nights
HVAC: Vault re-circulation fan/plenum (PDT-840 or PDT-841)						

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Vault re-circulation fan/plenum (PDT-840 or PDT-841)						
	.050			SAT	11/8/2021 11:04:13AM	Days
	.050			SAT	11/8/2021 7:20:13PM	Nights
	.050			SAT	11/9/2021 7:17:13AM	Days
	.050			SAT	11/9/2021 7:20:15PM	Nights
	.050			SAT	11/10/2021 7:27:29AM	Days
	.050			SAT	11/10/2021 7:23:19PM	Nights
	.050			SAT	11/11/2021 7:28:24AM	Days
	.050			SAT	11/11/2021 7:20:26PM	Nights
	.050			SAT	11/12/2021 7:12:17AM	Days
	.050			SAT	11/12/2021 7:12:28PM	Nights
	.050			SAT	11/13/2021 7:24:38AM	Days
	.050			SAT	11/13/2021 7:06:15PM	Nights
	.050			SAT	11/14/2021 7:17:44AM	Days
	.050			SAT	11/14/2021 7:17:24PM	Nights
	.050			SAT	11/15/2021 7:30:59AM	Days
	.050			SAT	11/15/2021 7:26:17PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Vault re-circulation fan/plenum (PDT-840 or PDT-841)						
	.050			SAT	11/16/2021 7:25:25AM	Days
	.050			SAT	11/16/2021 7:24:43PM	Nights
	.050			SAT	11/17/2021 7:23:28AM	Days
	.050			SAT	11/17/2021 7:24:07PM	Nights
	.050			SAT	11/18/2021 7:16:55AM	Days
	.050			SAT	11/18/2021 7:11:39PM	Nights
	.050			SAT	11/19/2021 7:14:27AM	Days
	.050			SAT	11/19/2021 7:28:37PM	Nights
	.050			SAT	11/20/2021 7:25:21AM	Days
	.050			SAT	11/20/2021 7:25:10PM	Nights
	.050			SAT	11/21/2021 7:20:26AM	Days
	.050			SAT	11/21/2021 7:26:47PM	Nights
	.050			SAT	11/22/2021 7:23:36AM	Days
	.050			SAT	11/22/2021 7:19:38PM	Nights
	.050			SAT	11/23/2021 7:23:55AM	Days
	.050			SAT	11/23/2021 7:21:42PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Vault re-circulation fan/plenum (PDT-840 or PDT-841)						
	.050			SAT	11/24/2021 7:25:31AM	Days
	.050			SAT	11/24/2021 7:28:30PM	Nights
	.050			SAT	11/25/2021 7:30:48AM	Days
	.050			SAT	11/25/2021 7:27:53PM	Nights
	.050			SAT	11/26/2021 7:26:04AM	Days
	.050			SAT	11/26/2021 7:07:22PM	Nights
	.050			SAT	11/27/2021 7:27:46AM	Days
	.050			SAT	11/27/2021 7:20:11PM	Nights
	.050			SAT	11/28/2021 7:13:06AM	Days
	.050			SAT	11/28/2021 7:19:45PM	Nights
	.050			SAT	11/29/2021 7:26:08AM	Days
	.050			SAT	11/29/2021 7:25:48PM	Nights
	.050			SAT	11/30/2021 7:28:48AM	Days
	.050			SAT	11/30/2021 7:30:40PM	Nights
	.050			SAT	12/1/2021 7:26:04AM	Days
	.050			SAT	12/1/2021 7:22:08PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	11/8/2021 11:04:15AM	Days
				SAT	11/8/2021 7:20:15PM	Nights
				SAT	11/9/2021 7:17:16AM	Days
				SAT	11/9/2021 7:20:17PM	Nights
				SAT	11/10/2021 7:27:33AM	Days
				SAT	11/10/2021 7:23:22PM	Nights
				SAT	11/11/2021 7:28:30AM	Days
				SAT	11/11/2021 7:20:29PM	Nights
				SAT	11/12/2021 7:12:21AM	Days
				SAT	11/12/2021 7:12:30PM	Nights
				SAT	11/13/2021 7:24:41AM	Days
				SAT	11/13/2021 7:06:17PM	Nights
				SAT	11/14/2021 7:17:49AM	Days
				SAT	11/14/2021 7:17:26PM	Nights
				SAT	11/15/2021 7:31:01AM	Days
				SAT	11/15/2021 7:26:19PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	11/16/2021 7:25:28AM	Days
				SAT	11/16/2021 7:24:51PM	Nights
				SAT	11/17/2021 7:23:30AM	Days
				SAT	11/17/2021 7:24:09PM	Nights
				SAT	11/18/2021 7:16:59AM	Days
				SAT	11/18/2021 7:11:41PM	Nights
				SAT	11/19/2021 7:14:30AM	Days
				SAT	11/19/2021 7:28:41PM	Nights
				SAT	11/20/2021 7:25:24AM	Days
				SAT	11/20/2021 7:25:15PM	Nights
				SAT	11/21/2021 7:20:29AM	Days
				SAT	11/21/2021 7:26:56PM	Nights
				SAT	11/22/2021 7:23:38AM	Days
				SAT	11/22/2021 7:19:42PM	Nights
				SAT	11/23/2021 7:24:01AM	Days
				SAT	11/23/2021 7:21:50PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	11/24/2021 7:25:36AM	Days
				SAT	11/24/2021 7:28:33PM	Nights
				SAT	11/25/2021 7:30:34AM	Days
				SAT	11/25/2021 7:27:55PM	Nights
				SAT	11/26/2021 7:26:06AM	Days
				SAT	11/26/2021 7:07:26PM	Nights
				SAT	11/27/2021 7:27:49AM	Days
				SAT	11/27/2021 7:20:15PM	Nights
				SAT	11/28/2021 7:13:07AM	Days
				SAT	11/28/2021 7:19:49PM	Nights
				SAT	11/29/2021 7:26:11AM	Days
				SAT	11/29/2021 7:25:55PM	Nights
				SAT	11/30/2021 7:28:51AM	Days
				SAT	11/30/2021 7:30:43PM	Nights
				SAT	12/1/2021 7:26:06AM	Days
				SAT	12/1/2021 7:22:13PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	11/8/2021 11:04:17AM	Days
				SAT	11/8/2021 7:20:18PM	Nights
				SAT	11/9/2021 7:17:18AM	Days
				SAT	11/9/2021 7:20:18PM	Nights
				SAT	11/10/2021 7:27:35AM	Days
				SAT	11/10/2021 7:23:40PM	Nights
				SAT	11/11/2021 7:28:33AM	Days
				SAT	11/11/2021 7:20:32PM	Nights
				SAT	11/12/2021 7:12:25AM	Days
				SAT	11/12/2021 7:12:32PM	Nights
				SAT	11/13/2021 7:24:47AM	Days
				SAT	11/13/2021 7:06:20PM	Nights
				SAT	11/14/2021 7:17:52AM	Days
				SAT	11/14/2021 7:17:29PM	Nights
				SAT	11/15/2021 7:31:03AM	Days
				SAT	11/15/2021 7:26:25PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	11/16/2021 7:25:30AM	Days
				SAT	11/16/2021 7:24:54PM	Nights
				SAT	11/17/2021 7:23:33AM	Days
				SAT	11/17/2021 7:24:11PM	Nights
				SAT	11/18/2021 7:17:03AM	Days
				SAT	11/18/2021 7:11:43PM	Nights
				SAT	11/19/2021 7:14:33AM	Days
				SAT	11/19/2021 7:28:43PM	Nights
				SAT	11/20/2021 7:25:27AM	Days
				SAT	11/20/2021 7:25:18PM	Nights
				SAT	11/21/2021 7:20:33AM	Days
				SAT	11/21/2021 7:27:03PM	Nights
				SAT	11/22/2021 7:23:40AM	Days
				SAT	11/22/2021 7:19:45PM	Nights
				SAT	11/23/2021 7:24:03AM	Days
				SAT	11/23/2021 7:21:55PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	11/24/2021 7:25:41AM	Days
				SAT	11/24/2021 7:28:37PM	Nights
				SAT	11/25/2021 7:30:39AM	Days
				SAT	11/25/2021 7:27:58PM	Nights
				SAT	11/26/2021 7:26:08AM	Days
				SAT	11/26/2021 7:07:31PM	Nights
				SAT	11/27/2021 7:27:51AM	Days
				SAT	11/27/2021 7:20:18PM	Nights
				SAT	11/28/2021 7:13:10AM	Days
				SAT	11/28/2021 7:19:53PM	Nights
				SAT	11/29/2021 7:26:13AM	Days
				SAT	11/29/2021 7:25:58PM	Nights
				SAT	11/30/2021 7:28:54AM	Days
				SAT	11/30/2021 7:30:49PM	Nights
				SAT	12/1/2021 7:26:07AM	Days
				SAT	12/1/2021 7:22:20PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	11/8/2021 11:04:31AM	Days
				SAT	11/8/2021 7:20:20PM	Nights
				SAT	11/9/2021 7:17:20AM	Days
				SAT	11/9/2021 7:20:20PM	Nights
				SAT	11/10/2021 7:27:38AM	Days
				SAT	11/10/2021 7:23:54PM	Nights
				SAT	11/11/2021 7:28:37AM	Days
				SAT	11/11/2021 7:20:34PM	Nights
				SAT	11/12/2021 7:12:31AM	Days
				SAT	11/12/2021 7:12:34PM	Nights
				SAT	11/13/2021 7:24:51AM	Days
				SAT	11/13/2021 7:06:22PM	Nights
				SAT	11/14/2021 7:17:56AM	Days
				SAT	11/14/2021 7:17:31PM	Nights
				SAT	11/15/2021 7:31:05AM	Days
				SAT	11/15/2021 7:26:29PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	11/16/2021 7:25:33AM	Days
				SAT	11/16/2021 7:25:00PM	Nights
				SAT	11/17/2021 7:23:38AM	Days
				SAT	11/17/2021 7:24:14PM	Nights
				SAT	11/18/2021 7:17:07AM	Days
				SAT	11/18/2021 7:11:45PM	Nights
				SAT	11/19/2021 7:14:36AM	Days
				SAT	11/19/2021 7:28:46PM	Nights
				SAT	11/20/2021 7:25:31AM	Days
				SAT	11/20/2021 7:25:20PM	Nights
				SAT	11/21/2021 7:20:36AM	Days
				SAT	11/21/2021 7:27:06PM	Nights
				SAT	11/22/2021 7:23:44AM	Days
				SAT	11/22/2021 7:19:48PM	Nights
				SAT	11/23/2021 7:24:05AM	Days
				SAT	11/23/2021 7:22:00PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	11/24/2021 7:25:43AM	Days
				SAT	11/24/2021 7:28:40PM	Nights
				SAT	11/25/2021 7:30:37AM	Days
				SAT	11/25/2021 7:28:00PM	Nights
				SAT	11/26/2021 7:26:10AM	Days
				SAT	11/26/2021 7:07:35PM	Nights
				SAT	11/27/2021 7:27:52AM	Days
				SAT	11/27/2021 7:20:22PM	Nights
				SAT	11/28/2021 7:13:11AM	Days
				SAT	11/28/2021 7:20:10PM	Nights
				SAT	11/29/2021 7:26:26AM	Days
				SAT	11/29/2021 7:26:02PM	Nights
				SAT	11/30/2021 7:28:57AM	Days
				SAT	11/30/2021 7:30:52PM	Nights
				SAT	12/1/2021 7:26:08AM	Days
				SAT	12/1/2021 7:22:24PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area re-circulation fan/plenum (PDT-836 or PDT-837)						
	.050			SAT	11/8/2021 11:04:06AM	Days
	.050			SAT	11/8/2021 7:20:10PM	Nights
	.050			SAT	11/9/2021 7:17:08AM	Days
	.050			SAT	11/9/2021 7:20:11PM	Nights
	.050			SAT	11/10/2021 7:27:24AM	Days
	.050			SAT	11/10/2021 7:23:10PM	Nights
	.050			SAT	11/11/2021 7:28:16AM	Days
	.050			SAT	11/11/2021 7:20:22PM	Nights
	.050			SAT	11/12/2021 7:12:07AM	Days
	.050			SAT	11/12/2021 7:12:06PM	Nights
	.050				11/13/2021 7:21:53AM	Days
	.050			SAT	11/13/2021 7:06:00PM	Nights
	.050			SAT	11/14/2021 7:17:34AM	Days
	.050			SAT	11/14/2021 7:17:19PM	Nights
	.050			SAT	11/15/2021 7:30:52AM	Days
	.050			SAT	11/15/2021 7:26:11PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area re-circulation fan/plenum (PDT-836 or PDT-837)						
	.050			SAT	11/16/2021 7:25:18AM	Days
	.050			SAT	11/16/2021 7:24:40PM	Nights
	.050			SAT	11/17/2021 7:23:17AM	Days
	.050			SAT	11/17/2021 7:24:03PM	Nights
	.050			SAT	11/18/2021 7:16:47AM	Days
	.050			SAT	11/18/2021 7:11:35PM	Nights
	.050			SAT	11/19/2021 7:14:21AM	Days
	.050			SAT	11/19/2021 7:28:31PM	Nights
	.050			SAT	11/20/2021 7:25:15AM	Days
	.050			SAT	11/20/2021 7:25:04PM	Nights
	.050			SAT	11/21/2021 7:20:20AM	Days
	.050			SAT	11/21/2021 7:26:37PM	Nights
	.050			SAT	11/22/2021 7:23:32AM	Days
	.050			SAT	11/22/2021 7:19:29PM	Nights
	.050			SAT	11/23/2021 7:23:45AM	Days
	.050			SAT	11/23/2021 7:21:33PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area re-circulation fan/plenum (PDT-836 or PDT-837)						
	.050			SAT	11/24/2021 7:25:25AM	Days
	.050			SAT	11/24/2021 7:28:17PM	Nights
	.050			SAT	11/25/2021 7:30:54AM	Days
	.050			SAT	11/25/2021 7:27:46PM	Nights
	.050			SAT	11/26/2021 7:26:00AM	Days
	.050			SAT	11/26/2021 7:07:12PM	Nights
	.050			SAT	11/27/2021 7:27:35AM	Days
	.050			SAT	11/27/2021 7:20:07PM	Nights
	.050			SAT	11/28/2021 7:13:02AM	Days
	.050			SAT	11/28/2021 7:19:37PM	Nights
	.050			SAT	11/29/2021 7:26:02AM	Days
	.050			SAT	11/29/2021 7:25:42PM	Nights
	.050			SAT	11/30/2021 7:28:43AM	Days
	.050			SAT	11/30/2021 7:30:32PM	Nights
	.050			SAT	12/1/2021 7:25:54AM	Days
	.050			SAT	12/1/2021 7:21:56PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	11/8/2021 11:04:34AM	Days
				SAT	11/8/2021 7:20:28PM	Nights
				SAT	11/9/2021 7:17:23AM	Days
				SAT	11/9/2021 7:20:24PM	Nights
				SAT	11/10/2021 7:27:41AM	Days
				SAT	11/10/2021 7:23:57PM	Nights
				SAT	11/11/2021 7:28:41AM	Days
				SAT	11/11/2021 7:20:38PM	Nights
				SAT	11/12/2021 7:13:04AM	Days
				SAT	11/12/2021 7:12:39PM	Nights
				SAT	11/13/2021 7:24:57AM	Days
				SAT	11/13/2021 7:06:24PM	Nights
				SAT	11/14/2021 7:18:13AM	Days
				SAT	11/14/2021 7:18:02PM	Nights
				SAT	11/15/2021 7:31:08AM	Days
				SAT	11/15/2021 7:26:31PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	11/16/2021 7:25:36AM	Days
				SAT	11/16/2021 7:25:02PM	Nights
				SAT	11/17/2021 7:23:40AM	Days
				SAT	11/17/2021 7:24:17PM	Nights
				SAT	11/18/2021 7:17:28AM	Days
				SAT	11/18/2021 7:11:50PM	Nights
				SAT	11/19/2021 7:14:39AM	Days
				SAT	11/19/2021 7:28:49PM	Nights
				SAT	11/20/2021 7:25:34AM	Days
				SAT	11/20/2021 7:25:23PM	Nights
				SAT	11/21/2021 7:20:39AM	Days
				SAT	11/21/2021 7:27:10PM	Nights
				SAT	11/22/2021 7:23:47AM	Days
				SAT	11/22/2021 7:19:52PM	Nights
				SAT	11/23/2021 7:24:21AM	Days
				SAT	11/23/2021 7:27:15PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	11/24/2021 7:25:46AM	Days
				SAT	11/24/2021 7:28:45PM	Nights
				SAT	11/25/2021 7:30:43AM	Days
				SAT	11/25/2021 7:28:04PM	Nights
				SAT	11/26/2021 7:26:30AM	Days
				SAT	11/26/2021 7:07:45PM	Nights
				SAT	11/27/2021 7:28:15AM	Days
				SAT	11/27/2021 7:20:30PM	Nights
				SAT	11/28/2021 7:13:14AM	Days
				SAT	11/28/2021 7:19:58PM	Nights
				SAT	11/29/2021 7:26:29AM	Days
				SAT	11/29/2021 7:26:07PM	Nights
				SAT	11/30/2021 7:28:59AM	Days
				SAT	11/30/2021 7:30:55PM	Nights
				SAT	12/1/2021 7:26:35AM	Days
				SAT	12/1/2021 7:22:32PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: South Basement delta P (PDI-854-1 or PDI-854-2)						
		0.00		-.09	11/8/2021 11:03:48AM	Days
		0.00		-.09	11/8/2021 7:19:45PM	Nights
		0.00		-0.09	11/9/2021 7:16:42AM	Days
		0.00		-.10	11/9/2021 7:19:58PM	Nights
		0.00		-.09	11/10/2021 7:26:57AM	Days
		0.00		-0.10	11/10/2021 7:19:10PM	Nights
		0.00		-.09	11/11/2021 7:27:33AM	Days
		0.00		-0.09	11/11/2021 7:18:23PM	Nights
		0.00		-0.09	11/12/2021 7:11:27AM	Days
		0.00		-0.09	11/12/2021 7:11:21PM	Nights
		0.00		-.09	11/13/2021 7:23:53AM	Days
		0.00		-0.09	11/13/2021 7:05:17PM	Nights
		0.00		-0.09	11/14/2021 7:16:48AM	Days
		0.00		-.09	11/14/2021 7:16:43PM	Nights
		0.00		-0.09	11/15/2021 7:29:52AM	Days
		0.00		-.09	11/15/2021 7:25:41PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: South Basement delta P (PDI-854-1 or PDI-854-2)						
		0.00		-0.10	11/16/2021 7:24:50AM	Days
		0.00		-.09	11/16/2021 7:24:13PM	Nights
		0.00		-0.09	11/17/2021 7:22:41AM	Days
		0.00		-.09	11/17/2021 7:23:32PM	Nights
		0.00		-0.09	11/18/2021 7:16:03AM	Days
		0.00		-.09	11/18/2021 7:11:05PM	Nights
		0.00		-0.09	11/19/2021 7:13:37AM	Days
		0.00		-.09	11/19/2021 7:28:01PM	Nights
		0.00		-0.09	11/20/2021 7:24:44AM	Days
		0.00		-.09	11/20/2021 7:24:39PM	Nights
		0.00		-0.09	11/21/2021 7:19:48AM	Days
		0.00		-.09	11/21/2021 7:25:51PM	Nights
		0.00		-.09	11/22/2021 7:23:13AM	Days
		0.00		-0.09	11/22/2021 7:18:40PM	Nights
		0.00		-0.09	11/23/2021 7:22:41AM	Days
		0.00		-.09	11/23/2021 7:16:46PM	Nights

Tour: Shiftly Rounds

Readings from 11/1/2021 to 12/1/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: South Basement delta P (PDI-854-1 or PDI-854-2)						
		0.00		-0.09	11/24/2021 7:24:53AM	Days
		0.00		-.09	11/24/2021 7:27:55PM	Nights
		0.00		-0.09	11/25/2021 7:30:01AM	Days
		0.00		-.09	11/25/2021 7:27:21PM	Nights
		0.00		-0.09	11/26/2021 7:25:20AM	Days
		0.00		-.09	11/26/2021 7:06:33PM	Nights
		0.00		-0.09	11/27/2021 7:26:58AM	Days
		0.00		-.09	11/27/2021 7:19:26PM	Nights
		0.00		-.09	11/28/2021 7:12:44AM	Days
		0.00		-.09	11/28/2021 7:19:24PM	Nights
		0.00		-0.09	11/29/2021 7:23:45AM	Days
		0.00		-.09	11/29/2021 7:25:07PM	Nights
		0.00		-0.09	11/30/2021 7:29:14AM	Days
		0.00		-.09	11/30/2021 7:29:26PM	Nights
		0.00		-0.09	12/1/2021 7:25:38AM	Days
		0.00		-0.09	12/1/2021 7:21:05PM	Nights

Tour Readings

Facility-FO01 1/5/2022

Sorted by Station, Equipment, Date, Shift

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area glovebox exhaust header delta P (PDI-814-1 or PI						
		-1.5		-2.01	12/1/2021 7:24:27AM	Days
		-1.5		-2.01	12/1/2021 7:19:10PM	Nights
		-1.5		-2.01	12/2/2021 7:24:40AM	Days
		-1.5		-2.00	12/2/2021 7:21:44PM	Nights
		-1.5		-2.00	12/3/2021 7:22:16AM	Days
		-1.5		-2.00	12/3/2021 7:25:21PM	Nights
		-1.5		-2.00	12/4/2021 7:39:54AM	Days
		-1.5		-2.01	12/4/2021 7:24:45PM	Nights
		-1.5		-2.01	12/5/2021 7:26:06AM	Days
		-1.5		-2.00	12/5/2021 7:26:25PM	Nights
		-1.5		-2.01	12/6/2021 7:26:44AM	Days
		-1.5		-2.00	12/6/2021 7:07:52PM	Nights
		-1.5		-2.01	12/7/2021 7:16:15AM	Days
		-1.5		-2.01	12/7/2021 7:19:49PM	Nights
		-1.5		-2.00	12/8/2021 7:18:18AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area glovebox exhaust header delta P (PDI-814-1 or Pl						
		-1.5		-2.00	12/8/2021 7:13:30PM	Nights
		-1.5		-2.01	12/9/2021 7:45:55AM	Days
		-1.5		-2.01	12/9/2021 7:41:35PM	Nights
		-1.5		-2.01	12/10/2021 7:19:38AM	Days
		-1.5		-2.01	12/10/2021 7:19:01PM	Nights
		-1.5		-2.01	12/11/2021 7:16:58AM	Days
		-1.5		-2.01	12/11/2021 7:18:09PM	Nights
		-1.5		-2.00	12/12/2021 7:17:56AM	Days
		-1.5		-2.00	12/12/2021 7:21:41PM	Nights
		-1.5		-2.01	12/13/2021 7:27:15AM	Days
		-1.5		-2.00	12/13/2021 7:10:59PM	Nights
		-1.5		-2.01	12/14/2021 7:31:34AM	Days
		-1.5		-2.01	12/14/2021 7:26:16PM	Nights
		-1.5		-1.98	12/15/2021 7:31:14AM	Days
		-1.5		-2.00	12/15/2021 7:23:33PM	Nights
		-1.5		-2.00	12/16/2021 7:21:21AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area glovebox exhaust header delta P (PDI-814-1 or PI						
		-1.5		-2.01	12/16/2021 7:05:05PM	Nights
		-1.5		-2.01	12/17/2021 7:26:40AM	Days
		-1.5		-2.00	12/17/2021 7:16:50PM	Nights
		-1.5		-2.01	12/18/2021 7:25:14AM	Days
		-1.5		-2.01	12/18/2021 7:11:23PM	Nights
		-1.5		-2.00	12/19/2021 7:23:32AM	Days
		-1.5		-2.00	12/19/2021 7:21:07PM	Nights
		-1.5		-2.00	12/20/2021 7:42:05AM	Days
		-1.5		-2.01	12/20/2021 7:18:26PM	Nights
		-1.5		-2.00	12/21/2021 7:30:14AM	Days
		-1.5		-2.01	12/21/2021 7:11:00PM	Nights
		-1.5		-2.00	12/22/2021 7:25:16AM	Days
		-1.5		-2.00	12/22/2021 7:19:57PM	Nights
		-1.5		-2.01	12/23/2021 7:30:52AM	Days
		-1.5		-2.00	12/23/2021 7:21:43PM	Nights
		-1.5		-2.01	12/24/2021 7:27:15AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area glovebox exhaust header delta P (PDI-814-1 or Pl						
		-1.5		-2.00	12/24/2021 7:15:15PM	Nights
		-1.5		-2.00	12/25/2021 7:23:43AM	Days
		-1.5		-2.00	12/25/2021 7:09:01PM	Nights
		-1.5		-2.00	12/26/2021 7:26:16AM	Days
		-1.5		-2.00	12/26/2021 7:12:29PM	Nights
		-1.5		-2.00	12/27/2021 7:23:03AM	Days
		-1.5		-2.01	12/27/2021 7:11:38PM	Nights
		-1.5		-2.00	12/28/2021 7:26:33AM	Days
		-1.5		-2.01	12/28/2021 7:04:50PM	Nights
		-1.5		-2.00	12/29/2021 7:17:18AM	Days
		-1.5		-2.01	12/29/2021 7:21:34PM	Nights
		-1.5		-2.01	12/30/2021 7:11:52AM	Days
		-1.5		-2.00	12/30/2021 7:15:16PM	Nights
		-1.5		-2.01	12/31/2021 7:27:28AM	Days
		-1.5		-2.01	12/31/2021 7:22:44PM	Nights
HVAC: 100 area glovebox exhaust header delta P (PDI-820-1 or Pl						

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area glovebox exhaust header delta P (PDI-820-1 or PI						
		-1.5		-1.93	12/1/2021 7:24:32AM	Days
		-1.5		-1.92	12/1/2021 7:19:19PM	Nights
		-1.5		-1.92	12/2/2021 7:24:46AM	Days
		-1.5		-1.92	12/2/2021 7:21:53PM	Nights
		-1.5		-1.93	12/3/2021 7:22:22AM	Days
		-1.5		-1.92	12/3/2021 7:25:28PM	Nights
		-1.5		-1.92	12/4/2021 7:39:59AM	Days
		-1.5		-1.92	12/4/2021 7:24:52PM	Nights
		-1.5		-1.93	12/5/2021 7:26:11AM	Days
		-1.5		-1.92	12/5/2021 7:26:31PM	Nights
		-1.5		-1.93	12/6/2021 7:26:49AM	Days
		-1.5		-1.93	12/6/2021 7:07:57PM	Nights
		-1.5		-1.92	12/7/2021 7:16:20AM	Days
		-1.5		-1.92	12/7/2021 7:19:56PM	Nights
		-1.5		-1.92	12/8/2021 7:18:23AM	Days
		-1.5		-1.92	12/8/2021 7:13:34PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area glovebox exhaust header delta P (PDI-820-1 or PI						
		-1.5		-1.92	12/9/2021 7:45:58AM	Days
		-1.5		-1.91	12/9/2021 7:41:43PM	Nights
		-1.5		-1.92	12/10/2021 7:19:44AM	Days
		-1.5		-1.93	12/10/2021 7:19:06PM	Nights
		-1.5		-1.92	12/11/2021 7:17:02AM	Days
		-1.5		-1.92	12/11/2021 7:18:20PM	Nights
		-1.5		-1.92	12/12/2021 7:18:02AM	Days
		-1.5		-1.92	12/12/2021 7:21:47PM	Nights
		-1.5		-1.93	12/13/2021 7:27:21AM	Days
		-1.5		-1.93	12/13/2021 7:11:05PM	Nights
		-1.5		-1.92	12/14/2021 7:31:47AM	Days
		-1.5		-1.92	12/14/2021 7:26:20PM	Nights
		-1.5		-1.92	12/15/2021 7:31:19AM	Days
		-1.5		-1.93	12/15/2021 7:23:39PM	Nights
		-1.5		-1.92	12/16/2021 7:21:29AM	Days
		-1.5		-1.92	12/16/2021 7:05:08PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area glovebox exhaust header delta P (PDI-820-1 or PI						
		-1.5		-1.92	12/17/2021 7:26:46AM	Days
		-1.5		-1.92	12/17/2021 7:16:56PM	Nights
		-1.5		-1.93	12/18/2021 7:25:21AM	Days
		-1.5		-1.92	12/18/2021 7:11:32PM	Nights
		-1.5		-1.92	12/19/2021 7:23:38AM	Days
		-1.5		-1.92	12/19/2021 7:21:17PM	Nights
		-1.5		-1.92	12/20/2021 7:42:09AM	Days
		-1.5		-1.92	12/20/2021 7:18:31PM	Nights
		-1.5		-1.92	12/21/2021 7:30:19AM	Days
		-1.5		-1.93	12/21/2021 7:11:04PM	Nights
		-1.5		-1.92	12/22/2021 7:25:25AM	Days
		-1.5		-1.92	12/22/2021 7:20:04PM	Nights
		-1.5		-1.92	12/23/2021 7:31:02AM	Days
		-1.5		-1.92	12/23/2021 7:21:46PM	Nights
		-1.5		-1.92	12/24/2021 7:27:20AM	Days
		-1.5		-1.92	12/24/2021 7:15:21PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area glovebox exhaust header delta P (PDI-820-1 or Pl						
		-1.5		-1.92	12/25/2021 7:23:49AM	Days
		-1.5		-1.92	12/25/2021 7:09:04PM	Nights
		-1.5		-1.92	12/26/2021 7:26:38AM	Days
		-1.5		-1.92	12/26/2021 7:12:32PM	Nights
		-1.5		-1.92	12/27/2021 7:23:23AM	Days
		-1.5		-1.93	12/27/2021 7:11:44PM	Nights
		-1.5		-1.92	12/28/2021 7:26:39AM	Days
		-1.5		-1.92	12/28/2021 7:05:07PM	Nights
		-1.5		-1.92	12/29/2021 7:17:22AM	Days
		-1.5		-1.93	12/29/2021 7:21:40PM	Nights
		-1.5		-1.92	12/30/2021 7:11:55AM	Days
		-1.5		-1.92	12/30/2021 7:15:25PM	Nights
		-1.5		-1.93	12/31/2021 7:27:34AM	Days
		-1.5		-1.92	12/31/2021 7:22:52PM	Nights
HVAC: 300 area glovebox exhaust header delta P (PDI-870-1 or Pl						
		-1.5		-1.96	12/1/2021 7:24:37AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area glovebox exhaust header delta P (PDI-870-1 or PI						
		-1.5		-1.96	12/1/2021 7:19:26PM	Nights
		-1.5		-1.96	12/2/2021 7:24:50AM	Days
		-1.5		-1.96	12/2/2021 7:21:58PM	Nights
		-1.5		-1.97	12/3/2021 7:22:27AM	Days
		-1.5		-1.97	12/3/2021 7:25:36PM	Nights
		-1.5		-1.96	12/4/2021 7:40:05AM	Days
		-1.5		-1.96	12/4/2021 7:25:05PM	Nights
		-1.5		-1.96	12/5/2021 7:26:15AM	Days
		-1.5		-1.96	12/5/2021 7:26:37PM	Nights
		-1.5		-1.97	12/6/2021 7:26:54AM	Days
		-1.5		-1.96	12/6/2021 7:08:04PM	Nights
		-1.5		-1.96	12/7/2021 7:16:25AM	Days
		-1.5		-1.96	12/7/2021 7:20:01PM	Nights
		-1.5		-1.97	12/8/2021 7:18:28AM	Days
		-1.5		-1.97	12/8/2021 7:13:39PM	Nights
		-1.5		-1.98	12/9/2021 7:46:02AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area glovebox exhaust header delta P (PDI-870-1 or PI						
		-1.5		-1.96	12/9/2021 7:41:51PM	Nights
		-1.5		-1.96	12/10/2021 7:19:47AM	Days
		-1.5		-1.96	12/10/2021 7:19:14PM	Nights
		-1.5		-1.97	12/11/2021 7:17:07AM	Days
		-1.5		-1.97	12/11/2021 7:18:26PM	Nights
		-1.5		-1.97	12/12/2021 7:18:06AM	Days
		-1.5		-1.97	12/12/2021 7:21:53PM	Nights
		-1.5		-1.97	12/13/2021 7:27:29AM	Days
		-1.5		-1.97	12/13/2021 7:11:12PM	Nights
		-1.5		-1.96	12/14/2021 7:31:57AM	Days
		-1.5		-1.98	12/14/2021 7:26:29PM	Nights
		-1.5		-1.97	12/15/2021 7:31:23AM	Days
		-1.5		-1.96	12/15/2021 7:23:49PM	Nights
		-1.5		-1.97	12/16/2021 7:21:44AM	Days
		-1.5		-1.96	12/16/2021 7:05:13PM	Nights
		-1.5		-1.96	12/17/2021 7:26:52AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area glovebox exhaust header delta P (PDI-870-1 or PI						
		-1.5		-1.96	12/17/2021 7:17:01PM	Nights
		-1.5		-1.96	12/18/2021 7:25:27AM	Days
		-1.5		-1.96	12/18/2021 7:11:38PM	Nights
		-1.5		-1.96	12/19/2021 7:23:45AM	Days
		-1.5		-1.96	12/19/2021 7:21:23PM	Nights
		-1.5		-1.96	12/20/2021 7:42:15AM	Days
		-1.5		-1.96	12/20/2021 7:18:37PM	Nights
		-1.5		-1.96	12/21/2021 7:30:26AM	Days
		-1.5		-1.96	12/21/2021 7:11:10PM	Nights
		-1.5		-1.96	12/22/2021 7:25:33AM	Days
		-1.5		-1.97	12/22/2021 7:20:08PM	Nights
		-1.5		-1.97	12/23/2021 7:31:08AM	Days
		-1.5		-1.97	12/23/2021 7:21:49PM	Nights
		-1.5		-1.96	12/24/2021 7:27:24AM	Days
		-1.5		-1.96	12/24/2021 7:15:35PM	Nights
		-1.5		-1.96	12/25/2021 7:23:55AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area glovebox exhaust header delta P (PDI-870-1 or PI						
		-1.5		-1.96	12/25/2021 7:09:14PM	Nights
		-1.5		-1.96	12/26/2021 7:26:46AM	Days
		-1.5		-1.96	12/26/2021 7:12:39PM	Nights
		-1.5		-1.96	12/27/2021 7:23:30AM	Days
		-1.5		-1.97	12/27/2021 7:11:47PM	Nights
		-1.5		-1.96	12/28/2021 7:26:47AM	Days
		-1.5		-1.97	12/28/2021 7:05:58PM	Nights
		-1.5		-1.97	12/29/2021 7:17:31AM	Days
		-1.5		-1.97	12/29/2021 7:21:51PM	Nights
		-1.5		-1.97	12/30/2021 7:12:01AM	Days
		-1.5		-1.97	12/30/2021 7:15:32PM	Nights
		-1.5		-1.97	12/31/2021 7:27:39AM	Days
		-1.5		-1.97	12/31/2021 7:22:58PM	Nights
HVAC: 400 area glovebox exhaust header delta P (PDI-864-1 or PI						
		-1.5		-1.97	12/1/2021 7:24:43AM	Days
		-1.5		-1.99	12/1/2021 7:20:06PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area glovebox exhaust header delta P (PDI-864-1 or PI						
		-1.5		-1.98	12/2/2021 7:24:55AM	Days
		-1.5		-1.98	12/2/2021 7:22:05PM	Nights
		-1.5		-1.98	12/3/2021 7:22:35AM	Days
		-1.5		-1.98	12/3/2021 7:25:44PM	Nights
		-1.5		-1.98	12/4/2021 7:40:15AM	Days
		-1.5		-1.98	12/4/2021 7:25:21PM	Nights
		-1.5		-1.98	12/5/2021 7:26:21AM	Days
		-1.5		-1.98	12/5/2021 7:26:44PM	Nights
		-1.5		-1.99	12/6/2021 7:26:58AM	Days
		-1.5		-1.98	12/6/2021 7:08:10PM	Nights
		-1.5		-1.98	12/7/2021 7:16:29AM	Days
		-1.5		-1.98	12/7/2021 7:20:11PM	Nights
		-1.5		-1.98	12/8/2021 7:18:35AM	Days
		-1.5		-1.98	12/8/2021 7:13:44PM	Nights
		-1.5		-1.99	12/9/2021 7:46:04AM	Days
		-1.5		-1.98	12/9/2021 7:41:59PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area glovebox exhaust header delta P (PDI-864-1 or PI						
		-1.5		-1.98	12/10/2021 7:19:54AM	Days
		-1.5		-1.98	12/10/2021 7:19:21PM	Nights
		-1.5		-1.98	12/11/2021 7:17:18AM	Days
		-1.5		-1.98	12/11/2021 7:18:34PM	Nights
		-1.5		-1.98	12/12/2021 7:18:13AM	Days
		-1.5		-1.98	12/12/2021 7:22:01PM	Nights
		-1.5		-1.98	12/13/2021 7:27:35AM	Days
		-1.5		-1.99	12/13/2021 7:11:23PM	Nights
		-1.5		-1.98	12/14/2021 7:32:09AM	Days
		-1.5		-1.98	12/14/2021 7:26:34PM	Nights
		-1.5		-1.98	12/15/2021 7:31:30AM	Days
		-1.5		-1.99	12/15/2021 7:23:54PM	Nights
		-1.5		-1.98	12/16/2021 7:21:58AM	Days
		-1.5		-1.99	12/16/2021 7:05:18PM	Nights
		-1.5		-1.98	12/17/2021 7:27:00AM	Days
		-1.5		-1.98	12/17/2021 7:17:07PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area glovebox exhaust header delta P (PDI-864-1 or PI						
		-1.5		-1.98	12/18/2021 7:25:33AM	Days
		-1.5		-1.99	12/18/2021 7:11:47PM	Nights
		-1.5		-1.98	12/19/2021 7:23:56AM	Days
		-1.5		-1.98	12/19/2021 7:21:31PM	Nights
		-1.5		-1.98	12/20/2021 7:42:19AM	Days
		-1.5		-1.98	12/20/2021 7:18:44PM	Nights
		-1.5		-1.98	12/21/2021 7:30:30AM	Days
		-1.5		-1.98	12/21/2021 7:11:14PM	Nights
		-1.5		-1.98	12/22/2021 7:25:41AM	Days
		-1.5		-1.98	12/22/2021 7:20:14PM	Nights
		-1.5		-1.98	12/23/2021 7:31:15AM	Days
		-1.5		-1.98	12/23/2021 7:21:53PM	Nights
		-1.5		-1.98	12/24/2021 7:27:29AM	Days
		-1.5		-1.99	12/24/2021 7:15:39PM	Nights
		-1.5		-1.99	12/25/2021 7:24:00AM	Days
		-1.5		-1.98	12/25/2021 7:09:17PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area glovebox exhaust header delta P (PDI-864-1 or PI						
		-1.5		-1.99	12/26/2021 7:26:54AM	Days
		-1.5		-1.98	12/26/2021 7:12:44PM	Nights
		-1.5		-1.98	12/27/2021 7:23:41AM	Days
		-1.5		-1.98	12/27/2021 7:11:52PM	Nights
		-1.5		-1.98	12/28/2021 7:26:54AM	Days
		-1.5		-1.98	12/28/2021 7:06:04PM	Nights
		-1.5		-1.98	12/29/2021 7:17:42AM	Days
		-1.5		-1.98	12/29/2021 7:21:57PM	Nights
		-1.5		-1.98	12/30/2021 7:12:09AM	Days
		-1.5		-1.98	12/30/2021 7:15:42PM	Nights
		-1.5		-1.98	12/31/2021 7:27:43AM	Days
		-1.5		-1.98	12/31/2021 7:23:07PM	Nights
HVAC: 200 area laboratory header delta P (PDI-803-1 or PDI-803-2						
		-0.05		-0.19	12/1/2021 7:24:48AM	Days
		-0.05		-0.19	12/1/2021 7:20:14PM	Nights
		-0.05		-.18	12/2/2021 7:25:01AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area laboratory header delta P (PDI-803-1 or PDI-803-2						
		-0.05		-0.19	12/2/2021 7:22:10PM	Nights
		-0.05		-0.19	12/3/2021 7:22:57AM	Days
		-0.05		-0.19	12/3/2021 7:25:53PM	Nights
		-0.05		-0.18	12/4/2021 7:40:28AM	Days
		-0.05		-.19	12/4/2021 7:25:27PM	Nights
		-0.05		-0.19	12/5/2021 7:26:26AM	Days
		-0.05		-.19	12/5/2021 7:26:49PM	Nights
		-0.05		-.18	12/6/2021 7:27:02AM	Days
		-0.05		-.18	12/6/2021 7:08:15PM	Nights
		-0.05		-.18	12/7/2021 7:16:34AM	Days
		-0.05		-.19	12/7/2021 7:20:15PM	Nights
		-0.05		-0.18	12/8/2021 7:18:40AM	Days
		-0.05		-.18	12/8/2021 7:13:50PM	Nights
		-0.05		-0.18	12/9/2021 7:46:08AM	Days
		-0.05		-0.20	12/9/2021 7:42:06PM	Nights
		-0.05		-0.17	12/10/2021 7:20:02AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area laboratory header delta P (PDI-803-1 or PDI-803-2						
		-0.05		-0.18	12/10/2021 7:19:26PM	Nights
		-0.05		-.18	12/11/2021 7:17:23AM	Days
		-0.05		-.18	12/11/2021 7:18:39PM	Nights
		-0.05		-0.18	12/12/2021 7:18:18AM	Days
		-0.05		-.18	12/12/2021 7:22:07PM	Nights
		-0.05		-.18	12/13/2021 7:27:42AM	Days
		-0.05		-0.18	12/13/2021 7:11:29PM	Nights
		-0.05		-0.19	12/14/2021 7:32:27AM	Days
		-0.05		-0.18	12/14/2021 7:26:39PM	Nights
		-0.05		-.17	12/15/2021 7:31:37AM	Days
		-0.05		-.18	12/15/2021 7:24:00PM	Nights
		-0.05		-0.18	12/16/2021 7:23:21AM	Days
		-0.05		-0.19	12/16/2021 7:05:23PM	Nights
		-0.05		-.19	12/17/2021 7:27:07AM	Days
		-0.05		-0.18	12/17/2021 7:17:14PM	Nights
		-0.05		-.18	12/18/2021 7:25:39AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area laboratory header delta P (PDI-803-1 or PDI-803-2						
		-0.05		-0.18	12/18/2021 7:12:13PM	Nights
		-0.05		-.18	12/19/2021 7:24:01AM	Days
		-0.05		-0.18	12/19/2021 7:21:45PM	Nights
		-0.05		-.18	12/20/2021 7:42:22AM	Days
		-0.05		-.18	12/20/2021 7:18:48PM	Nights
		-0.05		-.18	12/21/2021 7:30:36AM	Days
		-0.05		-.19	12/21/2021 7:11:19PM	Nights
		-0.05		-0.19	12/22/2021 7:25:50AM	Days
		-0.05		-0.18	12/22/2021 7:20:19PM	Nights
		-0.05		-0.18	12/23/2021 7:31:21AM	Days
		-0.05		-0.19	12/23/2021 7:21:58PM	Nights
		-0.05		-.19	12/24/2021 7:27:33AM	Days
		-0.05		-.18	12/24/2021 7:15:44PM	Nights
		-0.05		-.19	12/25/2021 7:24:04AM	Days
		-0.05		-.18	12/25/2021 7:09:24PM	Nights
		-0.05		-0.19	12/26/2021 7:27:00AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area laboratory header delta P (PDI-803-1 or PDI-803-2						
		-0.05		-.19	12/26/2021 7:12:49PM	Nights
		-0.05		-0.18	12/27/2021 7:23:47AM	Days
		-0.05		-0.18	12/27/2021 7:11:58PM	Nights
		-0.05		-.19	12/28/2021 7:26:58AM	Days
		-0.05		-0.18	12/28/2021 7:06:12PM	Nights
		-0.05		-0.19	12/29/2021 7:18:03AM	Days
		-0.05		-0.18	12/29/2021 7:22:24PM	Nights
		-0.05		-0.18	12/30/2021 7:12:15AM	Days
		-0.05		-0.18	12/30/2021 7:15:55PM	Nights
		-0.05		-.18	12/31/2021 7:27:47AM	Days
		-0.05		-0.18	12/31/2021 7:23:18PM	Nights
HVAC: 100 area laboratory header delta P (PDI-802-1 or PDI-802-2						
		-0.05		-0.24	12/1/2021 7:24:52AM	Days
		-0.05		-0.24	12/1/2021 7:20:20PM	Nights
		-0.05		-.24	12/2/2021 7:25:08AM	Days
		-0.05		-0.24	12/2/2021 7:22:17PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area laboratory header delta P (PDI-802-1 or PDI-802-2						
		-0.05		-0.24	12/3/2021 7:23:04AM	Days
		-0.05		-0.25	12/3/2021 7:26:00PM	Nights
		-0.05		-0.24	12/4/2021 7:40:35AM	Days
		-0.05		-.24	12/4/2021 7:25:33PM	Nights
		-0.05		-0.24	12/5/2021 7:26:32AM	Days
		-0.05		-.25	12/5/2021 7:26:55PM	Nights
		-0.05		-.24	12/6/2021 7:27:07AM	Days
		-0.05		-.24	12/6/2021 7:08:22PM	Nights
		-0.05		-.23	12/7/2021 7:16:38AM	Days
		-0.05		-.25	12/7/2021 7:20:20PM	Nights
		-0.05		-0.23	12/8/2021 7:18:47AM	Days
		-0.05		-.23	12/8/2021 7:13:56PM	Nights
		-0.05		-0.24	12/9/2021 7:46:11AM	Days
		-0.05		-0.25	12/9/2021 7:42:12PM	Nights
		-0.05		-0.23	12/10/2021 7:20:08AM	Days
		-0.05		-0.23	12/10/2021 7:19:32PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area laboratory header delta P (PDI-802-1 or PDI-802-2						
		-0.05		-.24	12/11/2021 7:17:29AM	Days
		-0.05		-.24	12/11/2021 7:18:45PM	Nights
		-0.05		-0.24	12/12/2021 7:18:25AM	Days
		-0.05		-.24	12/12/2021 7:22:13PM	Nights
		-0.05		-.24	12/13/2021 7:27:49AM	Days
		-0.05		-0.24	12/13/2021 7:11:36PM	Nights
		-0.05		-0.24	12/14/2021 7:32:36AM	Days
		-0.05		-0.24	12/14/2021 7:26:43PM	Nights
		-0.05		-.34	12/15/2021 7:31:41AM	Days
		-0.05		-.24	12/15/2021 7:24:08PM	Nights
		-0.05		-0.24	12/16/2021 7:23:25AM	Days
		-0.05		-0.24	12/16/2021 7:05:32PM	Nights
		-0.05		-.24	12/17/2021 7:27:12AM	Days
		-0.05		-0.24	12/17/2021 7:17:46PM	Nights
		-0.05		-.24	12/18/2021 7:25:44AM	Days
		-0.05		-0.24	12/18/2021 7:12:19PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area laboratory header delta P (PDI-802-1 or PDI-802-2						
		-0.05		-.24	12/19/2021 7:24:07AM	Days
		-0.05		-0.24	12/19/2021 7:21:52PM	Nights
		-0.05		-.24	12/20/2021 7:42:29AM	Days
		-0.05		-.23	12/20/2021 7:18:55PM	Nights
		-0.05		-.23	12/21/2021 7:30:40AM	Days
		-0.05		-.23	12/21/2021 7:11:24PM	Nights
		-0.05		-0.25	12/22/2021 7:25:55AM	Days
		-0.05		-0.24	12/22/2021 7:20:26PM	Nights
		-0.05		-0.24	12/23/2021 7:31:28AM	Days
		-0.05		-0.25	12/23/2021 7:22:01PM	Nights
		-0.05		-.25	12/24/2021 7:27:37AM	Days
		-0.05		-.23	12/24/2021 7:15:48PM	Nights
		-0.05		-.25	12/25/2021 7:24:09AM	Days
		-0.05		-.24	12/25/2021 7:09:42PM	Nights
		-0.05		-0.24	12/26/2021 7:27:05AM	Days
		-0.05		-.25	12/26/2021 7:12:54PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area laboratory header delta P (PDI-802-1 or PDI-802-2						
		-0.05		-0.24	12/27/2021 7:23:52AM	Days
		-0.05		-0.23	12/27/2021 7:12:06PM	Nights
		-0.05		-.24	12/28/2021 7:27:02AM	Days
		-0.05		-0.24	12/28/2021 7:06:16PM	Nights
		-0.05		-0.24	12/29/2021 7:18:09AM	Days
		-0.05		-0.24	12/29/2021 7:22:33PM	Nights
		-0.05		-0.24	12/30/2021 7:12:25AM	Days
		-0.05		-0.24	12/30/2021 7:16:05PM	Nights
		-0.05		-.24	12/31/2021 7:27:55AM	Days
		-0.05		-0.24	12/31/2021 7:23:26PM	Nights
HVAC: 300 area laboratory header delta P (PDI-853-1 or PDI-853-2						
		-0.05		-0.20	12/1/2021 7:24:57AM	Days
		-0.05		-0.20	12/1/2021 7:20:28PM	Nights
		-0.05		-.20	12/2/2021 7:25:17AM	Days
		-0.05		-0.18	12/2/2021 7:22:22PM	Nights
		-0.05		-0.20	12/3/2021 7:23:12AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area laboratory header delta P (PDI-853-1 or PDI-853-2						
		-0.05		-0.20	12/3/2021 7:26:07PM	Nights
		-0.05		-0.20	12/4/2021 7:40:40AM	Days
		-0.05		-.20	12/4/2021 7:25:38PM	Nights
		-0.05		-0.20	12/5/2021 7:26:42AM	Days
		-0.05		-.20	12/5/2021 7:27:04PM	Nights
		-0.05		-.20	12/6/2021 7:27:11AM	Days
		-0.05		-.20	12/6/2021 7:08:28PM	Nights
		-0.05		-.19	12/7/2021 7:16:43AM	Days
		-0.05		-.22	12/7/2021 7:20:27PM	Nights
		-0.05		-0.20	12/8/2021 7:18:52AM	Days
		-0.05		-.20	12/8/2021 7:14:00PM	Nights
		-0.05		-0.20	12/9/2021 7:46:15AM	Days
		-0.05		-0.22	12/9/2021 7:42:21PM	Nights
		-0.05		-0.18	12/10/2021 7:20:14AM	Days
		-0.05		-0.19	12/10/2021 7:19:40PM	Nights
		-0.05		-.20	12/11/2021 7:17:33AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area laboratory header delta P (PDI-853-1 or PDI-853-2						
		-0.05		-.20	12/11/2021 7:18:50PM	Nights
		-0.05		-0.20	12/12/2021 7:18:30AM	Days
		-0.05		-.20	12/12/2021 7:22:19PM	Nights
		-0.05		-.20	12/13/2021 7:28:01AM	Days
		-0.05		-0.19	12/13/2021 7:11:44PM	Nights
		-0.05		-0.22	12/14/2021 7:32:49AM	Days
		-0.05		-0.20	12/14/2021 7:26:48PM	Nights
		-0.05		-.40	12/15/2021 7:31:49AM	Days
		-0.05		-.20	12/15/2021 7:24:16PM	Nights
		-0.05		-0.20	12/16/2021 7:23:29AM	Days
		-0.05		-0.21	12/16/2021 7:05:37PM	Nights
		-0.05		-.20	12/17/2021 7:27:21AM	Days
		-0.05		-0.19	12/17/2021 7:18:00PM	Nights
		-0.05		-.20	12/18/2021 7:25:59AM	Days
		-0.05		-0.20	12/18/2021 7:12:25PM	Nights
		-0.05		-.20	12/19/2021 7:24:12AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area laboratory header delta P (PDI-853-1 or PDI-853-2						
		-0.05		-0.20	12/19/2021 7:22:01PM	Nights
		-0.05		-.20	12/20/2021 7:42:34AM	Days
		-0.05		-.19	12/20/2021 7:19:01PM	Nights
		-0.05		-.20	12/21/2021 7:30:46AM	Days
		-0.05		-.21	12/21/2021 7:11:28PM	Nights
		-0.05		-0.21	12/22/2021 7:26:03AM	Days
		-0.05		-0.19	12/22/2021 7:20:39PM	Nights
		-0.05		-0.20	12/23/2021 7:31:33AM	Days
		-0.05		-0.20	12/23/2021 7:22:05PM	Nights
		-0.05		-.20	12/24/2021 7:27:41AM	Days
		-0.05		-.20	12/24/2021 7:15:55PM	Nights
		-0.05		-.21	12/25/2021 7:24:13AM	Days
		-0.05		-.20	12/25/2021 7:09:51PM	Nights
		-0.05		-0.18	12/26/2021 7:27:12AM	Days
		-0.05		-.18	12/26/2021 7:13:00PM	Nights
		-0.05		-0.20	12/27/2021 7:24:01AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area laboratory header delta P (PDI-853-1 or PDI-853-2						
		-0.05		-0.19	12/27/2021 7:12:11PM	Nights
		-0.05		-.18	12/28/2021 7:27:06AM	Days
		-0.05		-0.20	12/28/2021 7:06:21PM	Nights
		-0.05		-0.18	12/29/2021 7:18:17AM	Days
		-0.05		-0.18	12/29/2021 7:22:44PM	Nights
		-0.05		-0.19	12/30/2021 7:12:59AM	Days
		-0.05		-0.19	12/30/2021 7:16:12PM	Nights
		-0.05		-.18	12/31/2021 7:28:01AM	Days
		-0.05		-0.20	12/31/2021 7:23:30PM	Nights
HVAC: 400 area laboratory header delta P (PDI-852-1 or PDI-852-2						
		-0.05		-0.20	12/1/2021 7:25:02AM	Days
		-0.05		-0.20	12/1/2021 7:20:35PM	Nights
		-0.05		-.20	12/2/2021 7:25:22AM	Days
		-0.05		-0.17	12/2/2021 7:22:29PM	Nights
		-0.05		-0.20	12/3/2021 7:23:24AM	Days
		-0.05		-0.19	12/3/2021 7:26:15PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area laboratory header delta P (PDI-852-1 or PDI-852-2						
		-0.05		-0.20	12/4/2021 7:40:47AM	Days
		-0.05		-.19	12/4/2021 7:25:45PM	Nights
		-0.05		-0.20	12/5/2021 7:26:49AM	Days
		-0.05		-.20	12/5/2021 7:27:06PM	Nights
		-0.05		-.20	12/6/2021 7:27:15AM	Days
		-0.05		-.20	12/6/2021 7:08:33PM	Nights
		-0.05		-.19	12/7/2021 7:16:48AM	Days
		-0.05		-.20	12/7/2021 7:20:33PM	Nights
		-0.05		-0.16	12/8/2021 7:19:08AM	Days
		-0.05		-.20	12/8/2021 7:14:10PM	Nights
		-0.05		-0.20	12/9/2021 7:46:30AM	Days
		-0.05		-0.18	12/9/2021 7:42:27PM	Nights
		-0.05		-0.18	12/10/2021 7:20:19AM	Days
		-0.05		-0.19	12/10/2021 7:19:47PM	Nights
		-0.05		-.19	12/11/2021 7:17:48AM	Days
		-0.05		-.19	12/11/2021 7:18:56PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area laboratory header delta P (PDI-852-1 or PDI-852-2						
		-0.05		-0.20	12/12/2021 7:18:35AM	Days
		-0.05		-.19	12/12/2021 7:22:26PM	Nights
		-0.05		-.20	12/13/2021 7:28:06AM	Days
		-0.05		-0.19	12/13/2021 7:11:51PM	Nights
		-0.05		-0.22	12/14/2021 7:33:01AM	Days
		-0.05		-0.20	12/14/2021 7:26:59PM	Nights
		-0.05		-.30	12/15/2021 7:31:54AM	Days
		-0.05		-.19	12/15/2021 7:24:22PM	Nights
		-0.05		-0.19	12/16/2021 7:23:39AM	Days
		-0.05		-0.20	12/16/2021 7:05:49PM	Nights
		-0.05		-.20	12/17/2021 7:27:26AM	Days
		-0.05		-0.18	12/17/2021 7:18:45PM	Nights
		-0.05		-.20	12/18/2021 7:25:49AM	Days
		-0.05		-0.19	12/18/2021 7:12:30PM	Nights
		-0.05		-.19	12/19/2021 7:24:20AM	Days
		-0.05		-0.20	12/19/2021 7:22:20PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area laboratory header delta P (PDI-852-1 or PDI-852-2						
		-0.05		-.19	12/20/2021 7:42:38AM	Days
		-0.05		-.19	12/20/2021 7:19:06PM	Nights
		-0.05		-.20	12/21/2021 7:30:49AM	Days
		-0.05		-.20	12/21/2021 7:11:32PM	Nights
		-0.05		-0.21	12/22/2021 7:26:09AM	Days
		-0.05		-0.19	12/22/2021 7:20:44PM	Nights
		-0.05		-0.20	12/23/2021 7:31:38AM	Days
		-0.05		-0.20	12/23/2021 7:22:09PM	Nights
		-0.05		-.19	12/24/2021 7:27:48AM	Days
		-0.05		-.20	12/24/2021 7:15:58PM	Nights
		-0.05		-.20	12/25/2021 7:24:16AM	Days
		-0.05		-.19	12/25/2021 7:09:56PM	Nights
		-0.05		-0.17	12/26/2021 7:27:18AM	Days
		-0.05		-.18	12/26/2021 7:13:04PM	Nights
		-0.05		-0.20	12/27/2021 7:24:05AM	Days
		-0.05		-0.19	12/27/2021 7:12:18PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area laboratory header delta P (PDI-852-1 or PDI-852-2						
		-0.05		-.18	12/28/2021 7:27:10AM	Days
		-0.05		-0.19	12/28/2021 7:07:12PM	Nights
		-0.05		-0.18	12/29/2021 7:18:21AM	Days
		-0.05		-0.19	12/29/2021 7:22:49PM	Nights
		-0.05		-0.19	12/30/2021 7:12:35AM	Days
		-0.05		-0.19	12/30/2021 7:16:18PM	Nights
		-0.05		-.18	12/31/2021 7:28:07AM	Days
		-0.05		-0.19	12/31/2021 7:23:38PM	Nights
HVAC: IFIT Facility delta P (PDI-865-4 or PDI-865-5)						
		-0.05		-0.16	12/1/2021 7:25:08AM	Days
		-0.05		-0.15	12/1/2021 7:20:49PM	Nights
		-0.05		-.15	12/2/2021 7:25:28AM	Days
		-0.05		-0.15	12/2/2021 7:22:35PM	Nights
		-0.05		-0.15	12/3/2021 7:23:55AM	Days
		-0.05		-0.15	12/3/2021 7:26:23PM	Nights
		-0.05		-0.15	12/4/2021 7:40:55AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IFIT Facility delta P (PDI-865-4 or PDI-865-5)						
		-0.05		-.15	12/4/2021 7:25:52PM	Nights
		-0.05		-0.15	12/5/2021 7:27:06AM	Days
		-0.05		-.15	12/5/2021 7:27:12PM	Nights
		-0.05		-.15	12/6/2021 7:27:20AM	Days
		-0.05		-.15	12/6/2021 7:08:38PM	Nights
		-0.05		-.15	12/7/2021 7:16:52AM	Days
		-0.05		-.15	12/7/2021 7:20:37PM	Nights
		-0.05		-0.15	12/8/2021 7:19:16AM	Days
		-0.05		-.15	12/8/2021 7:14:15PM	Nights
		-0.05		-0.15	12/9/2021 7:46:35AM	Days
		-0.05		-0.15	12/9/2021 7:42:33PM	Nights
		-0.05		-0.15	12/10/2021 7:20:24AM	Days
		-0.05		-0.15	12/10/2021 7:19:54PM	Nights
		-0.05		-.15	12/11/2021 7:17:57AM	Days
		-0.05		-.15	12/11/2021 7:19:02PM	Nights
		-0.05		-0.15	12/12/2021 7:18:42AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IFIT Facility delta P (PDI-865-4 or PDI-865-5)						
		-0.05		-.15	12/12/2021 7:22:31PM	Nights
		-0.05		-.15	12/13/2021 7:28:13AM	Days
		-0.05		-0.15	12/13/2021 7:11:56PM	Nights
		-0.05		-0.15	12/14/2021 7:33:12AM	Days
		-0.05		-0.15	12/14/2021 7:27:06PM	Nights
		-0.05		-.22	12/15/2021 7:31:58AM	Days
		-0.05		-.15	12/15/2021 7:27:21PM	Nights
		-0.05		-0.15	12/16/2021 7:23:43AM	Days
		-0.05		-0.15	12/16/2021 7:06:07PM	Nights
		-0.05		-.15	12/17/2021 7:27:34AM	Days
		-0.05		-0.16	12/17/2021 7:18:53PM	Nights
		-0.05		-.15	12/18/2021 7:26:05AM	Days
		-0.05		-0.15	12/18/2021 7:12:40PM	Nights
		-0.05		-.15	12/19/2021 7:24:31AM	Days
		-0.05		-0.15	12/19/2021 7:22:29PM	Nights
		-0.05		-.15	12/20/2021 7:42:42AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IFIT Facility delta P (PDI-865-4 or PDI-865-5)						
		-0.05		-.15	12/20/2021 7:19:11PM	Nights
		-0.05		-.15	12/21/2021 7:30:53AM	Days
		-0.05		-.15	12/21/2021 7:11:36PM	Nights
		-0.05		-0.15	12/22/2021 7:26:15AM	Days
		-0.05		-0.15	12/22/2021 7:20:55PM	Nights
		-0.05		-0.15	12/23/2021 7:31:43AM	Days
		-0.05		-0.16	12/23/2021 7:22:16PM	Nights
		-0.05		-.14	12/24/2021 7:27:52AM	Days
		-0.05		-.15	12/24/2021 7:16:03PM	Nights
		-0.05		-.15	12/25/2021 7:24:21AM	Days
		-0.05		-.15	12/25/2021 7:10:04PM	Nights
		-0.05		-0.15	12/26/2021 7:27:59AM	Days
		-0.05		-.15	12/26/2021 7:13:09PM	Nights
		-0.05		-0.15	12/27/2021 7:24:13AM	Days
		-0.05		-0.15	12/27/2021 7:12:27PM	Nights
		-0.05		-.16	12/28/2021 7:27:15AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IFIT Facility delta P (PDI-865-4 or PDI-865-5)						
		-0.05		-0.15	12/28/2021 7:07:19PM	Nights
		-0.05		-0.14	12/29/2021 7:18:27AM	Days
		-0.05		-0.15	12/29/2021 7:22:58PM	Nights
		-0.05		-0.15	12/30/2021 7:12:52AM	Days
		-0.05		-0.15	12/30/2021 7:16:28PM	Nights
		-0.05		-.15	12/31/2021 7:28:13AM	Days
		-0.05		-0.15	12/31/2021 7:23:43PM	Nights
HVAC: North Basement delta P (PDI-804-1 or PDI-804-2)						
		0.00		-0.09	12/1/2021 7:25:12AM	Days
		0.00		-0.11	12/1/2021 7:20:57PM	Nights
		0.00		-.09	12/2/2021 7:25:34AM	Days
		0.00		-0.11	12/2/2021 7:22:46PM	Nights
		0.00		-0.09	12/3/2021 7:24:24AM	Days
		0.00		-0.09	12/3/2021 7:26:31PM	Nights
		0.00		-0.09	12/4/2021 7:41:01AM	Days
		0.00		-.09	12/4/2021 7:25:58PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: North Basement delta P (PDI-804-1 or PDI-804-2)						
		0.00		-0.09	12/5/2021 7:27:14AM	Days
		0.00		-.09	12/5/2021 7:27:17PM	Nights
		0.00		-.09	12/6/2021 7:27:24AM	Days
		0.00		-.09	12/6/2021 7:08:44PM	Nights
		0.00		-.09	12/7/2021 7:16:56AM	Days
		0.00		-.09	12/7/2021 7:20:42PM	Nights
		0.00		-0.09	12/8/2021 7:19:23AM	Days
		0.00		-.09	12/8/2021 7:14:19PM	Nights
		0.00		-0.09	12/9/2021 7:46:39AM	Days
		0.00		-0.09	12/9/2021 7:42:39PM	Nights
		0.00		-0.10	12/10/2021 7:20:32AM	Days
		0.00		-0.09	12/10/2021 7:20:00PM	Nights
		0.00		-.09	12/11/2021 7:18:01AM	Days
		0.00		-.09	12/11/2021 7:19:06PM	Nights
		0.00		-0.09	12/12/2021 7:18:46AM	Days
		0.00		-.09	12/12/2021 7:22:38PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: North Basement delta P (PDI-804-1 or PDI-804-2)						
		0.00		-.09	12/13/2021 7:28:20AM	Days
		0.00		-0.09	12/13/2021 7:12:13PM	Nights
		0.00		-0.09	12/14/2021 7:33:27AM	Days
		0.00		-0.09	12/14/2021 7:27:11PM	Nights
		0.00		-.08	12/15/2021 7:32:03AM	Days
		0.00		-.08	12/15/2021 7:24:28PM	Nights
		0.00		-0.09	12/16/2021 7:23:49AM	Days
		0.00		-0.09	12/16/2021 7:06:03PM	Nights
		0.00		-.09	12/17/2021 7:27:39AM	Days
		0.00		-0.09	12/17/2021 7:19:02PM	Nights
		0.00		-.09	12/18/2021 7:26:10AM	Days
		0.00		-0.09	12/18/2021 7:12:50PM	Nights
		0.00		-.09	12/19/2021 7:24:38AM	Days
		0.00		-0.09	12/19/2021 7:22:36PM	Nights
		0.00		-.09	12/20/2021 7:42:47AM	Days
		0.00		-.09	12/20/2021 7:19:15PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: North Basement delta P (PDI-804-1 or PDI-804-2)						
		0.00		-.09	12/21/2021 7:30:57AM	Days
		0.00		-.09	12/21/2021 7:11:42PM	Nights
		0.00		-0.09	12/22/2021 7:26:22AM	Days
		0.00		-0.09	12/22/2021 7:21:04PM	Nights
		0.00		-0.09	12/23/2021 7:31:49AM	Days
		0.00		-0.10	12/23/2021 7:22:20PM	Nights
		0.00		-.09	12/24/2021 7:27:57AM	Days
		0.00		-.08	12/24/2021 7:16:08PM	Nights
		0.00		-.09	12/25/2021 7:24:25AM	Days
		0.00		-.09	12/25/2021 7:10:09PM	Nights
		0.00		-0.09	12/26/2021 7:28:16AM	Days
		0.00		-.09	12/26/2021 7:13:15PM	Nights
		0.00		-0.09	12/27/2021 7:24:19AM	Days
		0.00		-0.09	12/27/2021 7:12:31PM	Nights
		0.00		-.09	12/28/2021 7:27:22AM	Days
		0.00		-0.09	12/28/2021 7:07:25PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: North Basement delta P (PDI-804-1 or PDI-804-2)						
		0.00		-0.10	12/29/2021 7:18:34AM	Days
		0.00		-0.10	12/29/2021 7:23:04PM	Nights
		0.00		-0.09	12/30/2021 7:13:10AM	Days
		0.00		-0.09	12/30/2021 7:16:34PM	Nights
		0.00		-.09	12/31/2021 7:28:18AM	Days
		0.00		-0.09	12/31/2021 7:23:53PM	Nights
HVAC: IRT Tunnel delta P (PDT-901 or PDI-901)						
		0.00		-0.099	12/1/2021 7:25:43AM	Days
		0.00		-0.097	12/1/2021 7:21:30PM	Nights
		0.00		-.109	12/2/2021 7:25:50AM	Days
		0.00		-0.094	12/2/2021 7:23:20PM	Nights
		0.00		-0.095	12/3/2021 7:24:54AM	Days
		0.00		-0.094	12/3/2021 7:27:41PM	Nights
		0.00		-0.095	12/4/2021 7:41:50AM	Days
		0.00		-.095	12/4/2021 7:26:23PM	Nights
		0.00		-0.097	12/5/2021 7:28:00AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IRT Tunnel delta P (PDT-901 or PDI-901)						
		0.00		-.092	12/5/2021 7:27:46PM	Nights
		0.00		-.096	12/6/2021 7:27:42AM	Days
		0.00		-.103	12/6/2021 7:09:49PM	Nights
		0.00		-.094	12/7/2021 7:17:07AM	Days
		0.00		-.095	12/7/2021 7:21:01PM	Nights
		0.00		-0.094	12/8/2021 7:20:28AM	Days
		0.00		-.099	12/8/2021 7:14:34PM	Nights
		0.00		-0.105	12/9/2021 7:46:50AM	Days
		0.00		-0.110	12/9/2021 7:42:54PM	Nights
		0.00		-0.112	12/10/2021 7:21:03AM	Days
		0.00		-0.095	12/10/2021 7:20:16PM	Nights
		0.00		-.095	12/11/2021 7:18:21AM	Days
		0.00		-.108	12/11/2021 7:19:23PM	Nights
		0.00		-0.108	12/12/2021 7:19:15AM	Days
		0.00		-.107	12/12/2021 7:22:57PM	Nights
		0.00		-.099	12/13/2021 7:28:45AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IRT Tunnel delta P (PDT-901 or PDI-901)						
		0.00		-0.093	12/13/2021 7:12:50PM	Nights
		0.00		-0.092	12/14/2021 7:38:05AM	Days
		0.00		-0.093	12/14/2021 7:27:50PM	Nights
		0.00		-.055	12/15/2021 7:32:34AM	Days
		0.00		-.095	12/15/2021 7:24:47PM	Nights
		0.00		-0.097	12/16/2021 7:24:47AM	Days
		0.00		-0.091	12/16/2021 7:06:30PM	Nights
		0.00		-.110	12/17/2021 7:28:15AM	Days
		0.00		-0.091	12/17/2021 7:20:57PM	Nights
		0.00		-.092	12/18/2021 7:26:41AM	Days
		0.00		-0.108	12/18/2021 7:13:27PM	Nights
		0.00		-.107	12/19/2021 7:24:59AM	Days
		0.00		-0.108	12/19/2021 7:23:26PM	Nights
		0.00		-.094	12/20/2021 7:43:11AM	Days
		0.00		-.092	12/20/2021 7:19:27PM	Nights
		0.00		-.100	12/21/2021 7:31:09AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IRT Tunnel delta P (PDT-901 or PDI-901)						
		0.00		-.091	12/21/2021 7:11:57PM	Nights
		0.00		-0.100	12/22/2021 7:26:40AM	Days
		0.00		-0.108	12/22/2021 7:21:44PM	Nights
		0.00		-0.103	12/23/2021 7:32:05AM	Days
		0.00		-0.095	12/23/2021 7:22:33PM	Nights
		0.00		-.092	12/24/2021 7:28:12AM	Days
		0.00		-.083	12/24/2021 7:16:18PM	Nights
		0.00		-.087	12/25/2021 7:24:45AM	Days
		0.00		-.109	12/25/2021 7:10:27PM	Nights
		0.00		-0.095	12/26/2021 7:28:43AM	Days
		0.00		-.105	12/26/2021 7:13:29PM	Nights
		0.00		-0.094	12/27/2021 7:24:57AM	Days
		0.00		-0.108	12/27/2021 7:13:10PM	Nights
		0.00		-.094	12/28/2021 7:27:59AM	Days
		0.00		-0.107	12/28/2021 7:07:43PM	Nights
		0.00		-0.100	12/29/2021 7:18:47AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: IRT Tunnel delta P (PDT-901 or PDI-901)						
		0.00		-0.105	12/29/2021 7:23:51PM	Nights
		0.00		-0.108	12/30/2021 7:13:31AM	Days
		0.00		-0.94	12/30/2021 7:17:02PM	Nights
		0.00		-.112	12/31/2021 7:29:03AM	Days
		0.00		-0.107	12/31/2021 7:24:17PM	Nights
HVAC: 200 area re-circulation fan/plenum (PDT-831 or PDT-832)						
	.050			SAT	12/1/2021 7:25:50AM	Days
	.050			SAT	12/1/2021 7:21:44PM	Nights
	.050			SAT	12/2/2021 7:25:59AM	Days
	.050			SAT	12/2/2021 7:23:25PM	Nights
	.050			SAT	12/3/2021 7:25:20AM	Days
	.050			SAT	12/3/2021 7:27:46PM	Nights
	.050			SAT	12/4/2021 7:41:52AM	Days
	.050			SAT	12/4/2021 7:26:31PM	Nights
	.050			SAT	12/5/2021 7:28:24AM	Days
	.050			SAT	12/5/2021 7:27:47PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area re-circulation fan/plenum (PDT-831 or PDT-832)						
	.050			SAT	12/6/2021 7:27:46AM	Days
	.050			SAT	12/6/2021 7:09:55PM	Nights
	.050			SAT	12/7/2021 7:17:13AM	Days
	.050			SAT	12/7/2021 7:21:05PM	Nights
	.050			SAT	12/8/2021 7:20:32AM	Days
	.050			SAT	12/8/2021 7:14:38PM	Nights
	.050			SAT	12/9/2021 7:46:55AM	Days
	.050			SAT	12/9/2021 7:43:01PM	Nights
	.050			SAT	12/10/2021 7:21:06AM	Days
	.050			SAT	12/10/2021 7:20:22PM	Nights
	.050			SAT	12/11/2021 7:18:24AM	Days
	.050			SAT	12/11/2021 7:19:29PM	Nights
	.050			SAT	12/12/2021 7:19:20AM	Days
	.050			SAT	12/12/2021 7:22:59PM	Nights
	.050			SAT	12/13/2021 7:28:48AM	Days
	.050			SAT	12/13/2021 7:14:59PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area re-circulation fan/plenum (PDT-831 or PDT-832)						
	.050			SAT	12/14/2021 7:36:06AM	Days
	.050			SAT	12/14/2021 7:27:40PM	Nights
	.050			SAT	12/15/2021 7:32:39AM	Days
	.050			SAT	12/15/2021 7:24:48PM	Nights
	.050			SAT	12/16/2021 7:24:50AM	Days
	.050			SAT	12/16/2021 7:06:33PM	Nights
	.050			SAT	12/17/2021 7:28:17AM	Days
	.050			SAT	12/17/2021 7:21:57PM	Nights
	.050			SAT	12/18/2021 7:26:42AM	Days
	.050			SAT	12/18/2021 7:15:05PM	Nights
	.050			SAT	12/19/2021 7:25:02AM	Days
	.050			SAT	12/19/2021 7:23:34PM	Nights
	.050			SAT	12/20/2021 7:43:13AM	Days
	.050			SAT	12/20/2021 7:19:31PM	Nights
	.050			SAT	12/21/2021 7:31:16AM	Days
	.050			SAT	12/21/2021 7:11:59PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area re-circulation fan/plenum (PDT-831 or PDT-832)						
	.050			SAT	12/22/2021 7:26:44AM	Days
	.050			SAT	12/22/2021 7:22:16PM	Nights
	.050			SAT	12/23/2021 7:32:09AM	Days
	.050			SAT	12/23/2021 7:22:41PM	Nights
	.050			SAT	12/24/2021 7:28:14AM	Days
	.050			SAT	12/24/2021 7:16:23PM	Nights
	.050			SAT	12/25/2021 7:24:47AM	Days
	.050			SAT	12/25/2021 7:10:30PM	Nights
	.050			SAT	12/26/2021 7:28:48AM	Days
	.050			SAT	12/26/2021 7:13:32PM	Nights
	.050			SAT	12/27/2021 7:25:02AM	Days
	.050			SAT	12/27/2021 7:14:28PM	Nights
	.050			SAT	12/28/2021 7:27:42AM	Days
	.050			SAT	12/28/2021 7:08:28PM	Nights
	.050			SAT	12/29/2021 7:18:50AM	Days
	.050			SAT	12/29/2021 7:23:57PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 200 area re-circulation fan/plenum (PDT-831 or PDT-832)						
	.050			SAT	12/30/2021 7:13:34AM	Days
	.050			SAT	12/30/2021 7:17:20PM	Nights
	.050			SAT	12/31/2021 7:29:04AM	Days
	.050			SAT	12/31/2021 7:24:27PM	Nights
HVAC: 100 area re-circulation fan/plenum (PDT-833 or PDT-835)						
	.050			SAT	12/1/2021 7:25:52AM	Days
	.050			SAT	12/1/2021 7:21:51PM	Nights
	.050			SAT	12/2/2021 7:26:01AM	Days
	.050			SAT	12/2/2021 7:23:29PM	Nights
	.050			SAT	12/3/2021 7:25:25AM	Days
	.050			SAT	12/3/2021 7:27:54PM	Nights
	.050			SAT	12/4/2021 7:41:57AM	Days
	.050			SAT	12/4/2021 7:26:33PM	Nights
	.050			SAT	12/5/2021 7:28:26AM	Days
	.050			SAT	12/5/2021 7:27:49PM	Nights
	.050			SAT	12/6/2021 7:27:47AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area re-circulation fan/plenum (PDT-833 or PDT-835)						
	.050			SAT	12/6/2021 7:09:59PM	Nights
	.050			SAT	12/7/2021 7:17:15AM	Days
	.050			SAT	12/7/2021 7:21:08PM	Nights
	.050			SAT	12/8/2021 7:20:34AM	Days
	.050			SAT	12/8/2021 7:14:42PM	Nights
	.050			SAT	12/9/2021 7:46:58AM	Days
	.050			SAT	12/9/2021 7:43:05PM	Nights
	.050			SAT	12/10/2021 7:21:08AM	Days
	.050			SAT	12/10/2021 7:20:25PM	Nights
	.050			SAT	12/11/2021 7:18:26AM	Days
	.050			SAT	12/11/2021 7:19:31PM	Nights
	.050			SAT	12/12/2021 7:19:22AM	Days
	.050			SAT	12/12/2021 7:23:06PM	Nights
	.050			SAT	12/13/2021 7:28:50AM	Days
	.050			SAT	12/13/2021 7:15:02PM	Nights
	.050			SAT	12/14/2021 7:36:15AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area re-circulation fan/plenum (PDT-833 or PDT-835)						
	.050			SAT	12/14/2021 7:27:53PM	Nights
	.050			SAT	12/15/2021 7:32:41AM	Days
	.050			SAT	12/15/2021 7:24:51PM	Nights
	.050			SAT	12/16/2021 7:24:55AM	Days
	.050			SAT	12/16/2021 7:06:36PM	Nights
	.050			SAT	12/17/2021 7:28:19AM	Days
	.050			SAT	12/17/2021 7:22:03PM	Nights
	.050			SAT	12/18/2021 7:26:44AM	Days
	.050			SAT	12/18/2021 7:15:20PM	Nights
	.050			SAT	12/19/2021 7:25:05AM	Days
	.050			SAT	12/19/2021 7:23:37PM	Nights
	.050			SAT	12/20/2021 7:43:15AM	Days
	.050			SAT	12/20/2021 7:19:33PM	Nights
	.050			SAT	12/21/2021 7:31:18AM	Days
	.050			SAT	12/21/2021 7:12:01PM	Nights
	.050			SAT	12/22/2021 7:26:49AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area re-circulation fan/plenum (PDT-833 or PDT-835)						
	.050			SAT	12/22/2021 7:22:23PM	Nights
	.050			SAT	12/23/2021 7:32:13AM	Days
	.050			SAT	12/23/2021 7:22:43PM	Nights
	.050			SAT	12/24/2021 7:28:16AM	Days
	.050			SAT	12/24/2021 7:16:25PM	Nights
	.050			SAT	12/25/2021 7:24:50AM	Days
	.050			SAT	12/25/2021 7:10:32PM	Nights
	.050			SAT	12/26/2021 7:28:53AM	Days
	.050			SAT	12/26/2021 7:13:33PM	Nights
	.050			SAT	12/27/2021 7:25:10AM	Days
	.050			SAT	12/27/2021 7:14:31PM	Nights
	.050			SAT	12/28/2021 7:28:00AM	Days
	.050			SAT	12/28/2021 7:08:30PM	Nights
	.050			SAT	12/29/2021 7:18:54AM	Days
	.050			SAT	12/29/2021 7:24:00PM	Nights
	.050			SAT	12/30/2021 7:13:37AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 100 area re-circulation fan/plenum (PDT-833 or PDT-835)						
	.050			SAT	12/30/2021 7:17:24PM	Nights
	.050			SAT	12/31/2021 7:29:07AM	Days
	.050			SAT	12/31/2021 7:24:30PM	Nights
HVAC: 400 area re-circulation fan/plenum (PDT-838 or PDT-839)						
	.050			SAT	12/1/2021 7:25:56AM	Days
	.050			SAT	12/1/2021 7:22:03PM	Nights
	.050			SAT	12/2/2021 7:26:06AM	Days
	.050			SAT	12/2/2021 7:23:33PM	Nights
	.050			SAT	12/3/2021 7:25:42AM	Days
	.050			SAT	12/3/2021 7:28:12PM	Nights
	.050			SAT	12/4/2021 7:42:03AM	Days
	.050			SAT	12/4/2021 7:26:39PM	Nights
	.050			SAT	12/5/2021 7:28:31AM	Days
	.050			SAT	12/5/2021 7:27:54PM	Nights
	.050			SAT	12/6/2021 7:27:52AM	Days
	.050			SAT	12/6/2021 7:10:11PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area re-circulation fan/plenum (PDT-838 or PDT-839)						
	.050			SAT	12/7/2021 7:17:19AM	Days
	.050			SAT	12/7/2021 7:21:18PM	Nights
	.050			SAT	12/8/2021 7:20:39AM	Days
	.050			SAT	12/8/2021 7:14:49PM	Nights
	.050			SAT	12/9/2021 7:47:02AM	Days
	.050			SAT	12/9/2021 7:43:15PM	Nights
	.050			SAT	12/10/2021 7:21:12AM	Days
	.050			SAT	12/10/2021 7:20:31PM	Nights
	.050			SAT	12/11/2021 7:18:30AM	Days
	.050			SAT	12/11/2021 7:19:37PM	Nights
	.050			SAT	12/12/2021 7:19:27AM	Days
	.050			SAT	12/12/2021 7:23:14PM	Nights
	.050			SAT	12/13/2021 7:28:56AM	Days
	.050			SAT	12/13/2021 7:15:10PM	Nights
	.050			SAT	12/14/2021 7:36:26AM	Days
	.050			SAT	12/14/2021 7:28:00PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area re-circulation fan/plenum (PDT-838 or PDT-839)						
	.050			SAT	12/15/2021 7:32:44AM	Days
	.050			SAT	12/15/2021 7:24:58PM	Nights
	.050			SAT	12/16/2021 7:24:58AM	Days
	.050			SAT	12/16/2021 7:06:42PM	Nights
	.050			SAT	12/17/2021 7:28:24AM	Days
	.050			SAT	12/17/2021 7:22:09PM	Nights
	.050			SAT	12/18/2021 7:26:50AM	Days
	.050			SAT	12/18/2021 7:15:27PM	Nights
	.050			SAT	12/19/2021 7:25:12AM	Days
	.050			SAT	12/19/2021 7:23:46PM	Nights
	.050			SAT	12/20/2021 7:43:20AM	Days
	.050			SAT	12/20/2021 7:19:36PM	Nights
	.050			SAT	12/21/2021 7:31:25AM	Days
	.050			SAT	12/21/2021 7:12:05PM	Nights
	.050			SAT	12/22/2021 7:27:02AM	Days
	.050			SAT	12/22/2021 7:22:39PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area re-circulation fan/plenum (PDT-838 or PDT-839)						
	.050			SAT	12/23/2021 7:32:20AM	Days
	.050			SAT	12/23/2021 7:22:49PM	Nights
	.050			SAT	12/24/2021 7:28:20AM	Days
	.050			SAT	12/24/2021 7:16:28PM	Nights
	.050			SAT	12/25/2021 7:24:58AM	Days
	.050			SAT	12/25/2021 7:10:37PM	Nights
	.050			SAT	12/26/2021 7:29:05AM	Days
	.050			SAT	12/26/2021 7:13:38PM	Nights
	.050			SAT	12/27/2021 7:25:19AM	Days
	.050			SAT	12/27/2021 7:14:36PM	Nights
	.050			SAT	12/28/2021 7:28:15AM	Days
	.050			SAT	12/28/2021 7:08:37PM	Nights
	.050			SAT	12/29/2021 7:19:00AM	Days
	.050			SAT	12/29/2021 7:24:08PM	Nights
	.050			SAT	12/30/2021 7:13:42AM	Days
	.050			SAT	12/30/2021 7:17:32PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 400 area re-circulation fan/plenum (PDT-838 or PDT-839)						
	.050			SAT	12/31/2021 7:29:13AM	Days
	.050			SAT	12/31/2021 7:24:35PM	Nights
HVAC: Vault re-circulation fan/plenum (PDT-840 or PDT-841)						
	.050			SAT	12/1/2021 7:26:04AM	Days
	.050			SAT	12/1/2021 7:22:08PM	Nights
	.050			SAT	12/2/2021 7:26:08AM	Days
	.050			SAT	12/2/2021 7:23:37PM	Nights
	.050			SAT	12/3/2021 7:25:45AM	Days
	.050			SAT	12/3/2021 7:28:17PM	Nights
	.050			SAT	12/4/2021 7:42:07AM	Days
	.050			SAT	12/4/2021 7:26:42PM	Nights
	.050			SAT	12/5/2021 7:28:34AM	Days
	.050			SAT	12/5/2021 7:27:58PM	Nights
	.050			SAT	12/6/2021 7:27:55AM	Days
	.050			SAT	12/6/2021 7:10:15PM	Nights
	.050			SAT	12/7/2021 7:17:21AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Vault re-circulation fan/plenum (PDT-840 or PDT-841)						
	.050			SAT	12/7/2021 7:21:23PM	Nights
	.050			SAT	12/8/2021 7:20:44AM	Days
	.050			SAT	12/8/2021 7:14:53PM	Nights
	.050			SAT	12/9/2021 7:47:05AM	Days
	.050			SAT	12/9/2021 7:43:19PM	Nights
	.050			SAT	12/10/2021 7:21:19AM	Days
	.050			SAT	12/10/2021 7:20:34PM	Nights
	.050			SAT	12/11/2021 7:18:32AM	Days
	.050			SAT	12/11/2021 7:19:41PM	Nights
	.050			SAT	12/12/2021 7:19:39AM	Days
	.050			SAT	12/12/2021 7:23:17PM	Nights
	.050			SAT	12/13/2021 7:28:58AM	Days
	.050			SAT	12/13/2021 7:15:15PM	Nights
	.050			SAT	12/14/2021 7:36:30AM	Days
	.050			SAT	12/14/2021 7:28:04PM	Nights
	.050			SAT	12/15/2021 7:32:46AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Vault re-circulation fan/plenum (PDT-840 or PDT-841)						
	.050			SAT	12/15/2021 7:25:01PM	Nights
	.050			SAT	12/16/2021 7:25:00AM	Days
	.050			SAT	12/16/2021 7:06:45PM	Nights
	.050			SAT	12/17/2021 7:28:28AM	Days
	.050			SAT	12/17/2021 7:22:11PM	Nights
	.050			SAT	12/18/2021 7:26:53AM	Days
	.050			SAT	12/18/2021 7:15:30PM	Nights
	.050			SAT	12/19/2021 7:25:14AM	Days
	.050			SAT	12/19/2021 7:23:49PM	Nights
	.050			SAT	12/20/2021 7:43:22AM	Days
	.050			SAT	12/20/2021 7:19:38PM	Nights
	.050			SAT	12/21/2021 7:31:30AM	Days
	.050			SAT	12/21/2021 7:12:07PM	Nights
	.050			SAT	12/22/2021 7:27:08AM	Days
	.050			SAT	12/22/2021 7:22:42PM	Nights
	.050			SAT	12/23/2021 7:32:22AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Vault re-circulation fan/plenum (PDT-840 or PDT-841)						
	.050			SAT	12/23/2021 7:22:52PM	Nights
	.050			SAT	12/24/2021 7:28:22AM	Days
	.050			SAT	12/24/2021 7:16:29PM	Nights
	.050			SAT	12/25/2021 7:25:00AM	Days
	.050			SAT	12/25/2021 7:10:39PM	Nights
	.050			SAT	12/26/2021 7:29:10AM	Days
	.050			SAT	12/26/2021 7:13:38PM	Nights
	.050			SAT	12/27/2021 7:25:25AM	Days
	.050			SAT	12/27/2021 7:14:43PM	Nights
	.050			SAT	12/28/2021 7:28:20AM	Days
	.050			SAT	12/28/2021 7:08:39PM	Nights
	.050			SAT	12/29/2021 7:19:03AM	Days
	.050			SAT	12/29/2021 7:24:12PM	Nights
	.050			SAT	12/30/2021 7:13:44AM	Days
	.050			SAT	12/30/2021 7:17:36PM	Nights
	.050			SAT	12/31/2021 7:29:16AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Vault re-circulation fan/plenum (PDT-840 or PDT-841)						
	.050			SAT	12/31/2021 7:25:08PM	Nights
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/1/2021 7:26:06AM	Days
				SAT	12/1/2021 7:22:13PM	Nights
				SAT	12/2/2021 7:26:10AM	Days
				SAT	12/2/2021 7:23:40PM	Nights
				SAT	12/3/2021 7:25:48AM	Days
				SAT	12/3/2021 7:28:31PM	Nights
				SAT	12/4/2021 7:42:10AM	Days
				SAT	12/4/2021 7:26:45PM	Nights
				SAT	12/5/2021 7:28:38AM	Days
				SAT	12/5/2021 7:28:00PM	Nights
				SAT	12/6/2021 7:27:57AM	Days
				SAT	12/6/2021 7:10:19PM	Nights
				SAT	12/7/2021 7:17:22AM	Days
				SAT	12/7/2021 7:21:26PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/8/2021 7:20:50AM	Days
				SAT	12/8/2021 7:14:55PM	Nights
				SAT	12/9/2021 7:47:07AM	Days
				SAT	12/9/2021 7:43:26PM	Nights
				SAT	12/10/2021 7:21:21AM	Days
				SAT	12/10/2021 7:20:37PM	Nights
				SAT	12/11/2021 7:18:34AM	Days
				SAT	12/11/2021 7:19:43PM	Nights
				SAT	12/12/2021 7:19:43AM	Days
				SAT	12/12/2021 7:23:19PM	Nights
				SAT	12/13/2021 7:29:02AM	Days
				SAT	12/13/2021 7:15:18PM	Nights
				SAT	12/14/2021 7:36:35AM	Days
				SAT	12/14/2021 7:28:06PM	Nights
				SAT	12/15/2021 7:32:48AM	Days
				SAT	12/15/2021 7:25:04PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/16/2021 7:25:38AM	Days
				SAT	12/16/2021 7:06:49PM	Nights
				SAT	12/17/2021 7:28:30AM	Days
				SAT	12/17/2021 7:22:14PM	Nights
				SAT	12/18/2021 7:26:56AM	Days
				SAT	12/18/2021 7:15:33PM	Nights
				SAT	12/19/2021 7:25:17AM	Days
				SAT	12/19/2021 7:23:54PM	Nights
				SAT	12/20/2021 7:43:27AM	Days
				SAT	12/20/2021 7:19:40PM	Nights
				SAT	12/21/2021 7:31:32AM	Days
				SAT	12/21/2021 7:12:08PM	Nights
				SAT	12/22/2021 7:27:15AM	Days
				SAT	12/22/2021 7:22:45PM	Nights
				SAT	12/23/2021 7:32:26AM	Days
				SAT	12/23/2021 7:22:56PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/24/2021 7:28:24AM	Days
				SAT	12/24/2021 7:16:31PM	Nights
				SAT	12/25/2021 7:25:02AM	Days
				SAT	12/25/2021 7:10:41PM	Nights
				SAT	12/26/2021 7:29:15AM	Days
				SAT	12/26/2021 7:13:40PM	Nights
				SAT	12/27/2021 7:25:29AM	Days
				SAT	12/27/2021 7:14:47PM	Nights
				SAT	12/28/2021 7:28:23AM	Days
				SAT	12/28/2021 7:08:42PM	Nights
				SAT	12/29/2021 7:19:05AM	Days
				SAT	12/29/2021 7:24:17PM	Nights
				SAT	12/30/2021 7:13:47AM	Days
				SAT	12/30/2021 7:17:39PM	Nights
				SAT	12/31/2021 7:29:19AM	Days
				SAT	12/31/2021 7:25:12PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/1/2021 7:26:07AM	Days
				SAT	12/1/2021 7:22:20PM	Nights
				SAT	12/2/2021 7:26:12AM	Days
				SAT	12/2/2021 7:23:44PM	Nights
				SAT	12/3/2021 7:26:15AM	Days
				SAT	12/3/2021 7:28:36PM	Nights
				SAT	12/4/2021 7:42:12AM	Days
				SAT	12/4/2021 7:26:47PM	Nights
				SAT	12/5/2021 7:28:42AM	Days
				SAT	12/5/2021 7:28:04PM	Nights
				SAT	12/6/2021 7:27:59AM	Days
				SAT	12/6/2021 7:10:24PM	Nights
				SAT	12/7/2021 7:17:24AM	Days
				SAT	12/7/2021 7:21:30PM	Nights
				SAT	12/8/2021 7:20:56AM	Days
				SAT	12/8/2021 7:14:57PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/9/2021 7:47:09AM	Days
				SAT	12/9/2021 7:43:30PM	Nights
				SAT	12/10/2021 7:21:22AM	Days
				SAT	12/10/2021 7:20:51PM	Nights
				SAT	12/11/2021 7:18:35AM	Days
				SAT	12/11/2021 7:19:45PM	Nights
				SAT	12/12/2021 7:19:45AM	Days
				SAT	12/12/2021 7:23:23PM	Nights
				SAT	12/13/2021 7:29:05AM	Days
				SAT	12/13/2021 7:15:21PM	Nights
				SAT	12/14/2021 7:36:41AM	Days
				SAT	12/14/2021 7:28:09PM	Nights
				SAT	12/15/2021 7:32:50AM	Days
				SAT	12/15/2021 7:25:10PM	Nights
				SAT	12/16/2021 7:25:01AM	Days
				SAT	12/16/2021 7:06:52PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/17/2021 7:28:34AM	Days
				SAT	12/17/2021 7:22:17PM	Nights
				SAT	12/18/2021 7:27:00AM	Days
				SAT	12/18/2021 7:15:37PM	Nights
				SAT	12/19/2021 7:25:21AM	Days
				SAT	12/19/2021 7:23:57PM	Nights
				SAT	12/20/2021 7:43:30AM	Days
				SAT	12/20/2021 7:19:43PM	Nights
				SAT	12/21/2021 7:31:35AM	Days
				SAT	12/21/2021 7:12:10PM	Nights
				SAT	12/22/2021 7:27:19AM	Days
				SAT	12/22/2021 7:22:47PM	Nights
				SAT	12/23/2021 7:32:29AM	Days
				SAT	12/23/2021 7:23:01PM	Nights
				SAT	12/24/2021 7:28:26AM	Days
				SAT	12/24/2021 7:16:32PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/25/2021 7:25:05AM	Days
				SAT	12/25/2021 7:10:43PM	Nights
				SAT	12/26/2021 7:29:20AM	Days
				SAT	12/26/2021 7:13:42PM	Nights
				SAT	12/27/2021 7:25:34AM	Days
				SAT	12/27/2021 7:14:54PM	Nights
				SAT	12/28/2021 7:28:25AM	Days
				SAT	12/28/2021 7:08:44PM	Nights
				SAT	12/29/2021 7:19:09AM	Days
				SAT	12/29/2021 7:24:21PM	Nights
				SAT	12/30/2021 7:13:49AM	Days
				SAT	12/30/2021 7:17:43PM	Nights
				SAT	12/31/2021 7:29:24AM	Days
				SAT	12/31/2021 7:25:15PM	Nights
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/1/2021 7:26:08AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/1/2021 7:22:24PM	Nights
				SAT	12/2/2021 7:26:13AM	Days
				SAT	12/2/2021 7:23:47PM	Nights
				SAT	12/3/2021 7:26:17AM	Days
				SAT	12/3/2021 7:28:41PM	Nights
				SAT	12/4/2021 7:42:15AM	Days
				SAT	12/4/2021 7:26:50PM	Nights
				SAT	12/5/2021 7:28:45AM	Days
				SAT	12/5/2021 7:28:07PM	Nights
				SAT	12/6/2021 7:28:01AM	Days
				SAT	12/6/2021 7:10:28PM	Nights
				SAT	12/7/2021 7:17:26AM	Days
				SAT	12/7/2021 7:21:34PM	Nights
				SAT	12/8/2021 7:20:53AM	Days
				SAT	12/8/2021 7:15:00PM	Nights
				SAT	12/9/2021 7:47:12AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/9/2021 7:43:35PM	Nights
				SAT	12/10/2021 7:21:24AM	Days
				SAT	12/10/2021 7:20:55PM	Nights
				SAT	12/11/2021 7:18:38AM	Days
				SAT	12/11/2021 7:19:49PM	Nights
				SAT	12/12/2021 7:19:47AM	Days
				SAT	12/12/2021 7:23:26PM	Nights
				SAT	12/13/2021 7:29:09AM	Days
				SAT	12/13/2021 7:15:25PM	Nights
				SAT	12/14/2021 7:36:55AM	Days
				SAT	12/14/2021 7:28:11PM	Nights
				SAT	12/15/2021 7:32:52AM	Days
				SAT	12/15/2021 7:25:12PM	Nights
				SAT	12/16/2021 7:25:05AM	Days
				SAT	12/16/2021 7:06:56PM	Nights
				SAT	12/17/2021 7:28:37AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/17/2021 7:22:22PM	Nights
				SAT	12/18/2021 7:27:02AM	Days
				SAT	12/18/2021 7:16:42PM	Nights
				SAT	12/19/2021 7:25:23AM	Days
				SAT	12/19/2021 7:24:02PM	Nights
				SAT	12/20/2021 7:43:33AM	Days
				SAT	12/20/2021 7:19:47PM	Nights
				SAT	12/21/2021 7:31:38AM	Days
				SAT	12/21/2021 7:12:12PM	Nights
				SAT	12/22/2021 7:27:25AM	Days
				SAT	12/22/2021 7:22:50PM	Nights
				SAT	12/23/2021 7:32:33AM	Days
				SAT	12/23/2021 7:23:03PM	Nights
				SAT	12/24/2021 7:28:31AM	Days
				SAT	12/24/2021 7:16:34PM	Nights
				SAT	12/25/2021 7:25:08AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/25/2021 7:10:46PM	Nights
				SAT	12/26/2021 7:29:25AM	Days
				SAT	12/26/2021 7:13:43PM	Nights
				SAT	12/27/2021 7:25:38AM	Days
				SAT	12/27/2021 7:14:56PM	Nights
				SAT	12/28/2021 7:28:28AM	Days
				SAT	12/28/2021 7:08:46PM	Nights
				SAT	12/29/2021 7:19:11AM	Days
				SAT	12/29/2021 7:24:25PM	Nights
				SAT	12/30/2021 7:13:52AM	Days
				SAT	12/30/2021 7:17:47PM	Nights
				SAT	12/31/2021 7:29:27AM	Days
				SAT	12/31/2021 7:25:17PM	Nights
HVAC: 300 area re-circulation fan/plenum (PDT-836 or PDT-837)						
	.050			SAT	12/1/2021 7:25:54AM	Days
	.050			SAT	12/1/2021 7:21:56PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area re-circulation fan/plenum (PDT-836 or PDT-837)						
	.050			SAT	12/2/2021 7:26:03AM	Days
	.050			SAT	12/3/2021 12:05:17AM	Nights
	.050				12/3/2021 12:08:53AM	Nights
	.050			SAT	12/3/2021 7:25:34AM	Days
	.050			SAT	12/3/2021 7:28:06PM	Nights
	.050			SAT	12/4/2021 7:42:00AM	Days
	.050			SAT	12/4/2021 7:26:35PM	Nights
	.050			SAT	12/5/2021 7:28:29AM	Days
	.050			SAT	12/5/2021 7:27:52PM	Nights
	.050			SAT	12/6/2021 7:27:50AM	Days
	.050			SAT	12/6/2021 7:10:03PM	Nights
	.050			SAT	12/7/2021 7:17:17AM	Days
	.050			SAT	12/7/2021 7:21:15PM	Nights
	.050			SAT	12/8/2021 7:20:36AM	Days
	.050			SAT	12/8/2021 7:14:45PM	Nights
	.050			SAT	12/9/2021 7:46:59AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area re-circulation fan/plenum (PDT-836 or PDT-837)						
	.050			SAT	12/9/2021 7:43:11PM	Nights
	.050			SAT	12/10/2021 7:21:11AM	Days
	.050			SAT	12/10/2021 7:20:28PM	Nights
	.050			SAT	12/11/2021 7:18:28AM	Days
	.050			SAT	12/11/2021 7:19:34PM	Nights
	.050			SAT	12/12/2021 7:19:25AM	Days
	.050			SAT	12/12/2021 7:23:10PM	Nights
	.050			SAT	12/13/2021 7:28:53AM	Days
	.050			SAT	12/13/2021 7:15:05PM	Nights
	.050			SAT	12/14/2021 7:36:19AM	Days
	.050			SAT	12/14/2021 7:27:56PM	Nights
	.050			SAT	12/15/2021 7:32:42AM	Days
	.050			SAT	12/15/2021 7:24:56PM	Nights
	.050			SAT	12/16/2021 7:24:57AM	Days
	.050			SAT	12/16/2021 7:06:40PM	Nights
	.050			SAT	12/17/2021 7:28:22AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area re-circulation fan/plenum (PDT-836 or PDT-837)						
	.050			SAT	12/17/2021 7:22:05PM	Nights
	.050			SAT	12/18/2021 7:26:47AM	Days
	.050			SAT	12/18/2021 7:15:23PM	Nights
	.050			SAT	12/19/2021 7:25:09AM	Days
	.050			SAT	12/19/2021 7:23:41PM	Nights
	.050			SAT	12/20/2021 7:43:17AM	Days
	.050			SAT	12/20/2021 7:19:35PM	Nights
	.050			SAT	12/21/2021 7:31:21AM	Days
	.050			SAT	12/21/2021 7:12:03PM	Nights
	.050			SAT	12/22/2021 7:26:57AM	Days
	.050			SAT	12/22/2021 7:22:29PM	Nights
	.050			SAT	12/23/2021 7:32:16AM	Days
	.050			SAT	12/23/2021 7:22:47PM	Nights
	.050			SAT	12/24/2021 7:28:18AM	Days
	.050			SAT	12/24/2021 7:16:26PM	Nights
	.050			SAT	12/25/2021 7:24:55AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: 300 area re-circulation fan/plenum (PDT-836 or PDT-837)						
	.050			SAT	12/25/2021 7:10:34PM	Nights
	.050			SAT	12/26/2021 7:28:57AM	Days
	.050			SAT	12/26/2021 7:13:38PM	Nights
	.050			SAT	12/27/2021 7:25:14AM	Days
	.050			SAT	12/27/2021 7:14:34PM	Nights
	.050			SAT	12/28/2021 7:28:12AM	Days
	.050			SAT	12/28/2021 7:08:34PM	Nights
	.050			SAT	12/29/2021 7:18:57AM	Days
	.050			SAT	12/29/2021 7:24:04PM	Nights
	.050			SAT	12/30/2021 7:13:40AM	Days
	.050			SAT	12/30/2021 7:17:29PM	Nights
	.050			SAT	12/31/2021 7:29:09AM	Days
	.050			SAT	12/31/2021 7:24:32PM	Nights
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/1/2021 7:26:35AM	Days
				SAT	12/1/2021 7:22:32PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/2/2021 7:26:21AM	Days
				SAT	12/2/2021 7:23:55PM	Nights
				SAT	12/3/2021 7:26:19AM	Days
				SAT	12/3/2021 7:28:48PM	Nights
				SAT	12/4/2021 7:42:19AM	Days
				SAT	12/4/2021 7:26:53PM	Nights
				SAT	12/5/2021 7:28:48AM	Days
				SAT	12/5/2021 7:28:10PM	Nights
				SAT	12/6/2021 7:28:04AM	Days
				SAT	12/6/2021 7:10:48PM	Nights
				SAT	12/7/2021 7:18:42AM	Days
				SAT	12/7/2021 7:21:50PM	Nights
				SAT	12/8/2021 7:21:02AM	Days
				SAT	12/8/2021 7:15:05PM	Nights
				SAT	12/9/2021 7:47:14AM	Days
				SAT	12/9/2021 7:43:42PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/10/2021 7:21:46AM	Days
				SAT	12/10/2021 7:21:02PM	Nights
				SAT	12/11/2021 7:18:56AM	Days
				SAT	12/11/2021 7:19:52PM	Nights
				SAT	12/12/2021 7:20:05AM	Days
				SAT	12/12/2021 7:23:30PM	Nights
				SAT	12/13/2021 7:29:11AM	Days
				SAT	12/13/2021 7:15:28PM	Nights
				SAT	12/14/2021 7:37:08AM	Days
				SAT	12/14/2021 7:28:14PM	Nights
				SAT	12/15/2021 7:32:56AM	Days
				SAT	12/15/2021 7:25:14PM	Nights
				SAT	12/16/2021 7:25:15AM	Days
				SAT	12/16/2021 7:07:00PM	Nights
				SAT	12/17/2021 7:28:39AM	Days
				SAT	12/17/2021 7:22:29PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/18/2021 7:27:05AM	Days
				SAT	12/18/2021 7:16:45PM	Nights
				SAT	12/19/2021 7:25:27AM	Days
				SAT	12/19/2021 7:24:08PM	Nights
				SAT	12/20/2021 7:43:36AM	Days
				SAT	12/20/2021 7:19:48PM	Nights
				SAT	12/21/2021 7:31:40AM	Days
				SAT	12/21/2021 7:12:14PM	Nights
				SAT	12/22/2021 7:27:31AM	Days
				SAT	12/22/2021 7:22:53PM	Nights
				SAT	12/23/2021 7:32:37AM	Days
				SAT	12/23/2021 7:23:06PM	Nights
				SAT	12/24/2021 7:28:33AM	Days
				SAT	12/24/2021 7:16:42PM	Nights
				SAT	12/25/2021 7:25:11AM	Days
				SAT	12/25/2021 7:10:58PM	Nights

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: Glovebox exhaust header delta Ps < laboratory delta Ps <						
				SAT	12/26/2021 7:29:49AM	Days
				SAT	12/26/2021 7:13:50PM	Nights
				SAT	12/27/2021 7:25:50AM	Days
				SAT	12/27/2021 7:15:00PM	Nights
				SAT	12/28/2021 7:28:32AM	Days
				SAT	12/28/2021 7:08:51PM	Nights
				SAT	12/29/2021 7:19:19AM	Days
				SAT	12/29/2021 7:25:18PM	Nights
				SAT	12/30/2021 7:13:58AM	Days
				SAT	12/30/2021 7:18:12PM	Nights
				SAT	12/31/2021 7:29:32AM	Days
				SAT	12/31/2021 7:25:19PM	Nights
HVAC: South Basement delta P (PDI-854-1 or PDI-854-2)						
	0.00			-0.09	12/1/2021 7:25:38AM	Days
	0.00			-0.09	12/1/2021 7:21:05PM	Nights
	0.00			-.09	12/2/2021 7:25:39AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: South Basement delta P (PDI-854-1 or PDI-854-2)						
		0.00		-0.08	12/2/2021 7:22:55PM	Nights
		0.00		-0.09	12/3/2021 7:24:32AM	Days
		0.00		-0.09	12/3/2021 7:26:36PM	Nights
		0.00		-0.09	12/4/2021 7:41:10AM	Days
		0.00		-.09	12/4/2021 7:26:03PM	Nights
		0.00		-0.09	12/5/2021 7:27:24AM	Days
		0.00		-.09	12/5/2021 7:27:22PM	Nights
		0.00		-.09	12/6/2021 7:27:30AM	Days
		0.00		-.09	12/6/2021 7:08:48PM	Nights
		0.00		-.09	12/7/2021 7:17:01AM	Days
		0.00		-.09	12/7/2021 7:20:46PM	Nights
		0.00		-0.09	12/8/2021 7:19:29AM	Days
		0.00		-.09	12/8/2021 7:14:24PM	Nights
		0.00		-0.09	12/9/2021 7:46:42AM	Days
		0.00		-0.09	12/9/2021 7:42:45PM	Nights
		0.00		-0.10	12/10/2021 7:20:58AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: South Basement delta P (PDI-854-1 or PDI-854-2)						
		0.00		-0.09	12/10/2021 7:20:05PM	Nights
		0.00		-.09	12/11/2021 7:18:07AM	Days
		0.00		-.09	12/11/2021 7:19:11PM	Nights
		0.00		-0.09	12/12/2021 7:18:51AM	Days
		0.00		-.09	12/12/2021 7:22:43PM	Nights
		0.00		-.09	12/13/2021 7:28:26AM	Days
		0.00		-0.09	12/13/2021 7:12:20PM	Nights
		0.00		-0.09	12/14/2021 7:33:40AM	Days
		0.00		-0.09	12/14/2021 7:27:17PM	Nights
		0.00		-.09	12/15/2021 7:32:06AM	Days
		0.00		-.09	12/15/2021 7:24:33PM	Nights
		0.00		-0.09	12/16/2021 7:24:41AM	Days
		0.00		-0.09	12/16/2021 7:06:12PM	Nights
		0.00		-.09	12/17/2021 7:27:45AM	Days
		0.00		-0.09	12/17/2021 7:19:08PM	Nights
		0.00		-.09	12/18/2021 7:26:20AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: South Basement delta P (PDI-854-1 or PDI-854-2)						
		0.00		-0.09	12/18/2021 7:12:55PM	Nights
		0.00		-.09	12/19/2021 7:24:44AM	Days
		0.00		-0.09	12/19/2021 7:22:44PM	Nights
		0.00		-.09	12/20/2021 7:42:50AM	Days
		0.00		-.09	12/20/2021 7:19:21PM	Nights
		0.00		-.09	12/21/2021 7:31:00AM	Days
		0.00		-.09	12/21/2021 7:11:46PM	Nights
		0.00		-0.09	12/22/2021 7:26:28AM	Days
		0.00		-0.09	12/22/2021 7:21:09PM	Nights
		0.00		-0.09	12/23/2021 7:31:55AM	Days
		0.00		-0.09	12/23/2021 7:22:25PM	Nights
		0.00		-.09	12/24/2021 7:28:02AM	Days
		0.00		-.08	12/24/2021 7:16:11PM	Nights
		0.00		-.09	12/25/2021 7:24:28AM	Days
		0.00		-.09	12/25/2021 7:10:13PM	Nights
		0.00		-0.09	12/26/2021 7:28:23AM	Days

Tour: Shiftly Rounds

Readings from 12/1/2021 to 12/31/2021

Equipment ID	Minimum	Maximum	Tolerance	Reading	Date	Shift
HVAC: South Basement delta P (PDI-854-1 or PDI-854-2)						
		0.00		-.09	12/26/2021 7:13:20PM	Nights
		0.00		-0.09	12/27/2021 7:24:50AM	Days
		0.00		-0.09	12/27/2021 7:12:55PM	Nights
		0.00		-.09	12/28/2021 7:27:28AM	Days
		0.00		-0.09	12/28/2021 7:07:32PM	Nights
		0.00		-0.11	12/29/2021 7:18:39AM	Days
		0.00		-0.10	12/29/2021 7:23:17PM	Nights
		0.00		-0.09	12/30/2021 7:13:13AM	Days
		0.00		-0.09	12/30/2021 7:16:38PM	Nights
		0.00		-.09	12/31/2021 7:28:22AM	Days
		0.00		-0.09	12/31/2021 7:23:59PM	Nights

ATTACHMENT A806.A.

External Combustion

20.2.61 NMAC Opacity

Use of pipeline quality natural gas at LANL meets the requirement at Condition A806.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.

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 reporting period and no opacity measurements were required.

ATTACHMENT A807.A.

External Combustion

Natural Gas Usage and Rolling 12-Month Total

2021 Small Boilers Data Entry / Gas Use

	Metered Boilers Gas Use			Non-Metered Gas Use	All Small Boilers[a] Non-Metered + Metered		
	TA-55-6 Boilers[b]		CMRR-RLUOB		Total Gas Use		12-Month Rolling Total[c]
	BHW-1B (EQPT-29)	BHW-2B (EQPT-30)	All 3 Boilers (EQPT-90, 104, & 105)				
Month	(Mscf)	(Mscf)	(Mscf)	(MMscf)	(Mscf)	(MMscf)	(MMscf)
January	1	1890	357	60.81	63,058	63.06	394.97
February	1	2288	411	51.88	54,575	54.57	392.75
March	1	2001	301	43.95	46,253	46.25	393.39
April	1	1758	226	30.76	32,743	32.74	394.55
May	1	1566	166	17.01	18,745	18.75	398.40
June	452	872	108	4.17	5,599	5.60	391.93
July	1505	17	110	3.92	5,551	5.55	385.88
August	1670	18	123	5.14	6,947	6.95	382.53
September	1165	135	128	6.64	8,069	8.07	374.23
October	1712	17	208	26.67	28,609	28.61	372.60
November	2152	20	287	41.88	44,342	44.34	376.74
December	2699	22	459	83.90	87,076	87.08	401.57
TOTAL	11,360	10,604	2,884	377	401,567	402	
Reviewed by: Katelyn Mahoney 1/5/2022					12 Month Limit (MMscf) =		870

2021 Non Metered Boiler Pool Capacity:	283.9 MMBtu/hr[d]
Estimated Gas-Use per MMBtu rating Jan-June:	0.73 MMscf/MMBtu/hr
Estimated Gas-Use per MMBtu rating July-Dec:	0.59 MMscf/MMBtu/hr
Estimated Gas-Use per MMBtu - Annual	1.33 MMscf/MMBtu/hr
Estimated Gas-Use per MMBtu - Fiscal Year	1.23 MMscf/MMBtu/hr

Gas Use Non-Metered[e] (MMSCF)				
NMED ID:	EQPT-11	EQPT-12	EQPT-53&134	Insignificant Units[f]
Location:	TA-53-365	TA-53-365	TA-16-1484	Lab Wide
Equipment ID:	BHW-1	BHW-2	Plant 5	Various
Database ID:	B-0042	B-0043	B-0093/0092	
Design Rate[g] (MMBTU/hr)	7.115	7.115	12.700	257
Calculated Gas Use-Jan-June	5.227	5.227	9.330	188.788
Calculated Gas Use-July-Dec	4.214	4.214	7.522	152.198
Calculated Gas Use-Annual	9.441	9.441	16.852	340.986

ATTACHMENT A807.B.

External Combustion

RLUOB Boilers Natural Gas and Fuel Oil Usage

Boilers at the RLUOB did not use fuel oil during this reporting period. Please see Attachment A807.A. for natural gas use by the RLUOB boilers.

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.a.

External Combustion

Operational Inspection for Sources listed in Table 800.A.

Facility: F10 **Unit:** 550440 **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
W/O Title: 550440: HW BOILER (A) FS/WS PM
Written To: 550440 HOT WATER BOILERS
Task Dspln: FTTR Due Date: 09/30/2021
Job Type: PM D-B Determination: N/A
Hazard Level: MODERATE IWD Requirement: STANDING
Material Required?:

0069866001

Los Alamos NATIONAL LABORATORY EST 1943

Work Order Task
00698660 01
MASTER

Date: 9/1/21

Work Order Task Written To

Facility: F10 **Unit:** 550440 **Op Sys:** HW
Room: **Area:** **Sys/Cls:** HW
Equipment: **Component:**
550440 HOT WATER BOILERS
Equipment Tag: Alternate Tag:
Work item: CUB BOILERS Tech Surv Reqmt Rel: N
PEG Equip Group Type: PEG Equip Group ID:
Crit Safety Control: Property Group:
Maintenance Programs: 1: 2: 3: 4: 5:

Authorization

Start Permission	[signature]	N	L	Start Date	9-1-21	1425
Complete Notice		C	C	Complete Date	9.20.21	0856

NOTE:

*** Refer to attached Form 2101 - Non-Tenant Activity Form - or Form 2102 - Tenant Activity Form - for a description of site specific training or escort and access requirements.**

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.

Rework Reason/Cause

Y/N

Work Order 00698660 **Task** 01

Rework Reason/Cause

		Y/N
CDSG	CUSTOMER DESIGN	N
IMCW	IMPROPER CONSTRUCTION/WORKMANSHIP	N
IMDN	IMPROPER DESIGN	N
PDMS	PARTS/MATERIAL DID NOT MEET SPECIFICATIONS	N
WR	WARRANTY REWORK/REPAIR	N

Date: Hours: Crew: Shift:

Comments: NONE

Rework/Approval

Deficiency Tag No: Location: Tag Removed:

Rework Job: N Comments:

Trouble Found/Work Performed

Completion Comments Required: N

Completed Fireside / water side PM as per PMI Check lists Performed all Safety and Limit checks, All are Good

Continue on additional sheets? _____

Calibrated Tools

Calibrated Tool Used? N Y/N

File ID	Date Used	File ID	Date Used
	N/A		

Work Delay Reason

A	ACCESS	N Y/N
EQPT	EQUIPMENT	N Y/N
IWD	IWD WORKABILITY	N Y/N
LOTO	LOCK OUT/TAG OUT	N Y/N
MAT	MATERIAL	N Y/N
OPS	OPERATIONS	N Y/N
RCT	RCT AVAILABILTY	N Y/N

Work Order 00698660 **Task** 01

Work Delay Reason

SP	SAFETY PAUSE	N Y/N
TEL	TOOLS/EQUIP/LIFTS	N Y/N
W	WEATHER	N Y/N

Work Date: Hours: Crew: Shift:

Comments: NONE

Major Failure/Action Taken

Major Failure: NONE

Major Action Taken: NONE

Deficiency Tag Removed: Y/N

Deficiency Tag Location: NONE

Deficiency Tag ID: NONE

Limited Condition of Operation: Y/N

Work Completion Signatures

Name	Function/Department	Date
Richard Rouse	Boiler Crew / L66-25	9-17-2021
	Sup - Super	9-20-21
	MSS-CUB	9.20.21

Comments: (Rework?)

Equipment List Exceptions

Equipment List	Revision	Equipment List Description
CUB-BOILER	000	550440: CUB BOILERS

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F10	550440	HW	U209		HW	ML4
	Equipment:		BOILER	BHW-01			

Name: BOILER 1
Location: U209
Exception Reason:
Comments:
Equipment Tag: BHW-01

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F10	550440	HW	U209		HW	ML4
	Equipment:		BOILER	BHW-02			

Name: BOILER 2
Location: U209
Exception Reason:
Comments:
Equipment Tag: BHW-02

Work Order 00698660 **Task** 01

Equipment List Exceptions

Equipment List	Revision	Equipment List Description
CUB-BOILER	000	550440: CUB BOILERS

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F10	550440	HW	U209		HW	ML4
	Equipment:		BOILER	BHW-03			

Name: BOILER 3
Location: U209
Exception Reason:
Comments:
Equipment Tag: BHW-03

Accounting

Percentage	Cost Center	Activity	Account No	Sub Account No
100.00	7D170C	640CL000	KGRB00	1G550440

* * * **End of Report** * * *

Los Alamos NATIONAL LABORATORY

698660_01

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. Basic worker engagement questions are provided below. Additional 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

Richard Roose 303503 9-17-2021

Los Alamos NATIONAL LABORATORY

Form 2103

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD No: 698660-01 Revision No.:

By signing below, I verify that this activity is appropriate to be conducted in the facility and is within the scope of the facility safety basis; area/facility hazards have been identified and addressed; work meets applicable Laboratory environmental, safety, and security requirements, DOE Orders, and other applicable regulatory requirements; and that the appropriate Subject Matter Expert (SME) reviews have been completed.

FOD or FOD designee (e.g., Operations Manager)

Signature/Z-Number/Date **(If required by FOD)**: [signature] 170321 09/16/2021

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 review tasks and steps for workability and to ensure that the hazards and controls are described correctly and have not changed.
- The assigned workers are authorized and 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 Number/Date) **Required**: [signature] 185072 9/16/21

Alternate PIC signature **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 and informing workers that they have a new PIC.)*

Alternate PIC (Signature/Z Number/Date) **Required**: _____

Alternate PIC (Signature/Z Number/Date) **Required**: _____

Pre-Job Brief Content

- Prerequisites, where applicable – things that must be staged, in place, or completed before the work starts
- Worker pause/stop work authority and obligation per P101-18, Procedure for Pause/Stop Work
- Scope of work and work activities including IWD/WCDs, procedures, work package documents, and drawings, as applicable
- Hazards and associated controls, including personal protective equipment, and the resolution of any related questions
- Critical steps* including where they are covered in the IWD/WCD and which HPI technique will be used for each critical step
- Permit and plan requirements and limitations (e.g., penetrations, spark flame) and how permit requirements will be met
- Applicable regulatory requirements [e.g., Technical Safety Requirements (TSR), Code of Federal Regulations (CFR)] including how these requirements can be inadvertently violated if the IWD/WCD is not followed
- Roles and responsibilities including person(s) responsible for making critical decisions (e.g., PIC)
- Handoffs and coordination requirements among workers and multiple PICs, if applicable
- Work site conditions including location of phone and emergency equipment (e.g., fire alarms, fire extinguisher, AED) and how to respond to alarms and emergencies
- Hold points and other notifications/signoffs (e.g., inspections, Industrial Hygiene, radiation protection)
- Applicable Lessons Learned (LL), especially from previous performance of the activity
- Any other information needed to perform this activity in a safe, secure, and environmentally responsible manner

Ask: Does everyone agree with the work tasks/steps and controls, and commit to follow them?

*Critical steps are when "a procedure step, series of steps, or action that, if performed improperly, will cause irreversible harm to equipment, people, or the environment" (DOE-HDBK-1028-2009, Volume 1).

IWD No:	Revision No.:
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 Number/Date) 303503 09/16/21	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date) 305373 9/16/21	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date) 306179 9/16/21	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)

Los Alamos NATIONAL LABORATORY

Form 2103

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD No: 698600-21 Revision No.:

By signing below, I verify that this activity is appropriate to be conducted in the facility and is within the scope of the facility safety basis; area/facility hazards have been identified and addressed; work meets applicable Laboratory environmental, safety, and security requirements, DOE Orders, and other applicable regulatory requirements; and that the appropriate Subject Matter Expert (SME) reviews have been completed.

FOD or FOD designee (e.g., Operations Manager)

Signature/Z-Number/Date **(If required by FOD)**: [signature] 265591 09/17/2021

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 review tasks and steps for workability and to ensure that the hazards and controls are described correctly and have not changed.
- The assigned workers are authorized and 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 Number/Date) **Required**: [signature] 177709 9-17-21

Alternate PIC signature **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 and informing workers that they have a new PIC.)*

Alternate PIC (Signature/Z Number/Date) **Required**: _____

Alternate PIC (Signature/Z Number/Date) **Required**: _____

Pre-Job Brief Content

- Prerequisites, where applicable – things that must be staged, in place, or completed before the work starts
- Worker pause/stop work authority and obligation per P101-18, Procedure for Pause/Stop Work
- Scope of work and work activities including IWD/WCDs, procedures, work package documents, and drawings, as applicable
- Hazards and associated controls, including personal protective equipment, and the resolution of any related questions
- Critical steps* including where they are covered in the IWD/WCD and which HPI technique will be used for each critical step
- Permit and plan requirements and limitations (e.g., penetrations, spark flame) and how permit requirements will be met
- Applicable regulatory requirements [e.g., Technical Safety Requirements (TSR), Code of Federal Regulations (CFR)] including how these requirements can be inadvertently violated if the IWD/WCD is not followed
- Roles and responsibilities including person(s) responsible for making critical decisions (e.g., PIC)
- Handoffs and coordination requirements among workers and multiple PICs, if applicable
- Work site conditions including location of phone and emergency equipment (e.g., fire alarms, fire extinguisher, AED) and how to respond to alarms and emergencies
- Hold points and other notifications/signoffs (e.g., inspections, Industrial Hygiene, radiation protection)
- Applicable Lessons Learned (LL), especially from previous performance of the activity
- Any other information needed to perform this activity in a safe, secure, and environmentally responsible manner

Ask: Does everyone agree with the work tasks/steps and controls, and commit to follow them?

*Critical steps are when "a procedure step, series of steps, or action that, if performed improperly, will cause irreversible harm to equipment, people, or the environment" (DOE-HDBK-1028-2009, Volume 1).

IWD No:	Revision No.:
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 Number/Date) 305373 9/17/21	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date) 303503 09/17/21	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date) 331693 09/17/21	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)

Los Alamos NATIONAL LABORATORY EST. 1943

AP-WORK-002: Attachment 11
Maintenance and Site Services
Work Completion Form

Work Order/Task: 698660 01

Start Date: 9-17-2021		Completion Date 9-17-2021
SUMMARIZE THE WORK PERFORMED		
Date	Completed Fireside/water side PM as per	
9-17-2021	PME Checklist. Perform AVI Safety	
	and Limit Checks, All are Good	
FOR CORRECTIVE WORK – WHAT FAILED AND WHAT WAS FIXED		
	Failure Mode Root Cause Code (Circle Root Causes that Apply)	
Failure Mode	Circuit Breaker Tasks	System Restoration Issues
	Digital Component Tasks	Pump Related Tasks
	Doors/Hatches	Procedure Use
	Electrical Determinations	Rigging/Lifting Tasks
	Failed Surveillance	Electrical Switches
	Fastener Tasks	Troubleshooting Issues
	FME Tasks	Valve Related Tasks
	I&C Calibration/Setpoints	Welding
	Mechanical Connections	Work Instruction Issues
	Other (Specify Root Cause)	
Failure Mode Comments	(Add Details) NONE	
	Rework Mode (Circle Rework Causes that Apply)	
Rework	Cause Indeterminate	Life Cycle Management
	Design Deficiency	PM Deficiency
	Intentionally Abbreviated Maintenance	Rule Base Human Performance Deficiency
	Instructional Deficiency	Skill Base Human Performance Deficiency
	Knowledge Based Human Performance Error	Tools/Equipment/Lifts
	Deficiency	Vendor Deficiency
	Operational Deficiency	Work Management Deficiency
		Weather
	Other (Specify Rework Mode)	
Comments	NONE	

698660 01

FOR PMs – SUMMARIZE AS FOUND AND AS LEFT CONDITIONS BELOW		
	As Found Conditions (Circle Conditions that Apply)	
As found	Unanticipated Failure Failure Not Normal Wear Failure Normal Wear Outside of Tolerance Reliability Degraded	Within Tolerance Satisfactory Superior, Like New Not Applicable
	Other (Specify As Found Condition)	
Comments	NONE	
As left	AWO	
Parts/Repairs	NONE	
Read/meas.	185° - 385 F	
Post test info.	186° - 30 PSE	
Problems Encountered (delays, safety, etc.):		
	Delay Codes (Circle Codes that Apply)	
Delay	Access Equipment IWD Workability Material	Operations RCT Availability Safety Pause Weather # of Hours____ Date(s)____
	Other (Specify Reason for Delay)	
Comments	NONE	
Lessons Learned/Recommendations:		
	NONE	

Name:	Z#	Signature:	Date:
Richard Roose	303503	[signature]	9-17-2021

698660 01

PIC/SUPT

☑ PM has been completed in its entirety and ready for closure.

IF A PM COULD NOT BE COMPLETED:

☑ Percentage complete is 100 %

☐ Sections that did not work and need to be rescheduled

Reasons why:

MAINTENANCE COORIDATOR/AREA WORK COORDINATOR

Work Package is Complete and may be closed out: YES ☒ NO ☐

IF no: State Reason

Additional Work Needed? ☒ YES ☐ NO

Document UP/WO/FSR Number: WO: 659457-01

ENGINEERING (FOR MD and CD Work Orders)

IF a configuration baseline has been changed, THEN indicate the changes are to be incorporated into the following documents and/or configuration baseline:

☐ Drawings ☐ FDD/SDD

☐ Procedures ☐ Master Equipment List

☐ Permits ☐ Checklists

SE Name: Signature: Date:

WORK CONTROL

Moderate/High Hazard – WMC/Planner reviewed for Lessons Learned/Feedback

☐ YES ☐ NO N/A ☐

☐ Review of the completed work package is complete per AP-WORK-005, and the work package is ready to be set to complete in CMMS.

Name: **Z#** **Signature:** **Date:**

Work Order/Task: 698660 01

Start Date:	Completion Date:

ADITIONAL DETAILS ON WORK PERFORMED

Date	(Add details on As Found, Failure Mode, and Lessons Learned etc.)

Los Alamos NATIONAL LABORATORY

Form 2103

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD No: 698660 : 01 Revision No.:

By signing below, I verify that this activity is appropriate to be conducted in the facility and is within the scope of the facility safety basis; area/facility hazards have been identified and addressed; work meets applicable Laboratory environmental, safety, and security requirements, DOE Orders, and other applicable regulatory requirements; and that the appropriate Subject Matter Expert (SME) reviews have been completed.

FOD or FOD designee (e.g., Operations Manager)

Signature/Z-Number/Date **(If required by FOD)**: [signature] 170321 09/15/2021

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 review tasks and steps for workability and to ensure that the hazards and controls are described correctly and have not changed.
- The assigned workers are authorized and 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 Number/Date) **Required**: [signature] 185092 9/15/21

Alternate PIC signature **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 and informing workers that they have a new PIC.)*

Alternate PIC (Signature/Z Number/Date) **Required**: _____

Alternate PIC (Signature/Z Number/Date) **Required**: _____

Pre-Job Brief Content

- Prerequisites, where applicable – things that must be staged, in place, or completed before the work starts
- Worker pause/stop work authority and obligation per P101-18, Procedure for Pause/Stop Work
- Scope of work and work activities including IWD/WCDs, procedures, work package documents, and drawings, as applicable
- Hazards and associated controls, including personal protective equipment, and the resolution of any related questions
- Critical steps* including where they are covered in the IWD/WCD and which HPI technique will be used for each critical step
- Permit and plan requirements and limitations (e.g., penetrations, spark flame) and how permit requirements will be met
- Applicable regulatory requirements [e.g., Technical Safety Requirements (TSR), Code of Federal Regulations (CFR)] including how these requirements can be inadvertently violated if the IWD/WCD is not followed
- Roles and responsibilities including person(s) responsible for making critical decisions (e.g., PIC)
- Handoffs and coordination requirements among workers and multiple PICs, if applicable
- Work site conditions including location of phone and emergency equipment (e.g., fire alarms, fire extinguisher, AED) and how to respond to alarms and emergencies
- Hold points and other notifications/signoffs (e.g., inspections, Industrial Hygiene, radiation protection)
- Applicable Lessons Learned (LL), especially from previous performance of the activity
- Any other information needed to perform this activity in a safe, secure, and environmentally responsible manner

Ask: Does everyone agree with the work tasks/steps and controls, and commit to follow them?

*Critical steps are when "a procedure step, series of steps, or action that, if performed improperly, will cause irreversible harm to equipment, people, or the environment" (DOE-HDBK-1028-2009, Volume 1).

IWD No:	Revision No.:
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 Number/Date) 305373 9/15/21	**Worker** (Signature/Z Number/Date) 303503 09/15/21
Worker (Signature/Z Number/Date) Mark Millwood 331697 9-17-2021	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)	
Revision #:		**Activity/Task Title:** 550440 Annual Hot Water Boiler FS/WS PM
Work Document #: (WO # / Task)		**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
TA: 55	**Building:** 0440	**Room:** / **Additional Location Description:**

1. Scope of Work

1.1 **PERFORM** – Annual HW Boiler FS/WS Inspection Testing and Maintenance PM in accordance with MSS PMI Procedure 403-A.002 and 403-A.006.

Hazard Analysis (HA) Team: Date

2. Precautions and Limitations

2.1 **IF** steps cannot be completed as described, or **IF** unforeseen situations occur, Then **PAUSE WORK** and **STABILIZE** the situation, **CONTACT** your supervisor, and **AWAIT** further instructions before proceeding.

2.2 Follow all postings when moving throughout the facility, wear appropriate PPE as listed. If postings are not understood, then **PAUSE WORK** and verify with RLUOB Operations before proceeding.

2.3 Signatures, Initials, and Place-Keeping blocks at the end of each step signifies the completion of the specific step or series of steps as an error prevention tool. Steps SHALL be signed and/or marked as required upon completion

2.4 Verify the activity is on the Plan of the Day or has received same day approval.

2.5 Perform Non-hazardous voltage checks in the vicinity where electrical work is to be performed and anytime the electrical configuration of a system is changed, including changes to LOTO configuration. Re-emphasize the need for daily Non-hazardous voltage checks.

2.6 **ENTRY CONDITIONS:**

- Ensure Facility status is compatible with work activity.
- When required, place barricades or other access control measures to exclude non-qualified workers and by standers from entering work area.
- Check in with Operations Center prior to starting any work.

3. Prerequisites/Initial Conditions

3.1 **CHECK-IN REQUIREMENTS:**

- All personnel must check in at the RLUOB Operations Center to release work and ensure work is on Plan-of-Day or receive late addition approval.

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 550440 Annual Hot Water Boiler FS/WS PM
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description:**

3.2 **WORK AREA TRAINING REQUIREMENTS:**

- Residents must complete RLUOB Site Specific Training (TP #161) and read the Building Emergency Plan or be escorted.

3.3 **OTHER BOUNDING CONDITIONS**

- Look for postings when moving through the facility such as PPE requirements. If you have any questions, ask.
- Follow announcements, alarms, alerts, and all directions from Facility Ops due to changing conditions, outages, testing activities, evacuation orders, etc.
- Conduct a Pre-job Briefing and include the following discussion:
- Determine the appropriate level of personal protective equipment (PPE) during maintenance and LOTO activities.

3.4 **REFERENCED DOCUMENTS**

- LOTO Form 2244
- SDS – Gas
- SDS – Garrett-Callahan Formula 1015L

4. Special Training/Medical Requirements

4.1 The following training is required for the General Hazards Section:

- LANL Maintenance Craft Worker **Curriculum ID # 10968**

4.2 The following training is required for performing work at RLUOB:

- RLUOB Site Specific **Curriculum ID # 161**
- RLUOB 1st Floor Access Unescorted **Curriculum ID # 1768**

4.3 The following training is required for working on Boilers –Pipefitters performing work:

- General Pipefitter Requirements **Curriculum ID # 647**
- Water Treatment **Curriculum ID # 2296**
- Chemical Hazards Communication **Curriculum ID # 25418**

4.4 The following training is required for Electricians performing work:

- General Electrician Requirements **Curriculum ID # 642**
- Electrician and Facility Engineers **Curriculum ID # 2559**
  or Non-Electrician Craft **Curriculum ID # 2908**

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)	
Revision #:		**Activity/Task Title:** 550440 Annual Hot Water Boiler FS/WS PM
Work Document #: (WO # / Task)		**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
TA: 55	**Building:** 0440 **Room:**	**Additional Location Description:**

Note: Q/L clearance is required for access to the Limited Area portion of facility or be escorted.

5. SPECIAL TOOLS/EQUIPMENT

5.1 **N/A**

6. WORK INSTRUCTIONS

⚠WARNING	**Hazard: Noise Exposure when working in Equipment rooms** **Control:** Follow postings and wear hearing protection **Training**: Hearing Conservation – Curriculum # 2307

6.1 **PERFORM Pre-Maintenance**

6.1.1 **Perform** Pre-Maintenance in accordance with 403-A.006, Hot Water Boiler Yearly Fireside/Waterside Inspection and Maintenance Checklist. ☑

BHW-01 ☑

BHW-02 ☐

BHW-03 ☐

6.2 **PERFORM Electrical LOTO of Boiler #1 per Ops Sequence (AS/WHEN NEEDED)**

NOTE:	• OP's to define the sequence of turning Boilers 1, 2, and 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 – Potential contact with energized systems.

6.2.1 **Record** the current AS FOUND position of Boiler Switch for each Boiler.

BHW-01 Auto ☑ **BHW-02** Auto ☑ **BHW-03** Auto ☑

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 550440 Annual Hot Water Boiler FS/WS PM
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description:**

BHW-01 fed from: MCC-B Ckt # 3B, Rm 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

HW-P-01 fed from: MCC-B Ckt # 2B, Rm U209 (480V/3Ø) Class 1.3b)	
Incident Energy (cal/cm²)	0.14
Arc Flash Boundary (in)	5
Working Distance (in)	18
Limited Approach Boundary (in)	42

6.2.2 **Perform** LOTO of **Boiler BHW-01** at MCC-B Ckt 3B and LOTO **HW Pump HW-P-01** at MCC-B Ckt # 2B located in Rm U209. ☑
- LOTO Form 2244

Breaker Manipulation PPE:
- Electrical Worker Standard Required Daily Wear Work Clothing

6.2.3 **Place** switch inside UPS in the OPEN(OFF) position. UPS is located beneath BHW-01 control Panel and apply LOTO. ☑

6.2.4 **Place** Boiler 2 or 3 in Manual position and verify accompanying pump is also in Manual positon prior to start of work on Boiler 1. ☑

6.2.5 **Notify** Operations Center that Boiler 2 or 3 have been placed in Manual position. ☑

6.2.6 **Verify** Non-Hazardous Voltage at BHW-01 Controller and at Pump local disconnect switch using NRTL, Cat. III min volt meter. ☑

Non-Hazardous Voltage Verification PPE:
- Electrical Worker Standard Required Daily Wear Work Clothing
- Di-Electric Gloves with Leather Protectors

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)	
Revision #:		**Activity/Task Title:** 550440 Annual Hot Water Boiler FS/WS PM
Work Document #: (WO # / Task)		**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
TA: 55	**Building:** 0440 **Room:**	**Additional Location Description:**

- Safety Glasses
- Hearing Protection (Ear Canal Inserts)
- Two-Person Rule

HOLD POINT

Non-Hazardous Voltage Verified for **BHW-01 and HW-P-01**

Verifier _____ Z# 303503 Date 09/15/21

6.3 **PERFORM Mechanical LOTO of Boiler # 1 Gas / Fuel Oil/ Water Valves**

⚠WARNING

Hazard: Gas

PPE Requirements: Wear safety glasses with side shields, work gloves, long sleeves, long pants, use explosion proof equipment and non-sparking tools. Ensure work is occurring in well ventilated area.

6.3.1 **Close** and **Perform** LOTO to the following valves: ☑

- Natural Gas Valves **NG-V-6009D** and **NG-V-6004A**
- INLET Water Valve to **BHW-01** and **HW-V-101A**
- OUTLET Water Valve from **BHW-01** and **HW-V-101B**

NOTE:
If Required, Relieve Boiler Pressure by opening pressure relief valve and allow to drain.

- LOTO Form 2244

6.3.2 **Verify** Non-Hazardous 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. ☑

HOLD POINT

Non-Hazardous Energy Verified for **BHW-01 Natural Gas Valves**

Verifier _____ Z# 303503 Date 09/15/21

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 550440 Annual Hot Water Boiler FS/WS PM
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description:**

HOLD POINT

Non-Hazardous Energy Verified for **BHW-01 Inlet/ Outlet Water Valves**

Verifier _____ Z# 303503 Date 09/15/21

6.3.3 **Proceed** to perform **TASK 6.8** in accordance with IWD and as per PMI Checklists 403-A.002 and 403-A.006. ☑

6.4 **PERFORM Electrical LOTO of Boiler # 2 per Ops Sequence (AS/WHEN NEEDED)**

⚠WARNING

Hazardous Energy/Electrical Shock/Arc Flash Hazard – Potential contact with energized systems.

BHW-02 fed from: MCC-B Ckt # 3D, Rm 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**

HW-P-02 fed from: MCC-B Ckt # 2C, Rm U209 (480V/3Ø) Class 1.3b)	
Incident Energy (cal/cm²)	**0.14**
Arc Flash Boundary (in)	**5**
Working Distance (in)	**18**
Limited Approach Boundary (in)	**42**

6.4.1 **Perform** LOTO of **Boiler BHW-02** at MCC-B Ckt 3D and LOTO **HW Pump HW-P-02** at MCC-B Ckt # 2C located in Rm U209. ☑

- LOTO Form 2244

Breaker Manipulation PPE:

- Electrical Worker Standard Required Daily Wear Work Clothing

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 550440 Annual Hot Water Boiler FS/WS PM
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description:**

6.4.2 **Verify** Non-Hazardous Voltage at BHW-02 Controller and at Pump local disconnect switch using NRTL, Cat. III min volt meter. ☑

Non-Hazardous Voltage Verification PPE:

- Electrical Worker Standard Required Daily Wear Work Clothing
- Di-Electric Gloves with Leather Protectors
- Safety Glasses
- Hearing Protection (Ear Canal Inserts)
- Two-Person Rule

HOLD POINT

Non-Hazardous Voltage Verified for **BHW-02 and HW-P-02**

Verifier _____ Z# 30353 Date 09/16/21

6.5 **PERFORM Mechanical LOTO of Boiler # 2 Gas / Fuel Oil/ Water Valves**

⚠WARNING

Hazard: Gas

PPE Requirements: Wear safety glasses with side shields, work gloves, long sleeves, long pants, use explosion proof equipment and non-sparking tools. Ensure work is occurring in well ventilated area.

6.5.1 **Close** and **Perform** LOTO to the following valves: ☑

- Natural Gas Valves **NG-V-6010D** and **NG-V-6014A**
- INLET Water Valve to **BHW-02** and **HW-V-201A**
- OUTLET Water Valve from **BHW-02** and **HW-V-201B**

NOTE:
If Required, Relieve Boiler Pressure by opening pressure relief valve and allow to drain.

- LOTO Form 2244

6.5.2 **Verify** Non-Hazardous 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. ☑

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)	
Revision #:		**Activity/Task Title:** 550440 Annual Hot Water Boiler FS/WS PM
Work Document #: (WO # / Task)		**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
TA: 55	**Building:** 0440	**Room:** / **Additional Location Description:**

HOLD POINT

Non-Hazardous Energy Verified for **BHW-02 Natural Gas Valves**

Verifier _____ Z# 303503 Date 09/16/21

HOLD POINT

Non-Hazardous Energy Verified for **BHW-02 Inlet/ Outlet Water Valves**

Verifier _____ Z# 303503 Date 09/16/21

6.5.3 **Proceed** to perform **TASK 6.8** in accordance with IWD and as per PMI Checklists 403-A.002 and 403-A.006. ☑

6.6 **PERFORM Electrical LOTO of Boiler # 3 per Ops Sequence (AS/WHEN NEEDED)**

⚠WARNING

Hazardous Energy/Electrical Shock/Arc Flash Hazard – Potential contact with energized systems.

BHW-03 fed from: MCC-B Ckt # 3F, Rm 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

HW-P-03 fed from: MCC-B Ckt # 2D, Rm U209 (480V/3Ø) Class 1.3b)	
Incident Energy (cal/cm²)	0.14
Arc Flash Boundary (in)	5
Working Distance (in)	18
Limited Approach Boundary (in)	42

6.6.1 **Perform** LOTO of **Boiler BHW-03** at MCC-B Ckt 3F and LOTO **HW Pump HW-P-03** at MCC-B Ckt # 2D located in Rm U209. ☑

- LOTO Form 2244

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 550440 Annual Hot Water Boiler FS/WS PM
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description:**

Breaker Manipulation PPE:

- Electrical Worker Standard Required Daily Wear Work Clothing

6.2.7 **Verify** Non-Hazardous Voltage at BHW-03 Controller and at Pump local disconnect switch using NRTL, Cat. III min volt meter. ☑

Non-Hazardous Voltage Verification PPE:

- Electrical Worker Standard Required Daily Wear Work Clothing
- Di-Electric Gloves with Leather Protectors
- Safety Glasses
- Hearing Protection (Ear Canal Inserts)
- Two-Person Rule

HOLD POINT

Non-Hazardous Voltage Verified for **BHW-03 and HW-P-03**

Verifier _____ Z# 303503 Date 09/17/21

6.7 **PERFORM Mechanical LOTO of Boiler # 3 Gas / Fuel Oil/ Water Valves**

⚠WARNING

Hazard: Gas

PPE Requirements: Wear safety glasses with side shields, work gloves, long sleeves, long pants, use explosion proof equipment and non-sparking tools. Ensure work is occurring in well ventilated area.

6.7.1 **Close** and **Perform** LOTO to the following valves: ☑

- Natural Gas Valves **NG-V-6020D** and **NG-V-6024A**
- INLET Water Valve to **BHW-03** and **HW-V-301A**
- OUTLET Water Valve from **BHW-03** and **HW-V-301B**

NOTE:

If Required, Relieve Boiler Pressure by opening pressure relief valve and allow to drain.

- LOTO Form 2244

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 550440 Annual Hot Water Boiler FS/WS PM
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
TA: 55	**Building:** 0440	**Room:**	**Additional Location Description:**

6.7.2 **Verify** Non-Hazardous 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. ☑

HOLD POINT

Non-Hazardous Energy Verified for **BHW-03 Natural Gas Valves**

Verifier _____ Z# 303503 Date 09/17/21

HOLD POINT

Non-Hazardous Energy Verified for **BHW-03 Inlet/ Outlet Water Valves**

Verifier _____ Z# 303503 Date 09/17/21

6.7.3 **Proceed** to perform **TASK 6.8** in accordance with IWD and as per PMI Checklists 403-A.002 and 403-A.006. ☑

6.8 **PERFORM PMI Work Steps**

6.8.1 **Perform** applicable steps of PMI procedure while unit is under LOTO and document results on attached checklists for each boiler. Mark unit below as work is completed. ☑

BHW-01 ☑

BHW-02 ☑

BHW-03 ☐

6.9 **REMOVE LOTO**

6.9.1 **REMOVE** Electrical LOTO and Re-Energize Boilers on **BHW-01** as they are returned to service. (Refer to **Task 6.2** for applicable LOTO points) ☑

6.9.2 **REMOVE** Electrical LOTO and Re-Energize Boilers on **BHW-02** as they are returned to service. (Refer to **Task 6.4** for applicable LOTO points) ☑

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)	
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Work Document #: (WO # / Task)		**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
TA: 55	**Building:** 0440 **Room:**	**Additional Location Description:**

6.9.3 **REMOVE** Electrical LOTO and Re-Energize Boilers on **BHW-03** as they are returned to service. (Refer to **Task 6.6** for applicable LOTO points) ☑

6.9.4 **REMOVE** Mechanical LOTO and Open Valves to Boiler **BHW-01** as it is returned to service. (Refer to **Task 6.3** for applicable LOTO points) **Proceed** to **Task 7.1** for PMT. ☑

6.9.5 **REMOVE** Mechanical LOTO and Open Valves to Boiler **BHW-02** as it is returned to service. (Refer to **Task 6.5** for applicable LOTO points) **Proceed** to **Task 7.1** for PMT. ☑

6.9.6 **REMOVE** Mechanical LOTO and Open Valves to Boiler **BHW-03** as it is returned to service. (Refer to **Task 6.7** for applicable LOTO points) **Proceed** to **Task 7.1** for PMT. ☑

6.10 **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

6.10.1 **Perform** Hot Water Boiler water treatment in accordance with PMI 403-A.002 and record results. ☑

6.10.2 **IF** required, add Garrett-Callahan Formula 1015L or equivalent to Pot Feeder located in Rm U200, and follow work steps listed below: ☑

(1) **Close** Valve HW-V-01C
(2) **Close** Valve HW-V-01D
(3) **Slowly** Open Pot Feeder Drain Valve HW-V01E and relieve pressure slowly
(4) **Slowly** remove lid to Pot Feeder
(5) **Close** Drain Valve HW-V01E prior to adding chemical

(6) **DON PPE** for adding Chemical:
- Use with good ventilation
- Face Shield and Chemical Goggles for splash hazard
- Chemical Resistant Apron
- Long sleeves and long pants

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)	
Revision #:		**Activity/Task Title:** 550440 Annual Hot Water Boiler FS/WS PM
Work Document #: (WO # / Task)		**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
TA: 55	**Building:** 0440 **Room:**	**Additional Location Description:**

- Nitrile Gloves
- Eyewash or Portable Eyewash available in immediate vicinity

(7) **Connect** a hose to Tepid Water supply line hose bib adjacent to Potable Hot Water Tank for immediate use and contemporary rinse station.
(8) **Slowly Add** Garrett-Callahan Formula 1015L (Clean up Spills)
(9) **Inspect** lid and seal, wipe threads, clean seal area
(10) **Close** Pot Feeder lid to snug tight
(11) **Slowly** Open Valve HW-V-01D
(12) **Slowly** Open Valve HW-V-01C
(13) **Ensure** no leaks occur from Pot Feeder, Inlet/Outlet valves, and piping.

6.10.3 **Wait** a minimum of 72 hours and RE-Test Hot Water Boiler Water Treatment per PMI 403-A.002. N/A

6.10.4 **Re-Perform** steps as needed to obtain acceptable water treatment results. N/A

7. Post Work Activities

7.1 **Perform** Post Maintenance Testing for all 3 Boilers in accordance with PMI 403-A.006. ☑

BHW-01 ☑

BHW-02 ☑

BHW-03 ☑

8. Closeout

8.1 **DISPOSE** of all waste (if any) per the direction of the Waste Management Coordinator (WMC) or designee ☑

8.2 **CLOSE** out package ☑
- Document any additional information and work performed on Work Doc Form
- Document any lessons learned in the Work Doc Form if applicable.

8.3 **CONTACT** the MC and inform them of the work completed. Fill out the required Work Order documentation and return to the MC or Work Control Office. ☑

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision #:			**Activity/Task Title:** 550440 Annual Hot Water Boiler FS/WS PM
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Wanda J. Madrid 116672 08/20/2021
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 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** 239917 9/1/2021 **FOD or Representative** (Signature/Z#/Date) **ESO Review** (Signature/Z#/Date) **If Required** CHARLES GRAY (Affiliate) **Safety Review** (Signature/Z#/Date) **Required** See attached coversheet

IWD Type ☒ Moderate-Hazard ☐ High-Hazard/Complex ☐ Standing IWD	Date when RLM re-approval is required 10/31/2022 Other Conditions for Re-Approval Changes in Scope/Hazards of IWD (Print) Name of Primary PIC Z. Garcia Z# 177709 Name of Alternate PIC D. Valdez Z# 185042 Name of Alternate PIC M. Fernandez-Mace Z# 330075	Any required classification review completed, N/A per 9/1/2021 Signature/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.: 698660 01	Equipment ID No.: BHW-01

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: 09 / 16 / 21 Inspectors: RR, JM, JU

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: RR

2.0 MAINTENANCE

2.1	Obtain a water sample from the boiler drain or an accessible point on the hot water loop system.		Initials: RR
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 pH: 9 PO_4: N/A pH: N/A	S ☒ U ☐ N/A ☐	Initials: RR
2.3	If required, add Garrett-Callahan Formula 1015L or equivalent to the pot feeder.		Initials: RR

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: RR

Remarks: NONE.

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 N/A pH: N/A PO_4: N/A pH: N/A	S ☐ U ☐ N/A ☒	Initials: N/A
2.6	Send a copy of the water treatment report to LANL Commissioned Inspector Supervisor's office, MS P291.		Initials: N/A

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: RR

Name of Craft Worker: Rogers, Richard A. Z Number: 303503

Signature: [signature] Date: 09 / 16 / 21

Name of Craft Worker: Julian Martinez Z Number: 305373

Signature: [signature] Date: 9 / 17 / 21

Foreman Verification: N/A Z Number:

Signature: Date: / /

Remarks: 2.5, 2.6. BHW·01 DOES NOT REQUIRE WATER TREATMENT AT THIS TIME

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.: 698660-01	Equipment ID No.: BHW-01

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: 09 / 15 / 21 Inspectors: KR, JM

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.

1.1	Notify maintenance coordinator (MC) that work will be in progress on the boiler system.	Initials: RR

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: RR
2.2	Cool boiler, open air cock, and drain the boiler.		Initials: RR
2.3	Perform an internal and external inspection after thorough cleaning.	S ☒ U ☐ N/A ☐	Initials: RR
2.3.1	Check the fireside furnace and fire-tubes for any evidence of soot formation or corrosion.	S ☒ U ☐ N/A ☐	Initials: RR
2.3.2	Brush and vacuum furnace and fire-tubes if such conditions exist.		Initials: RR
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.	S ☒ U ☐ N/A ☐	Initials: RR
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: RR

Remarks: NONE.

2.3.5	On one-pass boilers (Sellers), check condition of all heat extractors.	S ☐ U ☐ N/A ☒	Initials: RR
2.3.6	Check refractory materials.	S ☒ U ☐ N/A ☐	Initials: RR
2.3.7	Replace if needed.		Initials: RR
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: RR
2.5	Perform routine burner maintenance.		Initials: RR
2.5.1	Observe temperature and operating pressure and general conditions.	S ☒ U ☐ N/A ☐	Initials: RR
2.5.2	Fire and cycle the burner.		Initials: RR
2.6	Perform routine maintenance of circulating pump and expansion pump equipment.		Initials: RR
2.6.1	Observe condition of expansion tank.	S ☒ U ☐ N/A ☐	Initials: RR
2.6.2	Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion.	S ☐ U ☐ N/A ☒	Initials: RR
2.6.3	Check the air pressure on the bladder-type expansion tanks.	S ☒ U ☐ N/A ☐	Initials: RR

Remarks: 2.3.5. BHW-01 IS NOT A SELLERS BOILER
2.6.1. EXPANSION TANK NEEDS DRAIN OR R+R
2.6.2. " " " " " " "

Work Order No.: 698660-01 Equipment ID No.: BHW-01

2.6.4 Observe operation of circulating pumps.	S ☒ U ☐ N/A ☐	Initials: RR
2.6.5 Lubricate pump motors.		Initials: RR
2.7 Perform routine maintenance of entire combustion control equipment.		Initials: RR
2.7.1 Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	S ☒ U ☐ N/A ☐	Initials: RR
2.7.2 Adjust air/fuel mixture as needed.		Initials: RR
2.7.3 Test flame detection devices on boilers with flame scanners.	S ☒ U ☐ N/A ☐	Initials: RR
2.7.4 Remove the flame scanner with the burner firing.		Initials: RR
NOTE The burner should shut off as a flame failure condition.		
2.7.5 Clean the flame scanner, reinstall and test programmer.		Initials: RR
2.7.6 Check for proper operation as boiler goes through a firing cycle and light-off.	S ☒ U ☐ N/A ☐	Initials: RR
2.7.7 Check all electrical control and circuitry.	S ☒ U ☐ N/A ☐	Initials: RR

Remarks: NONE

Work Order No.: BHW-01 698660.01 Equipment ID No.: BHW-01

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.	S ☒ U ☐ N/A ☐	Initials: KR
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.	S ☒ U ☐ N/A ☐	Initials: KR
2.7.10 Lubricate fan motors where necessary.		Initials: KR
2.8 Perform combustion and draft tests.		Initials: KR
2.8.1 Visually inspect combustion.	S ☒ U ☐ N/A ☐	Initials: KR
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.	S ☒ U ☐ N/A ☐	Initials: KR
2.9.1 Check pressure-reducing valve.	S ☒ U ☐ N/A ☐	Initials: KR
2.9.2 Replace the strainer in the valve if needed.		Initials: KR
2.10 Perform slow drain test of low-water cutoff.	S ☒ U ☐ N/A ☐	Initials: KR

Remarks: NONE.

Work Order No.: 678660-01 Equipment ID No.: BHW-01

2.11 Inspect gas piping for proper support and tightness.	S ☒ U ☐ N/A ☐	Initials: RR
2.11.1 Inspect fuel supply system and gas controls.	S ☒ U ☐ N/A ☐	Initials: RR
2.11.2 Leak check gas controls and associated gas piping with a gas detector or soap suds.	S ☒ U ☐ N/A ☐	Initials: RR
2.12 Inspect boiler room ventilation louvers and intake.	S ☒ U ☐ N/A ☐	Initials: RR
2.12.1 Listen for any unusual noises or conditions and correct as necessary.	S ☒ U ☐ N/A ☐	Initials: RR
2.12.2 Report any needed corrections to the MC for corrective maintenance.		Initials: RR
2.12.3 Check combustion air supply openings to ensure that they are not closed or stopped up.	S ☒ U ☐ N/A ☐	Initials: RR
2.12.4 Inspect conditions of stacks and rain caps.	S ☒ U ☐ N/A ☐	Initials: RR
2.12.5 Inspect flue door gaskets to ensure they are in good condition, and properly secured.	S ☒ U ☐ N/A ☐	Initials: RR
2.12.6 Replace if necessary.		Initials: RR

Remarks: NONE

Work Order No.: 698660.01 Equipment ID No.: BHW.01

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: RR
3.2	Hook up all associated piping.		Initials: RR
3.3	IF water makeup feeds boiler directly, THEN open by-pass valve to refill boiler, AND close by-pass valve when boiler reaches operating pressure. -or- IF water makeup does NOT feed boiler directly, THEN open supply and return valves to refill boiler.	By-pass ☐ -or- Supply/ Return ☒	Initials: RR
3.4	Fire up boiler and check for air, gas, and water leaks.	S ☒ U ☐ N/A ☐	Initials: RR
3.5	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	S ☒ U ☐ N/A ☐	Initials: RR
3.6	Check pilot burners and ignition equipment for proper condition and adjustment.	S ☒ U ☐ N/A ☐	Initials: RR
3.7	Visually check burner for proper combustion.	S ☒ U ☐ N/A ☐	Initials: RR
3.8	Record all mechanical maintenance data, testing data, and other notable items.		Initials: RR

NOTE Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.

Remarks: NONE.

Work Order No.: 698660-01 Equipment ID No.: BHW-01

3.9	Test water for proper chemical levels. Test and treat water as defined on Datasheet 403-A.002.	S ☒ U ☐ N/A ☐	Initials: RR
3.10	Record all mechanical maintenance data, testing data, and other notable items.		Initials: RR
3.11	Notify MC that work on the boiler system is complete.		Initials: RR

Name of Craft Worker: Roose, Richard A. Z Number: 303503

Signature: [signature] Date: 09 / 16 / 21

Name of Craft Worker: Julian Martinez Z Number: 305373

Signature: [signature] Date: 9 / 16 / 21

Foreman Verification: N/A Z Number: N/A

Signature: N/A Date: N/A / /

Jesse Urbina [signature] 306179 9-16-21

Remarks: NONE

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.: 698660 01	Equipment ID No.: BHW-02

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: 09 / 16 / 21	Inspectors: RR, JM, JU	

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: RR

2.0 MAINTENANCE

2.1	Obtain a water sample from the boiler drain or an accessible point on the hot water loop system.		Initials: RR
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 pH: 9 PO_4: N/A pH: N/A	S ☒ U ☐ N/A ☐	Initials: RR
2.3	If required, add Garrett-Callahan Formula 1015L or equivalent to the pot feeder.		Initials: RR

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: RR

Remarks: NONE.

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: N/A pH: N/A PO_4: N/A pH: N/A	S ☐ U ☐ N/A ☒	Initials: N/A
2.6	Send a copy of the water treatment report to LANL Commissioned Inspector Supervisor's office, MS P291.		Initials: N/A

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: RR

Name of Craft Worker: ROOSE, RICHARD A. Z Number: 303503

Signature: [signature] Date: 09 / 16 / 21

Name of Craft Worker: Julian Martinez Z Number: 305373

Signature: [signature] Date: 9 / 17 / 21

Foreman Verification: N/A Z Number: N/A

Signature: Date: /

Remarks: 2.5 & 2.6. BHW-02 DOES NOT REQUIRE WATER TREATMENT AT THIS TIME

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.: 698660.01 Equipment ID No.: BHW.02

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: 09 / 16 / 21 Inspectors: RR, JM, JU

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.: 698660 · 01 Equipment ID No.: BHW · 02

1.1	Notify maintenance coordinator (MC) that work will be in progress on the boiler system.		Initials: RR

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: RR
2.2	Cool boiler, open air cock, and drain the boiler.		Initials: RR
2.3	Perform an internal and external inspection after thorough cleaning.	S ☒ U ☐ N/A ☐	Initials: RR
2.3.1	Check the fireside furnace and fire-tubes for any evidence of soot formation or corrosion.	S ☒ U ☐ N/A ☐	Initials: RR
2.3.2	Brush and vacuum furnace and fire-tubes if such conditions exist.		Initials: RR
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.	S ☒ U ☐ N/A ☐	Initials: RR
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: RR

Remarks: NONE

2.3.5	On one-pass boilers (Sellers), check condition of all heat extractors.	S ☐ U ☐ N/A ☒	Initials: RR
2.3.6	Check refractory materials.	S ☒ U ☐ N/A ☐	Initials: RR
2.3.7	Replace if needed.		Initials: RR
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: RR
2.5	Perform routine burner maintenance.		Initials: RR
2.5.1	Observe temperature and operating pressure and general conditions.	S ☒ U ☐ N/A ☐	Initials: RR
2.5.2	Fire and cycle the burner.		Initials: RR
2.6	Perform routine maintenance of circulating pump and expansion pump equipment.		Initials: RR
2.6.1	Observe condition of expansion tank.	S ☒ U ☐ N/A ☐	Initials: RR
2.6.2	Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion.	S ☐ U ☒ N/A ☐	Initials: RR
2.6.3	Check the air pressure on the bladder-type expansion tanks.	S ☒ U ☐ N/A ☐	Initials: RR

Remarks: 2.3.5. BHW·02 IS NOT A SELLERS BOILER

2.6.2. EXPANSION TANK IS NOT EQUIPPED WITH A DRAIN VALVE. NEEDS TO BE INSTALLED OR EXPANSION TANK TO BE REPLACED

2.6.4	Observe operation of circulating pumps.	S ☒ U ☐ N/A ☐	Initials: RA
2.6.5	Lubricate pump motors.		Initials: RA
2.7	Perform routine maintenance of entire combustion control equipment.		Initials: A
2.7.1	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	S ☒ U ☐ N/A ☐	Initials: RA
2.7.2	Adjust air/fuel mixture as needed.		Initials: RA
2.7.3	Test flame detection devices on boilers with flame scanners.	S ☒ U ☐ N/A ☐	Initials: RA
2.7.4	Remove the flame scanner with the burner firing.		Initials: RA
NOTE	The burner should shut off as a flame failure condition.		
2.7.5	Clean the flame scanner, reinstall and test programmer.		Initials: RA
2.7.6	Check for proper operation as boiler goes through a firing cycle and light-off.	S ☒ U ☐ N/A ☐	Initials: RA
2.7.7	Check all electrical control and circuitry.	S ☒ U ☐ N/A ☐	Initials: RA

Remarks: NONE.

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.	S ☒ U ☐ N/A ☐	Initials: RR
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.	S ☒ U ☐ N/A ☐	Initials: RR
2.7.10	Lubricate fan motors where necessary.		Initials: RR
2.8	Perform combustion and draft tests.		Initials: RR
2.8.1	Visually inspect combustion.	S ☒ U ☐ N/A ☐	Initials: RR
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.	S ☒ U ☐ N/A ☐	Initials: RR
2.9.1	Check pressure-reducing valve.	S ☒ U ☐ N/A ☐	Initials: RR
2.9.2	Replace the strainer in the valve if needed.		Initials: RR
2.10	Perform slow drain test of low-water cutoff.	S ☒ U ☐ N/A ☐	Initials: RR

Remarks: NONE.

Work Order No.: 698660·01 Equipment ID No.: BHW·02

2.11 Inspect gas piping for proper support and tightness.	S ☒ U ☐ N/A ☐	Initials: RL
2.11.1 Inspect fuel supply system and gas controls.	S ☒ U ☐ N/A ☐	Initials: RL
2.11.2 Leak check gas controls and associated gas piping with a gas detector or soap suds.	S ☒ U ☐ N/A ☐	Initials: RL
2.12 Inspect boiler room ventilation louvers and intake.	S ☒ U ☐ N/A ☐	Initials: RL
2.12.1 Listen for any unusual noises or conditions and correct as necessary.	S ☒ U ☐ N/A ☐	Initials: RL
2.12.2 Report any needed corrections to the MC for corrective maintenance.		Initials: RL
2.12.3 Check combustion air supply openings to ensure that they are not closed or stopped up.	S ☒ U ☐ N/A ☐	Initials: RL
2.12.4 Inspect conditions of stacks and rain caps.	S ☒ U ☐ N/A ☐	Initials: RL
2.12.5 Inspect flue door gaskets to ensure they are in good condition, and properly secured.	S ☒ U ☐ N/A ☐	Initials: RL
2.12.6 Replace if necessary.		Initials: RL

Remarks: NONE.

Work Order No.: 698660.01 Equipment ID No.: BHW-02

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: KK
3.2	Hook up all associated piping.		Initials: KK
3.3	IF water makeup feeds boiler directly, THEN open by-pass valve to refill boiler, AND close by-pass valve when boiler reaches operating pressure. -or- IF water makeup does NOT feed boiler directly, THEN open supply and return valves to refill boiler.	By-pass ☐ -or- Supply/ Return ☒	Initials: KK
3.4	Fire up boiler and check for air, gas, and water leaks.	S ☒ U ☐ N/A ☐	Initials: KK
3.5	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	S ☒ U ☐ N/A ☐	Initials: KK
3.6	Check pilot burners and ignition equipment for proper condition and adjustment.	S ☒ U ☐ N/A ☐	Initials: KK
3.7	Visually check burner for proper combustion.	S ☒ U ☐ N/A ☐	Initials: KK
3.8	Record all mechanical maintenance data, testing data, and other notable items.		Initials: KK

NOTE Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.

Remarks: NONE.

Work Order No.: 698660.01 Equipment ID No.: BHW.02

3.9	Test water for proper chemical levels. Test and treat water as defined on Datasheet 403-A.002.	S ☒ U ☐ N/A ☐	Initials: RR
3.10	Record all mechanical maintenance data, testing data, and other notable items.		Initials: RR
3.11	Notify MC that work on the boiler system is complete.		Initials: RR

Name of Craft Worker: Roose Richard A Z Number: 30503

Signature: [signature] Date: 09 / 17 / 21

Name of Craft Worker: Julian Martinez Z Number: 305373

Signature: [signature] Date: 9 / 17 / 21

Foreman Verification: N/A Z Number: N/A

Signature: Date: /

Remarks: NONE.

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.: 698660 01	Equipment ID No.: BHW-03

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: 09 / 16 / 21	Inspectors: RR, JM, JU	

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: RR

2.0 MAINTENANCE

2.1	Obtain a water sample from the boiler drain or an accessible point on the hot water loop system.		Initials: RR
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 pH: 9 PO_4: N/A pH: N/A	S ☒ U ☐ N/A ☐	Initials: RR
2.3	If required, add Garrett-Callahan Formula 1015L or equivalent to the pot feeder.		Initials: RR

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: RR

Remarks: NONE.

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 N/A pH: N/A PO_4: N/A pH: N/A	S ☐ U ☐ N/A ☒	Initials: N/A
2.6	Send a copy of the water treatment report to LANL Commissioned Inspector Supervisor's office, MS P291.		Initials: N/A

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: RL

Name of Craft Worker: Roose, Richard A. Z Number: 303503

Signature: Richard A. Roose Date: 09 / 16 / 21

Name of Craft Worker: Julian Martinez Z Number: 305373

Signature: Julian Martinez Date: 9 / 17 / 21

Foreman Verification: N/A Z Number: N/A

Signature: Date: /

Remarks: 2.5, 2.6. BHW-03 DOES NOT REQUIRE WATER TREATMENT AT THIS TIME.

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.: 698660 · 01 Equipment ID No.: BHW · 03

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: 09 / 16 / 21 Inspectors: RK, JM

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.: 698660.01 Equipment ID No.: BHW.03

1.1	Notify maintenance coordinator (MC) that work will be in progress on the boiler system.		Initials: RA

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: RA
2.2	Cool boiler, open air cock, and drain the boiler.		Initials: RA
2.3	Perform an internal and external inspection after thorough cleaning.	S ☒ U ☐ N/A ☐	Initials: RA
2.3.1	Check the fireside furnace and fire-tubes for any evidence of soot formation or corrosion.	S ☑ U ☐ N/A ☐	Initials: MM
2.3.2	Brush and vacuum furnace and fire-tubes if such conditions exist.		Initials: MM
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.	S ☑ U ☐ N/A ☐	Initials: MM
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: MM

Remarks: NONE

2.3.5	On one-pass boilers (Sellers), check condition of all heat extractors.	S ☐ U ☐ N/A ☑	Initials: MM
2.3.6	Check refractory materials.	S ☑ U ☐ N/A ☐	Initials: MM
2.3.7	Replace if needed.		Initials: MM
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: MM
2.5	Perform routine burner maintenance.		Initials: MM
2.5.1	Observe temperature and operating pressure and general conditions.	S ☑ U ☐ N/A ☐	Initials: MM
2.5.2	Fire and cycle the burner.		Initials: MM
2.6	Perform routine maintenance of circulating pump and expansion pump equipment.		Initials: MM
2.6.1	Observe condition of expansion tank.	S ☑ U ☐ N/A ☐	Initials: MM
2.6.2	Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion.	S ☑ U ☐ N/A ☐	Initials: MM
2.6.3	Check the air pressure on the bladder-type expansion tanks.	S ☑ U ☐ N/A ☐	Initials: MM

Remarks:
2.3.5 Boiler not a Sellers

2.6.4	Observe operation of circulating pumps.	S ☑ U ☐ N/A ☐	Initials: MM
2.6.5	Lubricate pump motors.		Initials: MM
2.7	Perform routine maintenance of entire combustion control equipment.		Initials: MM
2.7.1	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	S ☑ U ☐ N/A ☐	Initials: MM
2.7.2	Adjust air/fuel mixture as needed.		Initials: MM
2.7.3	Test flame detection devices on boilers with flame scanners.	S ☑ U ☐ N/A ☐	Initials: MM
2.7.4	Remove the flame scanner with the burner firing.		Initials: MM
NOTE	The burner should shut off as a flame failure condition.		
2.7.5	Clean the flame scanner, reinstall and test programmer.		Initials: MM
2.7.6	Check for proper operation as boiler goes through a firing cycle and light-off.	S ☑ U ☐ N/A ☐	Initials: MM
2.7.7	Check all electrical control and circuitry.	S ☑ U ☐ N/A ☐	Initials: MM

Remarks: NONE

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.	S ☐ U ☐ N/A ☑	Initials: MM
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.	S ☑ U ☐ N/A ☐	Initials: MM
2.7.10	Lubricate fan motors where necessary.		Initials: MM
2.8	Perform combustion and draft tests.		Initials: MM
2.8.1	Visually inspect combustion.	S ☑ U ☐ N/A ☐	Initials: MM
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.	S ☑ U ☐ N/A ☐	Initials: MM
2.9.1	Check pressure-reducing valve.	S ☑ U ☐ N/A ☐	Initials: MM
2.9.2	Replace the strainer in the valve if needed.		Initials: MM
2.10	Perform slow drain test of low-water cutoff.	S ☑ U ☐ N/A ☐	Initials: MM

Remarks:
2.7.8 No Mercury Switches

Work Order No.: 698660.01 Equipment ID No.: BHW-03

2.11 Inspect gas piping for proper support and tightness.	S ☑ U ☐ N/A ☐	Initials: MM
2.11.1 Inspect fuel supply system and gas controls.	S ☑ U ☐ N/A ☐	Initials: MM
2.11.2 Leak check gas controls and associated gas piping with a gas detector or soap suds.	S ☑ U ☐ N/A ☐	Initials: MM
2.12 Inspect boiler room ventilation louvers and intake.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.1 Listen for any unusual noises or conditions and correct as necessary.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.2 Report any needed corrections to the MC for corrective maintenance.		Initials: MM
2.12.3 Check combustion air supply openings to ensure that they are not closed or stopped up.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.4 Inspect conditions of stacks and rain caps.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.5 Inspect flue door gaskets to ensure they are in good condition, and properly secured.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.6 Replace if necessary.		Initials: MM

Remarks: NONE

Work Order No.: 698660.01 Equipment ID No.: BHW.03

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: RR
3.2	Hook up all associated piping.		Initials: RR
3.3	IF water makeup feeds boiler directly, THEN open by-pass valve to refill boiler, AND close by-pass valve when boiler reaches operating pressure. -or- IF water makeup does NOT feed boiler directly, THEN open supply and return valves to refill boiler.	By-pass ☐ -or- Supply/ Return ☑	Initials: RR
3.4	Fire up boiler and check for air, gas, and water leaks.	S ☑ U ☐ N/A ☐	Initials: RR
3.5	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	S ☑ U ☐ N/A ☐	Initials: RR
3.6	Check pilot burners and ignition equipment for proper condition and adjustment.	S ☑ U ☐ N/A ☐	Initials: RR
3.7	Visually check burner for proper combustion.	S ☑ U ☐ N/A ☐	Initials: RR
3.8	Record all mechanical maintenance data, testing data, and other notable items.		Initials: RR

NOTE Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.

Remarks: None

Work Order No.: 698660.01 Equipment ID No.: BHW-03

3.9	Test water for proper chemical levels. Test and treat water as defined on Datasheet 403-A.002.	S ☑ U ☐ N/A ☐	Initials:
3.10	Record all mechanical maintenance data, testing data, and other notable items.		Initials:
3.11	Notify MC that work on the boiler system is complete.		Initials:

Name of Craft Worker: Richard Boose Z Number: 303507

Signature: [signature] Date: 9/17/2021

Name of Craft Worker: Julian Martinez Z Number: 305323

Signature: [signature] Date: 9/17/21

Foreman Verification: Matt Millwood Z Number: 331693

Signature: [signature] Date: 09/17/2021

Remarks: NONE

No: RN101-3-01 Interim Requirements for Hazardous Energy Identification and Control
Attachment A. Lockout/Tagout Pre-job Walk-down Checklist (Page 1 of 2)

Instructions: Perform the pre-job walk-down with the necessary people per Section 3.1 of the Requirements Notice 101-3-01. Complete this checklist and take signed checklist to the lock coordinator. All Authorized Workers are required to participate in the walk-down and sign the checklist in order to check out a lock and tag. If additional workers are added to the job, they must also perform a walk-down of the system and show a signed checklist to the lock coordinator. The signed checklists are to be kept with the parent work document (IWD, work package, etc.).

Work Document Number (e.g., Package/Procedure#): 698660 01

#1

- ✓ We have walked down and discussed the work to be performed.
- ✓ All energy isolation points and positions have been identified and documented.
- ✓ The proper energy control procedure is being used (Simple vs Complex LO/TO).
- ✓ All energy-isolating devices are labeled properly (e.g., labels aren't faded, no hand written modifications).
- ✓ No discrepancies are found between record drawings, labels, panel schedules, and LO/TO procedures.
- ✓ Lockout devices have been identified to support the work.

*If any of the above items are identified to be inadequate, pause work, report the issues to your RLM, and contact the appropriate SMEs to help resolve issues ***before*** performing/resuming work.

Simple Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

Lead Authorized Worker (print name)	Z Number	Signature/Date
Authorized Worker (print name)	Z Number	Signature/Date

Complex Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

MS&E Owner/Operator (print name) Stephen Mowrer	Z Number 265531	Signature/Date 09/15/2021
Preparer or PIC (print name) M. Angel Valdez	Z Number 185092	Signature/Date 9/15/21
Lead Authorized Worker (print name) Roose, Richard A.	Z Number 3-3503	Signature/Date 09/15/21
Authorized Worker (print name)	Z Number	Signature/Date
Authorized Worker (print name)	Z Number 305873	Signature/Date 9/15/21

Note: Print additional sheets as necessary.

NOTE: Use these buttons to print or save the form. DO NOT use the browser tool bar.

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Form 2244

Lockout/Tagout (LO/TO) Orders

Section 1: General Information

Work Document Number (e.g., Package/Procedure #): 678660-01	LO/TO Remedy ID: 108607
Location of Equipment to be Isolated: TA: 55 Bldg: 0440 Rm/Other: U209	Description of Machinery, System & Equipment (MS&E) to be worked on: BHW-01 and HW-P-01
MS&E Owner/Operator: Stephen McNeel Z Number: 265531 Phone: 667-7333	
Shutdown to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No	Re-energize/restart to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No
Reason for LO/TO: Perform 550440 Hot Water Boiler Fireside/ Waterside PM	
Group LO/TO (2 or more)? ☒ Yes ☐ No *If yes, a lead authorized worker must be appointed.*	Group lock box used? ☒ Yes ☐ No #51
Shift or Personnel Changes? ☐ Yes ☒ No *If yes, a description of how the continuity of LO/TO protection will be ensured must be referenced or attached to this form. (See Section 3.9.6 of P101-3 for details.)*	☐ Continuity of LO/TO protection details described in operating procedure, work instruction, or other work control document. Document Number:

Section 2: Energy Control Procedure

1. Plan the work.
2. Identify and assess hazardous energy.
3. Contact the MS&E owner/operator.
4. Obtain locks and tags from lock coordinator.
5. Notify affected workers.
6. Shutdown MS&E according to **Section 3: Shutdown Sequence**.
7. Isolate and lock out MS&E from energy source, relieve stored energy, and perform verification of isolation according to **Section 4: LO/TO Sequence**.
8. Perform the work.
9. Release MS&E from LO/TO according to **Section 5: Release MS&E from Lockout/Tagout Sequence**.

Section 3: Shutdown Sequence

☒ Perform shutdown according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:

☐ **N/A**; MS&E to be worked on will be isolated according to **Section 4: LO/TO Sequence** (e.g., cannot be shut down)
Detail the process to normally shut down the MS&E below, if not following other document referenced above or N/A.

Step No.	Action/Description	Step No.	Action/Description
☐ 1		☐ 6	
☐ 2		☐ 7	
☐ 3		☐ 8	
☐ 4		☐ 9	
☐ 5		☐ 10	

Section 4: LO/TO Sequence

☑ Perform LO/TO sequence according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:
Describe how to effectively isolate & lockout the MS&E below, if not following other document referenced above.

Isolate & Lockout (Step No.)	Equipment Descriptor (What is being locked out? e.g., machine drive motor, input power to MCC)	Energy Source (e.g., electrical, mechanical, pneumatic, hydraulic, chemical, thermal)	Energy Isolation Device (e.g., specific ID, description, circuit #, lock box #)	Location of Energy Isolation Device (e.g., room number, north wall, south wall)	Required LO/TO Position or Alignment (e.g., off, open, closed, on)	Verification Method (e.g., live/dead/live, crack open, on-off-on-off, peer checking, independent verification)	Verifier's Initials (if req'd)	See Section 5: Release (Step No.)
☑ (1)	BHW-01	Electrical	MCC-B Ckt 3B	U209	OPEN / OFF	Peer	RR	☑
☑ (2)	HW-P-01	Electrical	MCC-B Ckt 2B	U209	OPEN/OFF	Peer	RR	☑
☑ (3)	UPS	Electrical	UPS Switch	U209	OPEN / OFF	Peer	RR	☑
☑ (4)	BHW-01	Mechanical	NG-V-6000D	U209	CLOSED	Peer	RR	☑
☑ (5)	BHW-01	Mechanical	NG-V-6004A	U209	CLOSED	Peer	RR	☑
☑ (6)	HW-P-01	Mechanical	HW-V-101A	U209	CLOSED	Peer	RR	☑
☑ (7)	HW-P-01	Mechanical	HW-V-101B	U209	CLOSED	Peer	RR	☑
☑ (8)	Lock box #51	Keys	LB#51	U209	closed / locked	Peer	RR	☑

Section 5: Release MS&E from Lockout/Tagout Sequence

1. Check the MS&E and immediate area for items that could result in damage or danger on start-up.
2. Check the work area to ensure that all workers have been safely positioned or removed from the work area.
3. Verify that the controls are in neutral or "off" position.
4. Notify the owner/operator and affected workers that work is complete and MS&E is ready to release from LO/TO.
5. Remove the LO/TO device, and re-energize (if appropriate according to MS&E owner/operator) according to the sequence as identified above under Release in **Section 4: LO/TO Sequence** or according to operating procedure, work instruction, or other work control document identified in **Section 4.**
6. Return lock and locking device to Lock Coordinator.

Energy Control Procedure prepared by:

Preparer (print name)	Z Number	Organization	Phone	Signature/Date
Amy Walch	185042	Log	412-0072	9/15/21

By signing below, you acknowledge that this energy control procedure and/or referenced documents identify the isolation devices, isolation points, and methods necessary to prevent any unexpected release of hazardous energy.

Energy Control Procedure approved by:

MS&E Owner/Operator (print name)	Z Number	Organization	Phone	Signature/Date
Stephen Mowell	265531	TA55-R2U08	7-7333	09/15/21

Section 6: All Authorized Workers (anyone applying a lock for this activity)

Fill out the following information or print and attach Authorized Workers information from the Lockout/Tagout Remedy Application.

Authorized Workers Name(s)	Z Number	Date Lock Applied	Date Lock Removed
Lead: Richard Roose	303503	9/15/21	09/16/21
Julian Martinez	305373	9/15/21	09/16/21

No: RN101-3-01 Interim Requirements for Hazardous Energy Identification and Control
Attachment A. Lockout/Tagout Pre-job Walk-down Checklist (Page 1 of 2)

Instructions: Perform the pre-job walk-down with the necessary people per Section 3.1 of the Requirements Notice 101-3-01. Complete this checklist and take signed checklist to the lock coordinator. All Authorized Workers are required to participate in the walk-down and sign the checklist in order to check out a lock and tag. If additional workers are added to the job, they must also perform a walk-down of the system and show a signed checklist to the lock coordinator. The signed checklists are to be kept with the parent work document (IWD, work package, etc.).

Work Document Number (e.g., Package/Procedure#): 698660-01

#1 2

- ☑ We have walked down and discussed the work to be performed.
- ☑ All energy isolation points and positions have been identified and documented.
- ☑ The proper energy control procedure is being used (Simple vs Complex LO/TO).
- ☑ All energy-isolating devices are labeled properly (e.g., labels aren't faded, no hand written modifications).
- ☑ No discrepancies are found between record drawings, labels, panel schedules, and LO/TO procedures.
- ☑ Lockout devices have been identified to support the work.

*If any of the above items are identified to be inadequate, pause work, report the issues to your RLM, and contact the appropriate SMEs to help resolve issues ***before*** performing/resuming work.

Simple Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

Lead Authorized Worker (print name)	Z Number	Signature/Date
Authorized Worker (print name)	Z Number	Signature/Date

Complex Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

MS&E Owner/Operator (print name) Stephen Maskell	Z Number 266981	Signature/Date 09/15/2021
Preparer or PIC (print name) Danny Valdez	Z Number 185047	Signature/Date 9-15-21
Lead Authorized Worker (print name)	Z Number 303503	Signature/Date 09/15/21
Authorized Worker (print name) Julian Martinez	Z Number 305373	Signature/Date 9/15/21
Authorized Worker (print name) Jesse Urbina	Z Number 306179	Signature/Date 9-16-21

Note: Print additional sheets as necessary.

NOTE: Use these buttons to print or save the form. DO NOT use the browser tool bar.

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Form 2244

Lockout/Tagout (LO/TO) Orders

Section 1: General Information

Work Document Number (e.g., Package/Procedure #): 698660-01	LO/TO Remedy ID: 108522
Location of Equipment to be Isolated: TA: 55 Bldg: 0440 Rm/Other: U209	Description of Machinery, System & Equipment (MS&E) to be worked on: BHW-03 and HW-P-03
MS&E Owner/Operator: Stephen Mendel Z Number: Z65531 Phone: 7-7333	
Shutdown to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No	Re-energize/restart to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No
Reason for LO/TO: Perform 550440 Hot Water Boiler Fireside/ Waterside PM	
Group LO/TO (2 or more)? ☒ Yes ☐ No *If yes, a lead authorized worker must be appointed.*	Group lock box used? ☒ Yes ☐ No #51
Shift or Personnel Changes? ☐ Yes ☒ No *If yes, a description of how the continuity of LO/TO protection will be ensured must be referenced or attached to this form. (See Section 3.9.6 of P101-3 for details.)*	☐ Continuity of LO/TO protection details described in operating procedure, work instruction, or other work control document. Document Number:

Section 2: Energy Control Procedure

1. Plan the work.
2. Identify and assess hazardous energy.
3. Contact the MS&E owner/operator.
4. Obtain locks and tags from lock coordinator.
5. Notify affected workers.
6. Shutdown MS&E according to **Section 3: Shutdown Sequence**.
7. Isolate and lock out MS&E from energy source, relieve stored energy, and perform verification of isolation according to **Section 4: LO/TO Sequence**.
8. Perform the work.
9. Release MS&E from LO/TO according to **Section 5: Release MS&E from Lockout/Tagout Sequence**.

Section 3: Shutdown Sequence

☒ Perform shutdown according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:

☐ **N/A**; MS&E to be worked on will be isolated according to **Section 4: LO/TO Sequence** (e.g., cannot be shut down)
Detail the process to normally shut down the MS&E below, if not following other document referenced above or N/A.

Step No.	Action/Description	Step No.	Action/Description
☐ 1		☐ 6	
☐ 2		☐ 7	
☐ 3		☐ 8	
☐ 4		☐ 9	
☐ 5		☐ 10	

Section 4: LO/TO Sequence

☑ Perform LO/TO sequence according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:
Describe how to effectively isolate & lockout the MS&E below, if not following other document referenced above.

Isolate & Lockout (Step No.)	Equipment Descriptor (What is being locked out? e.g., machine drive motor, input power to MCC)	Energy Source (e.g., electrical, mechanical, pneumatic, hydraulic, chemical, thermal)	Energy Isolation Device (e.g., specific ID, description, circuit #, lock box #)	Location of Energy Isolation Device (e.g., room number, north wall, south wall)	Required LO/TO Position or Alignment (e.g., off, open, closed, on)	Verification Method (e.g., live/dead/live, crack open, on-off-on-off, peer checking, independent verification)	Verifier's Initials (if req'd)	See Section 5: Release (Step No.)
☑ (1)	BHW-03	Electrical	MCC-B Ckt 3F	U209	OPEN / OFF	Peer	RR	☐
☑ (2)	HW-P-03	Electrical	MCC-B Ckt 2D	U209	OPEN/OFF	Peer	RR	☐
☑ (3)	BHW-03	Mechanical	NG-V-6020D	U209	CLOSED	Peer	RR	☐
☑ (4)	BHW-03	Mechanical	NG-V-6024A	U209	CLOSED	Peer	RR	☐
☑ (5)	HW-P-03	Mechanical	HW-V-301A	U209	CLOSED	Peer	RR	☐
☑ (6)	HW-P-03	Mechanical	HW-V-301B	U209	CLOSED	Peer	RR	☐
☑ (7)	Lock box 51	Keys	LB #51	U209	closed/locked	Peer	RR	☐
☐ (8)								☐

Section 5: Release MS&E from Lockout/Tagout Sequence

1. Check the MS&E and immediate area for items that could result in damage or danger on start-up.
2. Check the work area to ensure that all workers have been safely positioned or removed from the work area.
3. Verify that the controls are in neutral or "off" position.
4. Notify the owner/operator and affected workers that work is complete and MS&E is ready to release from LO/TO.
5. Remove the LO/TO device, and re-energize (if appropriate according to MS&E owner/operator) according to the sequence as identified above under Release in **Section 4: LO/TO Sequence** or according to operating procedure, work instruction, or other work control document identified in **Section 4**.
6. Return lock and locking device to Lock Coordinator.

Energy Control Procedure prepared by:

Preparer (print name)	Z Number	Organization	Phone	Signature/Date
Edward Lucas	177709	LOG-SUO	5-6327	9-17-21

By signing below, you acknowledge that this energy control procedure and/or referenced documents identify the isolation devices, isolation points, and methods necessary to prevent any unexpected release of hazardous energy.

Energy Control Procedure approved by:

MS&E Owner/Operator (print name)	Z Number	Organization	Phone	Signature/Date
Stephen McNeel	265531	TA55-RLW0B	7-7333	09/17/21

Section 6: All Authorized Workers (anyone applying a lock for this activity)

Fill out the following information or print and attach Authorized Workers information from the Lockout/Tagout Remedy Application.

Authorized Workers Name(s)	Z Number	Date Lock Applied	Date Lock Removed
Lead: Richard Roose	303503	9/15/21 09/17/21	09/17/21
Julian Martinez	305373	9/15/21 09/17/21	09/17/21

No: RN101-3-01 Interim Requirements for Hazardous Energy Identification and Control
Attachment A. Lockout/Tagout Pre-job Walk-down Checklist (Page 1 of 2)

Instructions: Perform the pre-job walk-down with the necessary people per Section 3.1 of the Requirements Notice 101-3-01. Complete this checklist and take signed checklist to the lock coordinator. All Authorized Workers are required to participate in the walk-down and sign the checklist in order to check out a lock and tag. If additional workers are added to the job, they must also perform a walk-down of the system and show a signed checklist to the lock coordinator. The signed checklists are to be kept with the parent work document (IWD, work package, etc.).

Work Document Number (e.g., Package/Procedure#): 697660-01

#3

- ☑ We have walked down and discussed the work to be performed.
- ☑ All energy isolation points and positions have been identified and documented.
- ☑ The proper energy control procedure is being used (Simple vs Complex LO/TO).
- ☑ All energy-isolating devices are labeled properly (e.g., labels aren't faded, no hand written modifications).
- ☑ No discrepancies are found between record drawings, labels, panel schedules, and LO/TO procedures.
- ☑ Lockout devices have been identified to support the work.

*If any of the above items are identified to be inadequate, pause work, report the issues to your RLM, and contact the appropriate SMEs to help resolve issues ***before*** performing/resuming work.

Simple Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

Lead Authorized Worker (print name)	Z Number	Signature/Date
Authorized Worker (print name)	Z Number	Signature/Date

Complex Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

MS&E Owner/Operator (print name) Stephen Morkert	Z Number 265591	Signature/Date 09/15/2021
Preparer or PIC (print name) Darry Walch	Z Number 185042	Signature/Date 9-15-21
Lead Authorized Worker (print name) Rose Richmond	Z Number 303503	Signature/Date 09/15/21
Authorized Worker (print name) Julian Martinez	Z Number 305373	Signature/Date 9/15/21
Authorized Worker (print name) Jesse Urbine	Z Number 306179	Signature/Date 9-16-21

Note: Print additional sheets as necessary.

NOTE: Use these buttons to print or save the form. DO NOT use the browser tool bar.

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Form 2244

Lockout/Tagout (LO/TO) Orders

Section 1: General Information

Work Document Number (e.g., Package/Procedure #): 698660-01	LO/TO Remedy ID: 108635
Location of Equipment to be Isolated: TA: 55 Bldg: 0440 Rm/Other: U209	Description of Machinery, System & Equipment (MS&E) to be worked on: BHW-02 and HW-P-02
MS&E Owner/Operator: Stephen McNeel Z Number: Z65531 Phone: 7-7393	
Shutdown to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No	Re-energize/restart to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No
Reason for LO/TO: Perform 550440 Hot Water Boiler Fireside/ Waterside PM	
Group LO/TO (2 or more)? ☒ Yes ☐ No *If yes, a lead authorized worker must be appointed.*	Group lock box used? ☒ Yes ☐ No #51
Shift or Personnel Changes? ☐ Yes ☒ No *If yes, a description of how the continuity of LO/TO protection will be ensured must be referenced or attached to this form. (See Section 3.9.6 of P101-3 for details.)*	☐ Continuity of LO/TO protection details described in operating procedure, work instruction, or other work control document. Document Number:

Section 2: Energy Control Procedure

1. Plan the work.
2. Identify and assess hazardous energy.
3. Contact the MS&E owner/operator.
4. Obtain locks and tags from lock coordinator.
5. Notify affected workers.
6. Shutdown MS&E according to **Section 3: Shutdown Sequence**.
7. Isolate and lock out MS&E from energy source, relieve stored energy, and perform verification of isolation according to **Section 4: LO/TO Sequence**.
8. Perform the work.
9. Release MS&E from LO/TO according to **Section 5: Release MS&E from Lockout/Tagout Sequence**.

Section 3: Shutdown Sequence

☒ Perform shutdown according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:

☐ **N/A**; MS&E to be worked on will be isolated according to **Section 4: LO/TO Sequence** (e.g., cannot be shut down)
Detail the process to normally shut down the MS&E below, if not following other document referenced above or N/A.

Step No.	Action/Description	Step No.	Action/Description
☐ 1		☐ 6	
☐ 2		☐ 7	
☐ 3		☐ 8	
☐ 4		☐ 9	
☐ 5		☐ 10	

Section 4: LO/TO Sequence

☑ Perform LO/TO sequence according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:
Describe how to effectively isolate & lockout the MS&E below, if not following other document referenced above.

Isolate & Lockout (Step No.)	Equipment Descriptor (What is being locked out? e.g., machine drive motor, input power to MCC)	Energy Source (e.g., electrical, mechanical, pneumatic, hydraulic, chemical, thermal)	Energy Isolation Device (e.g., specific ID, description, circuit #, lock box #)	Location of Energy Isolation Device (e.g., room number, north wall, south wall)	Required LO/TO Position or Alignment (e.g., off, open, closed, on)	Verification Method (e.g., live/dead/live, crack open, on-off-on-off, peer checking, independent verification)	Verifier's Initials (if req'd)	See Section 5: Release (Step No.)
☑ (1)	BHW-02	Electrical	MCC-B Ckt 3D	U209	OPEN / OFF	Peer	KK	5
☑ (2)	HW-P-02	Electrical	MCC-B Ckt 2C	U209	OPEN/OFF	Peer	KK	5
☑ (3)	BHW-02	Mechanical	NG-V-6010D	U209	CLOSED	Peer	KK	5
☑ (4)	BHW-02	Mechanical	NG-V-6014A	U209	CLOSED	Peer	KK	5
☑ (5)	HW-P-02	Mechanical	HW-V-201A	U209	CLOSED	Peer	KK	5
☑ (6)	HW-P-02	Mechanical	HW-V-201B	U209	CLOSED	Peer	KK	5
☑ (7)	Lock box 51	Keys	LB #51	U209	closed/locked	Peer	KK	5
☐ (8)								5

Section 5: Release MS&E from Lockout/Tagout Sequence

1. Check the MS&E and immediate area for items that could result in damage or danger on start-up.
2. Check the work area to ensure that all workers have been safely positioned or removed from the work area.
3. Verify that the controls are in neutral or "off" position.
4. Notify the owner/operator and affected workers that work is complete and MS&E is ready to release from LO/TO.
5. Remove the LO/TO device, and re-energize (if appropriate according to MS&E owner/operator) according to the sequence as identified above under Release in **Section 4: LO/TO Sequence** or according to operating procedure, work instruction, or other work control document identified in **Section 4**.
6. Return lock and locking device to Lock Coordinator.

Energy Control Procedure prepared by:

Preparer (print name)	Z Number	Organization	Phone	Signature/Date
Danny Valle	185092	609	412-0872	9/16/21

By signing below, you acknowledge that this energy control procedure and/or referenced documents identify the isolation devices, isolation points, and methods necessary to prevent any unexpected release of hazardous energy.

Energy Control Procedure approved by:

MS&E Owner/Operator (print name)	Z Number	Organization	Phone	Signature/Date
Stephen Mabel	265531	TASS-RLU03	7-7333	09/16/2021

Section 6: All Authorized Workers (anyone applying a lock for this activity)

Fill out the following information or print and attach Authorized Workers information from the Lockout/Tagout Remedy Application.

Authorized Workers Name(s)	Z Number	Date Lock Applied	Date Lock Removed
Lead: Richard Roose	303503	9/15/21 09/16/21	09/16/21
Julian Martinez	305373	9/15/21 09/16/21	09/16/21
JESSE URBINA	306179	09/16/21	09/16/21

470, 498, 450, 496, 488, 477

FOD 10 IWD Validation

LOS ALAMOS NATIONAL LABS
INTEGRATED WORK DOCUMENT (IWD) COVER SHEET

WORK ORDER NO: 698660 01 REV: _____

TITLE: (A) 550440 Hot Water Boiler Fireside/Waterside PM

Planner: Wanda J Madrid / Wanda J. Madrid Digitally signed by Wanda J. Madrid Date: 2020.09.09 14:46:18 -06'00' / _____
Name / Signature / Date

Peer Review: Lauro Lucero Jr / Digitally signed by Lauro Lucero Jr Date: 2020.09.09 14:29:04 -06'00' / _____
Name / Signature / Date

WORKABILITY

Based on a validation walk down this IWD and work package can be worked as written.

Superintendent: Eduardo Garcia / [signature] / 9-1-21
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: _____ / _____ / _____
Name / Signature / Date

ESO: Eugene A Wagner, III / Digitally signed by Eugene A Wagner, III Date: 2020.09.09 12:49:41 -06'00' / _____
Name / Signature / Date

IH&S: Tammy A. Lopez / Digitally signed by Tammy A. Lopez Date: 2020.08.31 11:30:25 -06'00' / _____
Name / Signature / Date

SE: Jacob Natzic, 338870 / Jacob Natzic Digitally signed by Jacob Natzic Date: 2020.08.25 08:03:16 -06'00' / _____
Name / Signature / Date

Ops/SOM: Stephen McNeel / [signature] / 09/01/2021
Name / Signature / Date

MC (if required by RLM):

_____ / _____ / _____
Name / Signature / Date

MSS FOD 10 PM/PdM Work Package Traveler

WO: 698660 01 Title: (A) 550440 Hot Water Boiler FS/WS

Work Package Approval – Package complete & released for scheduling:

☐ YES ☑ N/A	**Special Instructions:**
☑ YES	**Work Package Final Approval:** Final review of the work package is complete to ensure forms, permits, scope, craft resources, estimates, duration, and IWD are correct. MM or WC TL Signature: Wanda J Madrid for Chris Huchton per tel Z# 116672 Date: 9/1/2021

Work Package Closeout – Work History

☐ YES ☐ N/A	**Documents Scanned/Linked:** Work package documents are scanned in to the appropriate drive and linked to the equipment, and work history in CMMS per AP-Work-005. Work Control Member: _____ Z# _____ Date: _____

SECTION 1 – WORK PACKAGE INITIATION

- [x] Table of Contents
- [x] Master WO – CMMS Work Order
- [ ] USQ Evaluation or Routine Maintenance Exemption (Nuclear Facilities only)
- [x] Mandatory 4-Questions
- [x] IWD Part 3 – *Validation and Release* (P300 – Form 2103) (Separate copy for every pre-job)
- [x] Work Documentation Form (AP-WORK-002.11)
- [x] PMI or Checklist

SECTION 2 – WORK AUTHORIZATION

- [x] Work Package Traveler
- [ ] IWD Part 1 – *Activity Specific Information* (AP-WORK-002 Form 2100-WC)
- [x] IWD/PMI Combination (Facility Specific IWD/PMI)
- [x] IWD Part 2 – Form 2101; 2102; or Facility Notes for each work area (P300 – Form 2101)

Applicable Permits:

- [ ] Radiological Work Permit (RWP)
- [ ] Attachment A – *Simple LOTO* (P101-3.4.1); **not an attachment in work package – craft/LOTO coordinator provide**
- [x] Form 2244 – *Lockout/Tagout Orders – Complex LOTO* (P 101-3.4.2 Form 2244)
- [ ] Penetration Permit (P101-22 Form 2074); **Class I only**
- [ ] Spark- or Flame- Producing Operations Permit (P101-26 Form 1563)
- [ ] Utility Outage Form (Form 1821)
- [ ] Other: _____
- [ ] PMI Checklist: _____
- [x] **Safety Data Sheets (SDS)**: _____
- [ ] **Facility Specific Documents:** _____

The required documentation is noted with a checked box☒. All other documentation depends on the work performed and the complexity of the task. Only check the documents included in the package (there is no need to "N/A" the blocks for documents not in the work package.

Los Alamos NATIONAL LABORATORY

Integrated Work Document (IWD) Part 2
FOD Requirements and Approval for Entry and Area Hazards and Controls
Non-Tenant

IWD No./Work Request No: ____ Revision No.: ____

The Facility Operations Director (FOD) or designee must determine the facility entry and coordination requirements and identify the area environment, safety, health (ESH)/security and safeguards (S&S) hazards and controls associated with the specific activity location.

FOD	TA	Bldg.	Room	Other Location
10	55	0440	Various	Includes areas outside building 0400 and 0440
FOD Designated Facility Point-of-Contact	Name	Phone	Pager	Email
	Stacy Howze	505.665.2808	505.699.3019	howze@lanl.gov

General Requirement/Guidance:

- Workers in areas that have building or facility-specific training (FST) shall take the FST unless they are escorted by someone who is current in the training.
- Any abnormal event or condition, whether within or beyond the bounds of the assigned work area, must be reported to supervisors or first-line managers and the FOD.

Entry and Coordination Requirements (*check one or more of the following*):

- ☐ No entry/coordination requirements
- ☒ Schedule work with the FOD
- ☒ Attend Plan of the Day/Plan of the Week (POTD/POTW)
- ☒ Security clearance or escort required
- ☒ Other security requirements (e.g., no cellphone or foreign nationals)
- ☒ Review work under Authorization Basis / Safety Basis / Unreviewed Safety Question (USQ)
- ☐ FOD-designated facility point-of-contact must sign IWD Part 3
- ☒ Facility-specific or other work area training required
- ☒ Check in daily
- ☒ Check out daily
- ☐ Quality issues
- ☐ Non-security escort required
- ☐ Other bounding conditions: ____

Additional Comments:

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 thorough inspection for any electrical abnormalities including any exposed wiring or missing covers from junction boxes.

2) Use of gloves required for all work in the overhead.

3) Facility Specific PPE: No facility specific PPE or as posted otherwise.

4) Outdoor Activities: Watch for potential or on-going construction activities, heavy equipment, trenching, overhead work, et cetra. Follow all signage, postings, and access restrictions.

5) For unescorted access to RLUOB, complete: RLUOB Access Training (Curriculum #161) and be Q/L Cleared for the Limited Area of the Facility.

6) 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, et cetra; (c) Do NOT enter worksites or areas unrelated to work activities, unless authorized.

7) Facility operations and maintenance personnel comply with the RLUOB Chemical Management Requirements: P101-14 Chemical Management, PA-DOP-01373 RLUOB Chemical Preparation and Storage, PA-RD-01007 RLUOB Chemical Management Requirements, TA55-AP-095, Hazardous Materials Management Program. Check with operations, maintenance, and/or site safety representative prior to bringing chemicals into RLUOB facilities.

Instructions: In the block below, identify work area hazards that could potentially affect the worker(s) or others. Avoid using the same Part 2, Form 2101 for multiple facilities. Ensure that work area hazards specific to the facility or work location are identified and controlled. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the work area hazards, including any unique or special training required because of work area conditions/hazards.

ESH/S&S WORK AREA HAZARDS AND 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 procedures (if required in the field)	**Training and Qualification** (*special or unique to the area*)
☐ **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 No.: ____

ESH/S&S WORK AREA HAZARDS AND 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
Worker Exposure Working near non-ionizing radiation, beryllium, noise, chemicals, biological hazards, lead, asbestos, temperature/humidity extremes, nanoparticles, cryogens, or high explosives. **Specify Hazards:**	☒ Yes ☐ No	**High noise levels possible near operationg 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; unprotected belts, pulleys, chains, rotating equipment; fuel-fired equipment (other than vehicles); or spark/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.		
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 unless with accompanying permit. Follow all signage and postings.		
Elevated Work Surface Unprotected elevated work (e.g., conventional guardrails are not provided) requiring fall protection per P101-20, *Fall Protection Program*, or a surface not designed to support worker(s) and equipment.	☐ Yes ☒ No	Watch for overhead work performed by others		

Environmental Activities conducted in areas containing potential release sites, contaminated soil, sensitive species, watercourse, wetlands, floodplains, historical/archeological sites, or other work area element that can impact, or be impacted by, the environment. **Specify Hazards:**	☐ Yes ☒ No			
Security Requirements **Specify:**	☒ Yes ☐ No	LANL Badge Holder for facility access. Q/L clearance for unescorted access to Limited Areas. PED's allowed in uncleared areas.		
Other Hazards **Specify:**	☐ Yes ☒ No			

I have verified that the items indicated above adequately identify existing and potential area hazards associated with the work location and communicate facility-required controls that will enable safe, secure, and environmentally compliant work execution.

FOD or Representative (Signature/Z Number/Date) **Approval Required**

STACY HOWZE (Affiliate)

Digitally signed by STACY HOWZE (Affiliate)
Date: 2021.05.20 13:59:29 -06'00'

Facility : F08 **Unit :** 161484 **Proj :**
Task Title : ST TA-16-1484 STEAM PLANT ANNUAL MAINTENANCE PM
W/O Type : PM **W/O Group :** UTIL **Task Priority :** 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : ST TA-16-1484 STEAM PLANT ANNUAL MAINTENANCE PM
Written To : TA16-1484 STEAM PLANT BOILERS
Task Dspln : FTTR **Due Date :** 11/30/2021
Superintendant :

Hazard : MODERATE **IWD Reqmt :** TASK SPECIFC

Work Order Task

00692451 01

MASTER

Date: 03/25/2021

Work Order Task Written To

Facility : F08 **Unit :** 161484 **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 :** 3-26-21

Complete Notice : Glenn Martinez **Complete Date :** 9-30-21

Work Order Task Instructions

PERFORM PM PER 76-28-010 WATERSIDE/ FIRESIDE CHECKLIST. . ENGINEERING TO PROVIDE MAINTENANCE WITH SUPPORT, OVERSIGHT & TRAINING THROUGHOUT PM. . NB Inspector perform boiler inspection and complete form LANL STD-342-100, Chapter 17, Section QCSM, Attachment 2. .

QC Requirements / Comments

Facility : F08 **Unit :** 161484 **Proj :**
Task Title : ST TA-16-1484 STEAM PLANT ANNUAL MAINTENANCE PM
W/O Type : PM **W/O Group :** UTIL **Task Priority :** 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : ST TA-16-1484 STEAM PLANT ANNUAL MAINTENANCE PM
Written To : TA16-1484 STEAM PLANT BOILERS
Task Dspln : FTTR **Due Date :** 11/30/2021
Superintendant :

Hazard : MODERATE **IWD Reqmt :** TASK SPECIFC

Work Order Task

00692451 01

MASTER

Date: 03/25/2021

Work Completion Signatures

Name	Function/Dept.	Date
Jason Sparks	122088 09-30-2021 15:16	

Comments

(rework?)

Cost Accounting

Cost Center : 7D120C **Activity :** 640CL000

Percentage : 100 **Acct No :** XU5000 **Sub Acct :** 7E2P0016

Facility : F08 **Unit :** 161484 **Proj :**
Task Title : ST TA-16-1484 STEAM PLANT ANNUAL MAINTENANCE PM
W/O Type : PM **W/O Group :** UTIL **Task Priority :** 4
Planner : 185614 HARRIS JEANETTE S
W/O Title : ST TA-16-1484 STEAM PLANT ANNUAL MAINTENANCE PM
Written To : TA16-1484 STEAM PLANT BOILERS
Task Dspln : FTTR **Due Date :** 11/30/2021
Superintendant :

Hazard : MODERATE **IWD Reqmt :** TASK SPECIFC

Work Order Task

00692451 01

MASTER

Date: 03/25/2021

TA -16 BLDG 1484 WO# 692451 TASK 01

TA-9/16 Boiler Limit and Control Checklist

Steam Header Controls	Set Point Check	Operational Check PASS	Operational Check FAIL
Lead Operating Pressure Control (Range 80psig +/- 5)	79 **psig**	☑	☐
Lag Operating Pressure Control (Range 80psig +/- 5)	79 **psig**	☑	☐

Boiler Controls	Set Point Check BSA	Set Point Check BSB	Operational Check BSA PASS	Operational Check BSA FAIL	Operational Check BSB PASS	Operational Check BSB FAIL
Operating Pressure Control (Range 85psig +/- 5)	85 **psig**	85 **psig**	☑	☐	☑	☐
High Limit Pressure Cut-Off (Range 95psig +/- 5)	90 **psig**	90 **psig**	☑	☐	☑	☐
High Pressure Gas Cut-Off Switch (Range 15"-17" wc)	17 **"wc**	17 **"wc**	☑	☐	☑	☐
Low Pressure Gas Cut-Off Switch (Range 3"-5" wc)	5 **"wc**	5 **"wc**	☑	☐	☑	☐
Air Proving Switch (Range 3"-5" wc)	5 **"wc**	5 **"wc**	☑	☐	☑	☐
Lo-NO_x Controller Set Below 68 psig	**psig**	**psig**	**ON** ☐	**OFF** ☑	**ON** ☐	**OFF** ☑

Boiler Controls	Operational Checks Only BSA PASS	Operational Checks Only BSA FAIL	Operational Checks Only BSB PASS	Operational Checks Only BSB FAIL
Primary Low Water Cut-Off	☑	☐	☑	☐
Secondary Low Water Cut-Off	☑	☐	☑	☐
Pop Test Safety Relief Valve (Provide Date Tested)	**DATE:** 9/23/2021		**DATE:** 9/23/2021	

Building Controls	Operational Checks Only PASS	Operational Checks Only FAIL
Building Exhaust Fan	☑	☐

Emergency Shut Down Door Switches	Door #1 PASS	Door #1 FAIL	Door #2 PASS	Door #2 FAIL
	☑	☐	☑	☐

NOTE: TA-16-1491 Boilers Lead and Lag operate at 40psig +/-5. Boiler operator set above Lead and Lag but below High Limit. High Limit set at 45psig +/- 3psig

Comments

							Lightoff Readings						Low NOx readings					
BOILER	Location	Serial #	Boiler HP	High Pilot	Low Pilot	Blower Pressure	Manifold Pressure	Combustion Chamber Pressure	Main Gas Pressure	O2 %	CO ppm	NOx ppm	Manifold Pressure	Combustion Chamber Pressure	Main Gas Pressure	O2 %	CO ppm	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 16 BLD 1484	High Pilot	Low Pilot	Blower Pressure	Main Gas Pressure at Low Gas Switch	Main Gas Pressure at High Gas Switch	O2 %	CO ppm	NOx ppm	Main Gas Pressure at Low Gas Switch	Main Gas Pressure at High Gas Switch	O2 %	CO ppm	NOx ppm
BSA	DATE: 9/23/21	8.7	6.2	6	13	10.5	3.6	15						
BSB	DATE: 9/23/21	10.7	6.8	8.3	14.5	11.8	3.3	13						
	DATE:													
	DATE:													
	DATE:													
	DATE:													
	DATE:													
	DATE:													

BACHARACH, INC. BS A
PCA 25 9-23-21
SN: KX1015

==========

TIME 04:31:24 pm
DATE 09/23/2021

FUEL
NATGAS

STACK-TEMP	318 °F
AMB.-TEMP	81.5 °F
O2	3.6 %
CO2	9.8 %
CO	15 ppm
0% COR CO	18 ppm
EFFICIENCY	84.6 %
EX. AIR	18.52
DRAFT	-0.15 WC

COMMENTS:

BS-A
Main Flame

TA 16-0104 DAW
9-23-21
BSB

BACHARACH, INC.
PCA 25
SN: KX1015

==========

TIME 04:37:09 pm
DATE 09/23/2021

FUEL
NATGAS

STACK-TEMP	296 °F
AMB.-TEMP	83.0 °F
O2	3.3 %
CO2	9.9 %
CO	13 ppm
0% COR CO	16 ppm
EFFICIENCY	85.3 %
EX. AIR	16.69
DRAFT	-0.16 WC

COMMENTS: BS-B
Main Flame

TA 16-1484 WO# 692457-01

ATTACHMENT 1: ACCEPTABLE LEAKAGE RATE FORM

ACCEPTABLE LEAKAGE RATES **WO #:** 692451-01

Boiler	Type	Manufacturer	Actuator Model Number	Valve Model Number	Valve Size	Acceptable Leakage Rate CC/HR[1]	Acceptable Leakage Rate Bubbles/10 Sec
9-282-A	Primary	Maxon	250SMA11-AA11-BB21A0		2 1/2"	752	26
	Secondary	Maxon	250SMA11-AA11-BB20A0		2 1/2"	752	26
9-282-B	Primary	Maxon	250SMA11-AA11-BB21A0		2 1/2"	752	26
	Secondary	Maxon	250SMA11-AA11-BB20A0		2 1/2"	752	26
16-1480-A	Primary	Honeywell	V4055D 1019	V5055C	3"	752	26
	Secondary	Honeywell	V4055A 1031 3	V5055A	3"	752	26
16-1480-B	Primary	Honeywell	V4055D 1019 3	V5055C	3"	752	26
	Secondary	Honeywell	V4055A 1031 3	V5055A	3"	752	26
16-1483-A	Primary	Honeywell	V4055D 1019	V5055C	2"	752	26
	Secondary	Honeywell	V4055A 1031 3	V5055A	2"	752	26
16-1484-A	Primary	Maxon	2.5" 5000 0		2 1/2"	752	26
	Secondary	Maxon	250SMA11-AA11-BB20A0		2 1/2"	752	26
16-1484-B	Primary	Maxon	250SMA11-AA11-BB20A0		2 1/2"	752	26
	Secondary	Maxon	250SMA11-AA11-BB20A0		2 1/2"	752	26
16-1487-A	Primary	Honeywell	V4055A 1031 3	V5055A	2"	752	26
	Secondary	Honeywell	V4055A 1031 3	V5055A	2"	752	26
16-1487-B	Primary	Honeywell	V4055A 1031 3	V5055A	2"	752	26
	Secondary	Honeywell	V4055A 1031	V5055A	2"	752	26
16-1490-A	Primary	Honeywell	V4055D 1019 3	V5055C	3"	752	26
	Secondary	Honeywell	V4055A 1098	V5055A	3"	752	26
16-1490-B	Primary	Honeywell	V4055D 1019	V5055C	3"	752	26
	Secondary	Honeywell	V4055A 1031 3	V5055A	3"	752	26
16-1491-A	Primary	Honeywell	V4055A 1031 3	V5055A	1 1/2"	458	16
	Secondary	Honeywell	V4055A 1031 3	V5055A	1 1/2"	458	16
16-1491-B	Primary	Honeywell	V4055A 1031	V5055A	1 1/2"	458	16
	Secondary	Honeywell	V4055A 1031 3	V5055A	1 1/2"	458	16
16-1492-A	Primary	Honeywell	V4055A 1031 3	V5055A	2 1/2"	752	26
	Secondary	Honeywell	V4055A 1031 3	V5055A	2 1/2"	752	26
16-1492-B	Primary	Honeywell	V40555A 1031 3	V5055A	2 1/2"	752	26
	Secondary	Honeywell	V40555A 1031 3	V5055A	2 1/2"	752	26

DATE OF LEAK TEST 9-2-21

Location		Boiler	Primary/Secondary	Duration of Test[2] (Min:Sec)	Leakage Rate (Bubbles/10 Sec)
TA 16	**BLDG** 1484	**A**	Primary	5:00	0
TA 16	**BLDG** 1484	**A**	Secondary	5:00	0
TA 16	**BLDG** 1484	**B**	Primary	5:00	0
TA 16	**BLDG** 1484	**B**	Secondary	5:00	0

[1] Acceptable Leakage Rates Taken from Honeywell Document 60-0074—4, Table-1.

[2] Duration of test is equal to 2 minutes per inch of pipe diameter.

Acceptance of Results

PATRICK MCCABE (Affiliate) Digitally signed by PATRICK MCCABE (Affiliate) Date: 2021.09.13 12:33:03 -06'00'

UI Systems Engineer Signature

BOILER INSPECTION REPORT (BIR)

NBIC NB-23, Part 2 (This report to be completed by LANL Commissioned Inspector)

SECTION I – BOILER INFORMATION

Boiler ID#:	16-1484-BS-B	Insp Date: 4/15/2021	**Expiration Date:** 4/15/2023
Boiler Area:	TA16, Bldg 1484	Ext. Inspection: ☒	Int. Inspection: ☐
National Board No.:	8333	Serial No.:	10290
Boiler Mfg.:	Sellers Engineering	Year Built:	1995
Boiler Type:	Steam ☒ Hot Water ☐ Others ☐	Firetube ☒	Watertube ☐
Safety Relief Valve (s) ID#:		Safety Valve (s) Size:	2" , 1.5" , _____ ,
Set Press:	1. 100 2. 100 3. _____ (PSI)	Capacity:	1. 4593 2. 2948 3. _____ (lbs/hr)
Safety Valve (s):	Last Tested ☐ "VR" ☐ Replaced ☒	Date:	1. 4/15/21 2. _____ 3. _____ ,
Pressure Gauge Range:	0 to 160	Heating Surface Area (sqft):	636
Boiler MAWP:	150 (PSI)		
Pressure Allowed:	This Inspection: 100 (PSI)	Previous Inspection: 100 (PSI)	
Fuel:	NG	Method of Firing:	Auto
Inspection Finding:	Major ☐ Minor ☐	Permit Issued:	Yes ☐ No ☒

SECTION II – EXTERNAL/INSERVICE INSPECTION CONDITIONS

Planning, Coordination and Safety Requirements –

No Lockout/Tagout, this is an in-service inspection.

External Casing (cracks, leakage of fluids or combustion gases …) –

No adverse conditions

Safety Valve (s) Testing and Conditions –

5,088 lbs/hr per ASME Code, Section I, PG-70. Two SV's installed capacity 7,541 Lbs/hr, therefor acceptable.

Hangers and boiler supports Conditions –

None-good

Piping External Surfaces Conditions –

Good

Controls (Firing, Flame Detector, valves, …) Functionality Test –

All boilers controls, pressure controls, fuel train, flame failure, SSOV test Good

Low Water Cutoff Alarm Test –

LWCO test Good

Other Observations / Notes –

None

SECTION III – INTERNAL INSPECTION CONDITIONS

Is the boiler prepared, drained and cleaned for internal inspection?	N/A	Yes ☐	No ☒	
Is the fuel shutoff valve locked and tagged?	N/A	Yes ☐	No ☒	
Is the boiler isolated from other boilers?	N/A	Yes ☐	No ☐	N/A ☒
Is the boiler atmosphere being monitored for safe entry (Boilers w/manway)?		Yes ☐	No ☐	N/A ☒

Is the boiler hydro tested for leaks? Yes ☐ No ☒	Pressure Test: PSIG

SECTION IV – FIRESIDE

Fire Box, Refractory, Burners, Flame Detectors Conditions –

N/A

Tubes External Condition (Pitting, bulging, misalignment, soot built up …) Watertube Boilers Only –

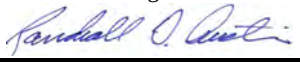
N/A

Tubesheets Condition (Bulging, leaks around the tubes connections, Cracks in the ligaments and weld joints) –

N/A

Staybolts Testing – N/A
Other Observations / Notes – N/A
SECTION V – WATERSIDE
Tubes External Surfaces, if possible internal surfaces – N/A
Water Columns, Gage Glasses, Floats Chambers Internal Surfaces or Low Water Level Rods Condition – Good
Superheater Tubes External Surfaces (Power boilers Only) – N/A
Steam Drum/Vessel Internal Surfaces (If electric boilers the condition of the electric resistant coils) – N/A
Mud Drum Internal Surfaces (Power boilers) – N/A
Deaerator Tank Internals (Power boilers) – N/A

Deaerator Storage Tank (Power boilers) – N/A
Any Repairs or Alteration Since Last Inspection (All repairs and Alteration requires 'R' Stamp R-1 or R-2 Form) – None
water Chemistry Last Checked / Notes – Unknown
SECTION VI – DEFICIENCIES SUMMARY
None
SECTION VII – RECOMMENDATIONS
None

Person Conditions Reported To and/or FSR #, If Issued: Jason Sparks	Z# 122088	Phone No.: c 500 6436, p 664 6262
LANL Commissioned Inspector Name and Signature: Randall D. Austin 	Z# 334246	National Board Commission No.: 10798, R,O (IS & AI Commission)

Reviewed By: Initial: Z# Date:

BOILER INSPECTION REPORT (BIR)

NBIC NB-23, Part 2 (This report to be completed by LANL Commissioned Inspector)

SECTION I – BOILER INFORMATION

Boiler ID#:	16-1484-BS-B	Insp Date: 4/15/2021	**Expiration Date:** 4/15/2022
Boiler Area:	TA16, Bldg 1484	Ext. Inspection: ☒	Int. Inspection: ☐
National Board No.:	8333	Serial No.:	10290
Boiler Mfg.:	Sellers Engineering	Year Built:	1995
Boiler Type:	Steam ☒ Hot Water ☐ Others ☐	Firetube ☒	Watertube ☐
Safety Relief Valve (s) ID#:		Safety Valve (s) Size:	2" , 1.5" , _____ ,
Set Press:	1. 100 2. 100 3. _____ (PSI)	Capacity:	1. 4593 2. 2948 3. _____ (lbs/hr)
Safety Valve (s):	Last Tested ☐ "VR" ☐ Replaced ☒	Date:	1. 4/15/21 2. _____ 3. _____ ,
Pressure Gauge Range:	0 to 160	Heating Surface Area (sqft):	636
Boiler MAWP:	150 (PSI)		
Pressure Allowed:	This Inspection: 100 (PSI)	Previous Inspection: 100 (PSI)	
Fuel:	NG	Method of Firing:	Auto
Inspection Finding:	Major ☐ Minor ☐	Permit Issued:	Yes ☐ No ☒

SECTION II – EXTERNAL/INSERVICE INSPECTION CONDITIONS

Planning, Coordination and Safety Requirements –

No Lockout/Tagout, this is an in-service inspection.

External Casing (cracks, leakage of fluids or combustion gases …) –

No adverse conditions

Safety Valve (s) Testing and Conditions –

5,088 lbs/hr per ASME Code, Section I, PG-70. Two SV's installed capacity 7,541 Lbs/hr, therefor acceptable.

Hangers and boiler supports Conditions –

None-good

Piping External Surfaces Conditions –

Good

Controls (Firing, Flame Detector, valves, …) Functionality Test –

All boilers controls, pressure controls, fuel train, flame failure, SSOV test Good

Low Water Cutoff Alarm Test –

LWCO test Good

Other Observations / Notes –

None

SECTION III – INTERNAL INSPECTION CONDITIONS

Is the boiler prepared, drained and cleaned for internal inspection?	N/A	Yes ☐	No ☒	
Is the fuel shutoff valve locked and tagged?	N/A	Yes ☐	No ☒	
Is the boiler isolated from other boilers?	N/A	Yes ☐	No ☐	N/A ☒
Is the boiler atmosphere being monitored for safe entry (Boilers w/manway)?		Yes ☐	No ☐	N/A ☒

Is the boiler hydro tested for leaks? Yes ☐ No ☒	Pressure Test: PSIG

SECTION IV – FIRESIDE

Fire Box, Refractory, Burners, Flame Detectors Conditions –

N/A

Tubes External Condition (Pitting, bulging, misalignment, soot built up …) Watertube Boilers Only –

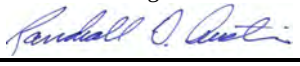
N/A

Tubesheets Condition (Bulging, leaks around the tubes connections, Cracks in the ligaments and weld joints) –

N/A

Staybolts Testing – N/A
Other Observations / Notes – N/A
SECTION V – WATERSIDE
Tubes External Surfaces, if possible internal surfaces – N/A
Water Columns, Gage Glasses, Floats Chambers Internal Surfaces or Low Water Level Rods Condition – Good
Superheater Tubes External Surfaces (Power boilers Only) – N/A
Steam Drum/Vessel Internal Surfaces (If electric boilers the condition of the electric resistant coils) – N/A
Mud Drum Internal Surfaces (Power boilers) – N/A
Deaerator Tank Internals (Power boilers) – N/A

Deaerator Storage Tank (Power boilers) – N/A
Any Repairs or Alteration Since Last Inspection (All repairs and Alteration requires 'R' Stamp R-1 or R-2 Form) – None
water Chemistry Last Checked / Notes – Unknown
SECTION VI – DEFICIENCIES SUMMARY
None
SECTION VII – RECOMMENDATIONS
None

Person Conditions Reported To and/or FSR #, If Issued: Jason Sparks	Z# 122088	Phone No.: c 500 6436, p 664 6262
LANL Commissioned Inspector Name and Signature: Randall D. Austin 	Z# 334246	National Board Commission No.: 10798, R,O (IS & AI Commission)

Reviewed By: Initial: Z# Date:

BOILER INSPECTION REPORT (BIR)

NBIC NB-23, Part 2 (This report to be completed by LANL Commissioned Inspector)

SECTION I – BOILER INFORMATION

Boiler ID#:	16-1484-BS-A	Insp Date: 4/15/2021	**Expiration Date:** 4/15/2022
Boiler Area:	TA16, Bldg 1484	Ext. Inspection: ☒	Int. Inspection: ☐
National Board No.:	8334	Serial No.:	10291
Boiler Mfg.:	Sellers Engineering	Year Built:	1995
Boiler Type:	Steam ☒ Hot Water ☐ Others ☐	Firetube ☒	Watertube ☐
Safety Relief Valve (s) ID#:		Safety Valve (s) Size:	2" , 1.5" , _____ ,
Set Press:	1. 100 2. 100 3. _____ (PSI)	Capacity:	1. 4593 2. 2948 3. _____ (lbs/hr)
Safety Valve (s):	Last Tested ☒ "VR" ☐ Replaced ☒	Date:	1. 4/15/21 2. _____ 3. _____ ,
Pressure Gauge Range:	0 to 160	Heating Surface Area (sqft):	636
Boiler MAWP:	150 (PSI)		
Pressure Allowed:	This Inspection: 100 (PSI)	Previous Inspection: 150 (PSI)	
Fuel:	NG	Method of Firing:	Auto
Inspection Finding:	Major ☐ Minor ☐	Permit Issued:	Yes ☒ No ☒

SECTION II – EXTERNAL/INSERVICE INSPECTION CONDITIONS

Planning, Coordination and Safety Requirements –

No Lockout/Tagout, this is an in-service inspection.

External Casing (cracks, leakage of fluids or combustion gases …) –

No adverse conditions-good

Safety Valve (s) Testing and Conditions –

MSVRC 5,088 lbs/hr per ASME Code, Section I, PG-70. Two SV's installed capacity 7,541 Lbs/hr, therefor acceptable.

Hangers and boiler supports Conditions –

None-good

Piping External Surfaces Conditions –

Good

Controls (Firing, Flame Detector, valves, …) Functionality Test –

All boilers controls, pressure controls, fuel train, flame failure, SSOV test Good

Low Water Cutoff Alarm Test –

LWCO test Good

Other Observations / Notes –

None

SECTION III – INTERNAL INSPECTION CONDITIONS

Is the boiler prepared, drained and cleaned for internal inspection?	N/A	Yes ☐	No ☒	
Is the fuel shutoff valve locked and tagged?	N/A	Yes ☐	No ☒	
Is the boiler isolated from other boilers?	N/A	Yes ☐	No ☐	N/A ☒
Is the boiler atmosphere being monitored for safe entry (Boilers w/manway)?		Yes ☐	No ☐	N/A ☒

Is the boiler hydro tested for leaks? Yes ☐ No ☒	Pressure Test: PSIG

SECTION IV – FIRESIDE

Fire Box, Refractory, Burners, Flame Detectors Conditions –

N/A

Tubes External Condition (Pitting, bulging, misalignment, soot built up …) Watertube Boilers Only –

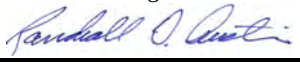
N/A

Tubesheets Condition (Bulging, leaks around the tubes connections, Cracks in the ligaments and weld joints) –

N/A

Staybolts Testing – N/A
Other Observations / Notes – N/A
SECTION V – WATERSIDE
Tubes External Surfaces, if possible internal surfaces – N/A
Water Columns, Gage Glasses, Floats Chambers Internal Surfaces or Low Water Level Rods Condition – Good
Superheater Tubes External Surfaces (Power boilers Only) – N/A
Steam Drum/Vessel Internal Surfaces (If electric boilers the condition of the electric resistant coils) – N/A
Mud Drum Internal Surfaces (Power boilers) – N/A
Deaerator Tank Internals (Power boilers) – N/A

Deaerator Storage Tank (Power boilers) – N/A
Any Repairs or Alteration Since Last Inspection (All repairs and Alteration requires 'R' Stamp R-1 or R-2 Form) – None
water Chemistry Last Checked / Notes – Unknown
SECTION VI – DEFICIENCIES SUMMARY
None
SECTION VII – RECOMMENDATIONS
None

Person Conditions Reported To and/or FSR #, If Issued: Jason Sparks	Z# 122088	Phone No.: c 500 6436, p 664 6262
LANL Commissioned Inspector Name and Signature: Randall D. Austin 	Z# 334246	National Board Commission No.: 10798, R,O (IS & AI Commission)

Reviewed By: Initial: Z# Date:

BOILER OPERATING PERMIT

PO Box 1663
Los Alamos, NM 87545

National Board Federal Inspection Agency

Inspection Due Date:	4/15/2022

Boiler ID No.:	TA-16-1484-BS-B		
Boiler Type:	Steam, Firetube, High Pressure		
National Board No.:	8333	Serial No.:	10290
Boiler Location:	TA-16-1484		
Max. Allowable Working Pressure (MAWP):	100 PSIG		

LANL COMMISSIONED INSPECTOR

Name & Z#:	Randall D. Austin
Signature:	Randall D. Austin
Commission No.:	10798, R, O

Issuing Organization:	MSS-MP
LANL Comm. Insp. Supervisor:	Randall Austin (Z# 334246) PH# 505-667-6740

LANL TA-9/16 boiler Inspections:

Summer 2021:

Overall, the boilers are again in excellent condition. There is virtually no scale on the boiler tubes, so the heat transfer is outstanding. The exposed steel is in various conditions with the majority showing dark red to dark grey surfaces. You are on your way to developing magnetite at every boiler. **MANY THANKS TO JASON AND HIS CREW FOR ALL OF THE HARD WORK!**

TA-9 Boilers A and B

Boiler A: There are no heat transfer issues since the tubes are all clean. The tubes are mostly covered with rust, probably flash rush when the boiler was opened and exposed to oxygen. There was a very small amount of mud found in the bottom of the boiler. No safety issues

Boiler B: The tubes looked exactly the same as boiler A with the addition of numerous tubercules (looks like flash oxygen pitting). The pits are extremely shallow, almost non-existent. We are not sure what is causing that condition.

The make-up tank was had as much as 1/2'" of mud in it but there was no corrosion evident in the tank.

16-1490 Boilers A and B:

Boiler A: Almost perfect! There is flat black on the tubes, top and bottom. There were a few tubes with slight deposits located on the bottom of the tubes in the back. Otherwise, there was no scale seen just shiny bare metal.

Boiler B: Virtually identical to Boiler A. Both boilers looked excellent

The make-up tank had a light mud coating in the bottom. There was a small area on the East side of the tank that had some corrosion tubercules. They were not severe.

16-1491 Boilers A and B:

Boiler A: Very clean. The steel tubes were mostly redish-brown color in the back of the boiler, the front was black magnetite. No safety or heat transfer concerns. It looked excellent!

Boiler B: Again, basically clean and similar Boiler A. There was a small amount of what looked like mud covering some of the steel areas in the back of the boiler, but it was dry and brushed right off. The front had no mud and was magnetite black. Excellent!

The make-up tank was coated with dried slime and had about ½ inch of sludge before it was cleaned. No corrosion was present.

16-1492 Boilers A and B:

Boiler A: The tubes are all steel with a slight red tint and no scale seen. No safety or efficiency issues just some iron returning in the condensate.

Boiler B: Almost identical to Boiler A but had slightly less of a red tint. Again, just some iron returning to the boiler in the condensate.

The make-up tank had red discoloration from the returning mud but there was very little mud found.

16-1484 Boiler A and B:

Boiler A: The tubes are perfect virtually perfect. The tubes are all very red from condensate return but there is no scale anywhere. No safety or efficiency concerns.

Boiler B: The tubes look just like Boiler A, very clean with a slight red tint.

The make-up tank was clean.

16-1480 Boilers A and B:

Boiler A: Still has good steel surfaces dark purple tops and black bottoms with some powder seen which would be from the water drying during the shut-down and opening. There are no safety or efficiency concerns.

Boiler B: The tubes were smooth with mostly blue and black surfaces. The bottoms of the tubes had rough, ripples of scale but still generally clean.

The make-up tank had been closed. It was reported that it was clean.

16-1483 Boiler A:

The boiler looks the same as last year, great with mostly black magnetite. The bottoms of the tubes have now changed to mostly black. There are no safety concerns or efficiency problems.

16-1487 Boiler A: There is no scale evident, just bare steel throughout the tubes. The tubes have a red coloring to them due to flash rust dust that has occurred since the boiler was opened. There was one remnant of a yellow tubercle caused by oxygen during shut down but there is no evidence of corrosion around the yellow so it was not an issue.

Boiler B: Again, the tubes are entirely exposed steel with no scale. The tubes are all black. Everything looks great!

BOILER INSPECTION REPORT (BIR)

NBIC NB-23, Part 2 (This report to be completed by LANL Commissioned Inspector)

SECTION I – BOILER INFORMATION

Boiler ID#:	16-1484-BS-B	Insp Date: 7/28/2021	**Expiration Date:** 7/28/2022
Boiler Area:	TA16, Bldg 1484	Ext. Inspection: ☐	Int. Inspection: ☒
National Board No.:	8333	Serial No.:	10290
Boiler Mfg.:	Sellers Engineering	Year Built:	1995
Boiler Type:	Steam ☒ Hot Water ☐ Others ☐	Firetube ☒	Watertube ☐
Safety Relief Valve (s) ID#:		Safety Valve (s) Size:	2" , 1.5" , _____ ,
Set Press:	1. 100 2. 100 3. _____ (PSI)	Capacity:	1. 4593 2. 2948 3. _____ (lbs/hr)
Safety Valve (s):	Last Tested ☐ "VR" ☐ Replaced ☒	Date:	1. 10/14/20 2. _____ 3. _____ ,
Pressure Gauge Range:	0 to 160	Heating Surface Area (sqft):	636
Boiler MAWP:	150 (PSI)		
Pressure Allowed:	This Inspection: 100 (PSI)	Previous Inspection: 150 (PSI)	
Fuel:	NG	Method of Firing:	Auto
Inspection Finding:	Major ☐ Minor ☐	Permit Issued:	Yes ☐ No ☒

SECTION II – EXTERNAL/INSERVICE INSPECTION CONDITIONS

Planning, Coordination and Safety Requirements –

Lockout/Tagout verified

External Casing (cracks, leakage of fluids or combustion gases …) –

No adverse conditions

Safety Valve (s) Testing and Conditions –

Good-new, MSVRC 5,088 lbs/hr per ASME Code Section I, PG-70

Hangers and boiler supports Conditions –

None-good

Piping External Surfaces Conditions –

None, All new BEP

Controls (Firing, Flame Detector, valves, …) Functionality Test –

N/A

Low Water Cutoff Alarm Test –

Boiler shut down, N/A

Other Observations / Notes –

None

SECTION III – INTERNAL INSPECTION CONDITIONS

Is the boiler prepared, drained and cleaned for internal inspection?	N/A	Yes ☒	No ☐	
Is the fuel shutoff valve locked and tagged?	N/A	Yes ☒	No ☐	
Is the boiler isolated from other boilers?	N/A	Yes ☐	No ☐	N/A ☒
Is the boiler atmosphere being monitored for safe entry (Boilers w/manway)?		Yes ☐	No ☐	N/A ☒

Is the boiler hydro tested for leaks? Yes ☐ No ☒	Pressure Test: PSIG

SECTION IV – FIRESIDE

Fire Box, Refractory, Burners, Flame Detectors Conditions –

Good

Tubes External Condition (Pitting, bulging, misalignment, soot built up …) Watertube Boilers Only –

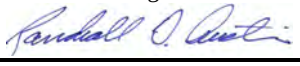
Good

Tubesheets Condition (Bulging, leaks around the tubes connections, Cracks in the ligaments and weld joints) –

Good

Staybolts Testing – Stays look good
Other Observations / Notes – N/A
SECTION V – WATERSIDE
Tubes External Surfaces, if possible internal surfaces –
Water Columns, Gage Glasses, Floats Chambers Internal Surfaces or Low Water Level Rods Condition – Good-clean
Superheater Tubes External Surfaces (Power boilers Only) – N/A
Steam Drum/Vessel Internal Surfaces (If electric boilers the condition of the electric resistant coils) – Good/ clean
Mud Drum Internal Surfaces (Power boilers) – N/A
Deaerator Tank Internals (Power boilers) – Good

Deaerator Storage Tank (Power boilers) – Good
Any Repairs or Alteration Since Last Inspection (All repairs and Alteration requires 'R' Stamp R-1 or R-2 Form) – None
water Chemistry Last Checked / Notes – Unknown
SECTION VI – DEFICIENCIES SUMMARY
None
SECTION VII – RECOMMENDATIONS
None

Person Conditions Reported To and/or FSR #, If Issued: Jason Sparks	Z# 122088	Phone No.: c 500 6436, p 664 6262
LANL Commissioned Inspector Name and Signature: Randall D. Austin 	Z# 334246	National Board Commission No.: 10798, R,O (IS & AI Commission)

Reviewed By: Initial: Z# Date:

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
3	**16**	**N/A**	**N/A**	**Admin Outside Areas Excluding HE areas**
FOD Designated Facility Point-of-Contact	Name **John Branch, WFO OM Designee** **Erlinda Gonzales, WFO OM Designee** **Ritanne Campbell, WFO OM Designee**	Phone **412-9696** **412-8133** **500-7878**	Pager	Email **jbranch@lanl.gov** **etmedina@lanl.gov** **rfarmer@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

Additional Comments

Potential Contact with HE Transport Vehicles. Be aware of Vehicle Placards.

ABNORMAL EVENTS: Any injury, accident, spill, off normal occurrence, etc. MUST be reported immediately to the WFO-FOD Duty Officer @ 664-2926 AND TA-16 Access Control Office 7-9192

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	• N/A	• N/A	• N/A
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	• N/A	• N/A	• N/A
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	• N/A	• N/A	• N/A
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	• N/A	• N/A	• N/A
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	• N/A	• N/A	• N/A
ESH/S&S WORK AREA HAZARDS & CONTROLS				
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:** PRS, sensitive species – e.g. spotted owl, historical/archeological sites, and waste generation.	☒ Yes ☐ No	• PRS exists. Notify WFO Environmental Generalist, if required. • Archeological sites exist within open areas. Do not disturb any marked archeological sites. If entry into any area required contact	• Excavation Permit for soil disturbance activities	• Waste Generator Overview

		Environmental Stewardship Group. • Work during threatened and endangered species seasons will restricts outdoor activities.		
Security Requirements **Specify:** **Limited Security Area**	☒ Yes ☐ No	• Q or L clearance • Uncleared MUST be escorted	• P200-2, Physical Security • P200-1, Security Areas, Property Protection Areas, and General Access Areas	• Escort Training
Other Hazards **Specify:**	☐ Yes ☒ No	• N/A	• N/A	• N/A

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** WFO OM/Designee Signature-on-File

Date Approval Expires: 9/30/2021

BOILER INSPECTION REPORT (BIR)

NBIC NB-23, Part 2 (This report to be completed by LANL Commissioned Inspector)

SECTION I – BOILER INFORMATION

Boiler ID#:	16-1484-BS-A	Insp Date: 4/15/2021	**Expiration Date:** 4/15/2023
Boiler Area:	TA16, Bldg 1484	Ext. Inspection: ☒	Int. Inspection: ☐
National Board No.:	8334	Serial No.:	10291
Boiler Mfg.:	Sellers Engineering	Year Built:	1995
Boiler Type:	Steam ☒ Hot Water ☐ Others ☐	Firetube ☒	Watertube ☐
Safety Relief Valve (s) ID#:		Safety Valve (s) Size:	2" , 1.5" , _____ ,
Set Press:	1. 100 2. 100 3. _____ (PSI)	Capacity:	1. 4593 2. 2948 3. _____ (lbs/hr)
Safety Valve (s):	Last Tested ☒ "VR" ☐ Replaced ☒	Date:	1. 4/15/21 2. _____ 3. _____ ,
Pressure Gauge Range:	0 to 160	Heating Surface Area (sqft):	636
Boiler MAWP:	150 (PSI)		
Pressure Allowed:	This Inspection: 100 (PSI)	Previous Inspection: 150 (PSI)	
Fuel:	NG	Method of Firing:	Auto
Inspection Finding:	Major ☐ Minor ☐	Permit Issued:	Yes ☒ No ☒

SECTION II – EXTERNAL/INSERVICE INSPECTION CONDITIONS

Planning, Coordination and Safety Requirements –

No Lockout/Tagout, this is an in-service inspection.

External Casing (cracks, leakage of fluids or combustion gases …) –

No adverse conditions-good

Safety Valve (s) Testing and Conditions –

MSVRC 5,088 lbs/hr per ASME Code, Section I, PG-70. Two SV's installed capacity 7,541 Lbs/hr, therefor acceptable.

Hangers and boiler supports Conditions –

None-good

Piping External Surfaces Conditions –

Good

Controls (Firing, Flame Detector, valves, …) Functionality Test –

All boilers controls, pressure controls, fuel train, flame failure, SSOV test Good

Low Water Cutoff Alarm Test –

LWCO test Good

Other Observations / Notes –

None

SECTION III – INTERNAL INSPECTION CONDITIONS

Is the boiler prepared, drained and cleaned for internal inspection?	N/A	Yes ☐	No ☒	
Is the fuel shutoff valve locked and tagged?	N/A	Yes ☐	No ☒	
Is the boiler isolated from other boilers?	N/A	Yes ☐	No ☐	N/A ☒
Is the boiler atmosphere being monitored for safe entry (Boilers w/manway)?		Yes ☐	No ☐	N/A ☒

Is the boiler hydro tested for leaks? Yes ☐ No ☒	Pressure Test: PSIG

SECTION IV – FIRESIDE

Fire Box, Refractory, Burners, Flame Detectors Conditions –

N/A

Tubes External Condition (Pitting, bulging, misalignment, soot built up …) Watertube Boilers Only –

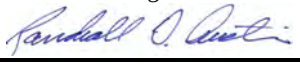
N/A

Tubesheets Condition (Bulging, leaks around the tubes connections, Cracks in the ligaments and weld joints) –

N/A

Staybolts Testing – N/A
Other Observations / Notes – N/A
SECTION V – WATERSIDE
Tubes External Surfaces, if possible internal surfaces – N/A
Water Columns, Gage Glasses, Floats Chambers Internal Surfaces or Low Water Level Rods Condition – Good
Superheater Tubes External Surfaces (Power boilers Only) – N/A
Steam Drum/Vessel Internal Surfaces (If electric boilers the condition of the electric resistant coils) – N/A
Mud Drum Internal Surfaces (Power boilers) – N/A
Deaerator Tank Internals (Power boilers) – N/A

Deaerator Storage Tank (Power boilers) – N/A
Any Repairs or Alteration Since Last Inspection (All repairs and Alteration requires 'R' Stamp R-1 or R-2 Form) – None
water Chemistry Last Checked / Notes – Unknown
SECTION VI – DEFICIENCIES SUMMARY
None
SECTION VII – RECOMMENDATIONS
None

Person Conditions Reported To and/or FSR #, If Issued: Jason Sparks	Z# 122088	Phone No.: c 500 6436, p 664 6262
LANL Commissioned Inspector Name and Signature: Randall D. Austin 	Z# 334246	National Board Commission No.: 10798, R,O (IS & AI Commission)

Reviewed By: Initial: Z# Date:

BOILER OPERATING PERMIT

PO Box 1663
Los Alamos, NM 87545

National Board Federal Inspection Agency

Inspection Due Date:	4/15/2022

Boiler ID No.:	TA-16-1484-BS-A		
Boiler Type:	Steam, Firetube, High Pressure		
National Board No.:	8334	Serial No.:	10291
Boiler Location:	TA-16-1484		
Max. Allowable Working Pressure (MAWP):	100 PSIG		

LANL COMMISSIONED INSPECTOR

Name & Z#:	Randall D. Austin
Signature:	Randall D. Austin
Commission No.:	10798, R, O

Issuing Organization:	MSS-MP
LANL Comm. Insp. Supervisor:	Randall Austin (Z# 334246) PH# 505-667-6740

#104551

1484

No: RN101-3-01 Interim Requirements for Hazardous Energy Identification and Control
Attachment A. Lockout/Tagout Pre-job Walk-down Checklist (Page 1 of 2)

Instructions: Perform the pre-job walk-down with the necessary people per Section 3.1 of the Requirements Notice 101-3-01. Complete this checklist and take signed checklist to the lock coordinator. All Authorized Workers are required to participate in the walk-down and sign the checklist in order to check out a lock and tag. If additional workers are added to the job, they must also perform a walk-down of the system and show a signed checklist to the lock coordinator. The signed checklists are to be kept with the parent work document (IWD, work package, etc.).

Work Document Number (e.g., Package/Procedure#): 692457-01

- ☑ We have walked down and discussed the work to be performed.
- ☑ All energy isolation points and positions have been identified and documented.
- ☑ The proper energy control procedure is being used (Simple vs Complex LO/TO).
- ☑ All energy-isolating devices are labeled properly (e.g., labels aren't faded, no hand written modifications).
- ☑ No discrepancies are found between record drawings, labels, panel schedules, and LO/TO procedures.
- ☑ Lockout devices have been identified to support the work.

*If any of the above items are identified to be inadequate, pause work, report the issues to your RLM, and contact the appropriate SMEs to help resolve issues ***before*** performing/resuming work.

Simple Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

Lead Authorized Worker (print name)	Z Number	Signature/Date
Authorized Worker (print name)	Z Number	Signature/Date

Complex Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

MS&E Owner/Operator (print name)	Z Number	Signature/Date
Lawrence Valdez	166425	
Preparer or PIC (print name)	Z Number	Signature/Date
Eric Brown	305382	13 April 2021
Lead Authorized Worker (print name)	Z Number	Signature/Date
Eric Brown	305382	15 April 2021
Authorized Worker (print name)	Z Number	Signature/Date
Mark Tordilla	354515	Mark Tordilla 4/13/2021
Authorized Worker (print name)	Z Number	Signature/Date

Note: Print additional sheets as necessary.

NOTE: Use these buttons to print or save the form. DO NOT use the browser tool bar.

Los Alamos NATIONAL LABORATORY EST. 1943

Form 2244

Lockout/Tagout (LO/TO) Orders

Section 1: General Information

Work Document Number (e.g., Package/Procedure #):	LO/TO Remedy ID: 104551
Location of Equipment to be Isolated: TA: 16 Bldg: 1484 Rm/Other:	Description of Machinery, System & Equipment (MS&E) to be worked on: Boiler "A" & "B"
MS&E Owner/Operator: Lawrence Valdez Z Number: Z66425	Phone: 660-1393
Shutdown to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☒ Yes ☐ No	Re-energize/restart to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☑ Yes ☐ No
Reason for LO/TO: MLT	
Group LO/TO (2 or more)? ☒ Yes ☐ No *If yes, a lead authorized worker must be appointed.*	Group lock box used? ☑ Yes ~~☒ No~~ VICS-3
Shift or Personnel Changes? ☐ Yes ☒ No *If yes, a description of how the continuity of LO/TO protection will be ensured must be referenced or attached to this form. (See Section 3.9.6 of P101-3 for details.)*	☐ Continuity of LO/TO protection details described in operating procedure, work instruction, or other work control document. Document Number:

Section 2: Energy Control Procedure

1. Plan the work.
2. Identify and assess hazardous energy.
3. Contact the MS&E owner/operator.
4. Obtain locks and tags from lock coordinator.
5. Notify affected workers.
6. Shutdown MS&E according to **Section 3: Shutdown Sequence.**
7. Isolate and lock out MS&E from energy source, relieve stored energy, and perform verification of isolation according to **Section 4: LO/TO Sequence.**
8. Perform the work.
9. Release MS&E from LO/TO according to **Section 5: Release MS&E from Lockout/Tagout Sequence.**

Section 3: Shutdown Sequence

☒ Perform shutdown according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:

☐ **N/A**; MS&E to be worked on will be isolated according to **Section 4: LO/TO Sequence** (e.g., cannot be shut down)

Detail the process to normally shut down the MS&E below, if not following other document referenced above or N/A.

Step No.	Action/Description	Step No.	Action/Description
☐ 1		☐ 6	
☐ 2		☐ 7	
☐ 3		☐ 8	
☐ 4		☐ 9	
☐ 5		☐ 10	

Section 4: LO/TO Sequence

☐ Perform LO/TO sequence according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:
Describe how to effectively isolate & lockout the MS&E below, if not following other document referenced above.

Isolate & Lockout (Step No.)	Equipment Descriptor (What is being locked out? e.g., machine drive motor, input power to MCC)	Energy Source (e.g., electrical, mechanical, pneumatic, hydraulic, chemical, thermal)	Energy Isolation Device (e.g., specific ID, description, circuit #, lock box #)	Location of Energy Isolation Device (e.g., room number, north wall, south wall)	Required LO/TO Position or Alignment (e.g., off, open, closed, on)	Verification Method (e.g., live/dead/live, crack open, on-off-on-off, peer checking, independent verification)	Verifier's Initials (if req'd)	See Section 5: Release (Step No.)
☑ (1)	Boiler A	Electrical	ckt 4	PP-A	Open	on-off-on-off	CR	☑
☑ (2)	Boiler B	Electrical	ckt 10	PP-A	Open	on-off-on-off	CR	☑
☑ (3)	Control	Electrical	ckt 7	LP-1	Open	on-off-on-off	CR	☑
☐ (4)								☐
☐ (5)								☐
☐ (6)								☐
☐ (7)								☐
☐ (8)								☐

Section 5: Release MS&E from Lockout/Tagout Sequence

1. Check the MS&E and immediate area for items that could result in damage or danger on start-up.
2. Check the work area to ensure that all workers have been safely positioned or removed from the work area.
3. Verify that the controls are in neutral or "off" position.
4. Notify the owner/operator and affected workers that work is complete and MS&E is ready to release from LO/TO.
5. Remove the LO/TO device, and re-energize (if appropriate according to MS&E owner/operator) according to the sequence as identified above under Release in **Section 4: LO/TO Sequence** or according to operating procedure, work instruction, or other work control document identified in **Section 4**.
6. Return lock and locking device to Lock Coordinator.

Energy Control Procedure prepared by:

Preparer (print name)	Z Number	Organization	Phone	Signature/Date
Eric Brown	305382	Utility		13 April 2021

By signing below, you acknowledge that this energy control procedure and/or referenced documents identify the isolation devices, isolation points, and methods necessary to prevent any unexpected release of hazardous energy.
Energy Control Procedure approved by:

MS&E Owner/Operator (print name)	Z Number	Organization	Phone	Signature/Date
Lawrence Valdez	Z06425	LOG	660-1393	4-13-2021

Section 6: All Authorized Workers (anyone applying a lock for this activity)

Fill out the following information or print and attach Authorized Workers information from the Lockout/Tagout Remedy Application.

Authorized Workers Name(s)	Z Number	Date Lock Applied	Date Lock Removed
Lead: Eric Brown	305382	15 April 2021	15 April 2021
Mark Padilla	354505	15 April 2021	15 April 2021

Los Alamos
National Laboratory
Los Alamos, New Mexico 87545

MATERIAL INSPECTION REPORT

INSPECTION TRACKING NUMBER:	INS76649

PURCHASE ORDER (PO) NUMBER:	642558
LINE ITEM NO:	1
LINE ITEM DESCRIPTION:	KUNKLE 6021HHT01-AM0100 SAFETY RELIEF VALVE SET @ 100PSI
QUANTITY ORDERED:	2 **UNIT OF ISSUE:** Each
QUANTITY RECEIVED:	2
QUANTITY INSPECTED:	2
MANAGEMENT LEVEL (ML):	ML4IR
SUPPLIER:	FRANKS SUPPLY CO INC
ORACLE ITEM NO.:	**SUPPLIER PART NO.:** 1282477
MANUFACTURER:	LAM VALVES INC.

TA16-1484
WO # 6924510-01
Installed 6/16/21
BSA & BSB

REQUESTER:	Sparks, Jason Keith
REQUESTER ORGANIZATION/ GROUP:	LOG-CS: LOGISTICS CENTRAL SHOPS

INSPECTION RESULTS / ACTIONS

QUANTITY PASS: 2 **QUANTITY HELD:** 0

PTN	PTN QTY	QTY RELEASED	QTY REJECTED
3002956	2	2	0

ID NUMBERS (SERIAL/LOT/HEAT)

Serial Numbers: S022045-1A, SO22045-2A
Lot Numbers: N/A
Heat Numbers: N/A

Test Name	Qty Inspected	Final Test	Pass	Fail	Qty Failed	NCR Information	Comments
QTY Validated	2	X	X				
Cleanliness	2	X	X				
Item and/or Packaging Damage	2	X	X				NO VISIBLE DAMAGE
PV: Basic Configuration	2	X	X				KUNKLE 6021HHT01-AM0100 SAFETY RELIEF VALVE SET @ 100PSI
PV: Identification and Marking	2	X	X				SERIAL NUMBER,VALVE SIZE & TYPE, SET PRESSURE
PV: Dimensional Features	2	X	X				2" KUNKLE
PV: Physical Features	2	X	X				
Suspect Items	2	X	X				

Test Name	Qty Inspected	Final Test	Pass	Fail	Qty Failed	NCR Information	Comments
Verification of Supplier Documentation	3	X	X				PACKAGE CONTAINS: CERTIFICATE OF CONFORMANCE, INSPECTION,EXAMIN TEST REPORTS, SERIALIZATION AND MARKING

COMMENTS/OBSERVATIONS

LOS ALAMOS National Laboratory Procurement Quality	**Inspector** Joshua Duran (112118)	**Date** Jun 15, 2021 8:20 AM
	Reviewed By Dale Harrington (315426)	**Date** Jun 15, 2021 1:28 PM

Los Alamos
National Laboratory
Los Alamos, New Mexico 87545

MATERIAL INSPECTION REPORT

INSPECTION TRACKING NUMBER:	INS76650

PURCHASE ORDER (PO) NUMBER:	642558
LINE ITEM NO:	2
LINE ITEM DESCRIPTION:	KUNKLE 6021GGT01-AM0100 SAFETY REKLIEF VALVE SET @ 100PSI
QUANTITY ORDERED:	2 **UNIT OF ISSUE:** Each
QUANTITY RECEIVED:	2
QUANTITY INSPECTED:	2
MANAGEMENT LEVEL (ML):	ML4IR
SUPPLIER:	FRANKS SUPPLY CO INC
ORACLE ITEM NO.:	**SUPPLIER PART NO.:** 1173217
MANUFACTURER:	LAM VALVES INC.

REQUESTER:	Sparks, Jason Keith
REQUESTER ORGANIZATION/ GROUP:	LOG-CS: LOGISTICS CENTRAL SHOPS

INSPECTION RESULTS / ACTIONS

QUANTITY PASS: 2 **QUANTITY HELD:** 0

PTN	PTN QTY	QTY RELEASED	QTY REJECTED
3002957	2	2	0

ID NUMBERS (SERIAL/LOT/HEAT)

Serial Numbers: S022045-2B, SO22045-2A
Lot Numbers: N/A
Heat Numbers: N/A

Test Name	Qty Inspected	Final Test	Pass	Fail	Qty Failed	NCR Information	Comments
QTY Validated	2	X	X				
Cleanliness	2	X	X				
Item and/or Packaging Damage	2	X	X				NO VISIBLE DAMAGE
PV: Basic Configuration	2	X	X				KUNKLE 6021GGT01-AM0100 SAFETY REKLIEF VALVE SET @ 100PSI
PV: Identification and Marking	2	X	X				SERIAL NUMBER,VALVE SIZE & TYPE, SET PRESSURE
PV: Dimensional Features	2	X	X				1 1/2" KUNKLE
PV: Physical Features	2	X	X				
Suspect Items	2	X	X				

Test Name	Qty Inspected	Final Test	Pass	Fail	Qty Failed	NCR Information	Comments
Verification of Supplier Documentation	3	X	X				PACKAGE CONTAINS: CERTIFICATE OF CONFORMANCE, INSPECTION,EXAMIN TEST REPORTS, SERIALIZATION AND MARKING

COMMENTS/OBSERVATIONS

LOS ALAMOS National Laboratory Procurement Quality	**Inspector** Joshua Duran (112118)	**Date** Jun 15, 2021 8:24 AM
	Reviewed By Dale Harrington (315426)	**Date** Jun 15, 2021 1:31 PM

Los Alamos
National Laboratory
Los Alamos, New Mexico 87545

Document Type:	Purchase Order
Acceptance Required: Yes	Acceptance By: 350454
Purchase Order Number: 642558	Rev. Number: 0

Supplier: FRANKS SUPPLY CO INC Address: FRANKS SUPPLY CO INC, 268 DP RD LOS ALAMOS, NM 87544 United States of America Email: Tel/Fax: Contact		Ship To:	LANL for US DOE, Bldg SM30 Bikini Atoll Road Los Alamos, NM 87545 United States of America
		Bill To:	Los Alamos National Laboratory PO Box 1663 ATTN: Accounts Payable, MS P240 Los Alamos, NM 87545 United States of America
		Buyer: Phone: Email:	Rasmussen, Janneke Ann janneke@lanl.gov
Supplier GSL No: P0064601	Supplier Site Number:	PO Creation Date: 20-APR-21	Last PO Rev Date: 20-APR-21 / Payment Terms: Net 30
Inco Terms:	Freight Terms:		PO Currency: USD
Total Amount: 2,279.06	Title Passage: Per Purchase Terms		

Line	Qty	UOM	Description	Unit Price USD	Ext. Price USD	Tax	Required Delivery Date
1	2	Each	SUPPLIER ITEM: 1282477 ITEM: REV: DESCRIPTION: KUNKLE 6021HHT01-AM0100 SAFETY RELIEF VALVE SET @ 100PSI LONG DESCRIPTION: SHIP TO: Address at top of page	618.67	1,237.34	N	20-MAY-21
			Hazard Code: Note To Supplier:				
			Delivery Schedule:				
			Shipment: 1 Need By: 20-May-2021 Qty: 2 Each				
2	2	Each	SUPPLIER ITEM: 1173217 ITEM: REV: DESCRIPTION: KUNKLE 6021GGT01-AM0100	420.86	841.72	N	20-MAY-21

Line	Qty	UOM	Description	Unit Price USD	Ext. Price USD	Tax	Required Delivery Date
			SAFETY REKLIEF VALVE SET @ 100PSI LONG DESCRIPTION: SHIP TO: Address at top of page				
			Hazard Code: Note To Supplier:				
			Delivery Schedule:				
			Shipment: 1 Need By: 20-May-2021 Qty: 2 Each				
3	4	Each	SUPPLIER ITEM: 1444777 ITEM: REV: DESCRIPTION: 75496 CERTIFICATE OF SET PRESSURE LONG DESCRIPTION: SHIP TO: Address at top of page	25.00	100.00	N	20-MAY-21
			Hazard Code: Note To Supplier:				
			Delivery Schedule:				
			Shipment: 1 Need By: 20-May-2021 Qty: 4 Each				
4	4	Each	SUPPLIER ITEM: 1224140 ITEM: REV: DESCRIPTION: 75496 COC CERTIFICATE OF CONFORMANCE LONG DESCRIPTION: SHIP TO: Address at top of page	25.00	100.00	N	20-MAY-21
			Hazard Code: Note To Supplier:				
			Delivery Schedule:				
			Shipment: 1 Need By: 20-May-2021 Qty: 4 Each				
				Total:	2,279.06		

Revision	Line	Shipment	Field Altered	Changed From	Changed to

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	4/26/21
CUSTOMER	DAHL INC
CUSTOMER PO#	193-P004004733
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

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
SO22045-1A	N/A	101.3 PSIG	97.0 PSIG
SO22045-1B	N/A	102.3 PSIG	97.8 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: W/O 692451-01

TITLE: ◯ VALVE TECH ◯ JESUS MEDINA Fr# KS 4099232

The material listed on your Purchase Order 642558
Meets the conformance requirements of the information contained in this document.
Inspected by : JMedina
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:

ID (serial No.)	YEAR BUILT	NB	Cert#	QTY	TYPE	Size (NPS)	Set Pressure, psig (nameplate)	Capacity	Test Fluid	Date	CI NAME	CI Signature
SO22045	2021	LMVA36324		2	6021HHT01-AM	2"	100 PSIG	4593 LB/HR	STEAM	4/27/2021	JOEL RODRIGUEZ	JOEL RODRIGUEZ

3.) Remarks:

W/O 692457-01

Fronk's 4099232

The material listed on your Purchase Order 642558
Meets the conformance requirements of the information contained in this document.
Inspected by : _____
Dahl Plumbing of Santa Fe

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. 18515 Expires November 14, 2021

Date: 4/27/2021 Signed: _____ (responsible representive) Name: Lam Valves Inc. (Assembler)

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	4/26/21
CUSTOMER	DAHL INC
CUSTOMER PO#	193-P004004733
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

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
SO22045-2A	N/A	102.5 PSIG	97.4 PSIG
SO22045-2B	N/A	102.6 PSIG	97.2 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: _____ w/o 692451-01

TITLE: ◯ VALVE TECH ◯ JESUS MEDINA Frank 4099232

The material listed on your Purchase Order 642558
Meets the conformance requirements of the information contained in this document.
Inspected by : Tom Blea
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:

ID (serial No.)	YEAR BUILT	NB	Cert#	QTY	TYPE	Size (NPS)	Set Pressure, psig (nameplate)	Capacity	Test Fluid	Date	CI NAME	CI Signature
SO22045	2021	LMVA36324		2	6021GGT01-AM	1 1/2"	100 PSIG	2948 LB/HR	STEAM	4/27/2021	JOEL RODRIGUEZ	JOEL RODRIGUEZ

3.) Remarks:

w/o 692451-01

Fronks 4099232

The material listed on your Purchase Order 642558
Meets the conformance requirements of the information contained in this document.
Inspected by :
Dahl Plumbing of Santa Fe

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. 18515 Expires November 14, 2021

Date: 4/27/2021

Signed: _____ (responsible representative)

Name: Lam Valves Inc. (Assembler)

Preparer Note (PN):

This document contains instructions in dark red text and blue hidden text. Do not delete the dark red text or any part of sections I thru VIII of this Exhibit since it's intended to be included with the final printed/saved copy.

Asterisks highlighted in yellow (i.e., *) have been used throughout this document as placeholders to indicate where information is to be inserted (and the * removed) by the Requester/TSME. This includes but is not limited to the header date, PR#, and total page count in the footer of page 1 and page 1 of the TOC. The Solicitation/PO or Subcontract # in the footer of this page and page 1 of the TOC will be completed by Acquisition Services Management (ASM).

Do not modify the page numbering in the footer (except for adding total page numbers as indicated by *) since it's designed to be separately numbered from page 1 thru Section VIII of the Exhibit, and then separately numbered from the Table of Contents (TOC) (re-starting with page 1) thru the end of the Exhibit. You must have the blue hidden text (starting with the Table of Contents) visible in order to effectively/correctly complete this Exhibit however, it's not intended to print. To view hidden text, click on the "¶" (Show/Hide) icon on your tool bar. Alternately, see *How To Set Your Microsoft Word Application To View Hidden Text*. There is no need to delete the blue hidden text instructions as they will not affect the formatting of the printed document (except for total number of pages in the footer) and will not print unless the application's default setting is changed.

Make sure that after you delete the quality clauses you don't need and retain those you do, update the TOC before releasing this document.

This boxed-in Preparer Note may either be deleted or retained as part of this Exhibit.

INSTRUCTIONS: This Exhibit is to be completed by the Technical Subject Matter Expert (TSME) and optional Quality Subject Matter Expert (QSME) (except for weapons program procurements and procurements where Subcontractor is required to have a QA Program approved by LANL, in which case QSME signature is mandatory). The completed Exhibit H is signed and converted into Adobe pdf format and attached with the Requisition.

Exhibit H is required for:

- All on-site services (with or without items), regardless of Management Level (ML).
- All ML-1/ML-2, ML-3 item and service procurements, regardless of where work is performed.
- All weapons program (WP) procurements regardless of ML (or procurement quality level; PQL).
- ML-4 item procurements involving stand-alone circuit breakers and fasteners as defined in P840-1, *Quality Assurance for Procurements*.
- ML-4 item procurements involving hoisting, lifting, and rigging equipment as defined in P840-1, *Quality Assurance for Procurements*.

Guidance on the selection of quality clauses is included as hidden text next to each clause. As an example, the QC-27 (S/CI) clause is required for all item procurements (including services with items). QC-22 is required, as is QC-01A and QC-25 (unless compensatory measures allow otherwise) for all ML-1/ML-2 & WP procurements. QC-01B is required for all on-site procurements. QC-36 is required for all Safety Software or Risk Significant Software and WP procurements of software. QC-06 is required for all purchases of hoisting, lifting, and rigging equipment.

Complete the following sections I thru VII and use this information to complete the remainder of Exhibit H, after which, sign section VIII and scan for submittal with the procurement package.

NOTE TO ASM PROCUREMENT (or WP Processing Personnel): Pages that include sections I thru VIII of the completed Exhibit H are not intended to become part of the subcontract. These sections are intended for internal planning/documentation purposes only and should be separated from the Exhibit H and retained in the ASM or WP procurement file.

I. **Originator/Requester Name, Z#, Phone #**: Patrick McCabe, 348093, 695-5869

Technical SME Name, Z#, Phone #: Joshua Begay, 304395, 699-0253

Quality SME Name, Z#, Phone # (if applicable): N/A

Generic Item/Service Description: Relief Devices for TA-9 and TA-16 Boilers (Applicable to WO#'s 692442-01, 692443-01, 692450-01, 692451-01, 692452-01, 692453-01, 692454-01, 692455-01)

Notes to LANL Procurement Specialist: This space is either left blank, indicated as "N/A", or applicable notes to the Buyer are listed N/A

Notes to other LANL organization: This space is either left blank, indicated as "N/A", or applicable notes to the organization are listed N/A

ML Designation & Qualification of Subcontractors Designate the Management Level (ML) or Procurement Quality Level (PQL) (for WP Production Agency [PA] only) based on the applicable Master Equipment List, Drawing, Specification, Bill of Materials, etc. or per the requirements of P341, *Facility Engineering Processes Manual* and/or AP-341-502, *Management Level Determination* or applicable WP procedure(s). Then select A and/or B, B1, B2, B3, B4, B5, B6, C, C1, D1, or D2 as applicable. In some cases where an Institutional Evaluated Suppliers List (IESL) Supplier is necessary and the procurement is being sent out for competitive bid, both block A and B (with subsequent sub-block) may be selected to plan for both IESL and non-IESL suppliers to compete for procurements. To place an "X" in a check box: either double left click on the box or right click on the box and click on properties; change the default value to "Checked", and click on the OK tab.

Management Level: ☐ **ML-1** ☐ **ML-2** ☐ **ML-3** ☒ **ML-4** ☐ **PQL** *(ref. section VI)*

☐ **A.** Proposed Subcontractor(s) is/are listed on the Institutional Evaluated Suppliers List (IESL) for the approved items/services. Required (where supplier is listed on the IESL) for ML-1/ML-2 (including 3rd party Commercial Grade Dedication; CGD), Design Agency (DA) weapons program (WP) procurements, PA WP procurements (PQL1 & PQL2 only), and calibration services for instruments enrolled in the LANL Standards & Calibration Lab (S&CL) program.

☐ **B.** Proposed Subcontractor(s) is/are not listed on the Institutional Evaluated Suppliers List (IESL) for the approved items/services or if listed, do not meet the required QA Program evaluation criteria for the proposed item/service. Required (where supplier is not listed on the IESL) for ML-1/ML-2, DA WP procurements, PA WP procurements (PQL1 & PQL2 only), and calibration services for instruments enrolled in the LANL Standards & Calibration Lab (S&CL) program (also, required for IESL listed Suppliers where QA Program criteria does not satisfy item/service requirements). If block "B" is applicable, you must also select either, B1, B2, B3, B4, B5, and/or B6 below and if indicated, an approved Commercial Grade Dedication (CGD) Package and/or Technical Evaluation & Acceptance (TEA) Plan and/or Compensatory Action Plan must be included with the procurement request unless QPA-DO or WP quality personnel allow otherwise.

☐ **B1. Items and/or Services:** Quality & Performance Assurance (QPA) Division or applicable WP supplier evaluation personnel will evaluate the Subcontractor for subsequent IESL listing, prior to award/no later than start of work of subcontract. Complete on-line Form 1953 to request Supplier Evaluation and include copy with iProcurement PR unless QPA-DO allows otherwise.

☐ **B2. Items and/or Services:** Requesting Organization will dedicate items/services per, AP-341-703, *Commercial Grade Dedication*. Required (Technical Evaluation & Acceptance Plan, as a minimum) to be developed and approved prior to processing the procurement unless QPA-DO allows otherwise (B2 listed CGD Process may not be used for WP items/services).

☐ **B3. WP Items and Services Only:** Requesting Organization will complete a Compensatory Action Plan per P840-1 (see Weapons Program Procurements). Required to be developed and approved prior to processing the procurement unless WP quality personnel allow otherwise.

☐ **B4. Integrated Contractor Order (ICO) or Transfer (processed by ASM):** Requesting Organization will be obtaining items/services from another DOE/NNSA location (DOE Managing & Operating Contractor) under the controls of their DOE approved QA Program. Required for all ASM processed ICO's/Transfers between other DOE Complex locations (selection of quality clause QC-01C is all that's required).

☐ **B5. WP Integrated Contractor Order (ICO) or Transfer or Centralized Procurement Order (not processed by ASM):** Requesting Organization will be obtaining items/services from another DOE/NNSA location (DOE Managing & Operating Contractor) under the controls of their DOE approved QA Program. Required for all non-ASM processed ICO's/Transfers or Centralized Procurements between other DOE Complex locations (selection of quality clause QC-01C is all that's required).

☐ **B6. Work performed under controls of LANL QA Program (ref. SD330):** Subcontractor will perform all service work under LANL direction per LANL SD330 quality program requirements and LANL personnel will assure all necessary requirements are followed. ML-1 or ML-2 items cannot be provided by Subcontractor without a LANL generated and approved Commercial Grade Dedication (CGD). Subject controls are required to be described in the subcontract Exhibit D (Scope of Work) for on-site ML-1 or ML-2 work where the Supplier is not listed on the IESL and a CGD is not being processed *for the service*.

☒ **C.** Institutional Evaluated Suppliers List (IESL) Supplier is optional. For ML-3 or ML-4 and PA WP PQL3 items or services (this does not include calibration services for M&TE enrolled in the S&CL Program and does not include DA WP procurements). If desired or otherwise required by P840-1, also select C1.

☐ **C1. Services:** Requesting Organization will develop and implement a Compensatory Action Plan per P840-1. If applicable, the Plan is required to be developed and approved prior to processing the procurement unless QPA-DO or WP quality personnel allow otherwise.

D. Item/service is listed on ASM document 3400.00.0410, *Goods or Services Requiring Special Review/Approval*, (i.e. Form 410). Select D1 or D2 depending on whether item/service is listed on Form 410. If listed, LANL SME review/approval (e-mail acceptable) is required as part of the procurement package prior to processing procurement (or Form 410 SME organization must be listed in iProcurement approval sequence) unless QPA-DO or WP quality personnel allow otherwise.

☒ **D1. Yes:** Form 410 applies and internal review/approval is provided.

☐ **D2. No:** Form 410 does not apply to this procurement.

II. **Performance/Technical Requirements and Acceptance Criteria Identified In:** To place an "X" in a check box: either double left click on the box or right click on the box and click on properties; change the default value to "Checked", and click on the OK tab.

☐ **A.** Scope of Work and Technical Specifications (SOW) For services, complete and attach Exhibit D, *Scope of Work and Technical Specifications* to iProcurement purchase requisition (PR).

☐ **B.** LANL Procurement Specification If applicable, attach to iProcurement PR.

☐ **C.** Subcontractor Catalog page/cut sheet, quote, part #, model #, etc. If applicable, attach to iProcurement PR.

☒ **D.** Inspection Plan (e. g. Form 1952) Required for receipt inspection, attach to iProcurement PR.

☐ **E.** Other Attachment (e.g., drawings, reports, etc.) If applicable, attach to iProcurement PR.

III. **Receipt Inspection** For items only, select the applicable subsection below. Receipt inspections must be performed by QPA qualified and certified inspectors except as otherwise allowed for in Attachment E (section E.5.2) of P840-1, or by Subcontractors in accordance with a LANL approved Subcontractor QA Program/Plan, or by Subcontractor or other LANL personnel per a Compensatory Action Plan. A LANL Form 1952, *Receipt Inspection Plan and Requirements* or equivalent is required. To place an "X" in a check box: either double left click on the box or right click on the box and click on properties; change the default value to "Checked", and click on the OK tab.

☐ **A.** ML-1, ML-2, or ML-3 items (including weapons program procurements which includes PA WP PQL1 and PQL2), QPA certified receipt inspectors or WP quality personnel to perform receipt inspection (*at SM-30 unless arranged otherwise with Warehouse Receiving and/or QPA*).

☒ **B.** ML-4 item(s) with receipt inspection required (*weapons program procurements including PA WP PQL3, stand-alone circuit breakers and fasteners, and hoisting, lifting, and rigging equipment as defined in P840-1 or as requested by project or facility management*), QPA certified receipt inspectors or WP quality personnel to perform receipt inspection (*at SM-30 unless arranged otherwise with Warehouse Receiving and/or QPA/WP quality personnel*). Note that if receipt inspection is requested for ML-4 items not required by P840-1, an organizational charge number may be requested by QPA for receipt inspection performance.

☐ **C.** Subcontractor/other LANL personnel to provide receipt inspection (regardless of ML) in accordance with LANL QPA Division or WP quality personnel approved Subcontractor QA Program/Plan or approved Compensatory Action Plan.

☐ **D.** Items (regardless of ML) to be receipt inspected/verified by programmatic organization or project (or subcontractor) as defined in P840-1, Attachment E (E.5.2) (e.g. explosives, radiological materials, hazardous materials, off-site inspection, software, etc.).

☐ **E.** ML-4 item(s) with no QPA receipt inspection required.

IV. **Nuclear or Radiological Work** Failure of the items and/or services to be furnished under this subcontract may affect nuclear or radiological safety; therefore the Nuclear Hazards Indemnity

Agreement (48 CFR 952.250-70) clause (SC-14) may need to be included by the ASM Procurement Specialist in the terms and conditions of this subcontract, depending on the TSME/QSME selection of "YES" or "NO" for the below information statement (*required* to be "YES" for all ML-1 and ML-2 procurements [excluding Accelerator facilities], unless an Integrated Contractor Order [ICO] or unless *a LANL performed* CGD applies and is *likely* "YES" for ML-3 procurements if the ML-3 designation is based on Other Hazard Controls [OHC] or Radiation Protection). If *a LANL performed* CGD applies for ML-1/ML-2 items, select "NO" since under the CGD process, LANL is taking responsibility for SC-14 stated liabilities and in this case (*LANL performed* CGD), the SC-14 clause is not required to be included in the subcontract. To place an "X" in a check box: either double left click on the box or right click on the box and click on properties; change the default value to "Checked", and click on the OK tab.

☐ **A.** YES; failure of the items and/or services to be furnished under this subcontract may affect nuclear or radiological safety. Therefore, include the *Nuclear Hazards Indemnity and Price Anderson Act* clause (SC-14) in the subcontract (to be added by ASM; not part of Exhibit H).

☒ **B.** NO; failure of the items and/or services to be furnished under this subcontract will not affect nuclear or radiological safety (or *LANL performed* CGD applies). Do not include the *Nuclear Hazards Indemnity and Price Anderson Act* clause in the subcontract.

V. **ASME NQA-1** If answered "YES", the procurement records for the items and/or services to be furnished under this subcontract are governed by ASME NQA-1 (required to be "YES" for all ML-1 and ML-2 procurements [excluding Accelerator facilities]) and ASM will control open NQA-1 related records (i.e. the executed subcontract) in accordance with the requirements of NQA-1 requirement 17 and as described in Acquisition Practice 1046, *Safekeeping of Procurement Records*. Procurement Specialists should contact ASM Records Specialist for guidance.

☐ **A.** YES, the procurement records for the items and/or services to be furnished under this subcontract are governed by ASME NQA-1 and records must be stored per NQA-1 Requirement 17.

☒ **B.** NO, the procurement records for the items and/or services to be furnished under this subcontract are not governed by ASME NQA-1 and records do not need to be stored to NQA-1 requirements.

VI. **Weapon Material or Weapon-Related Material** These terms have specific definitions (from procedure P840-1, *Quality Assurance for Procurements*, as further supplemented by applicable WP Quality Assurance Plans or other procedures) which are *summarized* here: **Weapon Material**—NNSA nuclear weapons, assemblies, components software, or parts thereof. **Weapon-Related Material**—Any material including associated software, test and handling equipment, tooling, and fixtures, being developed and/or produced for or by the NNSA and intended for use in conjunction with, weapon research, development, engineering, production, surveillance, or dismantlement.

These definitions do not include research activities outside the scope of DOE weapon system development phases defined in 56XB, *DOE/NNSA Development and Production (D&P) Manual*.

If the items/services being procured meet the subject definitions and/or are intended for use in one or more of the defined phases of weapon project/system development discussed in the D&P Manual, including weapon system refurbishment and life extension programs (LEP); then the below selected check-box should be marked "YES" (with subsequent PQL indicated as applicable for the PA WP); otherwise, the below selected check-box should be marked "NO".

☐ **A.** YES, this procurement meets the definition of weapon material or weapon related material items/services and/or is intended for use in a D&P Manual defined phase of weapon system development/maintenance, including refurbishment and LEP. If PA WP procurement, additionally select appropriate PQL:

☐ PQL1 or PQL2 (IESL Supplier required unless Compensatory Acton Plan allows otherwise).

☐ PQL3 (IESL Supplier is optional).

☒ **B.** NO, this procurement does not meet the definition of weapon material or weapon related material items/services and/or is not intended for use in a D&P Manual defined phase of weapon system development/maintenance including refurbishment and LEP.

VII. **Safety Software/Risk Significant Software/Weapons Program Software** If the items and/or services to be furnished under this subcontract are considered Safety Software or Risk Significant Software (stand-alone or embedded in equipment; e.g. Programmable Logic Controllers) as defined in P1040, *Software Quality Management* and/or Engineering Standards Manual Chapter 21, *Software*, or are part of a weapons program (WP) procurement of software, selection of QC-36 is required; unless for Safety Software, a Commercial Grade Dedication allows otherwise or for WP procurements of software, a Compensatory Action Plan allows otherwise. Safety Software procurements require approval of the applicable Facility Design Authority Representative (DAR), Design Authority for Facility Engineering, Facility Responsible Associate Director, or Engineering Services Division Leader.

☐ **A.** YES, the items and/or services to be furnished under this subcontract are considered Safety Software or Risk Significant Software as defined in P1040 or are part of a weapons program procurement (as defined in P840-1) of software. Selection of quality clause QC-36 is required.

☒ **B.** NO, the items and/or services to be furnished under this subcontract are <u>not</u> considered Safety Software or Risk Significant Software as defined in P1040 or are <u>not</u> part of a weapons program procurement (as defined in P840-1) of software. Selection of quality clause QC-36 is not required.

VIII. **Approvals:** Approvals indicate agreement with: 1) completed Sections I thru VII (including the specified ML determination for which the TSME has ultimate responsibility and applicable PQL designation by appropriate PA WP personnel); 2) appropriate quality assurance requirements for this procurement (selected Quality Clauses (QC) and associated Table of Contents titles) have been included in Exhibit H.

Additional QPA-DO approval (as designated by the QPA Division Leader) is mandatory for ML-1/ML-2 procurements and can be satisfied by QPA-DO electronic approval in iProcurement. TSME approval is mandatory. QSME approval is mandatory for weapons program (WP) procurements and/or procurements where the Subcontractor is required to provide their own QA Program, as approved by LANL (this includes ML-1/ML-2 orders using an IESL Supplier). Blank signature lines should be marked as "N/A" (not applicable) as appropriate.

JOSHUA BEGAY (Affiliate) Digitally signed by JOSHUA BEGAY (Affiliate) Date: 2021.04.12 10:50:18 -06'00'	304395	4/12/2021
TSME (signature)	**Z Number**	**Date**
N/A		
QSME (signature) (required for weapons program procurement or where Subcontractor is working to their own QA Program as approved by LANL; otherwise optional, as determined by TSME)	**Z Number**	**Date**
N/A		
QPA-DO (signature) (only required for ML-1 or ML-2)	**Z Number**	**Date**

EXHIBIT "H"
QUALITY ASSURANCE REQUIREMENTS

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QC-28	SERIALIZATION AND MARKING (Mar 2016)	3

QC-06 CERTIFICATE OF CONFORMANCE (Feb 2018)

SUBCONTRACTOR shall provide a Certificate of Conformance (C of C) for all items or services procured through this subcontract. Each C of C shall be from SUBCONTRACTOR and/or Manufacturer, shall identify CONTRACTOR'S subcontract number, and state that the item or service described thereon conforms in all respects with subcontract/manufacturer requirements, which may include any applicable specifications, drawings, marking requirements, part/model/serial number identification, or codes/standards that the item is certified to. Where applicable, the C of C shall identify the material by CONTRACTOR'S part/control number consistent with part number information in subcontract documents and/or CONTRACTOR'S specifications. Each C of C shall further identify any approved changes, waivers, or deviations to the item requirements and identify any requirements that have not been met, with a corresponding means/recommendation for resolving the nonconformance. Each C of C shall be signed or otherwise authenticated by an authorized person responsible for this function as described in SUBCONTRACTOR'S quality assurance program (or other representative of SUBCONTRACTOR and/or manufacturer if SUBCONTRACTOR is not required to have a quality assurance program). SUBCONTRACTOR personnel must assure that certificates of conformance are verified for compliance with the technical and quality requirements stated in the subcontract.

QC-08 INSPECTION, EXAMINATION, AND TEST REPORTS (Mar 2016)

SUBCONTRACTOR shall provide to CONTRACTOR, with or prior to each shipment, or as the result of on-site testing/inspection, all reports of inspections and/or tests performed on the items procured/inspected/tested. The reports shall be traceable to the subcontract number, item part/model number, item serial number (where applicable), and/or system description (when items are tested/inspected as part of an overall integrated system).

QC-27 SUSPECT/COUNTERFEIT ITEMS (S/CI) (Feb 2018)

(a) A suspect item is one in which there is an indication by visual inspection, testing, or other information that it may not conform to established Government or industry-accepted specifications or national consensus standards. A counterfeit item is a suspect item that is a copy or substitute, without legal right or authority to do so, or one whose material, performance, or characteristics are knowingly misrepresented by the vendor, supplier, distributor, or manufacturer.

(b) SUBCONTRACTOR warrants that all items, including their subassemblies, components, and parts, tendered to CONTRACTOR shall be genuine (i.e., not counterfeit), new and unused, and conform to the requirements of this subcontract, without substitution unless otherwise provided for within this subcontract or approved in writing by CONTRACTOR prior to delivery.

(1) SUBCONTRACTOR shall ensure (as applicable) that malicious software (and hardware) is prevented from entering into their supply chain for items/services to be provided to CONTRACTOR.

(c) SUBCONTRACTOR further warrants that all components, parts, materials, and supplies incorporated into CONTRACTOR'S facilities or equipment by SUBCONTRACTOR, during performance of work at LANL, shall be genuine, new and unused, and original-equipment-manufacturer items, without substitution unless otherwise provided for within this subcontract or approved by CONTRACTOR in writing as suitable for the intended purpose prior to use.

(1) If SUBCONTRACTOR discovers any S/CI items or S/CI conditions of concern for items in use (including SUBCONTRACTOR owned items) or in the process of being installed at LANL, SUBCONTRACTOR shall temporarily segregate/control the items and immediately notify CONTRACTOR. CONTRACTOR will make subsequent notifications concerning CONTRACTOR owned items in accordance with CONTRACTOR'S S/CI procedures and provide SUBCONTRACTOR direction as to S/CI disposition. For SUBCONTRACTOR owned items with S/CI concerns (e.g. tools, scaffolding, hoisting,

lifting, and rigging equipment, etc.), CONTRACTOR will provide direction to SUBCONTRACTOR up to and including the removal of such items from the LANL site.

(d) As part of the foregoing warranties, SUBCONTRACTOR also certifies that all labels and/or trademarks or logos affixed, or designed to be affixed; to items supplied or delivered to CONTRACTOR, and to certifications, affirmations, information, or documentation related to the authenticity and quality of items supplied or delivered to CONTRACTOR under this subcontract, are genuine.

(e) Falsification of information or documentation may constitute criminal conduct; accordingly, SUBCONTRACTOR grants CONTRACTOR the right to temporarily segregate items, and related paperwork, that are suspected to be S/CI, pending a determination by National Nuclear Security Administration (NNSA) or Department of Energy (DOE) officials whether the segregated items should be impounded as evidence.

(1) In the event NNSA/DOE directs CONTRACTOR to impound the segregated items, no liability shall be asserted or enforceable against CONTRACTOR, NNSA, or DOE because of the impoundment, all such liability being expressly waived by SUBCONTRACTOR or any person claiming any right or interest under this subcontract in the impounded items.

(2) CONTRACTOR shall incur no liability for failure to return impounded items to SUBCONTRACTOR and does not assume any liability for loss or damage to the items impounded or temporarily segregated pursuant to this clause regardless of the circumstances under which said loss or damage may have occurred, and whether the impounded or temporarily segregated items are in CONTRACTOR'S possession or under its control.

(f) Nothing in this clause shall limit CONTRACTOR'S right to reject S/CI, and related paperwork, as nonconforming, to deny payment for such items, to return such items to SUBCONTRACTOR once NNSA/DOE has released the items, or to assert other remedies provided under this subcontract or by law.

QC-28 SERIALIZATION AND MARKING (Mar 2016)

The manufacturer shall serialize parts, components, assemblies, and subassemblies as required by drawings, specifications, and this subcontract. The manufacturer's serial number control system shall ensure that the same serial number is not used more than once. Associated quality documents (e.g. test/inspection reports, certification documents) shall refer to any applicable serial numbers/lot numbers of the items; serial numbers/lot numbers are required to be directly marked on items or, if not feasible, the item shall be indirectly identified (e.g. tagged) with serial number/lot number.

Los Alamos NATIONAL LABORATORY EST. 1943

Form 1952

Receipt Inspection Plan and Requirements

1. Purchase Document Number	2. Management Level (ML)
WO #'s: 692442-01, 692443-01, 692450-01, 692451-01, 692452-01, 692453-01, 692454-01, 692455-01	ML-4

3. Item Description(s) and line item number(s)

11 each - Kunkle 6021HHT01-AM0100

6 each - Kunkle 6021GGT01-AM0100

2 each - Kunkle 6021GGT01-AM0050

4. Basic Inspections

Basic Inspections are performed by Qualified Receipt Inspectors. Characteristics to be inspected, methods of inspection, and acceptance criteria are listed below. If additional acceptance criteria are required, specify in section 5. If Exhibit H quality clauses apply only to specific items, this can be clarified in QC-37 in the Exhibit "H" or in the Table at the end of this Form. During inspection if any issues arise or if clarification of acceptance criteria is necessary, the Requestor will be engaged to provide guidance or clarification.

Characteristic to be Inspected	Method of Inspection	Acceptance Criteria
Item Quantity	Visual	The quantity of items received must be the same as specified in the procurement documents. (Discuss overages with Requestor/Buyer.)
Item Cleanliness of accessible external and internal areas	Visual	Accessible external and internal areas of item must be free of dirt, soil, mill scale (excluding raw material items), oil, grease, or stains. If inspection for cleanliness was performed (as evidenced by the inspection records provided by the supplier) prior to sealing and shipping, and inspection upon receipt indicates that there has been no penetration of the sealed boundary, then inspection for internal cleanliness is optional.
Item Damage	Visual	Items/components must not be broken, cracked, missing, deformed, or misaligned. Rotating parts must turn without binding, and accessible external and internal areas must be free of gouges, dents, scratches, and burrs that would be detrimental to the function of the item.
Item Configuration	Visual	Item must be configured as specified in procurement documents. Item Configuration includes: correct orientation of components and features, correct types of components, and correctly assembled as applicable.
Item Identification and Markings	Visual	Item must be identified according to procurement documents. The identification must match that specified in the shipping and/or procurement documents.

Item Dimensions	Dimensional	Verification of general features as specified in procurement documents or catalog data, such as: a) Overall length, width, height, and diameters. b) Diameter of threads and verification of thread pitch and type. **Important:** This inspection will only be applicable if the provided procurement documents, specifications, or standards specify dimensions and tolerances.
Suspect/Counterfeit Items	Visual	Item must not exhibit indications of being counterfeit. See P330-9, *Suspect/Counterfeit Items (S/CI)* for indications.
Supplier Documentation	Review	Applicable Supplier Documentation must meet the requirements of the Purchase Documents and be traceable to the items and procurement documents.

5. Additional Inspections (if none are required, leave this section blank)

List any required additional inspections (see section 8), the methods of inspection, and their acceptance criteria in the table below. Reference applicable drawings, specifications, and/or standards where possible. Allow for additional inspection time coincident with the scope of any requested additional inspections. (Additional fields provided after this form, attach as needed.)

Characteristic to be Inspected	Method of Inspection	Acceptance Criteria

6. Inspection Approach

Unless otherwise specified in Section 7, the Inspection will include all items in the order or a sampling of items. This will be determined by the Receipt Inspector based on factors such as the number of items in the order, the complexity of the items, and current work load. If a sampling plan is used, it will select the number of items in the procurement to be inspected for the following applicable basic inspections: cleanliness, damage, configuration, identification and marking, dimensional, and also any additional inspections. Sampling plans will be according to ANSI/ASQ Z 1.4 (latest edition) using a minimum General Inspection Level of II (Table I) and a minimum Acceptable Quality Limit of 4.0 (Table IIA). WR inspections use the sampling plan described in PA-MAP-01014.

7. Instructions and Comments for Inspections (if none apply, leave this section blank)
Indicate if the following apply:

☐ Hold point for TSME/QSME witness unpacking of items. (Contact TSME/QSME to make arrangements before commencing unpacking of items.)

☐ Item(s) are part of a Commercial Grade Dedication (CGD). If so, a CGD Pending Tag must be included with this form.

☐ Item(s) are a part of **WR** Compensatory Action Plan (CAP). Implement actions (i.e., inspections, tests) as required by CAP in accordance with PA-MAP-01014, *Acceptance of Procured Items and Services.*

Other comments:

8. Limitations

Receipt Inspectors perform basic inspections to provide reasonable assurance that the items received are the items that were requested. The acceptability of an Item to perform its function is determined by the Requesting Organization, and the proper procurement controls (independent dimensional inspections, source verification, supplier surveillances, supplier evaluations, etc.) should be implemented to ensure acceptability of items. If there are questions as to these limitations, contact the organization responsible for performing the receipt inspection.

The following limitations are in place on Receipt Inspections:

- Dimensional Inspections performed by Receipt Inspectors as part of the basic inspections do not constitute dimensional acceptance inspections. The scope of basic dimensional inspections is limited to those required to provide reasonable assurance that an item is what was requested and cannot require measurements with an accuracy less than .001 inches. Before requesting additional dimensional inspections, requestors must verify that the organization performing the receipt inspection (e.g., QPA-IQ, PAQ) has the capability of performing the desired inspection.
- The TSME/QSME must coordinate/arrange for Subject Matter Expert (SME) inspections of welds or weld preparations (random verification that weld preparations are in accordance with applicable drawings and specifications) and/or electrical insulation (performance of insulation resistance tests for motors, generators, and control and power cable to ensure conformance with specifications). Receipt Inspectors do not have the capability for such inspections.
- **Important:** For ML-4 items which are not required to be receipt inspected by P840-1, an organizational charge code may be requested by QPA for receipt inspection.

ADMIN-3-FM03 Steam and Boiler Regulator and Relief Device Procurement Pre-approval

1. **Form must be signed and approved by a DCPSO or CPSO in order to procure (per ASM Form 410 see footnote 1).**
   a. **The approving DCPSO cannot also be the requestor (maintains preparer/verifier independence required by SD 330)**
2. **Include supporting documentation (max flow calculations, relief device spec sheet showing flow capacity, etc.) as applicable.**

(data for example only, delete when using form)

PSS #	TA	Bldg	Valve	Regulator / RFO	Max Flow	Relief Device	Set Press.	System MAWP	Relief Flow	Relief Inlet	Sys. Conn.
Tag #			Valve tag # off of P&ID	Model # of Regulator or RFO	SCFM of air Or BTUH/GPM	Make & Model #			Flow in SCFM, BTUH, or GPM	Pipe Size	Pipe Size
4023	09	0282	PSV-001	Sellers Boiler 153HP-SH-LN390 Serial # 100849 A (Boiler BS-A)	Boiler rating 5279 LB/HR (5,121,728 BTU/HR Output)	Kunkle 6021HHT01-AM0100	100 psig	150 psig	4593 LB/HR	2" NPT	2" NPT
4023	09	0282	PSV-002	Sellers Boiler 153HP-SH-LN390 Serial # 100849 A (Boiler BS-A)	Boiler rating 5279 LB/HR (5,121,728 BTU/HR Output)	Kunkle 6021GGT01-AM0100	100 psig	150 psig	2948 LB/HR	1-1/2" NPT	1-1/2" NPT
4023	09	0282	PSV-003	Sellers Boiler 153HP-SH-LN390 Serial # 100849 B (Boiler BS-B)	Boiler rating 5279 LB/HR (5,121,728 BTU/HR Output)	Kunkle 6021HHT01-AM0100	100 psig	150 psig	4593 LB/HR	2" NPT	2" NPT
4023	09	0282	PSV-004	Sellers Boiler 153HP-SH-LN390 Serial # 100849 B (Boiler BS-B)	Boiler rating 5279 LB/HR (5,121,728 BTU/HR Output)	Kunkle 6021GGT01-AM0100	100 psig	150 psig	2948 LB/HR	1-1/2" NPT	1-1/2" NPT
4014	16	1480	PSV-001	Sellers Boiler 98HP-SH-LN390 Serial # 100852-B (Boiler BS-A)	Boiler rating 3381 LB/HR (3,280,584 BTU/HR Output)	Kunkle 6021HHT01-AM0100	100 psig	150 psig	4593 LB/HR	2" NPT	2" NPT

4014	16	1480	PSV-002	Sellers Boiler 98HP-SH-LN390 Serial # 100852-A (Boiler BS-B)	Boiler rating 3381 LB/HR (3,280,584 BTU/HR Output)	Kunkle 6021HHT01-AM0100	100 psig	150 psig	4593 LB/HR	2" NPT	2" NPT
4015	16	1483	PSV-001	Sellers Boiler 128HP-SH-LN390 Serial # 100850-B (Boiler BS-A)	Boiler rating 4416 LB/HR (4,284,844 BTU/HR Output)	Kunkle 6021HHT01-AM0100	100 psig	150 psig	4593 LB/HR	2" NPT	2" NPT
4019	16	1484	PSV-001	Sellers Boiler 183HP-SH-LN39 Serial # 100848-B (Boiler BS-A)	Boiler rating 6314 LB/HR (6,125,984 BTU/HR Output)	Kunkle 6021HHT01-AM0100	100 psig	150 psig	4593 LB/HR	2" NPT	2" NPT
4019	16	1484	PSV-002	Sellers Boiler 183HP-SH-LN39 Serial # 100848-B (Boiler BS-A)	Boiler rating 6314 LB/HR (6,125,984 BTU/HR Output)	Kunkle 6021GGT01-AM0100	100 psig	150 psig	2948 LB/HR	1-1/2" NPT	1-1/2" NPT
4019	16	1484	PSV-003	Sellers Boiler 183HP-SH-LN39 Serial # 100848-A (Boiler BS-B)	Boiler rating 6314 LB/HR (6,125,984 BTU/HR Output)	Kunkle 6021HHT01-AM0100	100 psig	150 psig	4593 LB/HR	2" NPT	2" NPT
4019	16	1484	PSV-004	Sellers Boiler 183HP-SH-LN39 Serial # 100848-A (Boiler BS-B)	Boiler rating 6314 LB/HR (6,125,984 BTU/HR Output)	Kunkle 6021GGT01-AM0100	100 psig	150 psig	2948 LB/HR	1-1/2" NPT	1-1/2" NPT

4017	16	1487	PSV-001	Sellers Boiler 56HP-SH-LN390 Serial # 100857-B (Boiler BS-A)	Boiler rating 1932 LB/HR (1,874,619 BTU/HR Output)	Kunkle 6021GGT01-AM0100	100 psig	150 psig	2948 LB/HR	1-1/2" NPT	1-1/2" NPT
4017	16	1487	PSV-002	Sellers Boiler 56HP-SH-LN390 Serial # 100857-A (Boiler BS-B)	Boiler rating 1932 LB/HR (1,874,619 BTU/HR Output)	Kunkle 6021GGT01-AM0100	100 psig	150 psig	2948 LB/HR	1-1/2" NPT	1-1/2" NPT
4006	16	1490	PSV-001	Sellers Boiler 95HP-SH-LN390 Serial # 100856-B (Boiler BS-A)	Boiler rating 3278 LB/HR (3,180,158 BTU/HR Output)	Kunkle 6021HHT01-AM0100	100 psig	150 psig	4593 LB/HR	2" NPT	2" NPT
4006	16	1490	PSV-002	Sellers Boiler 95HP-SH-LN390 Serial # 100856-A (Boiler BS-B)	Boiler rating 3278 LB/HR (3,180,158 BTU/HR Output)	Kunkle 6021HHT01-AM0100	100 psig	150 psig	4593 LB/HR	2" NPT	2" NPT
4011	16	1491	PSV-001	Sellers Boiler 24HP-SH-LN390 Serial # 100859-A (Boiler BS-A)	Boiler rating 828 LB/HR (803,408 BTU/HR Output)	Kunkle 6021GGT01-AM0050	50 psig	150 psig	1671 LB/HR	1-1/2" NPT	1-1/2" NPT
4011	16	1491	PSV-002	Sellers Boiler 24HP-SH-LN390 Serial # 100859-B (Boiler BS-B)	Boiler rating 828 LB/HR (803,408 BTU/HR Output)	Kunkle 6021GGT01-AM0050	50 psig	150 psig	1671 LB/HR	1-1/2" NPT	1-1/2" NPT

Los Alamos National Laboratory

Bill of Materials TA-16-1484 Safety Relief Valve Order WO# 692451-01

Work Order/Task Number	692451-01			Date	4/2/2021
Supervisor	Glenn Martinez	Z#190429	Cell# (505)231-8341	Priority	
TSME	Pat McCabe	Z#348093	Cell# (505)695-5869	ML	4 IR
Requester/Foreman	Jason Sparks	Z#122088	Cell# (505)500-6436	Quote#	
Lister	Alejandro Alvarez	Z#282921	Cell# (505)665-7704	Purchase Order#	
Approved By	Randall Austin		Cell# (505)667-6740	Notes	TA-16-1484 Safety Valve

Item No.	QTY	Inlet Size	Outlet Size	Capacity	Manufacturer	Model Number	Set PSI	Notes
1	2 ea	2"	2"	4593 LB/HR	Kunkle	6021HHT01-AM0100	100 PSI	
2	2 ea	1-1/2"	1-1/2"	2948 LB/HR	Kunkle	6021GGT01-AM0100	100 PSI	

NOTES: ASME ORDER

Need Pre Approval from Pressure Safety Officer/Engineering need 1952 Form, Exhibit H Form & 410 Form

No Credit Card Orders.

1) Shall have Certificate of Conformance For each Valve. Please add C of C to each valve box.

2) Shall have Bench Test Report For each Valve please add to each valve box.

3) Please provide Serial# or Identification Tag on valve.

Valves must go through QA

BS-B
Serial # SO22045-2B
Date 6-16-21
model # 6021GGT01-AM

TA 16-1484 BS-B

TEST REPORT

WO# 6924151-01

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	4/26/21
CUSTOMER	DAHL INC
CUSTOMER PO#	193-P004004733
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

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
SO22045-2A	N/A	102.5 PSIG	97.4 PSIG
SO22045-2B	N/A	102.6 PSIG	97.2 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 ◯ JESUS MEDINA Frank 4099232

The material listed on your Purchase Order 642558
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:

ID (serial No.)	YEAR BUILT	NB	Cert#	QTY	TYPE	Size (NPS)	Set Pressure, psig (nameplate)	Capacity	Test Fluid	Date	CI NAME	CI Signature
SO22045	2021	LMVA36324		2	6021GGT01-AM	1 1/2"	100 PSIG	2948 LB/HR	STEAM	4/27/2021	JOEL RODRIGUEZ	JOEL RODRIGUEZ

3.) Remarks:

Installed TA16-1484

BS-B SO22045-2B

Date 6-16-21

Model # 6021GGT01-AM

WO# 692451-01

Franks 4099232

The material listed on your Purchase Order 642558
Meets the conformance requirements of the information contained in this document.
Inspected by :
Dahl Plumbing of Santa Fe

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. 18515 Expires November 14, 2021

Date: 4/27/2021

Signed: _____ (responsible representive)

Name: Lam Valves Inc. (Assembler)

TA16-1484 BS-B

TEST REPORT

Serial# S022045-1B
Model# 6021HHT01-AM
Date 6-16-21
WO# 692451-01

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	4/26/21
CUSTOMER	DAHL INC
CUSTOMER PO#	193-P004004733
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

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	
SO22045-1A	N/A	101.3 PSIG	97.0 PSIG	BSA
SO22045-1B	N/A	102.3 PSIG	97.8 PSIG	BSB

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 ◯ JESUS MEDINA Fred Ks 4099232

The material listed on your Purchase Order 64558
Meets the conformance requirements of the information contained in this document.
Inspected by : Tom Baca
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:

ID (serial No.)	YEAR BUILT	NB	Cert#	QTY	TYPE	Size (NPS)	Set Pressure, psig (nameplate)	Capacity	Test Fluid	Date	CI NAME	CI Signature
SO22045	2021	LMVA36324		2	6021HHT01-AM	2"	100 PSIG	4593 LB/HR	STEAM	4/27/2021	JOEL RODRIGUEZ	JOEL RODRIGUEZ

3.) Remarks: Installed on TA16-1484 BSB

Serial # SO22045-1B

Model # 6021HHT01-AM

6-16-21

WO # 692451-01

Fracs 4099232

The material listed on your Purchase Order 642558
Meets the conformance requirements of the information contained in this document.
Inspected by : _____
Dahl Plumbing of Santa Fe

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. 18515 Expires November 14, 2021

Date: 4/27/2021

Signed: _____ (responsible representive)

Name: Lam Valves Inc. (Assembler)

BS-A

Serial # SO22045-1A

Date 6-16-21

Model # 6021HHT101-AM

TA-16-1484

WO 692451-01

BS-A

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	4/26/21
CUSTOMER	DAHL INC
CUSTOMER PO#	193-P004004733
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

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	
SO22045-1A	N/A	101.3 PSIG	97.0 PSIG	BS-A
SO22045-1B	N/A	102.3 PSIG	97.8 PSIG	BS-B

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 ◯ JESUS MEDINA

Frank's 4099232

The material listed on your Purchase Order 64558
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:

ID (serial No.)	YEAR BUILT	NB	Cert#	QTY	TYPE	Size (NPS)	Set Pressure, psig (nameplate)	Capacity	Test Fluid	Date	CI NAME	CI Signature
SO22045	2021	LMVA36324		2	6021HHT01-AM	2"	100 PSIG	4593 LB/HR	STEAM	4/27/2021	JOEL RODRIGUEZ	JOEL RODRIGUEZ

3.) Remarks:

Serial # SO22045-1A

Model # 6021HHT101-Am

Date 6-16-21

WO# 692451-01

Franks 4099232

The material listed on your Purchase Order 642558
Meets the conformance requirements of the information contained in this document.
Inspected by : _____
Dahl Plumbing of Santa Fe

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. 18515 Expires November 14, 2021

Date: 4/27/2021

Signed: _____ (responsible representive)

Name: Lam Valves Inc. (Assembler)

BSA
Serial # SO22045-2A
Date 6-16-21
Model # 6021GGT01-AM
TA-16-1484
WO# 692451-01

BS-A

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	4/26/21
CUSTOMER	DAHL INC
CUSTOMER PO#	193-P004004733
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

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	
SO22045-2A	N/A	102.5 PSIG	97.4 PSIG	BS-A
SO22045-2B	N/A	102.6 PSIG	97.2 PSIG	BS-B

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 ◯ JESUS MEDINA Frank 4099232

The material listed on your Purchase Order 642558
Meets the conformance requirements of the information contained in this document.
Inspected by : _____
Dahl Plumbing of Santa Fe

BSA

Date 6-16-21

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:

ID (serial No.)	YEAR BUILT	NB	Cert#	QTY	TYPE	Size (NPS)	Set Pressure, psig (nameplate)	Capacity	Test Fluid	Date	CI NAME	CI Signature
SO22045	2021	LMVA36324		2	6021GGT01-AM	1 1/2"	100 PSIG	2948 LB/HR	STEAM	4/27/2021	JOEL RODRIGUEZ	JOEL RODRIGUEZ

3.) Remarks:

BSA Serial # SO22045-2A

Date 6-16-21 installed

Model # 6021GGT01-Am

WO# 692451-01

Fronks 4099232

The material listed on your Purchase Order 642558
Meets the conformance requirements of the information contained in this document.
Inspected by : Tom Bell
Dahl Plumbing of Santa Fe

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. 18515 Expires November 14, 2021

Date: 4/27/2021

Signed: _____ (responsible representative)

Name: Lam Valves Inc. (Assembler)

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 #: 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
3	**16**	**N/A**	**N/A**	**Outside Areas**
FOD Designated Facility Point-of-Contact	Name **John Branch, WFO OM Designee** **Erlinda Gonzales, WFO OM Designee** **Ritanne Campbell, WFO OM Designee**	Phone **412-9696** **412-8133** **500-7878**	Pager	Email **jbranch@lanl.gov** **etmedina@lanl.gov** **rfarmer@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

Additional Comments

ACCESS CONTROL: Work within the TA-16 HE Area requires check-in first with TA-16 ACO at TA-16 Building 969. The single most important requirement that all personnel must understand is that a closed gate or other barrier must never be crossed.

CAUTION: This area is a High Explosives (HE) Area. Work group shall adhere to all local ACO instructions as to where access is allowed and where it is restricted, e.g. areas around HE facilities and magazines.

CAUTION: Non-TRIAD workers (outside contractors) require a HE waiver (see P101-8) to work within intraline distance of High Explosive materials if work takes longer than 8 hours.

PIC Pre-Job Brief Instructions:

For all Low and Moderate Hazard work activities, the PIC shall perform a pre-job brief prior to work start and for any new member of the work group prior to that member beginning work. For all High Hazard activities, the PIC shall perform a pre-job brief prior to work start on EVERY Day/Shift of the activity and for any new member of the work group prior to that member beginning work.

ABNORMAL EVENTS: Any injury, accident, spill, off normal occurrence, etc. MUST be reported immediately to the WFO-FOD Duty Officer @ 664-2926 AND TA-16 Access Control Office 7-9192

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	• N/A	• N/A	• N/A
Worker Exposure Working near non-ionizing radiation, beryllium, noise, chemicals, hazardous biological materials, lead, asbestos, temperature/humidity extremes, or high explosives. **Specify Hazards: High Explosive Area**	☒ Yes ☐ No	• Spark and Flame Permit Requirements. • All operations that are in direct contact with the structure must use the indoor 2101. These operations include but are not limited to class 2 penetrations, operations on or above roof tops of structures or other activities that impact or penetrate the surface of the building.	• P101-26, Welding, Cutting, and Other Spark- or Flame-Producing Operations	• TA-16 (11, 37) Site Specific Training for the High Explosives Area
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	• N/A	• N/A	• N/A
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	• N/A	• N/A	• N/A

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	• N/A	• N/A	• N/A
ESH/S&S WORK AREA HAZARDS & CONTROLS				
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:** PRS, sensitive species – e.g. spotted owl, historical/archeological sites, and waste generation.	☒ Yes ☐ No	• PRS exists. Notify WFO Environmental Generalist, if required. • Archeological sites exist within open areas. Do not disturb any marked archeological sites. If entry into any area required contact Environmental Stewardship Group. • Work during threatened and endangered species seasons will restricts outdoor activities.	• Excavation Permit for soil disturbance activities	• Waste Generator Overview
Security Requirements **Specify:** **Limited Security Area**	☒ Yes ☐ No	• Q or L clearance • Uncleared MUST be escorted	• P200-2, Physical Security • P200-1, Security Areas, Property Protection Areas, and General Access Areas	• Escort Training
Other Hazards **Specify:**	☐ Yes ☒ No	• N/A	• N/A	• N/A

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** _____WFO OM/Designee Signature-on-File_____

Date Approval Expires: 9/30/2021

TA 16 Bldg 1484 wo# 692451 task 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)	80 psig		(Pass) (Fail)	
Boiler Controls	**Set Point Check**		**Operational Check**	
	BSA	**BSB**	**BSA**	**BSB**
Operating Pressure Control (Range 85psig +/-5)	88 psig	86 psig	(Pass) (Fail)	(Pass) (Fail)
High limit pressure cutoff (Range 95psig +/-5)	92 psig	90 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	50 psi	50 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: 4-15-21		DATE: 4-15-21	
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

Replace Feed tank level control
Steam trap on header needs replacement

BOILER INSPECTION REPORT (BIR)

NBIC NB-23, Part 2 (This report to be completed by LANL Commissioned Inspector)

SECTION I – BOILER INFORMATION

Boiler ID#:	16-1484-BS-A	Insp Date: 7/28/2021	**Expiration Date:** 7/28/2022
Boiler Area:	TA16, Bldg 1484	Ext. Inspection: ☐	Int. Inspection: ☒
National Board No.:	8334	Serial No.:	10291
Boiler Mfg.:	Sellers Engineering	Year Built:	1995
Boiler Type:	Steam ☒ Hot Water ☐ Others ☐	Firetube ☒	Watertube ☐
Safety Relief Valve (s) ID#:		Safety Valve (s) Size:	2" , 1.5" , _____ ,
Set Press:	1. 100 2. 100 3. _____ (PSI)	Capacity:	1. 4593 2. 2948 3. _____ (lbs/hr)
Safety Valve (s):	Last Tested ☒ "VR" ☐ Replaced ☒	Date:	1. 10/14/20 2. _____ 3. _____ ,
Pressure Gauge Range:	0 to 160	Heating Surface Area (sqft):	636
Boiler MAWP:	150 (PSI)		
Pressure Allowed:	This Inspection: 100 (PSI)	Previous Inspection: 150 (PSI)	
Fuel:	NG	Method of Firing:	Auto
Inspection Finding:	Major ☐ Minor ☐	Permit Issued:	Yes ☐ No ☒

SECTION II – EXTERNAL/INSERVICE INSPECTION CONDITIONS

Planning, Coordination and Safety Requirements –

Lockout/Tagout verified

External Casing (cracks, leakage of fluids or combustion gases …) –

No adverse conditions

Safety Valve (s) Testing and Conditions –

Good-new SV, MSVRC 5,088 lbs/hr per ASME Code, Section I, PG-70

Hangers and boiler supports Conditions –

None-good

Piping External Surfaces Conditions –

None, All new BEP

Controls (Firing, Flame Detector, valves, …) Functionality Test –

N/A, boiler not in operation for internal inspection

Low Water Cutoff Alarm Test –

Boiler shut down for internal

Other Observations / Notes –

None

SECTION III – INTERNAL INSPECTION CONDITIONS

Is the boiler prepared, drained and cleaned for internal inspection?	N/A	Yes ☒	No ☐	
Is the fuel shutoff valve locked and tagged?	N/A	Yes ☒	No ☐	
Is the boiler isolated from other boilers?	N/A	Yes ☒	No ☐	N/A ☐
Is the boiler atmosphere being monitored for safe entry (Boilers w/manway)?		Yes ☐	No ☐	N/A ☒
Is the boiler hydro tested for leaks? Yes ☐ No ☐	Pressure Test:	PSIG		

SECTION IV – FIRESIDE

Fire Box, Refractory, Burners, Flame Detectors Conditions –

Good

Tubes External Condition (Pitting, bulging, misalignment, soot built up …) Watertube Boilers Only –

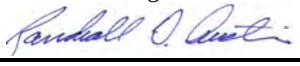
None, good

Tubesheets Condition (Bulging, leaks around the tubes connections, Cracks in the ligaments and weld joints) –

Good

Staybolts Testing – Stays good
Other Observations / Notes – N/A
SECTION V – WATERSIDE
Tubes External Surfaces, if possible internal surfaces – Good
Water Columns, Gage Glasses, Floats Chambers Internal Surfaces or Low Water Level Rods Condition – Good-clean
Superheater Tubes External Surfaces (Power boilers Only) – N/A
Steam Drum/Vessel Internal Surfaces (If electric boilers the condition of the electric resistant coils) – Good, clean
Mud Drum Internal Surfaces (Power boilers) – N/A
Deaerator Tank Internals (Power boilers) – Good

Deaerator Storage Tank (Power boilers) – Good
Any Repairs or Alteration Since Last Inspection (All repairs and Alteration requires 'R' Stamp R-1 or R-2 Form) – None
water Chemistry Last Checked / Notes – Unknown
SECTION VI – DEFICIENCIES SUMMARY
None
SECTION VII – RECOMMENDATIONS
None

Person Conditions Reported To and/or FSR #, If Issued: Jason Sparks	Z# 122088	Phone No.: c 500 6436, p 664 6262
LANL Commissioned Inspector Name and Signature: Randall D. Austin 	Z# 334246	National Board Commission No.: 10798, R,O (IS & AI Commission)

Reviewed By: Initial: Z# Date:

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 8	TA 9/16	Bldg. All Steam Boiler Plants (1480,1481,1483,1484, 1486,1487,1488,1490, 1491 & 1492)	Room ALL	Other Location Inside Boiler Plants
FOD Designated Facility Point-of-Contact	Name Nicholas Nelson	Phone 665-5508	Pager N/A	Email Nelson_n@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

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. Observe safety signs and floor markings in all buildings and areas. If activities involve potential exposure to Water Treatment Chemicals consult with UI Safety/IH representatives to identify proper PPE. Be aware of pipe or any components on floors for tripping hazards, If insect or pests are excessive contact pest control to address.

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	☐ Yes ☒ No			

Work in posted radiological areas, work with radioactive materials, or work on or near radiation producing devices. **Specify Hazard:**				

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:** Working near chemicals, temperature/humidity extremes: High temperature boiler equipment, High temperature Water/Steam, Boiler Water Treatment Chemicals	☒ Yes ☐ No	Required PPE: Hard hat, safety shoes, safety glasses. Hearing protection (noise > 85 dba). Avoid hot surfaces and piping. Long sleeve shirt,Ansell sleeves or coveralls when working on hot surfaces. Gloves when operating valves or contacting pipe/fitting openings where there is potential for hot water/ steam release.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. Over 5 gallon chemical spill leave area, call EM&R, and control access. Follow LANL Asbestos program/rqmts if PACM identified outside containment. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation.	•P101-6 PPE •P101-31 Hearing Conservations/ Noise Program HAZCOM (Chemical Hazard Communication) Course # 25418 Chemical MSDS's	•LANL PPE or equivalent •Hearing protection •Site specific training •Hazcom •Read Chemical MSDSs

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	Stay within established walking areas. Observe safety signage alarm lights and floor markings Identify explosive hazards and follow task specific IWD if working on plant equipment or components. If questions consult with UI system engineer, Operation Mgr. Designee, or Safety rep.	P101-13 Electrical Safety P101-3 LO/TO P101-34 Pressure, Vacuum, and Cryogenic System.	Electrical Safety LOTO if applicable to task. •Pressure Safety Awareness Read P315 admin lock/tag.
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	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.	P101-20.0	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. **Specify Hazards:**	☐ Yes ☒ No			
Security Requirements **Specify:**	☒ Yes ☐ No	Uncleared must have Q or L escort and must sign in/out @ 16-0969/09-0021 Access Control. Meet WFO access requirements.	P200-2 Physical Security	Escort Training LANL Course # 18366
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 stablished to prevent unauthorized personnel/workers from entering job site	IWD	Pre-job briefing emphasis. Worker confirmation of look-alike potential hazards, locations and barriers set in place to identify those potential hazards.

		and encounter uncontrolled 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** NICHOLAS NELSON (Affiliate) Digitally signed by NICHOLAS NELSON (Affiliate) Date: 2020.09.10 14:47:37 -06'00'

Date Approval Expires: 09/10/2021

No: RN101-3-01 Interim Requirements for Hazardous Energy Identification and Control
Attachment A. Lockout/Tagout Pre-job Walk-down Checklist (Page 1 of 2)

Instructions: Perform the pre-job walk-down with the necessary people per Section 3.1 of the Requirements Notice 101-3-01. Complete this checklist and take signed checklist to the lock coordinator. All Authorized Workers are required to participate in the walk-down and sign the checklist in order to check out a lock and tag. If additional workers are added to the job, they must also perform a walk-down of the system and show a signed checklist to the lock coordinator. The signed checklists are to be kept with the parent work document (IWD, work package, etc.).

Work Document Number (e.g., Package/Procedure#): 692451-01

- ☑ We have walked down and discussed the work to be performed.
- ☑ All energy isolation points and positions have been identified and documented. 16-1494
- ☑ The proper energy control procedure is being used (Simple vs Complex LO/TO).
- ☑ All energy-isolating devices are labeled properly (e.g., labels aren't faded, no hand written modifications).
- ☑ No discrepancies are found between record drawings, labels, panel schedules, and LO/TO procedures.
- ☑ Lockout devices have been identified to support the work.

*If any of the above items are identified to be inadequate, pause work, report the issues to your RLM, and contact the appropriate SMEs to help resolve issues ***before*** performing/resuming work.

Simple Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

Lead Authorized Worker (print name)	Z Number	Signature/Date
Authorized Worker (print name)	Z Number	Signature/Date

Complex Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

MS&E Owner/Operator (print name)	Z Number	Signature/Date
GLENN M T.	190429	9-23-21
Preparer or PIC (print name) Eric Brown	Z Number 305382	Signature/Date 23 Sept 2021
Lead Authorized Worker (print name) Eric Brown	Z Number 305382	Signature/Date 23 Sept 2021
Authorized Worker (print name) Mark Padilla	Z Number 304565	Signature/Date Mark Padilla 9/23/2021
Authorized Worker (print name)	Z Number	Signature/Date

Note: Print additional sheets as necessary.

NOTE: Use these buttons to print or save the form. DO NOT use the browser tool bar.

Los Alamos NATIONAL LABORATORY EST. 1943

Form 2244

Lockout/Tagout (LO/TO) Orders

Section 1: General Information

Work Document Number (e.g., Package/Procedure #): 692451-01	LO/TO Remedy ID:
Location of Equipment to be Isolated: TA: 16 Bldg: 1484 Rm/Other:	Description of Machinery, System & Equipment (MS&E) to be worked on: Boilers
MS&E Owner/Operator: GLENN MTZ Z Number: 150429 Phone: 231-8341	
Shutdown to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☒ Yes ☐ No	Re-energize/restart to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☒ Yes ☐ No
Reason for LO/TO: Test Start up	
Group LO/TO (2 or more)? ☒ Yes ☐ No *If yes, a lead authorized worker must be appointed.* Eric Brown	Group lock box used? ☒ Yes ☐ No VIC5-3
Shift or Personnel Changes? ☐ Yes ☒ No *If yes, a description of how the continuity of LO/TO protection will be ensured must be referenced or attached to this form. (See Section 3.9.6 of P101-3 for details.)*	☐ Continuity of LO/TO protection details described in operating procedure, work instruction, or other work control document. Document Number:

Section 2: Energy Control Procedure

1. Plan the work.
2. Identify and assess hazardous energy.
3. Contact the MS&E owner/operator.
4. Obtain locks and tags from lock coordinator.
5. Notify affected workers.
6. Shutdown MS&E according to **Section 3: Shutdown Sequence**.
7. Isolate and lock out MS&E from energy source, relieve stored energy, and perform verification of isolation according to **Section 4: LO/TO Sequence**.
8. Perform the work.
9. Release MS&E from LO/TO according to **Section 5: Release MS&E from Lockout/Tagout Sequence**.

Section 3: Shutdown Sequence

☒ Perform shutdown according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:

☐ **N/A**; MS&E to be worked on will be isolated according to **Section 4: LO/TO Sequence** (e.g., cannot be shut down)
Detail the process to normally shut down the MS&E below, if not following other document referenced above or N/A.

Step No.	Action/Description	Step No.	Action/Description
☐ 1		☐ 6	
☐ 2		☐ 7	
☐ 3		☐ 8	
☐ 4		☐ 9	
☐ 5		☐ 10	

Section 4: LO/TO Sequence

☐ Perform LO/TO sequence according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:
Describe how to effectively isolate & lockout the MS&E below, if not following other document referenced above.

Isolate & Lockout (Step No.)	Equipment Descriptor (What is being locked out? e.g., machine drive motor, input power to MCC)	Energy Source (e.g., electrical, mechanical, pneumatic, hydraulic, chemical, thermal)	Energy Isolation Device (e.g., specific ID, description, circuit #, lock box #)	Location of Energy Isolation Device (e.g., room number, north wall, south wall)	Required LO/TO Position or Alignment (e.g., off, open, closed, on)	Verification Method (e.g., live/dead/live, crack open, on-off-on-off, peer checking, independent verification)	Verifier's Initials (if req'd)	See Section 5: Release (Step No.)
☑ (1)	Boiler A	Elect	ckt 4	PPA	Open	on off on off		☑
☑ (2)	Boiler B	Elect	ckt 10	PPA	Open	on off on off		☐
☑ (3)	Controls	Elect	ckt 7	LP1	Open	on off on off		☐
☐ (4)								☐
☐ (5)								☐
☐ (6)								☐
☐ (7)								☐
☐ (8)								☐

Section 5: Release MS&E from Lockout/Tagout Sequence

1. Check the MS&E and immediate area for items that could result in damage or danger on start-up.
2. Check the work area to ensure that all workers have been safely positioned or removed from the work area.
3. Verify that the controls are in neutral or "off" position.
4. Notify the owner/operator and affected workers that work is complete and MS&E is ready to release from LO/TO.
5. Remove the LO/TO device, and re-energize (if appropriate according to MS&E owner/operator) according to the sequence as identified above under Release in **Section 4: LO/TO Sequence** or according to operating procedure, work instruction, or other work control document identified in **Section 4.**
6. Return lock and locking device to Lock Coordinator.

Energy Control Procedure prepared by:

Preparer (print name)	Z Number	Organization	Phone	Signature/Date
Eric Brown	305382	Utility		23 Sept 2021

By signing below, you acknowledge that this energy control procedure and/or referenced documents identify the isolation devices, isolation points, and methods necessary to prevent any unexpected release of hazardous energy.

Energy Control Procedure approved by:

MS&E Owner/Operator (print name)	Z Number	Organization	Phone	Signature/Date
Glenn MTZ	190429	Logsup	231-8341	9-23-21

Section E: All Authorized Workers (employees applying a lock for this activity)

Fill out the following information or print and attach Authorized Workers information from the Lockout/Tagout Device application.

Authorized Workers Name(s)	Z Number	Date Lock Applied	Date Lock Removed
Lead: Eric Brown	305382	23 Sept 2021	23 Sept 2021
Mark Padilla	354565	23 Sept 2021	23 Sept 2021

NOTE: Use these buttons to print or save the form. DO NOT use the browser tool bar.

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Form 2244

Lockout/Tagout (LO/TO) Orders

Section 1: General Information

Work Document Number (e.g., Package/Procedure #): 692451-01	LO/TO Remedy ID: 106096
Location of Equipment to be Isolated: TA: 16 Bldg: 1484 Rm/Other:	Description of Machinery, System & Equipment (MS&E) to be worked on: Boiler Plant BSA,BSB,and Feed Water tank
MS&E Owner/Operator: Glenn Martinez Z Number: 190429	Phone: 231-8341
Shutdown to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☒ Yes ☐ No	Re-energize/restart to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☒ Yes ☐ No
Reason for LO/TO: Boiler Plant Annual pm	
Group LO/TO (2 or more)? ☒ Yes ☐ No *If yes, a lead authorized worker must be appointed.*	Group lock box used? ☒ Yes ☐ No
Shift or Personnel Changes? ☐ Yes ☒ No *If yes, a description of how the continuity of LO/TO protection will be ensured must be referenced or attached to this form. (See Section 3.9.6 of P101-3 for details.)*	☒ Continuity of LO/TO protection details described in operating procedure, work instruction, or other work control document. Document Number: 692451-01

Section 2: Energy Control Procedure

1. Plan the work.
2. Identify and assess hazardous energy.
3. Contact the MS&E owner/operator.
4. Obtain locks and tags from lock coordinator.
5. Notify affected workers.
6. Shutdown MS&E according to **Section 3: Shutdown Sequence**.
7. Isolate and lock out MS&E from energy source, relieve stored energy, and perform verification of isolation according to **Section 4: LO/TO Sequence**.
8. Perform the work.
9. Release MS&E from LO/TO according to **Section 5: Release MS&E from Lockout/Tagout Sequence**.

Section 3: Shutdown Sequence

☐ Perform shutdown according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:

☒ **N/A**; MS&E to be worked on will be isolated according to **Section 4: LO/TO Sequence** (e.g., cannot be shut down)
Detail the process to normally shut down the MS&E below, if not following other document referenced above or N/A.

Step No.	Action/Description	Step No.	Action/Description
☒ 1	shut off power to boilerA	☐ 6	
☒ 2	shut off power to Boiler B	☐ 7	
☒ 3	shut off power to lead/lag control panel	☐ 8	
☒ 4	shutoff power to feed water tank	☐ 9	
☒ 5	shut off gas supply to boiler plant	☐ 10	

Section 4: LO/TO Sequence

☐ Perform LO/TO sequence according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:
Describe how to effectively isolate & lockout the MS&E below, if not following other document referenced above.

Isolate & Lockout (Step No.)	Equipment Descriptor (What is being locked out? e.g., machine drive motor, input power to MCC)	Energy Source (e.g., electrical, mechanical, pneumatic, hydraulic, chemical, thermal)	Energy Isolation Device (e.g., specific ID, description, circuit #, lock box #)	Location of Energy Isolation Device (e.g., room number, north wall, south wall)	Required LO/TO Position or Alignment (e.g., off, open, closed, on)	Verification Method (e.g., live/dead/live, crack open, on-off-on-off, peer checking, independent verification)	Verifier's Initials (if req'd)	See Section 5: Release (Step No.)
☒ (1)	Boiler BSA	Electrical	PPA CKT4	PPA Panel North wall	off	live/dead/live,		☒
☒ (2)	Boiler BSB	Electrical	PPA CKT10	PPA Panel North wall	off	live/dead/live,		☒
☒ (3)	Lead/Lag controls	Electrical	LP1 CKT 7	LP1 Panel North wall	off	live/dead/live,		☒
☒ (4)	Feed waer tank	Electrical	PPA CKT9	PPA Panel North wall	off	live/dead/live,		☒
☒ (5)	Gas supply	gas	gas valve 1	outside reg. station North side	off	crack open low pressure valve		☒
☐ (6)								☐
☐ (7)								☐
☐ (8)								☐

Section 5: Release MS&E from Lockout/Tagout Sequence

1. Check the MS&E and immediate area for items that could result in damage or danger on start-up.
2. Check the work area to ensure that all workers have been safely positioned or removed from the work area.
3. Verify that the controls are in neutral or "off" position.
4. Notify the owner/operator and affected workers that work is complete and MS&E is ready to release from LO/TO.
5. Remove the LO/TO device, and re-energize (if appropriate according to MS&E owner/operator) according to the sequence as identified above under Release in **Section 4: LO/TO Sequence** or according to operating procedure, work instruction, or other work control document identified in **Section 4**.
6. Return lock and locking device to Lock Coordinator.

Energy Control Procedure prepared by:

Preparer (print name)	Z Number	Organization	Phone	Signature/Date
Jason Sparks	122088	log-cs	500-6436	JASON SPARKS (Affiliate) Digitally signed by JASON SPARKS (Affiliate) Date: 2021.06.03 15:09:49 -06'00'

By signing below, you acknowledge that this energy control procedure and/or referenced documents identify the isolation devices, isolation points, and methods necessary to prevent any unexpected release of hazardous energy.

Energy Control Procedure approved by:

MS&E Owner/Operator (print name)	Z Number	Organization	Phone	Signature/Date
Glenn Marinez	190429	mss-cs	231-8341	GLENN MARTINEZ (Affiliate) Digitally signed by GLENN MARTINEZ (Affiliate) Date: 2021.06.03 15:12:36 -06'00'

Section 6: All Authorized Workers (anyone applying a lock for this activity)			
Fill out the following information or print and attach Authorized Workers information from the Lockout/Tagout Remedy Application.			
Authorized Workers Name(s)	**Z Number**	**Date Lock Applied**	**Date Lock Removed**
Lead: David Harris	324726	6-7-21	8/25/21
Robert Olivas	347468	6-7-21	8/25/21
Daniel Ortiz	283014	6-7-21	8/25/21
Martin Romero	340775	6-7-21	8/25/21
Joe Sweeney	297205	6-7-21	8/25/21
Don Clark	302595		
Eric Brown	305382	6-7-21	8/25/21
Nicholas Gurule	345231		
Mark Padilla	354565	6-7-21	8/25/21

No: RN101-3-01 Interim Requirements for Hazardous Energy Identification and Control
Attachment A. Lockout/Tagout Pre-job Walk-down Checklist (Page 1 of 2)

Instructions: Perform the pre-job walk-down with the necessary people per Section 3.1 of the Requirements Notice 101-3-01. Complete this checklist and take signed checklist to the lock coordinator. All Authorized Workers are required to participate in the walk-down and sign the checklist in order to check out a lock and tag. If additional workers are added to the job, they must also perform a walk-down of the system and show a signed checklist to the lock coordinator. The signed checklists are to be kept with the parent work document (IWD, work package, etc.).

Work Document Number (e.g., Package/Procedure#): 6924451-01 TA16-1484

- ☑ We have walked down and discussed the work to be performed.
- ☑ All energy isolation points and positions have been identified and documented.
- ☑ The proper energy control procedure is being used (Simple vs Complex LO/TO).
- ☑ All energy-isolating devices are labeled properly (e.g., labels aren't faded, no hand written modifications).
- ☑ No discrepancies are found between record drawings, labels, panel schedules, and LO/TO procedures.
- ☑ Lockout devices have been identified to support the work.

*If any of the above items are identified to be inadequate, pause work, report the issues to your RLM, and contact the appropriate SMEs to help resolve issues ***before*** performing/resuming work.

Simple Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

Lead Authorized Worker (print name)	Z Number	Signature/Date
Authorized Worker (print name)	Z Number	Signature/Date

Complex Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

MS&E Owner/Operator (print name) Glenn Martinez	Z Number 190429	Signature/Date 6-3-21
Preparer or PIC (print name) Jason K Sparks	Z Number 122088	Signature/Date 6-3-21
Lead Authorized Worker (print name) David Harris	Z Number 324726	Signature/Date 6/3/21
Authorized Worker (print name) Joe R. Sweeney	Z Number 297205	Signature/Date 6-3-21
Authorized Worker (print name) Daniel Ortiz	Z Number 283014	Signature/Date 6-3-21

Note: Print additional sheets as necessary.

Complex Lockout/Tagout cont. WO# 692451-01 TA16-1484

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

Authorized Worker (print name)	Z Number	Signature/Date
Robert Olivas	347468	06/03/21
Martin Romero	340775	6/3/21
Eric Brown	305382	3 June 2021
Don Clark	302595	6/3/2021
Nick Gurule	345231	6/3/2021
Mark Padilla	354565	6/3/2021
Gregory C. Donelly	179352	6/3/2021

Note: Print additional sheets as necessary.

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)			
Revision #: 0			**Activity/Task Title:** ST 1Y STEAM PLANT FIRESIDE / WATERSIDE PM
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Justin Maestas 177550 5/1/19
TA:	**Building:**	**Room:**	**Additional Location Description:** UI BOILER HOUSES

1. Scope of Work

1.1. Perform annual Waterside / Fireside PM and boiler inspections per UI Checklist / PMI. UI Engineering will provide support, oversight and training.

2. Precautions and Limitations

2.1. If steps cannot be completed as described or if unforeseen situations occur. PAUSE / STOP WORK.



STABILIZE the situation if safe to do so, CONTACT supervisor or POC and await further instructions PRIOR to proceeding

2.2. Workers shall perform Individual Hazard Analysis (IHA) for this task, which includes continual self-analysis of work scope, hazards and controls

2.3. Housekeeping shall be performed before, during and after work activities.
- 2.3.1 Control all material
- 2.3.2 Secure hoses, cords, lines, and portable equipment

2.4. Action Steps from Section 6 on **SHALL** utilize Place Keeping and be signed/marked upon completion.

3. Prerequisites/Initial Conditions

3.1. Supervisor will verify work is on the UI / FOD POD and not in conflict with other work activities

3.2. Verify all personnel have the appropriate PPE for task execution during pre-job planning
- 3.2.1. General PPE; Bump cap, safety shoes, safety glasses, hearing protection and gloves appropriate for task being performed

3.3. Barricade work area using caution tape and signs. Barricade building, room or area as discussed with PIC and other involved personnel during pre-job briefing.
- 3.2.1 Post barricades with entry/exit requirements, PPE and POC info

3.4. Verify pre-job briefing including 2101 hazards and requirements has been performed for all affected personnel

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)			
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Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Justin Maestas 177550 5/1/19
TA:	**Building:**	**Room:**	**Additional Location Description:** UI BOILER HOUSES

4. Special Training/Medical Requirements

4.1. Curriculum ID 10968, WQ LOG Maintenance Worker
4.2. Parent Curriculum ID 647 – WQ LOG Pipefitter
  4.2.1. Endorsement Curriculum ID 718 – WQ LOG Pipefitter – Boiler Fitter
4.3. Parent Curriculum ID 642 – WQ LOG Electrician
4.4. Curriculum ID 641 – WQ LOG Carpenter
  4.4.1. Curriculum ID 726 – WQ LOG Carpenter – Scaffold Competent Person

5. Special Tools/Equipment

5.1. None

6. Work Instructions

6.1. **NOTIFY** operations of work to be performed and for permission to proceed
  6.1.1. Verify boiler is ready to be taken out of service ☑

6.2. **INSPECT** boiler
  6.2.1. Conduct initial observations and external inspections
  6.2.2. Use National Boiler Inspection Code (NBIC) standards
  6.2.3. Inspector must be certified to NBIC
  6.2.4. Wear long sleeve shirts or Ansell sleeves
  6.2.5. Use insulating blankets to protect against hot surfaces ☑

6.3. **ERECT / DISMANTLE / MOVE** scaffolding when needed to access work area
  6.3.1. Scaffold will be inspected daily by Competent Scaffold Personnel before use
  6.3.2. Only competent personnel will erect, modify or inspect scaffold
  6.3.3. Wear hardhats when working on or near scaffolding ☑

6.4. **DE-ENERGIZE** boiler
  6.4.1. Trace piping, conduits and wiring to ensure appropriate energy isolation is identified
  6.4.2. Close valves
  6.4.3. Turn Off / Open breakers or disconnects
    6.4.3.1. Wear non-melting clothing, leather gloves and remove all metallic objects when operating breakers or disconnects ☑
  6.4.4. Apply LOTO

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)			
Revision #: 0			**Activity/Task Title:** ST 1Y STEAM PLANT FIRESIDE / WATERSIDE PM
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Justin Maestas 177550 5/1/19
TA:	**Building:**	**Room:**	**Additional Location Description:** UI BOILER HOUSES



WARNING

Potential injury or death due to uncontrolled release of energy.

6.5. **VERIFY** zero energy prior to performing work
- 6.5.1. Bleed residual pressure
- 6.5.2. Verify zero energy on each assumed electrically live conductor or equipment
  - 6.5.2.1. Test meter on known live circuit before and after zero energy verification
  - 6.5.2.2. 50V to 230V; Mode 1 to achieve mode 0, Class 1.2 a / b
    - 6.5.2.2.1. Wear; long shirt and pants or coveralls with rating of 4-cal or more, hard hat, hearing protection, safety glasses, class “0” dielectric gloves and remove all metallic objects
    - 6.5.2.2.2. Approach Boundaries: Limited; 3’-6”, Restricted; Avoid Contact
  - 6.5.2.3. 230V to1000V, Mode 1 to achieve Mode 0 Class 1.3a / b
    - 6.5.2.3.1. Wear 8 Cal PPE: AR coveralls with double layer switching hood, hard hat with face shield and hearing protection, safety glasses and ear canal inserts beneath hood, Class “0” dielectric gloves, remove all metallic objects
- 6.5.3. Approach Boundaries: Limited; 3’-6” Restricted; 1’-0 ☐

6.6. **OPEN** access doors and covers
- 6.6.1. Stage / store fasteners for reuse
- 6.6.2. Wear long sleeve shirts or Ansell sleeves
- 6.6.3. Use insulating blankets to protect against hot surfaces
- 6.6.4. Be aware of body positioning and lifting techniques ☑

6.7. **DETERMINATE** wiring from pressure and control switches
- 6.7.1. Label and protect wiring for re-termination
- 6.7.2. Ensure wiring and electrical devices are electrically safe ☑

6.8. **PERFORM** annual boiler maintenance
- 6.8.1. Follow approved checklists, PMIs and procedures
- 6.8.2. Notify UI engineering to provide support when needed
- 6.8.3. Calibrate gauges
- 6.8.4. Review & follow SDS for any lubricants or chemical used
- 6.8.5. Document all maintenance performed ☑

6.9. **PERFORM** internal boiler inspections
- 6.9.1. Follow NBIC ☑

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #: 0			**Activity/Task Title:** ST 1Y STEAM PLANT FIRESIDE / WATERSIDE PM
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Justin Maestas 177550 5/1/19
TA:	**Building:**	**Room:**	**Additional Location Description:** UI BOILER HOUSES

6.10. **CLOSE / REINSTALL** all doors or removed covers ☑
- 6.10.1. Replace gaskets and fasteners on doors as needed

6.11. **RECONNECT** all removed wiring and terminations ☑
- 6.11.1. Utilize peer checking to ensure wiring is terminated properly

6.12. **VERIFY** boiler is ready to be placed back into service
- 6.12.1. Inspect all work performed
- 6.12.2. Remove all tools and excess materials form boilers ☑

6.13. **REMOVE** applied LOTO ☑
- 6.13.1. Re-Energize boiler

7. Post Work Activities

7.1. **VERIFY** proper operation of boiler
- 7.1.1. Document operation per approved checklists or procedures

7.2. **PERFORM** post maintenance testing as directed by System Engineer
- 7.2.1. If any deficiencies are found document and notify supervisor

7.3. **CLEAN** work area of all debris and excess materials
- 7.3.1. Segregate all waste as required by WMC
- 7.3.2. Dispose of all generated waste in appropriate containers/locations
- 7.3.3. Remove all tools, equipment and barricades

8. Closeout

8.1. **COMPLETE** work documentation and return work package

8.2. **NOTIFY** operations and supervisor of status

Los Alamos NATIONAL LABORATORY	**Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)**		
Revision #: 0			**Activity/Task Title:** ST 1Y STEAM PLANT FIRESIDE / WATERSIDE PM
Work Document #: (WO # / Task)			**Planner/Preparer (Name/Z#/Date)** Justin Maestas 177550 5/1/19
TA:	**Building:**	**Room:**	**Additional Location Description:** UI BOILER HOUSES

***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** GLENN MARTINEZ (Affiliate) Digitally signed by GLENN MARTINEZ (Affiliate) Date: 2019.05.02 09:04:52 -06'00' **FOD or Representative** (Signature/Z#/Date) **If Required or Recommended by RLM** Digitally signed by PHILLIP ULIBARRI (Affiliate) Date: 2019.05.08 12:28:54 -06'00' **ESO Review** (Signature/Z#/Date) **If Required** ROBERT SIMPSON (Affiliate) Digitally signed by ROBERT SIMPSON (Affiliate) Date: 2019.05.02 10:59:00 -06'00' **Safety Review** (Signature/Z#/Date) **Required** EUGENE FRESQUEZ (Affiliate) Digitally signed by EUGENE FRESQUEZ (Affiliate) Date: 2019.05.02 12:27:56 -06'00'

IWD Type ☒ Moderate-Haz ☐ High-Haz/Complex ☐ Standing IWD	Date when RLM re-approval is required_____ Other Conditions for Re-Approval_____ (Print) Name of Primary PIC Insert Text Here Jason Sparks Name of Alternate PIC_____ Name of Alternate PIC_____	Any required classification review completed, N/A Signature/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**: Jason Sparks 122088 04-13-2021 08:32

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**: Gregory L. Donnelly 179352 6-14-2021

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) David Harris 324726 04-13-2021 08:33	**Worker** (Signature/Z#/Date) Don H. Clark 302595 6-14-2021
Worker (Signature/Z#/Date) Daniel Ortiz 283014 04-13-2021 08:33	**Worker** (Signature/Z#/Date) Nicholas Gurule 345231 6-14-2021
Worker (Signature/Z#/Date) Joe Sweeney 297205 04-13-2021 08:33	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) Robert Olivas 347468 04-13-2021 08:33	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) Martin Romero 340775 04-13-2021 08:33	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) Eric Brown 305382 04-13-2021 08:34	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) Mark Padilla 354565 04-13-2021 08:34	**Worker** (Signature/Z#/Date)

UI-PROC-76-28-010-R2

PMI – TA-09/16 Steam Plants – Annual Boiler Waterside/Fireside Checklist

Review frequency 1 yr ☑ 2 yr ☐ 3 yr ☐

Issue date 9/3/20 **Next review** 9/3/21

Reviewed by

Glenn Martinez	Steam Plant Maintenance Superintendent	
GLENN MARTINEZ (Affiliate) Digitally signed by GLENN MARTINEZ (Affiliate) Date: 2020.09.03 07:36:53 -06'00'		Z# 190429

Approved by

Patrick McCabe	Steam Facilities System Engineer	
Patrick McCabe Digitally signed by Patrick McCabe Date: 2020.09.03 06:44:31 -06'00'		Z# 348093

Derivative Classifier Review

James Liljenwall	Classification: VERIFIED UNCLASSIFIED	
Digitally signed by James Liljenwall Date: 2020.09.01 16:14:28 -06'00'		Z# 206614

This procedure may only be worked in conjunction with a work control package that has been processed in accordance with AP-WORK-002, Work Planning. It may not be used as a stand-alone work control document.

The purpose of this procedure is to provide instructions for execution of the Annual Boiler Waterside/Fireside Checklist at the TA-09/16 Steam Plants.

Work Steps

A Preliminary Items

1. Required boiler training and qualifications:

   a. Boiler Operator: New Mexico Construction Industries Journey Classification as a Journeyman Boiler Operator – High Pressure BO2 (NMAC 14.6.6)

      Note: Boiler Operator Trainee may not operate any boiler devices unless under the direct observation of a Journeyman Boiler Operator (NMAC 14.9.4.29).

   b. Pressure Safety Orientation – Course #769 (LANL P101-34)

   c. Pressure Safety Advanced – Course #11459 (LANL P101-34)

d. Boiler maintenance crew performing low-NOx verification: boiler training from Sellers Engineering Company or local manufacturer's representative

2. Equipment, tools, instruments:

   • Flue gas analyzer

   • Calibrated boiler pressure gauge

     Record calibration dates on Boiler Checklist (Attachment 1).

3. Supplies, materials:

   • Mobil Polyrex EM grease

   • Slowserve grease

B Boiler Overview

1. TA-09/16 Steam Plant boilers are located at the following eight boiler plants: Plant 1 (TA-16-1480), Plant 4 (TA-16-1483), Plant 5 (TA-16-1484), Plant 8 (TA-16-1487), Plant 11 (TA-16-1490), Plant 12 (TA-16-1491), Plant 13 (TA-09-0282), and Plant 14 (TA-16-1492).

2. Boilers are Sellers Engineering Company fire tube boilers, manufactured in 1995. Each has a maximum allowable working pressure (MAWP) of 150 psig. Supply natural gas pressure is nominally 5 psig. Attachments 2 and 3 contain boiler technical information.

3. Inspection and maintenance consists of the following:

   a. Testing or replacing pressure relief safety valves

   b. Waterside and fireside boiler inspection

   c. Cleaning of debris or scaling found inside the boiler

   d. Inspection and maintenance of various plant components

   e. Steam gauge calibration

   f. Internal and external inspection by a National Board Inspection Code (NBIC) Boiler Inspector

4. Boiler output pressure: 80 psig

   Exception: Boiler output pressure for two boilers at Plant 12 (TA-16-1491): 40 psig

5. There are three pressure switches on top of each boiler: high pressure steam shutdown (High Limit) switch; operating pressure control (OPC) switch; Low-NOx cold start limit control (CSLC) switch.

6. Final settings for all boilers except two at Plant 12 (TA-16-1491):

    a. High pressure steam shutdown (High Limit) switch: 90 psig

    b. Operating pressure control (OPC) switch: 80 psig

    c. Low-NOx steam pressure (CSLC) switch: 40 psig

    Exceptions: Final settings for two boilers at Plant 12 (TA-16-1491):

    a. High pressure steam shutdown (High Limit) switch: 45 psig

    b. Operating pressure control (OPC) switch: 40 psig

    c. Low-NOx steam pressure (CSLC) switch: 20 psig

7. All steam pressure switch setpoint verification must be performed with a calibrated boiler pressure gauge.

    - All gauges used for pressure switch setpoints must have calibration dates, which are to be recorded on Attachment 1 checklist.

8. There are four pressure switches at the steam header: the lead, the lag, and the two low-pressure switches.

9. For all boilers, set the switches to control the lead/lag feature of the boiler.

10. Verify that all pressure switches perform their intended function.

    - If the pressure setting on a switch varies by more than 20% from the boiler pressure gauge, the switch must be replaced.

11. After final tuning of the boiler parameters, adjust the air flow proving switch to about 2 inches water column below the blower pressure setting.

12. Flue gas analyzer will be needed for two scenarios: light off and Low-NOx boiler settings. Record the O2, CO, NOx, temperature, and efficiency. The boilers are to be run in the Low-NOx mode to be compliant with manufacturer's instructions.

13. Complete Attachments 1 and 2 before the boiler is released by UI Engineering to UI Operations. The Steam Facilities System Engineer must be alerted for inspection of boiler components. See Hold Points below.

C External Inspection

HOLD POINT

UI System Engineer and NBIC Boiler Inspector are needed for external boiler inspection. Give at least 7 days advance notice and coordinate with UI System Engineer.

D Secure Boiler(s) and Prepare for Inspection/Maintenance

1. Secure boilers in accordance with UI-PROC-76-28-001-R1 Boiler Shut-Down Dry Layup Process.

2. Drain boilers in accordance with UI-PROC-76-28-002-R1 Steam Plants Boiler Draining.

3. Isolate system if both boilers are being shut off.

   Note: Outage will be required if doing one boiler at a time to perform the feed water tank and steam header maintenance.

   a. Close main steam valve to system.

   b. Drain steam header

   c. Isolate water to feed tank

   d. Unplug water softeners, chemical pump, and continuous blowdown controller.

4. Remove gas supply and vent piping prior to opening front door.

E Waterside Inspection/Maintenance

1. Open flue door and inspect tube sheets for water leakage. If 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.

2. 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.

HOLD POINT

Steam Facilities System Engineer and Chemical Treatment Company Representative are needed for boiler inspection. Give at least 7 days advance notice and coordinate with Steam Facilities System Engineer.

3. 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.

4. Use a high pressure hose to wash sediment out of the bottom and other internals of the boiler.

5. Remove and replace the Kunkle pressure relief valves. New pressure relief valves can be purchased and Attachment 4 identifies the pressure relief valves to order. If new valves are not purchased, test and repair the pressure relief valves in accordance with the Engineering Standard Manual Chapter 17.

HOLD POINT

Steam Facilities System Engineer and NBIC Boiler Inspector are needed for internal boiler inspection. Give at least 7 days advance notice and coordinate with Steam Facilities System Engineer

6. With the support of electricians, remove the OPC, High Limit, and CLSC controls. 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.

F Fireside Inspection/Maintenance

1. Remove all heat extractors and inspect their condition. These devices can be pulled out individually from each of the fire tubes and cleaned if necessary. Repair or replace if necessary.

2. Check gas burners for presence of dirt, lint, or foreign matter. Be sure of ports, gas passages and air passages are free of obstructions.

3. Clean out each main burner with a bottle washer.

4. Check the fireside of furnace and fire tubes for any evidence of soot formation or corrosion. Evidence of soot formation is a sign of improperly adjusted combustion. Brush and vacuum the furnace and fire tubes, if such conditions exist.

5. Drill the pilot manifolds with a #53 drill bit as needed and adjust the pilot manifold position in accordance with the Seller's Owners' Manual.

6. Clean air socks, flame rods, ignitor rod, and replace if needed.

7. Remove fan door and clean fan and shroud. Re-install fan door when complete.

8. Lubricate Baldor blower motor with Polyrex EM (Mobil) grease.

9. Check combustion chamber sight glasses and replace as needed.

10. Check flue door gaskets and other gaskets to make sure that they are in good condition and that they are properly secured. Replace, if required, the flue door

gaskets. An ineffective seal may allow flue gases to escape into the boiler room and result in burned gaskets and warped flue doors.

11. Verify the gas low and high limit switches. Record values in Attachment 1.

12. Check the Low-NOx solenoid for proper operation. Remove door and check plunger, clean, and re-grease bearing.

13. After the fireside and waterside surfaces have been inspected by the UI system engineer and by the NBIC boiler inspector, and work is completed, close and secure front and rear flue doors. Reinstall hand hole and manifold covers if applicable; hook up all associated piping and refill boiler to proper level.

G Steam Header Inspection/Maintenance

1. With support of electricians, remove wiring from controls.

2. Remove and clean controls and syphon tubes. Reinstall and replace as needed.

3. Check condition of Y-strainers steam traps, clean and replace as needed.

4. Check the condition of the sparger line controls and safety valves. Repair and replace as needed.

H Feed Water Tank Inspection/Maintenance

1. Electricians go through Feed Water Tank panel to check for loose and broken wires, clean contacts, and inspect.

2. Remove hand holes, inspect tank for deposits and clean as needed.

3. Check condition of anode and replace if needed.

4. Remove and clean temperature gauge.

5. Check condition of sparger line header (if possible) and clean if needed.

6. Remove McDonald Miller strainer. Inspect and replace if needed.

7. Remove and clean all pump strainers, and reinstall.

8. Lubricate Grundfos boiler feed pumps: lubricate the Baldor motor with Polyrex EM (Mobil) grease.

9. Replace hand holes, fill tank, and check for leaks.

I Boiler Gas Train Inspection/Maintenance

1. For Main Gas Regulators, Fisher CS800.

    a. Remove gas regulator diaphragm head on Fisher models, check torque values of orifice. Orifice torque value should be between 25 TO 35 FT-LBS.

    b. Check torque values of 12 diaphragm head bolts, manufacturer specifies 63 TO 90 FT-LBS.

    c. Reinstall gas regulator diaphragm and tighten 4 bolts to manufacturer torque value of 10 to 13 FT-LBS.

2. For Pilot Gas Regulators, Fisher CS200.

    a. Remove gas regulator diaphragm head on, check torque values of orifice. Orifice torque value should be between 35 TO 45 FT-LBS.

    b. Check torque values of 12 diaphragm head bolts, manufacturer specifies 63 TO 90 FT-LBS.

    c. Reinstall gas regulator diaphragm and tighten 4 bolts to manufacturer torque value of 10 to 13 FT-LBS.

3. Grease plug valves on gas supply line. Use Slowserve for Nordstrom Valves Type 555 (-10°F to 500°F).

4. Re-install gas vent and supply piping after closing front door.

5. Check all gas piping from upstream union to the first safety shutoff valve for gas leaks before starting boiler.

6. After start-up of boiler, check all gas piping and fittings from first safety shut-off to boiler combustion chamber for leaks.

J Chemical Equipment Inspection/Maintenance

1. Chemical pump and tank

    a. Empty chemical tank into barrel.

    b. Add water to tank and pump into feed water tank to flush out pump and chemical lines.

    c. Clean any debris accumulated on the Neptune/Leeson chemical feed pumps and the GE/Neptune chemical mixing motors.

    d. Unplug pump until start up

2. 3D Trasar Unit

    a. Remove and clean 3D Trasar conductivity probe for each boiler.

    b. Remove and clean metal filter.

    c. Remove and replace paper filter

    d. Replace back up power batteries

    e. Reprogram 3d Trasar unit after battery replacement.

    f. Perform 2 point calibration on 3D Trasar conductivity probe for each boiler, as per 3D Trasar manual.

    g. Clean 3D Trasar Fluorimeter Flow cell as per UI-PROC-76-28-014-R2.

    h. Perform calibration on 3D Trasar Fluorimeter for each boiler.

3. Water Softener

    a. For systems where both boilers are secured for the summer, regenerate water softeners before putting back online. Check for leaks or abnormal operations.

    b. Fill brine tank if needed.

4. Backflow Preventer

    a. Check for leaks and ensure proper operation.

K Post-Maintenance

1. Complete Attachments 1 and 2.

2. Verify the settings for the following steam switches: lead, lag, low boiler pressure.

3. There are three pressure switches on top of each boiler: the high pressure steam shutdown (High Limit) switch, the operating pressure control (OPC) switch, and Low-NOx Cold Start Limit Control (CSLC) switch.

4. Upon initial startup the CSLC switch is adjusted to a pressure above the OPC switch until the initial boiler parameters have been adjusted.

5. Final setpoint configurations:

    a. For all boilers [except two boilers at Plant 12 (16-1491)]:

        - High pressure steam shutdown (High Limit) switch: 90 psig

        - Operating pressure control (OPC) switch: 80 psig

- Low-NOx cold start limit control (CSLC) switch: 40 psig

b. For the two boilers at Plant 12 (16-1491):

- High pressure steam shutdown (High Limit) switch: 45 psig
- Operating pressure control (OPC) switch: 40 psig
- Low-NOx cold start limit control (CSLC) switch: 20 psig

All steam pressure switch setpoint verification must be performed with a calibrated boiler pressure gauge.

6. Verify the Low-NOx cold start limit control switch.
   a. Set to the values above.
   b. Verification of this switch is performed after the initial settings.
   c. Verify that the Low-NOx damper control motor is operating and that the auxiliary solenoid valve on the main gas valve line de-energizes (closes).
7. Check pilot burners and ignition equipment for proper condition and adjustment.
8. Startup boiler in accordance with UI-PROC-76-28-008-R1 TA-9/16 Steam Plants Boiler Startup.
9. Visually check burner for proper combustion.
   a. Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.
   b. Adjust fuel/air mixture as needed.
   c. Refer to Attachment 3 for commissioning flue gas analysis results.
10. Ensure completion of functional checklist in Attachment 2.
11. Before the boiler is released to Operations, Steam Facilities System Engineer must review and sign off on Attachments 1 and 2.
    - Ensure correct operation. If problems are found, immediately notify appropriate personnel so corrective action can be taken.

L Appendices and Attachments

Attachment 1. Form 76-28-010.1 Boiler Checklist

Attachment 2. Form 76-28-010.2 Pressure and Flue Gas Analysis

Attachment 3. Baseline Settings

Attachment 4. Approved Steam Safety Valves

M History of Revisions

Document Number	Issue Date	Action
UI-PROC-76-28-010-R2	9/3/20	Review and reissue with changes to work steps and corrections to attachment numbering.
UI-PROC-76-28-010-R1	04/10/19	Convert to PMI with changes.
UI-PROC-76-28-010-R0	05/13/15	New procedure.

Attachment 1. Form 76-28-010.1 Boiler Checklist

Boiler NB #_____

Boiler Location_____

Date(s) Performed_____

Safety valves replaced?_____ S/N #_____

Boiler Pressure (psig)_____ Fireside inspection:_____

Supply gas pressure (psig)_____ Waterside inspection:_____

Flue door gaskets replaced?_____

Verify shutdown switches:

High Limit_____ High Limit set point_____

High Gas_____ High Gas set point_____

Low Gas_____ Low Gas set point_____

OPC_____ OPC set point_____

LWC 1_____

LWC 2_____

Air Proving Switch_____

Boiler set in low NOx setting?_____ CSLC set point_____

Lag set point_____ Lead set point_____

Calibration date on steam boiler pressure gauge_____

Work Control: Send copy of this completed form to Steam Facilities System Engineer.

Copy sent to Steam Facilities System Engineer
by WCS _____ Date _____
MSS Rep _____ Date _____

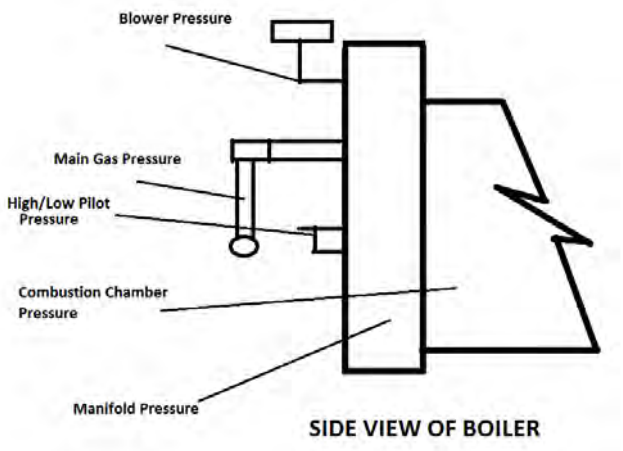
Released for Operations
Steam Facilities System Engineer _____ Date _____

Form 76-28-010.1 1/1

Attachment 2. Form 76-28-010.2. Pressure and Flue Gas Analysis

Original boiler commissioning settings are captured in Attachment 3, Baseline Settings.

	Lightoff Readings	Low NOx Readings
Manifold Pressure (wc)		
High Pilot Pressure (wc)		
Low Pilot Pressure (wc)		
Blower Pressure (wc)		
Main Gas Pressure (psig)		
O2 (%)		
CO (ppm)		
NOx (ppm)		



Work Control: Send copy of this completed form to Steam Facilities System Engineer.

Copy sent to Steam Facilities System Engineer
by WCS _____ Date _____
MSS Rep _____ Date _____

Released for Operations
Steam Facilities System Engineer _____ Date _____

Form 76-28-010.2 1/2

FUNCTIONAL CHECKLIST

- ☐ Steam system
  - o Traps
  - o Y- strainers
- ☐ Condensate return system
- ☐ Gas system
- ☐ Motors operational
- ☐ Pumps operational
- ☐ Feed water system
- ☐ Chemical feed system
- ☐ Blowdown system
  - o Valve controlling continuous blowdown
- ☐ Electrical system
- ☐ Safety shutdown
- ☐ Building
  - o Lights operational
  - o Heating system
  - o Life safety

COMMENTS:_____
_____
_____
_____
_____
_____

Work Control: Send copy of this completed form to Steam Facilities System Engineer.

Copy sent to Steam Facilities System Engineer
by WCS _____ Date _____
MSS Rep _____ Date _____

Released for Operations
Steam Facilities System Engineer _____ Date _____

Form 76-28-010.2 2/2

Attachment 3. Baseline Settings

							Lightoff Readings						Low NOx readings					
Plant #	Location	Serial #	Boiler HP	High Pilot "wc	Low Pilot "wc	Blower Pressure "wc	Manifold Pressure "wc	Combustion Chamber Pressure "wc	Main Gas Pressure "wc	O2 %	CO ppm	NOx ppm	Manifold Pressure "wc	Combustion Chamber Pressure "wc	Main Gas Pressure "wc	O2 %	CO ppm	NOx ppm
1	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
1	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
4	16-1483-A	100850-B	128	10.2	5	7.5	5.8	2.4	10.8	3.6	7	51	5.8	2.1	12.5	5.9	8	25
4	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
5	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
5	16-1484-B	100848-B	183	11.5	7	8	5.5	2.3	15	3.4	11	53	5.5	2	16	6	10	21
8	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
8	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
11	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
11	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
12	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
12	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
14	16-1492-A	100855-B	85	10	9	10	5.2	2.3	8.5	3	7	53	5.2	2	10.7	6.4	24	24
14	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
13	9-282-A	100849-A	153	10.5	10	8	5.1	2.2	13.6	3.7	11	57	5.1	1.9	15	6.4	6	27
13	9-282-B	100849-B	153	10.5	6	8.4	5.6	2.4	11.3	3.8	12	52	5.6	2.1	12.5	5.9	8	26

Attachment 4. Approved Steam Safety Valves

Plant #	Location	Serial #	ASME #	Nat'L Board #	Boiler Max Steam Capacity (lb/hr)	Safety Valve Inlet	Relief Flow (lb/hr)	Safety Valve Brand	Safety Valve to Order
1	16-1480-A	100852-B	10158	8365	3381	2"	4593	Kunkle	6021HHT01-AM0100
1	16-1480-B	100852-A	10022	8359	3381	2"	4593	Kunkle	6021HHT01-AM0100
4	16-1483-A	100850-B	10324	8375	4416	2"	4593	Kunkle	6021HHT01-AM0100
5	16-1484-A	100848-B	10291	8334	6314	2"	4593	Kunkle	6021HHT01-AM0100
5	16-1484-A	100848-B	10291	8334	6314	1-1/2"	2948	Kunkle	6021GGT01-AM0100
5	16-1484-B	100848-A	10290	8333	6314	2"	4593	Kunkle	6021HHT01-AM0100
5	16-1484-B	100848-A	10290	8333	6314	1-1/2"	2948	Kunkle	6021GGT01-AM0100
8	16-1487-A	100857-B	10314	8355	1932	1-1/2"	2948	Kunkle	6021GGT01-AM0100
8	16-1487-B	100857-A	10313	8354	1932	1-1/2"	2948	Kunkle	6021GGT01-AM0100
11	16-1490-A	100856-B	10329	8388	3278	2"	4593	Kunkle	6021HHT01-AM0100
11	16-1490-B	100856-A	10328	8395	3278	2"	4593	Kunkle	6021HHT01-AM0100
12	16-1491-A	100859-A	10330	8380	828	1-1/2"	1671	Kunkle	6021GGT01-AM0050
12	16-1491-B	100859-B	10331	8381	828	1-1/2"	1671	Kunkle	6021GGT01-AM0050
14	16-1492-A	100855-B	10327	8387	2933	2"	4593	Kunkle	6021HHT01-AM0100
14	16-1492-B	100860-A	10317	8361	2415	2"	4593	Kunkle	6021HHT01-AM0100
13	9-282-A	100849-A	10292	8338	5279	2"	4593	Kunkle	6021HHT01-AM0100
13	9-282-A	100849-A	10292	8338	5279	1-1/2"	2948	Kunkle	6021GGT01-AM0100
13	9-282-B	100849-B	10293	8342	5279	2"	4593	Kunkle	6021HHT01-AM0100
13	9-282-B	100849-B	10293	8342	5279	1-1/2"	2948	Kunkle	6021GGT01-AM0100

BOILER INSPECTION REPORT (BIR)

NBIC NB-23, Part 2 (This report to be completed by LANL Commissioned Inspector)

SECTION I – BOILER INFORMATION

Boiler ID#:		Insp Date:	**Expiration Date:**
Boiler Area:		Ext. Inspection: ☐	Int. Inspection: ☐
National Board No.:		Serial No.:	
Boiler Mfg.:		Year Built:	
Boiler Type:	Steam ☐ Hot Water ☐ Others ☐	Firetube ☐	Watertube ☐
Safety Relief Valve (s) ID#:		Safety Valve (s) Size:	_____ , _____ , _____ ,
Set Press:	1. _____ 2. _____ 3. _____ (PSI)	Capacity:	1. _____ 2. _____ 3. _____ (lbs/hr)
Safety Valve (s):	Last Tested ☐ "VR" ☐ Replaced ☐	Date:	1. _____ 2. _____ 3. _____ ,
Pressure Gauge Range:	0 to	Heating Surface Area (sqft):	Boiler MAWP: _____ (PSI)
Pressure Allowed:	This Inspection: _____ (PSI)	Previous Inspection: _____ (PSI)	
Fuel:		Method of Firing:	
Inspection Finding: Major ☐ Minor ☐		Permit Issued: Yes ☐	No ☐

SECTION II – EXTERNAL/INSERVICE INSPECTION CONDITIONS

Planning, Coordination and Safety Requirements –

External Casing (cracks, leakage of fluids or combustion gases …) –

Safety Valve (s) Testing and Conditions –

Hangers and boiler supports Conditions –

Piping External Surfaces Conditions –

Controls (Firing, Flame Detector, valves, …) Functionality Test –

Low Water Cutoff Alarm Test –

Other Observations / Notes –

SECTION III – INTERNAL INSPECTION CONDITIONS			
Is the boiler prepared, drained and cleaned for internal inspection?	Yes ☐	No ☐	
Is the fuel shutoff valve locked and tagged?	Yes ☐	No ☐	
Is the boiler isolated from other boilers?	Yes ☐	No ☐	N/A ☐
Is the boiler atmosphere being monitored for safe entry (Boilers w/manway)?	Yes ☐	No ☐	N/A ☐
Is the boiler hydro tested for leaks? Yes ☐ No ☐	Pressure Test:	PSIG	

SECTION IV – FIRESIDE

Fire Box, Refractory, Burners, Flame Detectors Conditions –

Tubes External Condition (Pitting, bulging, misalignment, soot built up …) Watertube Boilers Only –

Tubesheets Condition (Bulging, leaks around the tubes connections, Cracks in the ligaments and weld joints) –

Staybolts Testing –
Other Observations / Notes –
SECTION V – WATERSIDE
Tubes External Surfaces, if possible internal surfaces –
Water Columns, Gage Glasses, Floats Chambers Internal Surfaces or Low Water Level Rods Condition –
Superheater Tubes External Surfaces (Power boilers Only) –
Steam Drum/Vessel Internal Surfaces (If electric boilers the condition of the electric resistant coils) –
Mud Drum Internal Surfaces (Power boilers) –
Deaerator Tank Internals (Power boilers) –

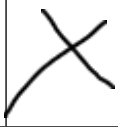
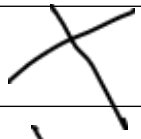
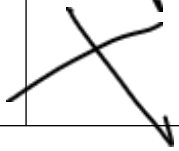
Deaerator Storage Tank (Power boilers) –
Any Repairs or Alteration Since Last Inspection (All repairs and Alteration requires 'R' Stamp R-1 or R-2 Form) –
water Chemistry Last Checked / Notes –
SECTION VI – DEFICIENCIES SUMMARY
SECTION VII – RECOMMENDATIONS

Person Conditions Reported To and/or FSR #, If Issued:	Z#	Phone No.:
LANL Commissioned Inspector Name and Signature:	Z#	National Board Commission No.:

Reviewed By: Initial: Z# Date:

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?	
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	
What can cause us to go beyond the scope of the work?	
What hazards in the work area may not have been considered during planning of this job	

Facility : F04 Unit : 530365 Proj :
Task Title : 530365 2Y BOILER MAINTENANCE
W/O Type : PM W/O Group : Task Priority : 04
Planner : 230995 VARGAS LYNDA Y
W/O Title : 530365 2Y BOILER MAINTENANCE
Written To : 530365 BOILERS
Task Dspln : FTTR Due Date : 09/30/2021
Superintendant : Ray Richey Cell Ph. 231-4006

Hazard : MODERATE IWD Reqmt : TASK SPECIFC

Work Order Task

00697667 01

MASTER

Date: 06/29/2021

Work Order Task Written To

Facility : F04
Room :
Equipment :
Location :
Job Type : PM
Tag 1 :
Work Item : BLDG 365 BOILERS

Unit : 530365
Area :
Component :

Tag 2 :
Ops Review Reqd :

Op Sys : HW
Sys/Cls : R

Authorization

Start Permission : Kenny Madrid 7-27-21 Start Date :

Complete Notice : Kenny Madrid 10-4-21 Complete Date :

Work Order Task Instructions

THIS PM REQUIRES SCHEDULING A BOILER INSPECTOR
TO INSPECT AND CERTIFY UNIT

PERFORM and COMPLETE ATTACHED PMI

QC Requirements / Comments

Facility : F04 **Unit :** 530365 **Proj :**
Task Title : 530365 2Y BOILER MAINTENANCE
W/O Type : PM **W/O Group :** **Task Priority :** 04
Planner : 230995 VARGAS LYNDA Y
W/O Title : 530365 2Y BOILER MAINTENANCE
Written To : 530365 BOILERS
Task Dspln : FTTR **Due Date :** 09/30/2021
Superintendant : Ray Richey Cell Ph. 231-4006
Hazard : MODERATE **IWD Reqmt :** TASK SPECIFC

Work Order Task

00697667 01

MASTER

Date: 06/29/2021

Work Completion Signatures

Name	Function/Dept.	Date
Mark Millwood Boiler crew / LOG-CS 09/17/2021		
Jesse Sanchez	LOG-SUP	9/23/21

Comments

(rework?)

Cost Accounting

Cost Center : 7D140C **Activity :** 640CL000

Percentage : 100 **Acct No :** XFM400 **Sub Acct :** 1G530365

Facility : F04 Unit : 530365 Proj :
Task Title : 530365 2Y BOILER MAINTENANCE
W/O Type : PM W/O Group : Task Priority : 04
Planner : 230995 VARGAS LYNDA Y
W/O Title : 530365 2Y BOILER MAINTENANCE
Written To : 530365 BOILERS
Task Dspln : FTTR Due Date : 09/30/2021
Superintendant : Ray Richey Cell Ph. 231-4006
Hazard : MODERATE IWD Reqmt : TASK SPECIFC

Work Order Task

00697667 01

MASTER

Date: 06/29/2021

Los Alamos NATIONAL LABORATORY **Facilities Maintenance IWD - (Facility Maintenance Activity Specific Information)**			
Revision #: 0			**Activity/Task Title:** **53-0365 2Y BOILER MAINTENANCE**
Work Document #: (WO # / Task) **697667-01**			**Planner/Preparer (Name/Z#/Date)** **Troy Calloway #186163 7/7/21**
TA: **53**	**Building :** **0365**	**Room:** **403**	**Additional Location Description:**

1. Scope of Work

1.1. **THIS PM REQUIRES SCHEDULING A BOILER INSPECTOR TO INSPECT AND CERTIFY UNIT.**

1.2. **PERFORM and COMPLETE ATTACHED PMI**

1.3. **Power source: CDD by MCC-B 53-752 3000 kva**

MC: Kenny Madrid 4-8327

Hazard Analysis (HA) Team: Troy Calloway, LANSCE IH & ESO , Lewis Mondragon

Date: 7/7/21

2. Precautions and Limitations

2.1. **IF** steps cannot be completed as described or **IF** unforeseen situations occur, **THEN PAUSE WORK** and **STABILIZE** the situation. **CONTACT** your supervisor and **AWAIT** further instructions before proceeding.

2.2. **IF** materials are required to perform this work, **THEN ASSURE** materials are available
and / or staged **PRIOR** to commencing field work.

2.3. Signatures, Initials and Place keeping blocks at the end of a step signifies the completion of that step or series of steps.
- Steps **SHALL** be signed / marked upon completion.

2.4. **ENSURE** unique equipment identifier. Equipment tag or unique equipment identifier (MEL ID) is used to designate which piece(s) of equipment are to be worked on.

2.5. **REVIEW** any relevant plant specific, industry related experience or lessons learned applicable to required work.

Los Alamos NATIONAL LABORATORY **Facilities Maintenance IWD - (Facility Maintenance Activity Specific Information)**			
Revision #: 0			**Activity/Task Title:** **53-0365 2Y BOILER MAINTENANCE**
Work Document #: (WO # / Task) **697667-01**			**Planner/Preparer (Name/Z#/Date)** **Troy Calloway #186163 7/7/21**
TA: **53**	**Building :** **0365**	**Room:** **403**	**Additional Location Description:**

2.6. **IDENTIFY** individuals to contact in case certain events occur
- **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.
  - **Sylvie Adam** 695-8224
  - **Paul Martin** 667-3864 or 795-3119
- **WEM - Kenny Valdez** @ 667-3512 or 699-0793
- **On Call Duty Officer** @ 4-7466 or 500-2072
- **LFO-MSS Group Office** @ 665-6393

2.7. **LOCATE** and **IDENTIFY** any alarms or monitors in area (as posted at entrance)
- Check alarm / monitor and ensure it is functioning properly
- Know, review and/or discuss procedure in case of alarm sounding

2.8. **IDENTIFY** rapid or emergency actions to place equipment in likely compensatory configuration or conditions.

3. PREREQUISITES / INITIAL CONDITIONS

3.1. **VERIFY** with operations that no other activities are being conducted that could impact safe working conditions.

3.2. **IDENTIFY** required permits:
- LO/TO Attachments
- Spark and Flame Permit, form 1563

3.3. **IF** facility outage is required, **THEN NOTIFY** occupants.

3.4. **ENGAGE** Isaac Atencio, Waste Management Coordinator (WMC) prior to performing work activities to ensure all materials/equipment slated for disposal are dispositioned in accordance with EPC-WMP-FSD-001 Waste Characterization Strategy.

3.4.1. Mr. Isaac Atencio can be reached at 665-4627.

Facilities Maintenance IWD - (Facility Maintenance Activity Specific Information)			
Revision #: 0			**Activity/Task Title: 53-0365 2Y BOILER MAINTENANCE**
Work Document #: (WO # / Task) 697667-01			**Planner/Preparer (Name/Z#/Date) Troy Calloway #186163 7/7/21**
TA: 53	**Building : 0365**	**Room: 403**	**Additional Location Description:**

4. Special Training/Medical Requirements

4.1. TA 53 Site Specific training #57262

4.2. Training to perform maintenance work
- Curriculum ID 10968, WQ LOG Maintenance Worker

4.3. Training to perform **Pipefitter** work:
- Curriculum # 647 - WQ LOG Pipefitter Maintenance

4.4.2 **Boiler Fitter**:
- Curriculum 718

- **Operation of a breaker or disconnect: NON-Electricians**
  - MUST be performed by a qualified person (per NFPA 70E)
  - Curriculum #2908 (Utrain # 31083)
  - Wear the required PPE based on the Shock and Arc-Flash Risk Assessment.
  - IF Assessment determines Dielectric PPE is required: Demonstration of Proficiency (DoP) for Dielectric PPE - curriculum # 19653

5. Special Tools/Equipment

5.1. Cal 8 suit w/ dielectric gloves

6. Work Instructions

6.1. **ERECT** and **SET** barricades at entrance to room and LOTO point.

6.2. **CYCLE** boiler and inspect operations
- 6.2.1. Only qualified personnel to perform operation of boiler
- 6.2.2. Coordinate efforts with facility coordinator
- 6.2.3. PPE per core training

6.3. **Purge** system (if necessary) per Page 1 of **PMI**
- 6.3.1. **NO spark or flame within area**
- 6.3.2. HAZCOM training

Los Alamos NATIONAL LABORATORY **Facilities Maintenance IWD - (Facility Maintenance Activity Specific Information)**			
Revision #: 0			**Activity/Task Title: 53-0365 2Y BOILER MAINTENANCE**
Work Document #: (WO # / Task) 697667-01			**Planner/Preparer (Name/Z#/Date) Troy Calloway #186163 7/7/21**
TA: 53	**Building : 0365**	**Room: 403**	**Additional Location Description:**

6.3.3. Purge gas to outside - **IF NOT possible PAUSE WORK** and contact LANSCE IH (695-8224) for air quality monitoring and LANL Fire Marshall (670-1958)

NOTE: **Arc Flash calculations provided by LFO Engineering.**

Power Source: CDD by MCC-B Voltage: 480v
Transformer: 53-752 3000 kva
Incident energy @ 18" = 2.1 cal / sq cm
Flash Protection Boundary = 25"
Limited Approach = 42"
Restricted Approach = 12"

⚠WARNING
ELECTRIC ARC FLASH
BREAKER OPERATION CLASS 1.3b

6.4. **FILL** out applicable attachment
6.5. **TURN** off power source(s) and **APPLY** LOTO device
6.5.1. **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 duty leather gloves.
6.5.2. Ensure unit runs/starts
6.5.3. Open Disconnect / Breaker and verify the unit stops or will not start

Repeat process:
6.5.4. Close Disconnect / Breaker and ensure unit starts
6.5.5. Open Disconnect / Breaker and verify the unit stops or will not start
6.5.6. LOTO devices/tags shall be applied in accordance with P101-3

Los Alamos NATIONAL LABORATORY Facilities Maintenance IWD - (Facility Maintenance Activity Specific Information)			
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Work Document #: (WO # / Task) 697667-01			**Planner/Preparer (Name/Z#/Date) Troy Calloway #186163 7/7/21**
TA: 53	**Building : 0365**	**Room: 403**	**Additional Location Description:**

⚠WARNING

Release of Pressurized / Flammable Gas
NO SPARKS OR FLAME WITHIN WORK AREA

6.6. **TURN** off and **APPLY** LOTO to gas supply per appropriate procedure
- 6.6.1. Obtain locks and tags from FOD Designated Lock Coordinator
- 6.6.2. Make necessary notifications
- 6.6.3. Determine all sources of power with Equipment Owner / Operator
- 6.6.4. Turn off EQ - Close valves
- 6.6.5. LOTO devices/tags shall be applied in accordance with P101-3

⚠DANGER

DO NOT stand in front of boiler doors or breeching when firing boiler.

6.7. **PERFORM maintenance** per PMI section 2

6.8. **REMOVE** and replace defective components per PMI
- 6.8.1. Ensure all components are sufficiently cool before contact with skin
- 6.8.2. PPE per core training
- 6.8.3. Inspect all tools prior to use
- 6.8.4. Wear leather gloves and safety glasses
- 6.8.5. GFCI protection for all cords and electric devices
- 6.8.6. Inspect all cords, plugs and electric tools for damage - remove and tag if found defective
- 6.8.7. Minimize exposure to noise. Wear hearing protection as applicable.

⚠WARNING

Soldering and Brazing Hazards:
Fire Hazard
Inhalation Hazard
Eye and Dermal Burn Hazard

Los Alamos	Facilities Maintenance IWD - (Facility Maintenance Activity Specific Information)		
Revision #: 0			**Activity/Task Title: 53-0365 2Y BOILER MAINTENANCE**
Work Document #: (WO # / Task) 697667-01			**Planner/Preparer (Name/Z#/Date) Troy Calloway #186163 7/7/21**
TA: 53	**Building : 0365**	**Room: 403**	**Additional Location Description:**

6.9. Low temp **SOLDERING REPAIRS** - IF necessary
- 6.9.1. **Must have approved and signed spark and flame permit in package prior to working**
- 6.9.2. Review current LANL fire danger rating, follow appropriate cautions
- 6.9.3. Review spark and flame permit
- 6.9.4. Provide fire watch if permit deems necessary
- 6.9.5. Ensure adequate ventilation in work area
- 6.9.6. Wear leather gloves, long sleeve shirt and tinted goggles
- 6.9.7. Have a 5lb (minimum) ABC fire extinguisher present
- 6.9.8. Scope area for possible flammable material within spark/flame range
- 6.9.9. Verify NEAREST eyewash capabilities

⚠WARNING

ELECTRIC SHOCK / ARC
EQUIPMENT OPERATION CLASS 1.3b

6.10. **REMOVE** electrical LO/TO and energize equipment
- 6.10.1. **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 duty leather gloves.
- 6.10.2. Notify Designated Lock Coordinator and return locks.

6.11. **REMOVE** gas LO/TO and energize equipment
- 6.11.1. Notify Designated Lock Coordinator and return locks.

7. Post Work Activities

7.1. **PERFORM** combustion analyzer test (if required for testing or requested by MC)
7.2. **PERFORM** post-maintenance activities

Los Alamos NATIONAL LABORATORY **Facilities Maintenance IWD - (Facility Maintenance Activity Specific Information)**			
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TA: 53	**Building : 0365**	**Room: 403**	**Additional Location Description:**

7.2.1. Fire unit and verify proper operation
7.2.2. Verify proper operation of boiler
7.2.3. Verify boiler starts and fires properly.
7.2.4. Verify boiler stays operational for extended amount of time
7.2.5. Verify proper operation of flame rod
7.2.6. Verify no gas leakage
7.2.7. Verify proper operation of gauges and valves
7.2.8. Verify that the support or auxiliary systems related to the component are functioning properly.

7.3. **CLEAN** the work area of all work generated debris ☑
7.3.1. Contact and coordinate any waste disposal with Area Waste Coordinator Isaac Atencio at 665-4627

7.4. **ENSURE** all panels, doors and/or guards are re-installed and secured ☑
7.5. **REMOVE** any barricades / barriers. ☑

7.6. **DOCUMENT** work done and lesson learned on MWP Work Progress Panel or Work Completion Form (AP-WORK-002) ☑

8. CLOSEOUT

8.1. **CONTACT** the MC and Area Superintendent; **INFORM** them the work is completed

Los Alamos NATIONAL LABORATORY **Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)**			
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Work Document #: (WO # / Task) **697667-01**			**Planner/Preparer (Name/Z#/Date)** **Troy Calloway #186163 7/7/21**
TA: **53**	**Building :** **0365**	**Room:** **403**	**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 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** Kenny J. Valdez 095161 08-13-2021 10:52 **FOD or Representative** Anthony George 112877 07-26-2021 09:28 **ESO Review** (Signature/Z#/Date) **If Required** Lorenzo D. Martinez/211131/7-13-2021 **Safety Review** (Signature/Z#/Date) **Required** ·Sylvie Adam / 334250 / 7-13-2021

Los Alamos NATIONAL LABORATORY **Facilities Maintenance IWD - (Facility Maintenance Activity Specific Information)**			
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Work Document #: (WO # / Task) 697667-01			**Planner/Preparer (Name/Z#/Date)** Troy Calloway #186163 7/7/21
TA: 53	**Building :** 0365	**Room:** 403	**Additional Location Description:**

IWD Type	Date when RLM re-approval is required 12/31/2021	Any required classification review ..npleted,
☒ Moderate-Hazard ☐ High-Hazard/Complex ☐ Standing IWD	Other Conditions for Re-Approval Change of scope, hazards or site conditions. (Print) Name of Primary PIC _Levi Gutierrez_ Name of Alternate PIC_Dennis Bernal_ Name of Alternate PIC_Mark Millwood_	NA Signature/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 04	TA 53	Bldg. 0365	Room All	Other Location 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 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
- ☒ 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 TA 53 Facility Radiation Protection requirements Course #21395

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] 112871 10/19/2020

Date Approval Expires: 12-31-2022

Isaac Ortega 358331 09/15/2021

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 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**: Levi Gutierrez 341647 09/15/2021

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) Mark Millwood 331693 09 /15/2021	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) Isaac Ortega 358331 09/15/2021	**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)

No: RN101-3-01 Interim Requirements for Hazardous Energy Identification and Control
Attachment A. Lockout/Tagout Pre-job Walk-down Checklist (Page 1 of 2)

Instructions: Perform the pre-job walk-down with the necessary people per Section 3.1 of the Requirements Notice 101-3-01. Complete this checklist and take signed checklist to the lock coordinator. All Authorized Workers are required to participate in the walk-down and sign the checklist in order to check out a lock and tag. If additional workers are added to the job, they must also perform a walk-down of the system and show a signed checklist to the lock coordinator. The signed checklists are to be kept with the parent work document (IWD, work package, etc.).

Work Document Number (e.g., Package/Procedure#): 697667-01

- ☐ We have walked down and discussed the work to be performed.
- ☐ All energy isolation points and positions have been identified and documented.
- ☐ The proper energy control procedure is being used (Simple vs Complex LO/TO).
- ☐ All energy-isolating devices are labeled properly (e.g., labels aren't faded, no hand written modifications).
- ☐ No discrepancies are found between record drawings, labels, panel schedules, and LO/TO procedures.
- ☐ Lockout devices have been identified to support the work.

*If any of the above items are identified to be inadequate, pause work, report the issues to your RLM, and contact the appropriate SMEs to help resolve issues ***before*** performing/resuming work.

Simple Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

Lead Authorized Worker (print name)	Z Number	Signature/Date
Authorized Worker (print name)	Z Number	Signature/Date

Complex Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

MS&E Owner/Operator (print name)	Z Number	Signature/Date
Kenny Madrid 117813		09/15/2021
Preparer or PIC (print name)	Z Number	Signature/Date
Levi Gutierrez 341647 Levi Gutierrez 09/15/2021		
Lead Authorized Worker (print name)	Z Number	Signature/Date
Mark Millwood 331693		09/15/2021
Authorized Worker (print name)	Z Number	Signature/Date
Isaac Ortega 358331		09/15/2021
Authorized Worker (print name)	Z Number	Signature/Date
Jesse Urbina 306179 Jesse Urbina 09/15/2021		

Note: Print additional sheets as necessary.

Los Alamos NATIONAL LABORATORY EST. 1943

Form 2244

Lockout/Tagout (LO/TO) Orders

Section 1: General Information

Work Document Number (e.g., Package/Procedure #): 697667-01

LO/TO Remedy ID: 108605

Location of Equipment to be Isolated:

TA: 53 Bldg: 365 Rm/Other: 403ER

Description of Machinery, System & Equipment (MS&E) to be worked on:

MS&E Owner/Operator: Kenny Madrid Z Number: 117813 Phone: 505-231-0299

Shutdown to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☑ No

Re-energize/restart to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☑ No

Reason for LO/TO:

Group LO/TO (2 or more)? ☑ Yes ☐ No

If yes, a lead authorized worker must be appointed

Group lock box used? ☑ Yes ☐ No

Shift or Personnel Changes? ☐ Yes ☑ No

If yes, a description of how the continuity of LO/TO protection will be ensured must be referenced or attached to this form. (See Section 3.9.6 of P101-3 for details.)

☑ Continuity of LO/TO protection details described in operating procedure, work instruction, or other work control document.

Document Number:

Section 2: Energy Control Procedure

1. Plan the work.
2. Identify and assess hazardous energy.
3. Contact the MS&E owner/operator.
4. Obtain locks and tags from lock coordinator.
5. Notify affected workers.
6. Shutdown MS&E according to **Section 3: Shutdown Sequence**.
7. Isolate and lock out MS&E from energy source, relieve stored energy, and perform verification of isolation according to **Section 4: LO/TO Sequence**.
8. Perform the work.
9. Release MS&E from LO/TO according to **Section 5: Release MS&E from Lockout/Tagout Sequence**.

Section 3: Shutdown Sequence

☐ Perform shutdown according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:

☐ **N/A**; MS&E to be worked on will be isolated according to **Section 4: LO/TO Sequence** (e.g., cannot be shut down)

Detail the process to normally shut down the MS&E below, if not following other document referenced above or N/A.

Step No.	Action/Description	Step No.	Action/Description
☐ 1		☐ 6	
☐ 2		☐ 7	
☐ 3		☐ 8	
☐ 4		☐ 9	
☐ 5		☐ 10	

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Section 4: LO/TO Sequence

☐ Perform LO/TO sequence according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:
Describe how to effectively isolate & lockout the MS&E below, if not following other document referenced above.

Isolate & Lockout (Step No.)	Equipment Descriptor (What is being locked out? e.g., machine drive motor, input power to MCC)	Energy Isolation Device (e.g., specific ID description, circuit #, lock box #)	Energy Isolation Device (Use specific ID or description, circuit number, lock box number.)	Location of Energy Isolation Device (e.g., room number, north wall, south wall)	Required LO/TO Position or Alignment (e.g., off, open, closed, on)	Verification Method (e.g., live/dead/live, crack open, on-off-on-off, peer checking, independent verification)	Verifier's Initials (if req'd)	See Section 5: Release (Step No.)
☐ (1)	BHW-001/BHW-002	ELECTRICAL	Local Disconnect	403ER	Open / Off	LIVE / DEAD / LIVE		☐
☐ (2)	BHW-001/BHW-002	MECHANICAL	Return Valve	403ER	Closed / Off	CRACK OPEN		☐
☐ (3)	BHW-001/BHW-002	MECHANICAL	Supply Valve	403ER	Closed / Off	CRACK OPEN		☐
☐ (4)	BHW-001/BHW-002	MECHANICAL	Gas Valve	403ER	Closed / Off	CRACK OPEN		☐
☐ (5)	BHW-001/BHW-002	LOCKBOX	LOCKBOX	403ER	LOCKED	PEER		☐
☐ (6)								☐
☐ (7)								☐
☐ (8)								☐

Section 5: Release MS&E from Lockout/Tagout Sequence

1. Check the MS&E and immediate area for items that could result in damage or danger on start-up.
2. Check the work area to ensure that all workers have been safely positioned or removed from the work area.
3. Verify that the controls are in neutral or "off" position.
4. Notify the owner/operator and affected workers that work is complete and MS&E is ready to release from LO/TO.
5. Remove the LO/TO device, and re-energize (if appropriate according to MS&E owner/operator) according to the sequence as identified above under Release in **Section 4: LO/TO Sequence** or according to operating procedure, work instruction, or other work control document identified in **Section 4**.
6. Return lock and locking device to Lock Coordinator.

Energy Control Procedure prepared by:

Preparer (print name)	Z Number	Organization	Phone	Signature/Date
Mark Millwood	331693	LOG-CS	4-8758	09/15/2021

By signing below, you acknowledge that this energy control procedure and/or referenced documents identify the isolation devices, isolation points, and methods necessary to prevent any unexpected release of hazardous energy.

Energy Control Procedure approved by:

MS&E Owner/Operator (print name)	Z Number	Organization	Phone	Signature/Date
Kenny Madrid	117813		505-231-0299	09/15/2021

Los Alamos NATIONAL LABORATORY EST. 1943

Form 2244

Lockout/Tagout (LO/TO) Orders

Section 6: All Authorized Workers (anyone applying a lock for this activity)

Fill out the following information or print and attach Authorized Workers information from the Lockout/Tagout Remedy Application.

Authorized Workers Name(s)	Z Number	Date Lock Applied	Date Lock Removed
Lead: Mark Millwood 331693 09/15/2021			09/17/2021
Isaac Ortega 358331 09/15/2021			09/17/2021
Jesse Urbina 306179 09/15/2021			09/17/2021

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.: 642922-01 Equipment ID No.: BHW-010 11-12-2021

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: 365 Room: 403 ER

Date Inspected: 09/17/2021 Inspectors: Mark Millwood

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.: 642922-01 Equipment ID No.: BHW-01 MSM 6-23-2021

1.1	Notify maintenance coordinator (MC) that work will be in progress on the boiler system.	Initials: MM

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: MM
2.2	Cool boiler, open air cock, and drain the boiler.		Initials: MM
2.3	Perform an internal and external inspection after thorough cleaning.	S ☑ U ☐ N/A ☐	Initials: MM
2.3.1	Check the fireside furnace and fire-tubes for any evidence of soot formation or corrosion.	S ☑ U ☐ N/A ☐	Initials: MM
2.3.2	Brush and vacuum furnace and fire-tubes if such conditions exist.		Initials: MM
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.	S ☑ U ☐ N/A ☐	Initials: MM
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: MM MM

Remarks: NONE

Work Order No.: 642922-01 Equipment ID No.: BHW-01 MM 11-18-2021

2.3.5 On one-pass boilers (Sellers), check condition of all heat extractors.	S ☐ U ☐ N/A ☐	Initials: MM
2.3.6 Check refractory materials.	S ☑ U ☐ N/A ☐	Initials: MM
2.3.7 Replace if needed.		Initials: MM
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: MM
2.5 Perform routine burner maintenance.		Initials: MM
2.5.1 Observe temperature and operating pressure and general conditions.	S ☑ U ☐ N/A ☐	Initials: MM
2.5.2 Fire and cycle the burner.		Initials: MM
2.6 Perform routine maintenance of circulating pump and expansion pump equipment.		Initials: MM
2.6.1 Observe condition of expansion tank.	S ☑ U ☐ N/A ☐	Initials: MM
2.6.2 Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion.	S ☑ U ☐ N/A ☐	Initials: MM
2.6.3 Check the air pressure on the bladder-type expansion tanks.	S ☑ U ☐ N/A ☐	Initials: MM

Remarks: NONE

2.6.4 Observe operation of circulating pumps.	S ☑ U ☐ N/A ☐	Initials: MM
2.6.5 Lubricate pump motors.		Initials: MM
2.7 Perform routine maintenance of entire combustion control equipment.		Initials: MM
2.7.1 Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	S ☑ U ☐ N/A ☐	Initials: MM
2.7.2 Adjust air/fuel mixture as needed.		Initials: MM
2.7.3 Test flame detection devices on boilers with flame scanners.	S ☑ U ☐ N/A ☐	Initials: MM
2.7.4 Remove the flame scanner with the burner firing.		Initials: MM
NOTE The burner should shut off as a flame failure condition.		
2.7.5 Clean the flame scanner, reinstall and test programmer.		Initials: MM
2.7.6 Check for proper operation as boiler goes through a firing cycle and light-off.	S ☑ U ☐ N/A ☐	Initials: MM
2.7.7 Check all electrical control and circuitry.	S ☑ U ☐ N/A ☐	Initials: MM

Insert Text Here

Remarks: NONE

Work Order No.: 642922-01 Equipment ID No.: BHW-010 11-19-2021 MSM

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.	S ☑ U ☐ N/A ☐	Initials: MM
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.	S ☑ U ☐ N/A ☐	Initials: MM
2.7.10 Lubricate fan motors where necessary.		Initials: MM
2.8 Perform combustion and draft tests.		Initials: MM
2.8.1 Visually inspect combustion.	S ☑ U ☐ N/A ☐	Initials: MM
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.	S ☑ U ☐ N/A ☐	Initials: MM
2.9.1 Check pressure-reducing valve.	S ☑ U ☐ N/A ☐	Initials: MM
2.9.2 Replace the strainer in the valve if needed.		Initials: MM
2.10 Perform slow drain test of low-water cutoff.	S ☑ U ☐ N/A ☐	Initials: MM

Remarks: NONE

Work Order No.: 642922-01 Equipment ID No.: BHW-01D MM 11-18-2021

2.11 Inspect gas piping for proper support and tightness.	S ☑ U ☐ N/A ☐	Initials: MM
2.11.1 Inspect fuel supply system and gas controls.	S ☑ U ☐ N/A ☐	Initials: MM
2.11.2 Leak check gas controls and associated gas piping with a gas detector or soap suds.	S ☑ U ☐ N/A ☐	Initials: MM
2.12 Inspect boiler room ventilation louvers and intake.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.1 Listen for any unusual noises or conditions and correct as necessary.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.2 Report any needed corrections to the MC for corrective maintenance.		Initials: MM
2.12.3 Check combustion air supply openings to ensure that they are not closed or stopped up.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.4 Inspect conditions of stacks and rain caps.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.5 Inspect flue door gaskets to ensure they are in good condition, and properly secured.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.6 Replace if necessary.		Initials: MM

Remarks: NONE

Work Order No.: 642922-01 Equipment ID No.: BHW-010 11-19-2021 MSM

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: MM
3.2	Hook up all associated piping.		Initials: MM
3.3	IF water makeup feeds boiler directly, THEN open by-pass valve to refill boiler, AND close by-pass valve when boiler reaches operating pressure. -or- IF water makeup does NOT feed boiler directly, THEN open supply and return valves to refill boiler.	By-pass ☐ -or- Supply/Return ☑	Initials: MM
3.4	Fire up boiler and check for air, gas, and water leaks.	S ☑ U ☐ N/A ☐	Initials: MM
3.5	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	S ☑ U ☐ N/A ☐	Initials: MM
3.6	Check pilot burners and ignition equipment for proper condition and adjustment.	S ☑ U ☐ N/A ☐	Initials: MM
3.7	Visually check burner for proper combustion.	S ☑ U ☐ N/A ☐	Initials: MM
3.8	Record all mechanical maintenance data, testing data, and other notable items.		Initials: MM

NOTE Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.

Remarks: - NONE

Work Order No.: 642922-01 Equipment ID No.: BHW-010 MSM 11-18-2021

3.9	Test water for proper chemical levels. Test and treat water as defined on Datasheet 403-A.002.	S ☑ U ☐ N/A ☐	Initials: MM
3.10	Record all mechanical maintenance data, testing data, and other notable items.		Initials: MM
3.11	Notify MC that work on the boiler system is complete.		Initials: MM

Name of Craft Worker: Isaac Ortega Z Number: 358331

Signature: Isaac Ortega Date: 09/17/2021

Name of Craft Worker: Mark millwood Z Number: 331693

Signature: [signature] Date: 09/17/2021 1

Foreman Verification: _____ Z Number: _____

Signature: _____ Date: ____/____/____

Remarks: NONE

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.: 670681-01 Equipment ID No.: BHW-011

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: 365 Room: 403 ER

Date Inspected: 09/16/2021 Inspectors: Mark Millwood

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.: 670681-01 Equipment ID No.: BHW-011

1.1	Notify maintenance coordinator (MC) that work will be in progress on the boiler system.		Initials: _MM_

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: __MM__
2.2	Cool boiler, open air cock, and drain the boiler.		Initials: __MM__
2.3	Perform an internal and external inspection after thorough cleaning.	S ☑ U ☐ N/A ☐	Initials: __MM__
2.3.1	Check the fireside furnace and fire-tubes for any evidence of soot formation or corrosion.	S ☑ U ☐ N/A ☐	Initials: _MM_
2.3.2	Brush and vacuum furnace and fire-tubes if such conditions exist.		Initials: _MM_
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.	S ☑ U ☐ N/A ☐	Initials: —MM
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: -MM—

Remarks: NONE

Work Order No.: 670681-01 Equipment ID No.: BHW-011

2.3.5 On one-pass boilers (Sellers), check condition of all heat extractors.	S ☑ U ☐ N/A ☐	Initials: — MM -
2.3.6 Check refractory materials.	S ☑ U ☐ N/A ☐	Initials: — MM -
2.3.7 Replace if needed.		Initials: — MM -
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: — MM -
2.5 Perform routine burner maintenance.		Initials: — MM -
2.5.1 Observe temperature and operating pressure and general conditions.	S ☑ U ☐ N/A ☐	Initials: — MM -
2.5.2 Fire and cycle the burner.		Initials: — MM -
2.6 Perform routine maintenance of circulating pump and expansion pump equipment.		Initials: — MM -
2.6.1 Observe condition of expansion tank.	S ☑ U ☐ N/A ☐	Initials: — MM -
2.6.2 Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion.	S ☑ U ☐ N/A ☐	Initials: — MM -
2.6.3 Check the air pressure on the bladder-type expansion tanks.	S ☑ U ☐ N/A ☐	Initials: — MM

Remarks: NONE

2.6.4 Observe operation of circulating pumps.	S ☑ U ☐ N/A ☐	Initials: – MM –
2.6.5 Lubricate pump motors.		Initials: – MM –
2.7 Perform routine maintenance of entire combustion control equipment.		Initials: – MM –
2.7.1 Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	S ☑ U ☐ N/A ☐	Initials: – MM –
2.7.2 Adjust air/fuel mixture as needed.		Initials: – MM –
2.7.3 Test flame detection devices on boilers with flame scanners.	S ☑ U ☐ N/A ☐	Initials: – MM –
2.7.4 Remove the flame scanner with the burner firing.		Initials: – MM –
NOTE The burner should shut off as a flame failure condition.		
2.7.5 Clean the flame scanner, reinstall and test programmer.		Initials: – MM –
2.7.6 Check for proper operation as boiler goes through a firing cycle and light-off.	S ☑ U ☐ N/A ☐	Initials: – MM –
2.7.7 Check all electrical control and circuitry.	S ☑ U ☐ N/A ☐	Initials: – MM –

Remarks: - NONE

Work Order No.: 670681-01 Equipment ID No.: BHW-011

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.	S ☑ U ☐ N/A ☐	Initials: MM
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.	S ☑ U ☐ N/A ☐	Initials: MM
2.7.10 Lubricate fan motors where necessary.		Initials: MM
2.8 Perform combustion and draft tests.		Initials: MM
2.8.1 Visually inspect combustion.	S ☑ U ☐ N/A ☐	Initials: MM
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.	S ☑ U ☐ N/A ☐	Initials: MM
2.9.1 Check pressure-reducing valve.	S ☑ U ☐ N/A ☐	Initials: MM
2.9.2 Replace the strainer in the valve if needed.		Initials: MM
2.10 Perform slow drain test of low-water cutoff.	S ☑ U ☐ N/A ☐	Initials: MM

Remarks: NONE

Work Order No.: 670681-01 Equipment ID No.: BHW-011

2.11 Inspect gas piping for proper support and tightness.	S ☑ U ☐ N/A ☐	Initials: MM
2.11.1 Inspect fuel supply system and gas controls.	S ☑ U ☐ N/A ☐	Initials: MM
2.11.2 Leak check gas controls and associated gas piping with a gas detector or soap suds.	S ☑ U ☐ N/A ☐	Initials: MM
2.12 Inspect boiler room ventilation louvers and intake.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.1 Listen for any unusual noises or conditions and correct as necessary.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.2 Report any needed corrections to the MC for corrective maintenance.		Initials: MM
2.12.3 Check combustion air supply openings to ensure that they are not closed or stopped up.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.4 Inspect conditions of stacks and rain caps.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.5 Inspect flue door gaskets to ensure they are in good condition, and properly secured.	S ☑ U ☐ N/A ☐	Initials: MM
2.12.6 Replace if necessary.		Initials: MM

Remarks: NONE

Work Order No.: 670681-01 Equipment ID No.: BHW-011

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: — MM –
3.2	Hook up all associated piping.		Initials: — MM –
3.3	IF water makeup feeds boiler directly, THEN open by-pass valve to refill boiler, AND close by-pass valve when boiler reaches operating pressure. -or- IF water makeup does NOT feed boiler directly, THEN open supply and return valves to refill boiler.	By-pass ☐ -or- Supply/Return ☑	Initials: — MM –
3.4	Fire up boiler and check for air, gas, and water leaks.	S ☑ U ☐ N/A ☐	Initials: — MM –
3.5	Check gas/air linkages and moving parts (on power burners that modulate) for positioning, tightness, and binding.	S ☑ U ☐ N/A ☐	Initials: — MM –
3.6	Check pilot burners and ignition equipment for proper condition and adjustment.	S ☑ U ☐ N/A ☐	Initials: — MM –
3.7	Visually check burner for proper combustion.	S ☑ U ☐ N/A ☐	Initials: — MM –
3.8	Record all mechanical maintenance data, testing data, and other notable items.		Initials: — MM –

NOTE Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.

Remarks: – NONE

3.9	Test water for proper chemical levels. Test and treat water as defined on Datasheet 403-A.002.	S ☑ U ☐ N/A ☐	Initials: MM
3.10	Record all mechanical maintenance data, testing data, and other notable items.		Initials: MM
3.11	Notify MC that work on the boiler system is complete.		Initials: MM

Name of Craft Worker: Isaac Ortega Z Number: 358331

Signature: _____ Date: 09/16/2021

Name of Craft Worker: Mark Millwood Z Number: 331693

Signature: _____ Date: 09/17/2021

Foreman Verification: _____ Z Number: _____

Signature: _____ Date: ____/____/____

Remarks: NONE

Facility: F01 **Unit:** 550006 **oj:**

Task Title: 550006 (6M) HOT WATER BOILER MAINTENANCE (2 EA)

W/O Type: PM W/O Group: Task Priority: 4

Planner: 218305 TRUJILLO

W/O Title: 550006 (6M) HOT WATER BOILER MAINTENANCE (2 EA)

Written To: PF-6 HOT WATER BOILERS

Task Dspln: FTTR Due Date: 06/30/2021

Job Type: PM D-B Determination:N

Hazard Level: MODERATE IWD Requirement:STANDING

Material Required?: Y

0068701601

Los Alamos NATIONAL LABORATORY EST.1943

Work Order Task

00687016 01

MASTER

Date: 4/27/21

Work Order Task Written To

Facility: F01 **Unit:** 550006 **Op Sys:**

Room: **Area:** **Sys/Cls:**

Equipment: **Component:**

PF-6 HOT WATER BOILERS

Equipment Tag: Alternate Tag:

Work item: PF6-BHW Tech Surv Reqmt Rel: N

PEG Equip Group Type: PEG Equip Group ID:

Crit Safety Control: Property Group:

Maintenance Programs: 1: 2: 3: 4: 5:

Authorization

Start Permission	[signature]			Start Date	6-14-21	[signature]	
Complete Notice	[signature]			Complete Date	6-28-21	[signature]	

NOTE:

*** Refer to attached Form 2101 - Non-Tenant Activity Form - or Form 2102 - Tenant Activity Form - for a description of site specific training or escort and access requirements.**

Work Order 0068[illegible]16 **Task** 01

Work Order Task Instructions

Location: 550006 room 103

.

Craft: PIPEFITTER & ELECTRICIANS

.

Perform PM per: ATTACHED CSE CHECKLIST & IWD

.

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.

.

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.

Rework Reason/Cause

		Y/N
CDSG	CUSTOMER DESIGN	☑
IMCW	IMPROPER CONSTRUCTION/WORKMANSHIP	☑
IMDN	IMPROPER DESIGN	☑
PDMS	PARTS/MATERIAL DID NOT MEET SPECIFICATIONS	☑
WR	WARRANTY REWORK/REPAIR	☑

Date: 6/28/21 Hours: Crew: Shift:

Comments: NONS

Rework/Approval

Deficiency Tag No: Location: Tag Removed:

Rework Job: N Comments:

Work Order 00687 .6 **Task** 01

Trouble Found/Work Performed

Completion Comments Required: N

NONE

Continue on additional sheets? _____

Calibrated Tools

Calibrated Tool Used? ☑ Y/N

File ID	Date Used	File ID	Date Used
103573	6/15/2021		
103573	6/22/2021		

Work Delay Reason

A	ACCESS	☐ Y/N
EQPT	EQUIPMENT	☐ Y/N
IWD	IWD WORKABILITY	☐ Y/N
LOTO	LOCK OUT/TAG OUT	☐ Y/N
MAT	MATERIAL	☐ Y/N
OPS	OPERATIONS	☐ Y/N
RCT	RCT AVAILABILTY	☐ Y/N
SP	SAFETY PAUSE	☐ Y/N
TEL	TOOLS/EQUIP/LIFTS	☐ Y/N
W	WEATHER	☐ Y/N

Work Date: 6/28/21 Hours: _____ Crew: _____ Shift: _____

Comments: NONE

Major Failure/Action Taken

Major Failure: _____

Major Action Taken: N/A 6/28/21

Deficiency Tag Removed: _____ Y/N

Deficiency Tag Location: _____

Deficiency Tag ID: _____

Limited Condition of Operation: _____ Y/N

Work Order 00687 6 **Task** 01

Work Completion Signatures

Name	Function/Department	Date
TIMOTHY FANDID	106 CS FITTER	6/28/21

Comments: (Rework?) NONE

Equipment List Exceptions

Equipment List	Revision	Equipment List Description
PF6-BHW	000	PF6-BHW

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F01	550006	VNT	103		HW	ML4

Equipment: BHW BHW-602
Name: 98' HOT WATER BOILER 602
Location: East Unit.
Exception Reason:
Comments:
Equipment Tag:

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F01	550006	VNT	103		HW	ML4

Equipment: BHW BHW-603
Name: 99' HOT WATER BOILER 603
Location: West or Central Boiler.
Exception Reason:
Comments:
Equipment Tag:

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F01	550006	VNT	103		HW	ML4

Equipment: BHW BHW-603-2
Name: ORIG. HOT WATER BOILER 603
Location: Was BHW-1,12.18.98.
Exception Reason:
Comments:
Equipment Tag:

Accounting

Percentage	Cost Center	Activity	Account No	Sub Account No
100.00	7D150C	640CL000	XEPR00	M1010000

* * * **End of Report** * * *

Attachment C, TA-55 SSC Equipment Work Release and Acceptance Red Sheet (UET)

(Page 1 of 2)

687016.DKT

CAUTION

Work Package # _____

REQUIRED: Proposed work is on a system/component requiring formal status control, and could impact a facility Technical Safety Requirement (TSR). This work package **REQUIRES** facility Operations Center (OC) release **immediately prior to the starting** of any associated work activities/tasks.

REQUIRED: All workers working on systems requiring this attachment must attest, or their RLM/PIC attest, to having the applicable VSS briefing. If workers and/or RLM/PIC CAN NOT attest to having the applicable VSS briefing a worker who does must be present and supervising the work. Not applicable to construction jobs; OCO or PIC/RLM mark training column N/A.

OC Authorization:

Sheet ___ of ___

Worker Training Acknowledged (PIC/RLM initials/Z#)	Printed Name of OCO	OCO Signature	Date
MW / 204536	Miller		6/14/21
MW / 204536	WELLS		6/15/21
MW / 204536	COCHRAN		6/21/21
MW / 204536	COCHRAN		6/21/21
/			
/			
/			
/			

**Once all available rows have been filled out obtain a new sheet from Work Control.

REQUIRED: A **KNOWLEDGABLE** work package performer(s) is **REQUIRED** to report work package activity/task status to the Operations Center **every time workers stop work for the day.**

REQUIRED: This work package **REQUIRES** facility operations work acceptance **immediately following field completion** of the work. The following **SHALL** be complete prior to submitting for OC Acceptance.

This column to be Completed and Initialed by: Work Package Performer	This column to be Completed and Initialed by: OCS or OCO
N/A Steps if "not applicable"	**N/A Steps if "not applicable"**
N/A PMT complete (criteria determined by appropriate CSE(s), SME or OCS; conducted under conditions emulating normal operation parameters)	N/A Applicable TSR, STP, ISI, system alignment (through operating procedure or SAC) required for the SSC to be declared OPERABLE have been completed, as applicable
MM SSC left offline following PMT, as applicable	
MW All LOTOs cleared (locks and lockout devices are returned to the WCCS, or OC if during off-hours)	

Operations Center Acceptance: Confirms RTS (transfer of control from Maintenance to Operations)

D. HEINTSCHEL		232795	6/29/21
Printed Name of OCO	Signature	Z#	Date

OCO Initial for Completion:

N/A OC System Status Board updated, as applicable

Attachment C, TA-55 SSC Equipment Work Release and Acceptance Red Sheet (UET)

(Page 2 of 2)

Daily Job Update Sheet

Work Package # 687016.

Job Title PF 6 Hot Water Boiler

REQUIRED: This sheet is to be filled out and dropped off, by a **KNOWLEDGABLE** worker, with the TA-55 Operations Center prior to commencing work each day. A **KNOWLEDGABLE** worker will pick up the sheet when work is completed for the day, and give the Operations Center a job status update. The sheet should be placed back into the work package so that it is available for the next day the job is worked.

Sheet ___ of ___

Date	Point of Contact	Pager #	Brief description of day's activities
6/14/2021	Marco Uboldi	4-7288	PF 6 6m Hot Water Boiler PM
6/15/2021	Marco Uboldi	4-7288	PF 6 6m Hot Water Boiler PM
6/21/2021	Marco Uboldi	4-7288	PF 6 6m Hot Water Boiler PM
6/22/2021	Marco Uboldi	4-7288	PF 6 6m Hot Water Boiler PM

**Once all available rows have been filled out obtain a new sheet from Work Control. Only drop off the most current sheet with the Operations Center.

Los Alamos NATIONAL LABORATORY EST.1943

Form 2103

Integrated Work Document (IWD) Part 3, Validation and Work Release

687016.

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):** _____ 118210 6-14-21

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:** _____ 201536 6/14/2021

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) 291737 6·14·21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 382917 6/14/2021	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 344099 6-14-21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 334659 6/14/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 354564 6/14/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 319584 6/14/21	**Worker** (Signature/Z#/Date)

Los Alamos
NATIONAL LABORATORY
EST 1943

AP-WORK-004: Attachment 1
Maintenance & Site Services
Worker Engagement Questions

687016.bkc

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 PF 6 6M Hot Water Boiler	**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

Mi Ui 204536 6/14/2021

Los Alamos NATIONAL LABORATORY EST.1943

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)**: NA

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- I have ensured coordination with any required FOD work-area representatives (e.g., area work coordinators).

PIC (Signature/Z#/Date) **Required**: [signature] 204536 6/15/2021

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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?
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IWD #_____ Revision #:_____ **Work Release**

Pre-Job Brief Attendance Roster

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- I confirm that I am authorized, qualified, and fit to perform the work.

Worker (Signature/Z#/Date) NORMA Ramos 291787 6·15·21	**Worker** (Signature/Z#/Date) 319584 6/15/21
Worker (Signature/Z#/Date) 282917 6/15/2021	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 344099 6-15-21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 334659 6/15/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 356082 6/15/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)

Los Alamos NATIONAL LABORATORY

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. Basic worker engagement questions are provided below. Additional 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

Los Alamos NATIONAL LABORATORY EST.1943

GS7016-0

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.

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Signature/Z#/Date **(If required by FOD)**: N/A

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- 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).

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Alternate PIC (Signature/Z#/Date) **Required**: _____

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- How can we make a mistake at that point?
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IWD #_____ Revision #:_____ **Work Release**

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- I confirm that I am authorized, qualified, and fit to perform the work.

Worker (Signature/Z#/Date) 354564 6/21/21	**Worker** (Signature/Z#/Date) 282917 6/21/21
Worker (Signature/Z#/Date) 374659 6/21/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 237056 6/21/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 344092 6-21-21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 291737 6.21.21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 319584 6/21/21	**Worker** (Signature/Z#/Date)

Los Alamos NATIONAL LABORATORY EST. 1943

Form 2103

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD #_____ Revision #: ~~2~~ 3 **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)**: N/A

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- 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**: [signature] 264536 6/22/2021

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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?
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Pre-Job Brief Attendance Roster

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- 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) 334659 6/22/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 282917 6/22/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 291737 6.22.21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 354564 6/22/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 344099 6-22-21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 319584 6/22/21	**Worker** (Signature/Z#/Date)

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			Activity/Task Title: 550006 (6M) HOT WATER BOILER MAINTENANCE
Work Document #: (WO #/Task)			Planner/Preparer (Name/Z#/Date) Abe Peralta Z# 319585 DATE: 4/26/2021
TA: 55	Building: 0006	Room: 103	Additional Location Description:

THE OUTLINE FOR ALL IWDS WILL BE AS FOLLOWS:

SECTION 1 – SCOPE OF WORK

SECTION 2 - PRECAUTIONS AND LIMITATIONS

SECTION 3 – PREREQUISITES/INITIAL CONDITIONS

SECTION 4 – SPECIAL TRAINING/MEDICAL REQUIREMENTS

SECTION 5 – SPECIAL TOOLS/EQUIPMENT

SECTION 6 – WORK INSTRUCTIONS

SECTION 7 – POST WORK ACTIVITIES

SECTION 8 – CLOSEOUT

#687016,01

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			Activity/Task Title: 550006 (6M) HOT WATER BOILER MAINTENANCE
Work Document #: (WO #/Task)			Planner/Preparer (Name/Z#/Date) Abe Peralta Z# 319585 DATE: 4/26/2021
TA: 55	Building: 0006	Room: 103	Additional Location Description:

1. SCOPE OF WORK

1.1. **PERFORM** semi-annual maintenance as per CSE checklist





Hazard Analysis (HA) Team: Abe Peralta, Mario Ulibarri, Vianes Valdez,
Date: 4/26/2021

#687016.01

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			Activity/Task Title: 550006 (6M) HOT WATER BOILER MAINTENANCE
Work Document #: (WO #/Task)			Planner/Preparer (Name/Z#/Date) Abe Peralta Z# 319585 DATE: 4/26/2021
TA: 55	Building: 0006	Room: 103	Additional Location Description:

2. PRECAUTIONS AND LIMITATIONS

2.1. 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.

2.2. Work steps are sequenced in a logical flow to ensure that the work is performed safely, efficiently, and effectively. If work steps are required to work in a specific sequence, it will be identified in the applicable section of the IWD.

3. PREREQUISITES/INITIAL CONDITIONS

3.1. Verify Work Order is on the schedule for work release.

3.2. Ensure ALL material are available.
- Recommend that spare material such as nuts, bolts, washers (fasteners), etc. are on hand prior to start of work. Use of these items can be used to prevent reuse of potentially contaminated components.

3.3. Obtain ALL necessary permits prior to performing work.

3.4. This work requires a LOTO pre-job walk-down for control of hazardous energy per *P101-3 Lockout/Tagout for Hazardous Energy Control.*

3.5. **Entry Conditions:**
- (PF6) Obtain authorization and Videx Key #61 from Ops Center prior to entering PF6 RM101.
- Follow ALL entry postings.
- Hearing protection required.
- Be aware of automatic starting equipment.

3.6. **General hazards and associated PPE is required:**
- Safety Shoes
- Safety Glasses with Side Shields
- Level 4 Cut Resistant Gloves, shall be worn when workers are performing maintenance or other physical work activities; when hands are exposed to hazards.
- Hard Hats, required when falling or flying objects may exist, overhead structures, energized conductors, or where equipment or other materials create an overhead hazard.
- Further PPE requirements will be task specific

3.7. **Noise:**
- Wear proper hearing protection in areas posted

#687016,01

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)	
Revision #:		Activity/Task Title: 550006 (6M) HOT WATER BOILER MAINTENANCE
Work Document #: (WO #/Task)		Planner/Preparer (Name/Z#/Date) Abe Peralta Z# 319585 DATE: 4/26/2021
TA: 55	Building: 0006 / Room: 103	Additional Location Description:

4. SPECIAL TRAINING/MEDICAL REQUIREMENTS

4.1. **The following training is required for the General Hazard Section:**
- Cu-10968 WQ-LOG Maintenance Worker

4.2. **The following training is required for Electricians:**
- Cu-642 WQ-LOG Electrician-Maintenance

4.3. **The following training is required to perform troubleshooting, trace electrical circuits, take voltage/amperage readings, verify "0" voltage and to re-energize circuit breakers:**
- Cu-2559 Electricians/Apprentices and Facility Engineer

4.4. **The following training is required for Pipefitters:**
- Cu-647 WQ-LOG Pipefitter-Maintenance
- Cu-717 WQ-LOG Pipefitter-Backflow Prevention
- Cu-718 WQ-LOG Pipefitter-Boiler Fitter
- Cu-720 WQ-LOG Pipefitter-Welding

4.5. **The following training is required to for Refrigeration Pipefitters:**
- Cu-647 WQ-LOG Pipefitter-Maintenance
- Certified Boiler Operations

4.6. **The following training is required when working in posted "high noise" areas:**
- Cu-2307 Hearing Conservation/Noise Training

4.7. **The following training is required for working with chemicals:**
- Cu-4261 Chemical Workers, Authorized (HAZCOM)

5. SPECIAL TOOLS/EQUIPMENT

5.1. None

#687016.01

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			Activity/Task Title: 550006 (6M) HOT WATER BOILER MAINTENANCE
Work Document #: (WO #/Task)			Planner/Preparer (Name/Z#/Date) Abe Peralta Z# 319585 DATE: 4/26/2021
TA: 55	Building: 0006	Room: 103	Additional Location Description:

6. WORK INSTRUCTIONS

6.1. **CONTACT** the following prior to performing work.
- Operations Center: 667-3330
- Maintenance Coordinator: David Leyba: 665-6812 or 664-7634
  - Alternate MC: Leroy Brazfield: 667-3266 or 664-4559

6.2. **PERFORM** a LOTO pre-job walk-down for control of hazardous energy per *P101-3 Lockout/Tagout for Hazardous Energy Control.*

6.3. **MOBILIZE** equipment/materials/tools to and from work site.

6.4. **BARRICADE** designated work area using robust barrier rope/stanchion and/or signage, to establish boundaries.

⚠ CAUTION

Use caution this area is congested and has several floor drains and piping systems that are tripping hazards.

NOTE:

Ops tech to align system prior to performing work, and when work is complete.

6.5. **MAINTENANCE**

6.5.1. **OBSERVE** Temperature and operating pressure and general conditions. Fire cycle boiler. The burner should start smoothly without unusual noises.

6.5.2. **VISUALLY** inspection combustion. 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.

6.5.3. **CHECK** gas on power burners that modulate, for positioning, tightness and binding. Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners. Adjust air/ fuel mixture as needed.

6.5.4. **DETERMINE** the cause of any unusual noises or conditions and correct as necessary. Report any needed corrections to the Facility Coordinator for corrective maintenance.

6.5.5. **INSPECT** fuel supply system and gas controls. Leak check gas controls and associated gas piping with a gas detector or soapsuds. **VERIFY** gas pressure at utility regulator is the same pressure at the boiler. To ensure the natural gas piping does not contain any restriction or blockage.

#687016,01

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
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TA: 55	Building: 0006	Room: 103	Additional Location Description:

6.5.6. **TEST** float-operated low water fuel cut-off (LWC) by pressuring the '*Manual Reset Low Water*' Button (hold button down for approximately 8 seconds). This will simulate a low water condition by turning off the boiler.

6.5.7. **TEST** safety relief valve (Try Lever Test). Manually open the valve by lifting up on the handle while boiler is under pressure. Water should flow when this is done and should shut off completely when the handle is released. Some boilers have two of these devices.

⚠CAUTION

The discharge from these valves is under pressure and is at high temperatures. Exercise caution to avoid personal injury or injury to others.

6.5.8. **OBSERVE** the operating controls. Operating controls start, stop and modulate some burners (if desired) in response to the systems demand, keeping water temperature at or below controller setting.

6.5.9. **TEST** limit controls: high limit, air switch, etc.

6.5.10. **TEST** flame detection devices on boilers with flames scanners. Remove the flame scanner with the burner firing. The burner should shut off as a flame failure condition. Clean the flame scanner, reinstall and reset programmer. Check for proper operation as boiler goes through a firing cycle and light off.

Electricians perform steps 6.6.1 thru 6.6.4

⚠WARNING

Electrical, contact with energized electrical system

Class 1.3b, mode 1

480v

PPE: AR long-sleeve shirt and pants, or AR coverall; AR face shield and AR balaclava, or AR flash suit hood; AR jacket, parka, rainwear, or hard hat liner (AN); Hard hat, safety glasses or safety goggles, hearing protection, and heavy duty leather gloves, or AR gloves, or dielectric gloves with leather protectors.
Reference Facility Electrical Hazard Analysis Record form 2193

NOTE:

LOTO devices shall be applied in accordance with requirements of P101-3, Lockout/Tagout for Hazardous Energy Control

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
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Work Document #: (WO #/Task)			Planner/Preparer (Name/Z#/Date) Abe Peralta Z# 319585 DATE: 4/26/2021
TA: 55	Building: 0006	Room: 103	Additional Location Description:

6.6. **PLACE** B602 & B603 in the OFF position at Boiler Control Panel. Work on only one Boiler at a time.

6.6.1. **PLACE** MCC compartment in the OFF position located in rm. 101 and apply LOTO. When de-energizing B602 place MCC-603D-B1L in the OFF position and apply LOTO. When de-energizing B603 place MCC-603C-A2R in the OFF position and apply LOTO.

Non melting long sleeve shirt and pants, safety glasses with side shields, hearing protection and leather gloves.

⚠WARNING

Electrical, contact with energized electrical system

Class 1.3b, mode 1

480v

PPE: AR long-sleeve shirt and pants, or AR coverall; AR face shield and AR balaclava, or AR flash suit hood; AR jacket, parka, rainwear, or hard hat liner (AN); Hard hat, safety glasses or safety goggles, hearing protection, and heavy duty leather gloves, or AR gloves, or dielectric gloves with leather protectors.

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 T5-1000

File #. 103573 Cal. Due Date: 3/10/2022

6.6.2. **VERIFY** "0" Voltage at line side of disconnect

- B602: DISC-602-1
- B603: DISC-603-1

#6870 16.01

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			Activity/Task Title: 550006 (6M) HOT WATER BOILER MAINTENANCE
Work Document #: (WO #/Task)			Planner/Preparer (Name/Z#/Date) Abe Peralta Z# 319585 DATE: 4/26/2021
TA: 55	Building: 0006	Room: 103	Additional Location Description:

6.6.3. **CHECK** all electrical controls and circuitry. Careful inspection may disclose any of the following items: cracked insulators (probe type), jumpered conditions, loose connections, poor or deteriorated wiring and contact points of foreign matter, improperly used bypass switches, cut-off switches wired in parallel, shutoffs installed at improper levels. Document any issues on the work document.

6.6.4. **REMOVE** red locks, tags and LOTO devices. Place boiler circuit in the ON position.

- B602: MCC-603D-B1L
- B603: MCC-603C-A2R

6.6.5. **PLACE** Boiler back in service to complete preventive maintenance.

6.6.6. **OBSERVE** condition of expansion tank. A waterlogged expansion tank will cause the safety relief valve. On a heating boiler, to relieve every time that it fires, this causes the introduction of makeup water, causing a dilution of the water chemistry in a treated system. Drain expansion tank if it is of a non-bladder type and refill to re-establish an air cushion. Check the air pressure on bladder-type expansion tanks.

6.6.7. **OBSERVE** operation of circulating pumps. Lubricate pump motors if they are of the type that needs lubrication.

6.6.8. **OBSERVE** operation on forced draft fan motors on boilers with power burners and induced draft fan motors on horizontal breeching where applicable. Lubricate fan motors if they are of the type that needs lubrication.

6.6.9. **CHECK** pressure- reducing valve. Replace the strainer in the valve if needed.

⚠ CAUTION

USE CAUTION FOR HOT SURFACES AND SHARP EDGES

(wear leather gloves as needed)

6.6.10. **CHECK** condition of heating surfaces. (Example: leaking handhole covers, hot spots, etc.)

6.6.11. **CHECK** combustion air supply openings to ensure that they are not closed or stopped up.

6.6.12. **INSPECT** condition of stacks and rain caps.

6.6.13. **ENSURE** that the boiler is operating within normal parameters prior to leaving the area.

#687016,01

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 550006 (6M) HOT WATER BOILER MAINTENANCE
Work Document #: (WO #/Task)			**Planner/Preparer (Name/Z#/Date)** Abe Peralta Z# 319585 DATE: 4/26/2021
TA: 55	**Building:** 0006	**Room:** 103	**Additional Location Description:**

7. POST WORK ACTIVITIES

7.1. **CLEAN-UP** work area.

7.2. **REMOVE** barricades from work area.

7.3. **CONTACT** Ruben Trujillo @ 665-6378 or 664-4242 (pager), for guidance on waste disposal. **DISPOSE** of waste per their guidance.

8. CLOSEOUT

8.1. **CONTACT** the MC and inform them the work is completed.
- Maintenance Coordinator: David Leyba: 665-6812 or 664-7634
  - Alternate MC: Leroy Brazfield: 667-3266 or 664-4559

8.2. **COMPLETE** all the required documentation.

#687016,01

Los Alamos

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision #:			**Activity/Task Title:** 550006 (6M) HOT WATER BOILER MAINTENANCE
Work Document #: (WO #/Task)			**Planner/Preparer (Name/Z#/Date)** Abe Peralta Z# 319585 DATE: 4/26/2021
TA: 55	**Building:** 0006	**Room:** 103	**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 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** 112737 5-6-21 **FOD or Representative** (Signature/Z#/Date) NA A Peralta 319585 5/4/2021 **ESO Review** (Signature/Z#/Date) **If Required** Per attached E-mail A/P 5/3/2021 **Safety Review** (Signature/Z#/Date) **Required** Per attached Form A/P 5/4/2021
IWD Type ☒ Moderate-Hazard ☐ High-Hazard/Complex ☐ Standing IWD	Date when RLM re-approval is required 5-31-22 Other Conditions for Re-Approval: SCOPE OF WORK OR HAZARDS CHANGE (Print) Name of Primary PIC Mario Ulibarri Z# 204536 Name of Alternate PIC Davi Griego Z# 321332 Name of Alternate PIC Donald Schmitt Z# 350663 Name of Alternate PIC Glenn Morris Z# 341154 Name of Alternate PIC Jesse Sanchez Z# 118246 Name of Alternate PIC Abraham Lucero Z# 117122 Name of Alternate PIC Patricia Griego Z# 117137 Name of Alternate PIC Scott Gould Z# 326975 Name of Alternate PIC Victor Mitchell Z# 203921 Name of Alternate PIC Ryan Campbell Z# 319242 Name of Alternate PIC Arthur Trujillo Z# 114452	Unclassified Any required classification review completed, 5-4-21 Signature/Date

#687016,01

Peralta, Abe Joseph II

From: Martinez, Eleazar Carlos
Sent: Monday, May 3, 2021 12:18 PM
To: Peralta, Abe Joseph II
Subject: RE: ESO REVIEW FOR 550006 (6M) HOT WATER BOILER MAINTENANCE (2EA) MODEL# 413775-05

Abe,

I have reviewed 550006 (6M) HOT WATER BOILER MAINTENANCE (2E) MODEL # 413775-05 from an ESO perspective and I am good with the PM as is. Let me know if you have any other questions.

Thank you,

Eleazar Martinez
Electrical Systems Engineer
ES-55
Office: 505.606.0885
Pager: 505.664.8131

From: Peralta, Abe Joseph II <aperalta@lanl.gov>
Sent: Monday, May 3, 2021 6:57 AM
To: Martinez, Eleazar Carlos <eleazar@lanl.gov>
Subject: RE: ESO REVIEW FOR 550006 (6M) HOT WATER BOILER MAINTENANCE (2EA) MODEL# 413775-05

Eleazar, Here is the two corrections that you ask for. Thank you for everything.
Abe

From: Martinez, Eleazar Carlos <eleazar@lanl.gov>
Sent: Friday, April 30, 2021 10:41 AM
To: Peralta, Abe Joseph II <aperalta@lanl.gov>
Subject: RE: ESO REVIEW FOR 550006 (6M) HOT WATER BOILER MAINTENANCE (2EA) MODEL# 413775-05

Abe,

See my few comments on the IWD. Get back to me for signatures. Also attached is a new 2193. The other one was on and outdated form.

Thank you

Eleazar Martinez
Electrical Systems Engineer
ES-55
Office: 505.606.0885
Pager: 505.664.8131

From: Peralta, Abe Joseph II <aperalta@lanl.gov>
Sent: Wednesday, April 28, 2021 9:20 AM
To: Martinez, Eleazar Carlos <eleazar@lanl.gov>
Cc: Martinez, Mayo S <mayos@lanl.gov>; Ferran, Donna M <donnaf@lanl.gov>; Nowakowski, Martin Anthony <manow@lanl.gov>; wwc55@lanl.gov
Subject: ESO REVIEW FOR 550006 (6M) HOT WATER BOILER MAINTENANCE (2EA) MODEL# 413775-05

Eleazar,

Can you please review this PM. When you approve would you please include an email, referencing the work order # and title to include in package in place of your signature. (until we eventually get your signature)

Thank you,
Abe Peralta
505-695-5684
606-1857

Industrial Hygiene and Safety Review (DESH-55/CMR)

Document Title: 550006 (6M) HOT WATER BOILER MAINTENANCE			
Document Number: 431775-05	**Revision or Issue Date:**		
Document Point of Contact: Abe Peralta			
Section 1: Activity/Document Screening		**Y**	**N**
1. Is the job classified as high hazard?			✓
2. Are multiple organizations involved?			✓
3. Is an IH/S designated posting required?			✓
4. Is work taking place in a Permit Required Confined Space?			✓
5. Is medical monitoring, sampling, or any type of IH/S monitoring required?		✓	
6. Is IH/S requiring respiratory protection?			✓
Continue with remainder of form 1) if any "yes" answers above, or 2) at reviewer's discretion.			
Section 2: Hazard Review		**Y**	**N**
1. The Hazard Assessment has been completed and documented per P300?		✓	
2. The appropriate IH/S Subject Matter Experts have been engaged per identified hazards?		✓	
3. Is an IH/S designated posting required?			✓
Section 3: Activity Review	**NA**	**Y**	**N**
1. Is required IH/S sampling specifically identified?	✓		
2. Are all required permits specifically identified?	✓		
3. Are all posting requirements specifically identified?	✓		
4. Are release conditions specifically identified for the required postings?	✓		
5. Are all medical monitoring requirements identified?		✓	
6. Is required PPE specifically identified? (E.g., fire resistant clothing for sparking)		✓	
7. Are administrative & engineering controls identified and when to be used? (E.g., LEV during torch cutting or welding)		✓	
8. Are IH/S requirements for sequential tasks specifically identified? (E.g, when outer PPE layer(s) must be removed period to leaving an enclosure)	✓		
9. Is a single PIC identified prior to work when multiple organizations are involved?	✓		
10. Will controls introduce new hazards or exacerbate existing conditions? (E.g., heat stress) If yes, have those hazards been addressed?	✓		
11. Have co-located personnel been identified and hazard communication indicated?		✓	
12. Are hazards from co-located activities anticipated and addressed?		✓	
13. Are hold points added when authorization to proceed is necessary? (E.g., additional or different controls to be determined pending sampling results)	✓		

Section 4: Issues and Comments

Complete this section for comments or any "no" questions in sections 2 and 3. Attach another sheet if needed.

Question	Issue/Comment
	IHS review scope: work package IWD, maintenance data sheet
1.5	"Yes" due to Hearing Conservation Program enrollment for work in high noise areas

Approval/Signature (IH/S Use Only) *(Signature indicates issues/comments are satisfactorily resolved; IWD is approved.)*

Rob Bement Digitally signed by Rob Bement
Date: 2021.05.04 10:45:38 -06'00'

Cy: Planner **Abe Peralta**
Document Requester **Abe Peralta**

Attachment A, FOD-1 Nuclear Facilities QEV Evaluation Request Form

(Page 1 of 1)

Review/Evaluation Request Form

GENERAL DOCUMENT DETAILS *(To be completed by requester)*

USQ Review/Evaluation is requested for the following facilities (*check all that apply*)

☒ TA-55 ☐ CMR ☐ RLWTF ☐ TWF ☐ RANT ☐ WCRRF

Doc ID# of the Document(s) to be evaluated:	**Revision:** (*if applicable*)	**Date of Request:**
MODEL PM WO / IWD #431775-05	N/A	04/28/2021
Doc Title(s) of the Document(s) to be evaluated:		**Requested Return Date:**
550006 (6M) HOT WATER BOILER MAINTENANCE (2EA)		5/11/2021

Document Type(s) to be evaluated:

☐ **Design Change (DCF, FCN, FCR, DRN, TMC, etc.) or legacy change, DCP, ECN, etc.**

☐ **Other (SCR, NCR, etc.)** *(Specify)*: _____

☐ **WO/IWD* and DCF****

☒ **WO/IWD* without DCF (below information also required):**

Associated Design Doc # previously evaluated through the USQ process and its USQ Evaluation #:

Design Doc ID#: _____ **Evaluation #:** _____

***For questions on WO/IWD, contact** *(Name/Phone)*: Abe Peralta 606-1857 *(Planner)*

****For questions on DESIGN, contact** *(Name/Phone)*: _____ *(PE or RE)*

Description of Requested Action/Change:

Model PM. Each time this activity is performed a new WO/IWD # will be generated but the model # and procedural task will remain the same

Requester Name/Z#:	**Email:**	**Phone:**
David Leyba Z# 118210	djleyba@lanl.gov	665-6812
Additional Name/Z# *(include when necessary)*:	**Email:**	**Phone:**
Leroy Brazfield Z# 201548	leroyb@lanl.gov	667-3266

Functional Organization Area: *(Specify content owning organization)*	☒ Facility TA-55 ☐ Organization _____
Subject Matter Expert (SME):	Contact info:

QEV REVIEW OR USQ EVALUATION *(To be completed by USQ QEV)*

Review/Evaluation Tracking Number	**Print Name/Z#**	**Signature**	**Date**

Cite the reason if the change did not require review per SBP-112-3 (current revision):

No USQ required per POD Memo 20-071. 6/4/21

687016

ATTACHMENT A: SEMI- ANNUAL MAINTENANCE DATA SHEET FOR HOT WATER BOILER

TA	55	ROOM	103	DATE	6/16/21
BLDG	PF 6	EQUIP. ID	B-602		

STEP	DESCRIPTION	S	U	N/A	COMMENTS AND DEFICIENCIES
1.0	***Pre-Maintenance***				
	NOTE: **Preoperational and pre-maintenance activities shall be conducted per the work order package, e.g.: lock out/tag out, permits, special instructions, etc.**				
	NOTE: **All repair work, adjustments, or the replacement of parts shall be done in accordance with the manufacturer's procedures, specifications, recommendations and instructions**				
1.1	Notify area Operations Center that work will be in progress on the boiler system.	✓			
2.0	***Maintenance***				
2.1	Observe temperature and operating pressure and general conditions. Fire and cycle boiler. The burner should start smoothly without unusual noises.	✓			
2.2	Visually inspect combustion. 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.	✓			
2.3	Check gas/air linkages, on power burners that modulate, for positioning, tightness and binding. Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners. Adjust air/fuel mixture as needed.	✓			
2.4	Determine the cause of any unusual noises or conditions and correct as necessary. Report any needed corrections to the Facility Coordinator for corrective maintenance.	✓			
2.5	Inspect fuel supply system and gas controls. Leak check gas controls and associated gas piping with a gas detector or soapsuds. Verify gas pressure at utility regulator is the same pressure at the boiler. To ensure the natural gas piping does not contain any restriction or blockage.	✓			
2.6	Test float-operated low water fuel cut-off (LWC) by pressing the '*Manual Reset Low Water*' button (hold button down for approximately 8 seconds). This will simulate a low water condition by turning off the boiler.	✓			

STEP	DESCRIPTION	S	U	N/A	COMMENTS AND DEFICIENCIES
	NOTE: **On hot water heating boilers it may be necessary to trip the float assembly linkage manually, after blowing down the LWC, to make the mercury switch trip. This is done because a hot water boiler is full of water and will not always trip the mercury switch in the LWC, like a steam boiler will, when the LWC is blown down. Remove the cover on top of the LWC to access the float assembly linkage. It is crucial that the burner shuts off immediately after this test.**				
2.7	Test safety relief valve (Try Lever Test). Manually open the valve by lifting up on the handle while boiler is under pressure. Water should flow when this is done and should shut off completely when the handle is released. Some boilers have two of these devices.	✓			
	⚠ CAUTION **The discharge from these valves is under pressure and is at high temperatures. Exercise caution to avoid personal injury or injury to others.**				
2.8	Observe the operation of operating control. Operating controls start, stop and modulate some burners (if desired) in response to the systems demand, keeping water temperature at or below controller setting.	✓			
2.9	Test limit controls: high limit, air switch, etc.	✓			
2.10	Test flame detection devices on boilers with flame scanners. Remove the flame scanner with the burner firing. The burner should shut off as a flame failure condition. Clean the flame scanner, reinstall and reset programmer. Check for proper operation as boiler goes through a firing cycle and light off.	✓			
2.11	Check all electrical controls and circuitry. Careful inspection may disclose any of the following items: cracked mercury tubes, separation of mercury, cracked insulators (probe type), jumpered conditions, loose connections, poor or deteriorated wiring and contact points of foreign matter, improperly used bypass switches, cut-off switches wired in parallel, shutoffs installed at improper levels, wedges behind mercury tubes.	✓			Checked all terminations make sure they were all Properly tighten. Insulation looked. No issues while Performing PM. Everything looked good
2.12	Observe condition of expansion tank. A waterlogged expansion tank will cause the safety relief valve, on a hot water heating boiler, to relieve every time that it fires. This causes the introduction of makeup water, causing a dilution of the water chemistry in a treated system. Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion. Check the air pressure on bladder-type expansion tanks.	✓			DID NOT DRAIN EXPANSION TANK

STEP	DESCRIPTION	S	U	N/A	COMMENTS AND DEFICIENCIES
2.13	Observe operation of circulating pumps. Lubricate pump motors if they are of the type that needs lubrication.	✓			
2.14	Observe operation of forced draft fan motors on boilers with power burners and induced draft fan motors on horizontal breeching where applicable. Lubricate fan motors if they are of the type that needs lubrication.	✓			
2.15	Check pressure-reducing valve. Replace the strainer in the valve if needed.	✓			
2.16	Check condition of heating surfaces. (Example: leaking handhole covers, hot spots, etc.)	✓			
2.17	Check combustion air supply openings to ensure that they are not closed or stopped up.	✓			
2.18	Inspect condition of stacks and rain caps.	✓			
2.19	Ensure that the boiler is operating within normal parameters prior to leaving the area.	✓			
3.0	***Post Maintenance***				
3.1	Record all mechanical maintenance data, testing data and other notable items.	✓			

NOTE:

Post maintenance activities shall be conducted in accordance the work order package instructions, e.g. lock out/tag out, special 2101instructions, etc.

REMARKS: NONE

Approved by CSE 2/28/2013

ATTACHMENT A: SEMI- ANNUAL MAINTENANCE DATA SHEET FOR HOT WATER BOILER

687016.01

TA	55	ROOM	103	DATE	6/16/21
BLDG	PF6	EQUIP. ID	B-603		

STEP	DESCRIPTION	S	U	N/A	COMMENTS AND DEFICIENCIES
1.0	***Pre-Maintenance***				
	NOTE: **Preoperational and pre-maintenance activities shall be conducted per the work order package, e.g.: lock out/tag out, permits, special instructions, etc.**				
	NOTE: **All repair work, adjustments, or the replacement of parts shall be done in accordance with the manufacturer's procedures, specifications, recommendations and instructions**				
1.1	Notify area Operations Center that work will be in progress on the boiler system.	✓			
2.0	***Maintenance***				
2.1	Observe temperature and operating pressure and general conditions. Fire and cycle boiler. The burner should start smoothly without unusual noises.	✓			
2.2	Visually inspect combustion. 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.	✓			
2.3	Check gas/air linkages, on power burners that modulate, for positioning, tightness and binding. Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners. Adjust air/fuel mixture as needed.	✓			
2.4	Determine the cause of any unusual noises or conditions and correct as necessary. Report any needed corrections to the Facility Coordinator for corrective maintenance.	✓			
2.5	Inspect fuel supply system and gas controls. Leak check gas controls and associated gas piping with a gas detector or soapsuds. Verify gas pressure at utility regulator is the same pressure at the boiler. To ensure the natural gas piping does not contain any restriction or blockage.	✓			
2.6	Test float-operated low water fuel cut-off (LWC) by pressing the '*Manual Reset Low Water*' button (hold button down for approximately 8 seconds). This will simulate a low water condition by turning off the boiler.	✓			

#687916.01

STEP	DESCRIPTION	S	U	N/A	COMMENTS AND DEFICIENCIES
	NOTE: **On hot water heating boilers it may be necessary to trip the float assembly linkage manually, after blowing down the LWC, to make the mercury switch trip. This is done because a hot water boiler is full of water and will not always trip the mercury switch in the LWC, like a steam boiler will, when the LWC is blown down. Remove the cover on top of the LWC to access the float assembly linkage. It is crucial that the burner shuts off immediately after this test.**				
2.7	Test safety relief valve (Try Lever Test). Manually open the valve by lifting up on the handle while boiler is under pressure. Water should flow when this is done and should shut off completely when the handle is released. Some boilers have two of these devices.	✓			
	⚠ CAUTION **The discharge from these valves is under pressure and is at high temperatures. Exercise caution to avoid personal injury or injury to others.**				
2.8	Observe the operation of operating control. Operating controls start, stop and modulate some burners (if desired) in response to the systems demand, keeping water temperature at or below controller setting.	✓			
2.9	Test limit controls: high limit, air switch, etc.	✓			
2.10	Test flame detection devices on boilers with flame scanners. Remove the flame scanner with the burner firing. The burner should shut off as a flame failure condition. Clean the flame scanner, reinstall and reset programmer. Check for proper operation as boiler goes through a firing cycle and light off.	✓			
2.11	Check all electrical controls and circuitry. Careful inspection may disclose any of the following items: cracked mercury tubes, separation of mercury, cracked insulators (probe type), jumpered conditions, loose connections, poor or deteriorated wiring and contact points of foreign matter, improperly used bypass switches, cut-off switches wired in parallel, shutoffs installed at improper levels, wedges behind mercury tubes.	✓			Checked all terminations on boiler circuitry and controls. Checked for insulation issues and tightened connections as needed. No issues while performing PM. Changed out sensor above boiler. Everything looked satisfactory.
2.12	Observe condition of expansion tank. A waterlogged expansion tank will cause the safety relief valve, on a hot water heating boiler, to relieve every time that it fires. This causes the introduction of makeup water, causing a dilution of the water chemistry in a treated system. Drain expansion tank if it is of a non-bladder type and refill to reestablish an air cushion. Check the air pressure on bladder-type expansion tanks.	✓			DID NOT DRAIN EXPANSION TANK

#687016.01

STEP	DESCRIPTION	S	U	N/A	COMMENTS AND DEFICIENCIES
2.13	Observe operation of circulating pumps. Lubricate pump motors if they are of the type that needs lubrication.	✓			
2.14	Observe operation of forced draft fan motors on boilers with power burners and induced draft fan motors on horizontal breeching where applicable. Lubricate fan motors if they are of the type that needs lubrication.	✓			
2.15	Check pressure-reducing valve. Replace the strainer in the valve if needed.	✓			
2.16	Check condition of heating surfaces. (Example: leaking handhole covers, hot spots, etc.)	✓			
2.17	Check combustion air supply openings to ensure that they are not closed or stopped up.	✓			
2.18	Inspect condition of stacks and rain caps.	✓			
2.19	Ensure that the boiler is operating within normal parameters prior to leaving the area.	✓			
3.0	***Post Maintenance***				
3.1	Record all mechanical maintenance data, testing data and other notable items.	✓			

NOTE:

Post maintenance activities shall be conducted in accordance the work order package instructions, e.g. lock out/tag out, special 2101instructions, etc.

REMARKS: NONE

Approved by CSE 2/28/2013

Form 2193

Los Alamos NATIONAL LABORATORY EST. 1943

C 6701601

Facility Electrical Hazard Analysis Record

1. Description of circuit/equipment/job location: MCC-603D-B1/L & MCC-603D-A2/R	TA 55	Building 0006	Room(s)
Equipment ID(s): B-602 & B-603			
IWD Number:	Job Ticket Number:		

2. Brief description of work to be done (*attach additional pages as needed*):
Annual preventive maintenance of the Hot Water Boilers

3. Electrical Hazard Class(es)/Mode(s) (*Per Chapter 4 of P101-13*):
Class 1.3b mode 1

4. Results of the Shock Hazard Analysis:
480V

5. Determination of Shock Protection Boundaries and/or the RFMW environments:
(a) Limited Approach Boundary: 3 ft- 6 in.
(b) Restricted Approach Boundary: 1 ft- 0 in.
(c) Prohibited Approach Boundary: 0 ft- 1 in.

6. Determination of Flash Protection Boundary: 2 ft- 8 in.; Based on IEEE Std 1584, NFPA 70E.

7. Flash Hazard Analysis results:
480 volts, 25.83 kA bolted fault current available, .06 sec clearing time. For the work to be performed under the IWD, indicate the worst-case calculated incident energy: 3 cal/cm^2.

8. Personal Protective Equipment (PPE) required to safely perform the work steps described above:

☑ Leather Safety Shoes	☐ Pants (long)	☐ Goggle and Face Shield*
☐ Hard hat	☑ FR long-sleeve shirt, 4 cal/cm^2	☐ Chemical-Resistant Gloves*
☑ V-rated Gloves	☑ FR pants, 4 cal/cm^2	☐ Protective Apron*
☑ Safety Glasses	☐ Flash suit jacket, 40 cal/cm^2	☐ Protective Overshoes*
☑ Leather Gloves	☐ Flash suit pants, 40 cal/cm^2	☐ Emergency Shower/Eyewash*
☐ V-rated tools	☐ Arc-rated face shield	☐ _____
☐ T-shirt (short-sleeve)	☐ Flash suit hood	☐ _____
☐ Shirt (long-sleeve)	☑ Hearing protection	☐ _____

Based on IEEE Std 1584, NFPA 70E or Hazard Classification Chapter of P101-13.
*For chemical hazards associated with batteries; refer to NFPA 70E Article 320.

9. Means to restrict the access of unqualified persons to the work area:
Barricades / Shock Hazards

10. Job-related hazards, PPE, emergency procedures, special tools, etc., to be discussed at the Pre-Job Briefing:
Standard Industrial

Worker, preparer, planner, or other filling out this form.

Organization MSS-WC	Phone 665-2822	Mail Stop
Printed Name Martin Nowakowski	Signature	Date

Qualified engineer providing Flash Hazard Analysis when performed.

Organization ES-55	Phone 6-0885	Mail Stop
Printed Name Eleazar Martinez	Signature	Date 7/25/13

Electrical Safety Officer

Organization ES-5	Phone 6-0885	Mail Stop
Printed Name Eleazar Martinez	Signature	Date 7/25/13

NOTE: Use these buttons to print or save the form. DO NOT use the browser tool bar.

Los Alamos NATIONAL LABORATORY EST.1943

Form 2244

Lockout/Tagout (LO/TO) Orders

Section 1: General Information

Work Document Number (e.g., Package/Procedure #): 686982-01 / 687016-01	LO/TO Remedy ID: 106292
Location of Equipment to be Isolated: TA: 55 Bldg: PF-6 Rm/Other: 103	Description of Machinery, System & Equipment (MS&E) to be worked on: B-602
MS&E Owner/Operator: David Leyba Z Number: 118210 Phone: 5-6812	
Shutdown to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No	Re-energize/restart to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No
Reason for LO/TO: (A) FIRESIDE / WATERSIDE	
Group LO/TO (2 or more)? ☒ Yes ☐ No *If yes, a lead authorized worker must be appointed.*	Group lock box used? ☒ Yes ☐ No Lock box # TA55-005
Shift or Personnel Changes? ☐ Yes ☒ No *If yes, a description of how the continuity of LO/TO protection will be ensured must be referenced or attached to this form. (See Section 3.9.6 of P101-3 for details.)*	☐ Continuity of LO/TO protection details described in operating procedure, work instruction, or other work control document. Document Number:

Section 2: Energy Control Procedure

1. Plan the work.
2. Identify and assess hazardous energy.
3. Contact the MS&E owner/operator.
4. Obtain locks and tags from lock coordinator.
5. Notify affected workers.
6. Shutdown MS&E according to **Section 3: Shutdown Sequence**.
7. Isolate and lock out MS&E from energy source, relieve stored energy, and perform verification of isolation according to **Section 4: LO/TO Sequence**.
8. Perform the work.
9. Release MS&E from LO/TO according to **Section 5: Release MS&E from Lockout/Tagout Sequence**.

Section 3: Shutdown Sequence

☒ Perform shutdown according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number: 686982-01 / 687016-01

☐ **N/A**; MS&E to be worked on will be isolated according to **Section 4: LO/TO Sequence** (e.g., cannot be shut down)
Detail the process to normally shut down the MS&E below, if not following other document referenced above or N/A.

Step No.	Action/Description	Step No.	Action/Description
☐ 1		☐ 6	
☐ 2		☐ 7	
☐ 3		☐ 8	
☐ 4		☐ 9	
☐ 5		☐ 10	

Section 4: LO/TO Sequence

☒ Perform LO/TO sequence according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:
Describe how to effectively isolate & lockout the MS&E below, if not following other document referenced above.

Isolate & Lockout (Step No.)	Equipment Descriptor (What is being locked out? e.g., machine drive motor, input power to MCC)	Energy Source (e.g., electrical, mechanical, pneumatic, hydraulic, chemical, thermal)	Energy Isolation Device (e.g., specific ID, description, circuit #, lock box #)	Location of Energy Isolation Device (e.g., room number, north wall, south wall)	Required LO/TO Position or Alignment (e.g., off, open, closed, on)	Verification Method (e.g., live/dead/live, crack open, on-off-on-off, peer checking, independent verification)	Verifier's Initials (if req'd)	See Section 5: Release (Step No.)
☐ (1)	B-602	MECHANICAL	NG-B602-V-1	TASS-PF6 RM 103	CLOSED	PEER	RM	☐
☐ (2)	B-602	MECHANICAL	NG-B602/B603-V-1	TASS-PF6 RM 103	CLOSED	PEER	RM	☐
☐ (3)	B-602	MECHANICAL	CCHW-B602-V2	TASS-PF6 RM 103	CLOSED	PEER	RM	☐
☐ (4)	B-602	MECHANICAL	CCHW-B602-V1	TASS PF6 RM 103	CLOSED	PEER	RM	☐
☐ (5)	B-602	ELECTRICAL	MCC-603A COMPT. B1L	TASS PF6 RM 101	OFF	LIVE/DEAD/LIVE	RM	☐
☐ (6)	B-602/B-603	MECHANICAL ELECTRICAL	LOCKBOX # TASS-005	TASS PF6 RM 103	LOCKED	PEER	RM	☐
☐ (7)								☐
☐ (8)								☐

Section 5: Release MS&E from Lockout/Tagout Sequence

1. Check the MS&E and immediate area for items that could result in damage or danger on start-up.
2. Check the work area to ensure that all workers have been safely positioned or removed from the work area.
3. Verify that the controls are in neutral or "off" position.
4. Notify the owner/operator and affected workers that work is complete and MS&E is ready to release from LO/TO.
5. Remove the LO/TO device, and re-energize (if appropriate according to MS&E owner/operator) according to the sequence as identified above under Release in **Section 4: LO/TO Sequence** or according to operating procedure, work instruction, or other work control document identified in **Section 4**.
6. Return lock and locking device to Lock Coordinator.

Energy Control Procedure prepared by:

Preparer (print name)	Z Number	Organization	Phone	Signature/Date
TIMOTHY FANGIO	282917	LOG-CS	4-7292	6/14/2021

By signing below, you acknowledge that this energy control procedure and/or referenced documents identify the isolation devices, isolation points, and methods necessary to prevent any unexpected release of hazardous energy.

Energy Control Procedure approved by:

MS&E Owner/Operator (print name)	Z Number	Organization	Phone	Signature/Date
David Leyba	118210	MSSTA55	5-6812	6-14-21

Section 6: All Authorized Workers (anyone applying a lock for this activity)

Fill out the following information or print and attach Authorized Workers information from the Lockout/Tagout Remedy Application.

Authorized Workers Name(s)	Z Number	Date Lock Applied	Date Lock Removed
Lead: TIMOTHY FANGID	282917	6-14-21	6-28-21
RAYMOND MARTINEZ	334659	6-14-21	6-28-21
NORMA RAMOS	291737	6-14-21	6-24-21
DUANE SCHROCK	344099	6-14-21	6-24-21
GALVIN FRAGUA	319584	6-14-21	6-24-21
DAVIANA ORTIZ	354564	6-22-21	6-24-21

00689820

NOTE: Use these buttons to print or save the form. DO NOT use the browser tool bar.

Los Alamos NATIONAL LABORATORY EST. 1943

Form 2244

Lockout/Tagout (LO/TO) Orders

Section 1: General Information

Work Document Number (e.g., Package/Procedure #): 868982-01	LO/TO Remedy ID: 106272
Location of Equipment to be Isolated: 687016-01 TA: 55 Bldg: PF6 Rm/Other: 103	Description of Machinery, System & Equipment (MS&E) to be worked on: B-603
MS&E Owner/Operator: David Leyba Z Number: 118210	Phone: 5-6812
Shutdown to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No	Re-energize/restart to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No
Reason for LO/TO: (A) FIRESIDE / WATERSIDE	
Group LO/TO (2 or more)? ☒ Yes ☐ No *If yes, a lead authorized worker must be appointed.*	Group lock box used? ☒ Yes ☐ No LockBox# TA55-005
Shift or Personnel Changes? ☐ Yes ☒ No *If yes, a description of how the continuity of LO/TO protection will be ensured must be referenced or attached to this form. (See Section 3.9.6 of P101-3 for details.)*	☐ Continuity of LO/TO protection details described in operating procedure, work instruction, or other work control document. Document Number:

Section 2: Energy Control Procedure

1. Plan the work.
2. Identify and assess hazardous energy.
3. Contact the MS&E owner/operator.
4. Obtain locks and tags from lock coordinator.
5. Notify affected workers.
6. Shutdown MS&E according to **Section 3: Shutdown Sequence**.
7. Isolate and lock out MS&E from energy source, relieve stored energy, and perform verification of isolation according to **Section 4: LO/TO Sequence**.
8. Perform the work.
9. Release MS&E from LO/TO according to **Section 5: Release MS&E from Lockout/Tagout Sequence**.

Section 3: Shutdown Sequence

☒ Perform shutdown according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number: 868982-01 / 687016-01

☐ **N/A**; MS&E to be worked on will be isolated according to **Section 4: LO/TO Sequence** (e.g., cannot be shut down)
Detail the process to normally shut down the MS&E below, if not following other document referenced above or N/A.

Step No.	Action/Description	Step No.	Action/Description
☐ 1		☐ 6	
☐ 2		☐ 7	
☐ 3		☐ 8	
☐ 4		☐ 9	
☐ 5		☐ 10	

Section 4: LO/TO Sequence

☒ Perform LO/TO sequence according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:
Describe how to effectively isolate & lockout the MS&E below, if not following other document referenced above.

Isolate & Lockout (Step No.)	Equipment Descriptor (What is being locked out? e.g., machine drive motor, input power to MCC)	Energy Source (e.g., electrical, mechanical, pneumatic, hydraulic, chemical, thermal)	Energy Isolation Device (e.g., specific ID, description, circuit #, lock box #)	Location of Energy Isolation Device (e.g., room number, north wall, south wall)	Required LO/TO Position or Alignment (e.g., off, open, closed, on)	Verification Method (e.g., live/dead/live, crack open, on-off-on-off, peer checking, independent verification)	Verifier's Initials (if req'd)	See Section 5: Release (Step No.)
☐ (1)	B-603	MECHANICAL	NG-B603-V1	TA55-PF6 RM 103	CLOSED	PEER	RM	☐
☐ (2)	B-603	MECHANICAL	NG-B604/B603-V1	TA55-PF6 RM 103	CLOSED	PEER	RM	☐
☐ (3)	B-603	MECHANICAL	CCHW-B603-V1	TA55-PF6 RM 103	CLOSED	PEER	RM	☐
☐ (4)	B-603	MECHANICAL	CCHW-B603-V2	TA55-PF6 RM 103	CLOSED	PEER	RM	☐
☐ (5)	B-603	ELECTRICAL	MCC-603C COMPT A2R	TA55 PF6 RM 101	OFF	LIVE/DEAD/LIVE	RM	☐
☐ (6)	B-602/B-603	MECHANICAL ELECTRICAL	LOCKBOX# TA55-005	TA55 PF6 RM 103	LOCKED	PEER	RM	☐
☐ (7)								☐
☐ (8)								☐

Section 5: Release MS&E from Lockout/Tagout Sequence

1. Check the MS&E and immediate area for items that could result in damage or danger on start-up.
2. Check the work area to ensure that all workers have been safely positioned or removed from the work area.
3. Verify that the controls are in neutral or "off" position.
4. Notify the owner/operator and affected workers that work is complete and MS&E is ready to release from LO/TO.
5. Remove the LO/TO device, and re-energize (if appropriate according to MS&E owner/operator) according to the sequence as identified above under Release in **Section 4: LO/TO Sequence** or according to operating procedure, work instruction, or other work control document identified in **Section 4.**
6. Return lock and locking device to Lock Coordinator.

Energy Control Procedure prepared by:

Preparer (print name)	Z Number	Organization	Phone	Signature/Date
TIMOTHY FANGIO	282917	LOG-CS	4-7252	6/14/2021

By signing below, you acknowledge that this energy control procedure and/or referenced documents identify the isolation devices, isolation points, and methods necessary to prevent any unexpected release of hazardous energy.

Energy Control Procedure approved by:

MS&E Owner/Operator (print name)	Z Number	Organization	Phone	Signature/Date
David Leyba	118210	MSSTA55	5-6812	6-14-21

Section 6: All Authorized Workers (anyone applying a lock for this activity)

Fill out the following information or print and attach Authorized Workers information from the Lockout/Tagout Remedy Application.

Authorized Workers Name(s)	Z Number	Date Lock Applied	Date Lock Removed
Lead: TIMOTHY FANGID	282917		6-28-21
RAYMOND MARTINEZ	334654		6-28-21
DORMA RAMOS	291737		6-24-21
DWANE SCARBOCK	344099		6-24-21
GALVIN FRAGUA	319584		6-24-21
DAVIANA ORTIZ	354564		6-24-21

Los Alamos NATIONAL LABORATORY EST. 1943

A-55 Preventive Maintenance Close Out Sheet

Work Order No.: 687016.pkg 687016.pkg

Instructions: Enter the requested information prior to submitting PM package for closeout.

Maintenance Coordinator:

- Is the equipment listed for this PM: ☐ ML1 ☐ ML2 ☐ ML3 ☐ ML4
- If deficiencies were noted, provide the FSR # and WO # created to correct the PM deficiency:

FSR #: NA and WO #: NA

MC Signature/Z# & Date [signature] 118210 6-28-21

System Engineer:

If corrective action is needed, must it be completed prior to next PM performance: ☐ Yes ☐ No

SE Signature/Z# & Date [signature] 188990 8-4-21

Craft/PM Superintendent:

Was Material used from a TA55 Warehouse? ☐ Yes ☑ No

If "Yes," a Material Pick list must be included in the PM work package.

Signature/Z# & Date [signature] 204536 6/28/2021

Verification signatures:

PM Coordinator Signature/Z# & Date [signature] 357128 8/9/21

Work Order/Task: 687016.bkc

Start Date: 6-16-21		Completion Date: 6-22-21
SUMMARIZE THE WORK PERFORMED		
Date	602 START WORK AND PRE JOB BRIEF	
6/22/21	PERFORMED (GM) PM ON B-602/B-603	
	AS PER WORK PACKAGE NO ISSUES.	
FOR CORRECTIVE WORK – WHAT FAILED AND WHAT WAS FIXED		
	Failure Mode Root Cause Code (Circle Root Causes that Apply)	
Failure Mode	Circuit Breaker Tasks	System Restoration Issues
	Digital Component Tasks	Pump Related Tasks
	Doors/Hatches	Procedure Use
	Electrical Determinations	Rigging/Lifting Tasks
	Failed Surveillance	Electrical Switches
	Fastener Tasks	Troubleshooting Issues
	FME Tasks	Valve Related Tasks
	I&C Calibration/Setpoints	Welding
	Mechanical Connections	Work Instruction Issues
	Other (Specify Root Cause)	
Failure Mode Comments	(Add Details) NONE	
	Rework Mode (Circle Rework Causes that Apply)	
Rework	Cause Indeterminate	Life Cycle Management
	Design Deficiency	PM Deficiency
	Intentionally Abbreviated Maintenance	Rule Base Human Performance Deficiency
	Instructional Deficiency	Skill Base Human Performance Deficiency
	Knowledge Based Human Performance Error	Tools/Equipment/Lifts
	Deficiency	Vendor Deficiency
	Operational Deficiency	Work Management Deficiency
		Weather
	Other (Specify Rework Mode)	
Comments	NONE	

FOR PMs – SUMMARIZE AS FOUND AND AS LEFT CONDITIONS BELOW		
	As Found Conditions (Circle Conditions that Apply)	
As found	Unanticipated Failure Failure Not Normal Wear Failure Normal Wear Outside of Tolerance Reliability Degraded	Within Tolerance Satisfactory Superior, Like New Not Applicable
	Other (Specify As Found Condition)	
Comments	NONE	
As left	GOOD WORKING CONDITION	
Parts/Repairs	NONE	
Read/meas.	N/A	
Post test info.	N/A	
Problems Encountered (delays, safety, etc.):	NONE	
	Delay Codes (Circle Codes that Apply)	
Delay	Access Equipment IWD Workability Material	Operations RCT Availability Safety Pause Weather # of Hours_____ Date(s)_____
	Other (Specify Reason for Delay)	
Comments	NONE	
Lessons Learned/Recommendations:		
	NONE	
Name: TIMOTHY FANBIO **Z#** 282917 **Signature:**		**Date:** 6-22-21

PIC/SUPT

☑ PM has been completed in its entirety and ready for closure. Mar Chi 201536 6/28/2021

IF A PM COULD NOT BE COMPLETED:

☐ Percentage complete is _____%

☐ Sections that did not work and need to be rescheduled

_____

Reasons why:

MAINTENANCE COORIDATOR/AREA WORK COORDINATOR

Work Package is Complete and may be closed out: YES ☒ NO ☐ DJC 11/8/21

IF no: State Reason

Additional Work Needed? ☐ YES ☑ NO 6.28.21

Document UP/WO/FSR Number: _____

ENGINEERING (FOR MD and CD Work Orders)

IF a configuration baseline has been changed, THEN indicate the changes are to be incorporated into the following documents and/or configuration baseline:

☐ Drawings	☐ FDD/SDD
☐ Procedures	☐ Master Equipment List
☐ Permits	☐ Checklists

SE Name: Signature: Date:

WORK CONTROL

Moderate/High Hazard – WMC/Planner reviewed for Lessons Learned/Feedback

☑ YES ☐ NO N/A ☐

☑ Review of the completed work package is complete per AP-WORK-005, and the work package is ready to be set to complete in CMMS.

Name:	**Z#**	**Signature:**	**Date:**
Samantha Sanchez	357128	Sm Sanchez	8/9/21

Work Order/Task: _____

Start Date:	Completion Date:
ADITIONAL DETAILS ON WORK PERFORMED	
Date 6/15/21	(Add details on As Found, Failure Mode, and Lessons Learned etc.)
Electrical	Prejob by Mario. Performed electrical P.M on B602. Made sure all terminations were Properly tighten inspected wireand insulation. Everything looked good no issues while Performing Electrical P.M. Galvin Fragua 2#319584 6/15/21
6/15/21	GOT START WORK AND PRE JOB BRIEF PERFORMED (6M) FIRESIDE/WATERSIDE PM ON B-602 AS PER WORK PACKAGE. NO ISSUES. T/Jaime. 282917
6/16/21	GOT START WORK AND PRE JOB BRIEF PERFORMED + COMPLETED (6M) PM ON B-602 AS PER WORK PACKAGE T/Jaime. 282917
6/22/21 Electrical	Prejob with Mario. Performed electrical portion of PM on B603. Checked all terminations for proper tightness and wearing of insulation. Everything looked satisfactory and there were no issues performing PM. Changed out sensor above boiler and closed all boxes up. Davaine Ortiz 2# 354564 6/22/21 Galvin Fragua 2# 319584
6-22-21	GOT START WORK AND PRE JOB BRIEF PERFORMED (6M) PM ON B-603 AS PER WORK PACKAGE T/Jaime. 282917

Facility: F01 **Unit:** 550(**Proj:**
Task Title: 550006 (A) HOT WATER BOILER FS/WS INSP/MAINT (2 EA)
W/O Type: PM W/O Group: Task Priority: 4
Planner: 218305 TRUJILLO
W/O Title: 550006 (A) HOT WATER BOILER FIRESIDE INSP/MAINT.(2 EA)
Written To: PF-6 HOT WATER BOILERS
Task Dspln: FTTR Due Date: 06/30/2021
Job Type: PM D-B Determination:N
Hazard Level: MODERATE IWD Requirement:STANDING
Material Required?:

0068698201

Los Alamos NATIONAL LABORATORY EST. 1943

Work Order Task
00686982 01
MASTER

Date: 4/20/21

Work Order Task Written To

Facility: F01 **Unit:** 550006 **Op Sys:**
Room: **Area:** **Sys/Cls:**
Equipment: **Component:**
PF-6 HOT WATER BOILERS
Equipment Tag: Alternate Tag:
Work item: PF6-BHW Tech Surv Reqmt Rel: N
PEG Equip Group Type: PEG Equip Group ID:
Crit Safety Control: Property Group:
Maintenance Programs: 1: 2: 3: 4: 5:

Authorization

Start Permission				Start Date	6-14-21	
Complete Notice				Complete Date	6-28-21	

NOTE:

*** Refer to attached Form 2101 - Non-Tenant Activity Form - or Form 2102 - Tenant Activity Form - for a description of site specific training or escort and access requirements.**

Work Order 006[illegible]982 **Task** 01

Work Order Task Instructions

Location: 550006 room 103

.

Craft: PIPEFITTERS/ELECTRICIANS

.

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.

.

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

Rework Reason/Cause

		Y/N
CDSG	CUSTOMER DESIGN	N
IMCW	IMPROPER CONSTRUCTION/WORKMANSHIP	N
IMDN	IMPROPER DESIGN	N
PDMS	PARTS/MATERIAL DID NOT MEET SPECIFICATIONS	N
WR	WARRANTY REWORK/REPAIR	N

Date: 6-28-21 Hours: Crew: Shift:

Comments: NONE

Rework/Approval

Deficiency Tag No: Location: Tag Removed:

Rework Job: N Comments:

Work Order 006[illegible]982 **Task** 01

Trouble Found/Work Performed

Completion Comments Required: N

NONE

Continue on additional sheets? _____

Calibrated Tools

Calibrated Tool Used? ☑ Y ☐ N

File ID	Date Used	File ID	Date Used
103573	6/15/2021		
103573	6/22/2021		

Work Delay Reason

A	ACCESS	N	Y/N
EQPT	EQUIPMENT	N	Y/N
IWD	IWD WORKABILITY	N	Y/N
LOTO	LOCK OUT/TAG OUT	N	Y/N
MAT	MATERIAL	N	Y/N
OPS	OPERATIONS	N	Y/N
RCT	RCT AVAILABILTY	N	Y/N
SP	SAFETY PAUSE	N	Y/N
TEL	TOOLS/EQUIP/LIFTS	N	Y/N
W	WEATHER	N	Y/N

Work Date: 6-28-21 Hours: _____ Crew: _____ Shift: _____

Comments: NONE

Major Failure/Action Taken

Major Failure: _____

Major Action Taken: N/A 6-28-21

Deficiency Tag Removed: _____ Y/N

Deficiency Tag Location: _____

Deficiency Tag ID: _____

Limited Condition of Operation: _____ Y/N

Work Order 006_0982 **Task** 01

Work Completion Signatures

Name	Function/Department	Date
TIMOTHY FANGIO	LOG-CS FITTERS	6-28-21

Comments: (Rework?) NONE

Equipment List Exceptions

Equipment List	Revision	Equipment List Description
PF6-BHW	000	PF6-BHW

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F01	550006	VNT	103		HW	ML4
	Equipment:		BHW	BHW-602			

Name: 98' HOT WATER BOILER 602
Location: East Unit.
Exception Reason:
Comments:
Equipment Tag:

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F01	550006	VNT	103		HW	ML4
	Equipment:		BHW	BHW-603			

Name: 99' HOT WATER BOILER 603
Location: West or Central Boiler.
Exception Reason:
Comments:
Equipment Tag:

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F01	550006	VNT	103		HW	ML4
	Equipment:		BHW	BHW-603-2			

Name: ORIG. HOT WATER BOILER 603
Location: Was BHW-1,12.18.98.
Exception Reason:
Comments:
Equipment Tag:

References/Document Information

Facility	Type	Sub-Type	Document Number	Sheet
LNL	PROC	STD	403-A.006	
	Title	HOT WATER BOILERS ANNUAL FIRESIDE/WATERSIDE	INSPECTION AND MAINTENANCE	

Accounting

Percentage	Cost Center	Activity	Account No	Sub Account No
100.00	7D150C	640CL000	XEPR00	M1010000

* * * **End of Report** * * *

Attachment C, TA-55 SSC Equipment Work Release and Acceptance Red Sheet (UET)

(Page 1 of 2)

CAUTION

Work Package # 686982-01

REQUIRED: Proposed work is on a system/component requiring formal status control, and could impact a facility Technical Safety Requirement (TSR). This work package **REQUIRES** facility Operations Center (OC) release **immediately prior to the starting** of any associated work activities/tasks.

REQUIRED: All workers working on systems requiring this attachment must attest, or their RLM/PIC attest, to having the applicable VSS briefing. If workers and/or RLM/PIC CAN NOT attest to having the applicable VSS briefing a worker who does must be present and supervising the work. Not applicable to construction jobs; OCO or PIC/RLM mark training column N/A.

OC Authorization:

Sheet 2 of 2

Worker Training Acknowledged (PIC/RLM initials/Z#)	Printed Name of OCO	OCO Signature	Date
MW / 204536	A JAURIGUE		6/28/21
/			
/			
/			
/			
/			
/			
/			

**Once all available rows have been filled out obtain a new sheet from Work Control.

REQUIRED: A **KNOWLEDGABLE** work package performer(s) is **REQUIRED** to report work package activity/task status to the Operations Center **every time workers stop work for the day.**

REQUIRED: This work package **REQUIRES** facility operations work acceptance **immediately following field completion** of the work. The following **SHALL** be complete prior to submitting for OC Acceptance.

This column to be Completed and Initialed by: Work Package Performer	**This column to be Completed and Initialed by: OCS or OCO**
N/A Steps if "not applicable"	**N/A Steps if "not applicable"**
N/A PMT complete (criteria determined by appropriate CSE(s), SME or OCS; conducted under conditions emulating normal operation parameters)	N/A Applicable TSR, STP, ISI, system alignment (through operating procedure or SAC) required for the SSC to be declared OPERABLE have been completed, as applicable
N/A SSC left offline following PMT, as applicable	
MW All LOTOs cleared (locks and lockout devices are returned to the WCCS, or OC if during off-hours)	

Operations Center Acceptance: Confirms RTS (transfer of control from Maintenance to Operations)

D. HEINTSCHEL		232745	6/28/21
Printed Name of OCO	Signature	Z#	Date

OCO Initial for Completion:

N/A OC System Status Board updated, as applicable

Attachment C, TA-55 SSC Equipment Work Release and Acceptance Red Sheet (UET)
(Page 2 of 2)

Daily Job Update Sheet

Work Package # 006 8698201

Job Title Pf 6 A FIRE SIDE / WATER SIDE

REQUIRED: This sheet is to be filled out and dropped off, by a **KNOWLEDGABLE** worker, with the TA-55 Operations Center prior to commencing work each day. A **KNOWLEDGABLE** worker will pick up the sheet when work is completed for the day, and give the Operations Center a job status update. The sheet should be placed back into the work package so that it is available for the next day the job is worked.

Sheet ___ of ___

Date	Point of Contact	Pager #	Brief description of day's activities
6/14/2021	Mario Uberti	4-7288	Pf 6 A FIRESIDE / WATER SIDE PM
6/15/2021	Mario Uberti	4-7288	Pf 6 A FIRESIDE / WATER SIDE PM
6/16/21	P. Gregg	4-2440	" " " "
6/17/2021	Mario Uberti	4-7288	Pf 6 A FIRESIDE / WATER SIDE PM
6/21/2021	Mario Uberti	4-7288	Pf 6 A FIRESIDE / WATER SIDE PM
6/22/2021	Mario Uberti	4-7288	Pf 6 A FIRESIDE / WATER SIDE PM
6/23/2021	Mario Uberti	4-7288	Pf 6 A FIRE SIDE / WATER SIDE PM
6/24/21	P. Gregg	4-2440	" " "
6/28/21	Mario Uberti	4-7288	Pf 6 Boiler Start Up

**Once all available rows have been filled out obtain a new sheet from Work Control. Only drop off the most current sheet with the Operations Center.

Attachment C, TA-55 SSC Equipment Work Release and Acceptance Red Sheet (UET)

(Page 1 of 2)

CAUTION

Work Package # 006869820 1

REQUIRED: Proposed work is on a system/component requiring formal status control, and could impact a facility Technical Safety Requirement (TSR). This work package **REQUIRES** facility Operations Center (OC) release **immediately prior to the starting** of any associated work activities/tasks.

REQUIRED: All workers working on systems requiring this attachment must attest, or their RLM/PIC attest, to having the applicable VSS briefing. If workers and/or RLM/PIC CAN NOT attest to having the applicable VSS briefing a worker who does must be present and supervising the work. Not applicable to construction jobs; OCO or PIC/RLM mark training column N/A.

OC Authorization:

Sheet 1 of 2

Worker Training Acknowledged (PIC/RLM initials/Z#)	Printed Name of OCO	OCO Signature	Date
MW / 204536	Miller		6/14/21
MW / 204536	WELLS		6/15/21
JV / 117137	CRU		6/16/21
MW / 204536	CRU		6/17/21
MW / 204536	COCHRA		6/21/21
MW / 204536	[illegible]		[illegible]
MW / 204536	Miller		6/23/21
JV / 117137	COCHRA		6/24/21

**Once all available rows have been filled out obtain a new sheet from Work Control.

REQUIRED: A **KNOWLEDGABLE** work package performer(s) is **REQUIRED** to report work package activity/task status to the Operations Center **every time workers stop work for the day.**

REQUIRED: This work package **REQUIRES** facility operations work acceptance **immediately following field completion** of the work. The following **SHALL** be complete prior to submitting for OC Acceptance.

This column to be Completed and Initialed by: Work Package Performer	**This column to be Completed and Initialed by: OCS or OCO**
N/A Steps if "not applicable"	**N/A Steps if "not applicable"**
N/A PMT complete (criteria determined by appropriate CSE(s), SME or OCS; conducted under conditions emulating normal operation parameters)	N/A Applicable TSR, STP, ISI, system alignment (through operating procedure or SAC) required for the SSC to be declared OPERABLE have been completed, as applicable
N/A SSC left offline following PMT, as applicable	
All LOTOs cleared (locks and lockout devices are returned to the WCCS, or OC if during off-hours)	

Operations Center Acceptance: Confirms RTS (transfer of control from Maintenance to Operations)

Printed Name of OCO	Signature	Z#	Date
D. HEINBAUGH		230795	6/20/21

OCO Initial for Completion:

N/A OC System Status Board updated, as applicable

Form 2103

Los Alamos NATIONAL LABORATORY EST. 1943

Integrated Work Document (IWD) Part 3, Validation and Work Release

0068698201

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)**: [signature] 118210 6-14-21

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**: [signature] dd536 6/14/2021

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)

IWD #_____ Revision #:_____ **Work Release**

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) 344091 6·14·21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 291737 6·14·21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 282717 6/14/2021	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 334659 6/14/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 354564 6/14/21	**Worker** (Signature/Z#/Date) 319584 6/14/21

0068698201

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.

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

[signature] 001526 6/14/2021

0068698201

Los Alamos NATIONAL LABORATORY EST.1943

Form 2103

Integrated Work Document (IWD) Part 3, Validation and Work Release

4-8385 6-0272

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)**: N/A

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**: [signature] Z044536 6/15/2021

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?

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IWD #_____ Revision #:_____ **Work Release**

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) Norma Ramos 291737 6.15.21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 280517 6/15/2021	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 344099 6.15.21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 334659 6/15/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date) 356082 6/15/21
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date) 319584 6/15/21

Los Alamos NATIONAL LABORATORY EST.1943

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)**: N/A per telecon

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**: [signature] 177131 6/14/21

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)

IWD #_____ Revision #:_____ **Work Release**

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) Norma Ramos 291737 6.16.21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) Mangi 382917 6.16.21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) Duane Schnell 344099 - 6-16-21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 334659 6/16/21	**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

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. Basic worker engagement questions are provided below. Additional 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)
SS-0008 A Hot water Boiler	
What permits, permissions, or support are required to safely start this work? Radshut, Pre-job, Lo/to	X
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it? PPE Hydration Slips, trips & falls Pay attention to footage	X
What can cause us to go beyond the scope of the work? Nothing (pause work)	X
What hazards in the work area may not have been considered during planning of this job Other Craft working, Weather.	X

[signature] 11737 4-2440 6/16/21

Los Alamos NATIONAL LABORATORY EST.1943

Integrated Work Document (IWD) Part 3, Validation and Work Release

686982-01

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)**: N/A

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**: [signature] 204536 6/17/2021

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?

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IWD #_____ Revision #:_____ **Work Release**

Pre-Job Brief Attendance Roster

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- 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) 282917 6/17/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 237056 6/17/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 344099 6-17-21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 334659 6/17/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 291737 6·17·21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 351457 6·17·21	**Worker** (Signature/Z#/Date) 356082 6/17/21
Worker (Signature/Z#/Date) 387012 6/17/21	**Worker** (Signature/Z#/Date) 319584 6/17/2021

Los Alamos NATIONAL LABORATORY EST.1943

Integrated Work Document (IWD) Part 3, Validation and Work Release

646982-01

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)**: N/A

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**: [signature] 264536 6/21/2021

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?

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IWD #_____ Revision #:_____ **Work Release**

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) 354564 6/21/21	**Worker** (Signature/Z#/Date) 282917 6/21/21
Worker (Signature/Z#/Date) 334659 6/21/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 237056 6/21/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 344099 6-21-21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) Norma Ramos 291737 6-21-21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 319584 6/21/21	**Worker** (Signature/Z#/Date)

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 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**: _____ 204536 6/22/2021

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)

IWD #_____ Revision #:_____ **Work Release**

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) 334659 6/22/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 282917 6/22/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 291737 6.22.21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 354564 6/22/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 344099 6.22.21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 319584 6/22/21	**Worker** (Signature/Z#/Date)

Los Alamos NATIONAL LABORATORY

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. Basic worker engagement questions are provided below. Additional 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)
PF-6 A Fireside Hot water Boiler Fireside	
What permits, permissions, or support are required to safely start this work? Radshut, LO/TO prej job	X
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it? PPE Leaks. pinch points. overhead work pay attention to task	X
What can cause us to go beyond the scope of the work? Nothing (pause work)	X
What hazards in the work area may not have been considered during planning of this job Footfrabbc, other Craft.	X

117137 6/24/21 4-2440

Los Alamos NATIONAL LABORATORY EST. 1943

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)**: N/A - per Tekoorn

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**: [signature] 117137 6/24/24

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?
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- Does everyone agree to the work tasks/steps, hazards, and controls and commit to follow them?

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Pre-Job Brief Attendance Roster

By signing below **as required**, I agree to the following:

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- 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) 237056 6/24/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 282917 6/24/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 344097 6-24-21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 291737 6.24.21	**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

Form 2103

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD # 686982-01 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)**: W/R

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**: [signature] 244536 6/23/2021

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)

IWD #_____ Revision #:_____ **Work Release**

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) 334659 6/23/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 344099 6-23-21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 291737 6.23.21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 282917 6/23/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 237056 6/23/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)

Los Alamos NATIONAL LABORATORY

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. Basic worker engagement questions are provided below. Additional 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

Marc Chi 204526 6/23/2021

Los Alamos NATIONAL LABORATORY EST. 1943

Form 2103

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD # 686982-1 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)**: N/A

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**: [signature] 254536 6/28/2021

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) 334659 6/28/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 282917 6/28/21	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date)	**Worker** (Signature/Z#/Date)
Worker (Signature/Z#/Date) 336115 6/28/21	**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	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)	
Revision #:		**Activity/Task Title:** 550006 BHW Annual Fireside/Waterside Maintenance
Work Document # (WO #/Task) 006869820 1		**Planner/Preparer (Name/Z#/Date)** Martin Nowakowski Z# 194072 7/9/2020
TA: 55	**Building:** 0006	**Room:** **Additional Location Description:**

SECTION 1 – SCOPE OF WORK
SECTION 2 - PRECAUTIONS AND LIMITATIONS
SECTION 3 – PREREQUISITES/INITIAL CONDITIONS
SECTION 4 – SPECIAL TRAINING/MEDICAL REQUIREMENTS
SECTION 5 – SPECIAL TOOLS/EQUIPMENT
SECTION 6 – WORK INSTRUCTIONS
SECTION 7 – POST WORK ACTIVITIES
SECTION 8 – CLOSEOUT

1. SCOPE OF WORK

Perform annual fireside/waterside maintenance on Hot Water Boilers as per 403-A.006

Hazard Analysis (HA) Team: Martin Nowakowski, James Gallegos, Tristan McDonald, Tim Fangio

Date HA Performed : 7/2019

2. PRECAUTIONS AND LIMITATIONS

2.1. 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.

2.2. Work steps are sequenced in a logical flow to ensure that the work is performed safely, efficiently, and effectively. If work steps are required to be worked in a specific sequence, it will be identified in the applicable section of the IWD

2.3. Coordinate work to minimize equipment down time.

- Remove and reapply LOTO as needed to maintain system operability
- Refer to applicable steps in IWD for LOTO
- Verify "0" voltage every time locks are applied

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)	
Revision #:		**Activity/Task Title:** 550006 BHW Annual Fireside/Waterside Maintenance
Work Document #: (WO#/Task) 00686982 01		**Planner/Preparer (Name/Z#/Date)** Martin Nowakowski Z# 194072 7/9/2020
TA: 55	**Building:** 0006	**Room:** **Additional Location Description:**

3. PREREQUISITES/INITIAL CONDITIONS

3.1. **Entry Conditions:**

- (PF6) Obtain authorization and NMT-79 key from Ops Center prior to entering PF6.
- Follow ALL entry postings.
- Hearing protection required.
- Be aware of automatic starting equipment.
- Further PPE requirements will be task specific.

3.2. Verify Work Order is on the schedule for work release.

3.3. Ensure ALL material and special tools are available.

3.4. Obtain ALL necessary permits prior to performing work.

3.5 General hazards and associated PPE is required:

- Safety Shoes
- Safety Glasses with Side Shields
- Cut 4 Resistant Gloves shall be worn when workers are performing maintenance or other physical work activities, when hands are exposed to hazards
- Hard Hats required when falling or flying objects may exist, overhead structures, energized conductors, or where equipment or other materials create an overhead hazard
- Further PPE requirements will be task specific

3.6 Noise:

- Wear proper hearing protection in areas posted

3.7 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

3.8 Working with Chemicals:

- Chemical splash – Wear safety goggles
- Use of Trionic gloves
- SDS –

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 550006 BHW Annual Fireside/Waterside Maintenance
Work Document #: (WO #/Task #) 000686982 01			**Planner/Preparer (Name/Z#/Date)** Martin Nowakowski Z# 194072 7/9/2020
TA: 55	**Building:** 0006	**Room:**	**Additional Location Description:**

4. Special Training/Medical Requirements

1. **The following training is required for the General Hazards**
   - CU-10968 WQ LOG Maintenance Worker
2. **The following training is required when working in posted "high noise" areas:**
   - CU- 2307 Hearing Conservation/ Noise
3. **The following training is required for WQ LOG Electrician-Maintenance**
   - CU-642 WQ LOG Electrician-Maintenance
   - Cu-2559 Electricians/Apprentices and Facility Engineer (when performing zero voltage and trouble shooting)
4. **The following training is required for WQ LOG Pipefitter-Maintenance**
   - CU-647 WQ LOG Pipefitter-Maintenance
5. **The following training is required when working chemicals**
   - CU-4261 Chemical Workers Authorized (HAZCOM)
6. **The following training is required while performing work on scaffolding:**
   - CU-9257 Fall Protection Training
   - CU-3949 Scaffold User

5. Special Tools/Equipment

NONE

6. Work Instructions

6.1 Contact the following prior to performing work.

6.1.1 Operations Center (7-3330)

6.1.2 Maintenance Coordinator David Leyba 665-6812

6.1.3 Operations Supervisor Larry Dostart (office 667-4057, cell 309-1154)

- Mobilize equipment/materials/tools to and from work site.
- Barricade designated work area using robust barrier rope/stanchion and/or signage, to establish boundaries
- Carpenters will erect and dismantle scaffolding per standing IWD as needed.

6.2 Standing IWD, located in work package

6.2.1 Scaffolding to be inspected daily

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 550006 BHW Annual Fireside/Waterside Maintenance
Work Documents: (WO#/Task) 00688201			**Planner/Preparer (Name/Z#/Date)** Martin Nowakowski Z# 194072 7/9/2020
TA: 55	**Building:** 0006	**Room:**	**Additional Location Description:**

NOTE:

- **Ops tech to align system prior to performing work, and when work is complete.**

1. Notify Operations Center prior to starting work.

LANL Boiler Inspector Randall Austin: 667-6740, cell 695-6036

Request copy of Boiler Inspection report for package.

2. Perform pre-maintenance step 1.1 as per 403-A.006

   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.

4. Step 2.1 Pipefitter (request Operations Tech to align system)

   a.) Close gas valves, apply LO/TO and verify zero energy by ensuring gas is bleed-off at union and area is well ventilated.
   located in rm.103

   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.
   located in rm.103

   B602: CCHW-B602-V1, CCHW-B602-V2
   B603: CCHW-B603-V1, CCHW-B603-V2

   c.) Place boiler circuit in the OFF position located in rm.101 and apply LOTO and verify zero energy by attempting to start boiler.
   B602: MCC-603D compt. B1L
   B603: MCC-603C compt. 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	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 550006 BHW Annual Fireside/Waterside Maintenance
Work Document #: (WO #/Task) 006869820 1			**Planner/Preparer (Name/Z#/Date)** Martin Nowakowski Z# 194072 7/9/2020
TA: 55	**Building:** 0006	**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 located in rm.101

B602: MCC-603D compt. B1L
B603: MCC-603C compt. 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 #. Ts-1000

File #. 103573 Cal. Due Date: 3/10/2022

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Revision #:			**Activity/Task Title:** 550006 BHW Annual Fireside/Waterside Maintenance
WorkDocument #: (WO #/Task) 00086982 01			**Planner/Preparer (Name/Z#/Date)** Martin Nowakowski Z# 194072 7/9/2020
TA: 55	**Building:** 0006	**Room:**	**Additional Location Description:**

7. Verify "0" Voltage at line side of disconnect in room 103.

   B602: DISC-602-1

   B603: DISC-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.

11. Craft remove LOTO and place circuit in the **ON** position. Located in rm.101

B602: MCC-603D compt. B1L
B603: MCC-603C compt. A2R

- Non melting long sleeve shirt and pants, safety glasses with side shields, hearing protection and leather gloves.

Los Alamos NATIONAL LABORATORY	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)	
Revision #:		**Activity/Task Title:** 550006 BHW Annual Fireside/Waterside Maintenance
Work Document #: (WO #/Task) 00686902		**Planner/Preparer (Name/Z#/Date)** Martin Nowakowski Z# 194072 7/9/2020
TA: 55	**Building:** 0006	**Room:** / **Additional Location Description:**

Craft remove LOTO and **OPEN** associated water valves.

Located in rm.103 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.)

Located in rm.103 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 3.11 as per 403-A.006 section 3.0

NOTE:

Omit step 3.9 of PMI 403-A.006 as per C.S.E.

Water Chemistry corrections are completed using the semi-annual water treatment PM.

13. Remove all barricades and signs.

14. Notify Operations Center work is complete, inform CSE of any deficiencies found.

7. Post Work Activities

7.1 **CLEAN-UP** work area.

7.2 **REMOVE** barricades from work area.

7.3 **CONTACT** Ruben Trujillo @ 665-6378, 664-4242 (pager), 551-2737 (cell) for guidance on waste disposal. Dispose of waste per their guidance.

8. Closeout

CONTACT the MC and inform them the work is completed. Complete all the required documentation.

COMPLETE all the required documentation.

Los Alamos

Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)

Revision #:			**Activity/Task Title:** 550006 BHW Annual Fireside/Waterside Maintenance
Work Document #: (WO #/Task) 00686982 01			**Planner/Preparer (Name/Z#/Date)** Martin Nowakowski Z# 194072 7/9/2020
TA: 55	**Building:** 0006	**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 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** 112737 8.6.20 **FOD or Representative** (Signature/Z#/Date) NA 194072 7/27/20 **ESO Review** (Signature/Z#/Date) **If Required** AARON MARTINEZ (Affiliate) SEE IH SAFETY REVIEW **SME Review** (Signature/Z#/Date) **If Required**

IWD Type

- ☒ Moderate-Hazard
- ☐ High-Hazard/Complex
- ☐ Standing IWD

Date when RLM re-approval is required 8.31.21

Other Conditions for Re-Approval

CHANGE IN SCOPE ON HAZARDS

(Print)

Name/Z# of Alternate PIC Abraham Lucero Z# 117122

Name/Z# of Alternate PIC Victor Mitchell Z# 203921

Name/Z# of Alternate PIC Jesse Sanchez Z# 118246

Name/Z# of Alternate PIC Gabriel Chavez Z# 239917

Name/Z# of Alternate PIC Mario Ulibarri Z# 204536

Name/Z# of Alternate PIC Bill Horvath Z# 151518

Name/Z# of Alternate PIC Davi Griego Z# 321332

Name/Z# of Alternate PIC Glenn Morris Z# 341154

Name/Z# of Alternate PIC Patricia Griego Z# 117137

Name/Z# of Alternate PIC Donald Schmitt Z# 350663

Any required classification review completed,

Signature/Date

Indus[illegible]l H[illegible]ene and Safety Review (D[illegible]HF-[illegible]CMR)

Document Title: 550006 (A) FIRESIDE/WATERSIDE BOILER HOT WATER MAINT		
Document Number: 645452-01	**Revision or Issue Date:**	
Document Point of Contact: Martin Nowakowski		

Section 1: Activity/Document Screening	**Y**	**N**
1. Is the job classified as high hazard?		✓
2. Are multiple organizations involved?		✓
3. Is an IH/S designated posting required?		✓
4. Is work taking place in a Permit Required Confined Space?		✓
5. Is medical monitoring, sampling, or any type of IH/S monitoring required?	✓	
6. Is IH/S requiring respiratory protection?		✓
Continue with remainder of form 1) if any "yes" answers above, or 2) at reviewer's discretion.		

Section 2: Hazard Review	**Y**	**N**
1. The Hazard Assessment has been completed and documented per P300?	✓	
2. The appropriate IH/S Subject Matter Experts have been engaged per identified hazards?	✓	
3. Is an IH/S designated posting required?		✓

Section 3: Activity Review	**NA**	**Y**	**N**
1. Is required IH/S sampling specifically identified?	✓		
2. Are all required permits specifically identified?	✓		
3. Are all posting requirements specifically identified?	✓		
4. Are release conditions specifically identified for the required postings?	✓		
5. Are all medical monitoring requirements identified?		✓	
6. Is required PPE specifically identified? (E.g., fire resistant clothing for sparking)		✓	
7. Are administrative & engineering controls identified and when to be used? (E.g., LEV during torch cutting or welding)		✓	
8. Are IH/S requirements for sequential tasks specifically identified? (E.g, when outer PPE layer(s) must be removed period to leaving an enclosure)	✓		
9. Is a single PIC identified prior to work when multiple organizations are involved?	✓		
10. Will controls introduce new hazards or exacerbate existing conditions? (E.g., heat stress)	✓		
If yes, have those hazards been addressed?			
11. Have co-located personnel been identified and hazard communication indicated?		✓	
12. Are hazards from co-located activities anticipated and addressed?		✓	
13. Are hold points added when authorization to proceed is necessary? (E.g., additional or different controls to be determined pending sampling results)	✓		

Section 4: Issues and Comments

Complete this section for comments or any "no" questions in sections 2 and 3. Attach another sheet if needed.

Question	Issue/Comment
2.3	"No" selected for 2.3; no IH/S postings are required. Added comment per Section 4 instruction above.
1.5	"Yes" due to Hearing Conservation Program enrollment for work in high noise areas

Approval/Signature (IH/S Use Only) *(Signature indicates issues/comments are satisfactorily resolved; IWD is approved.)*

Rob Bement Digitally signed by Rob Bement
Date: 2020.07.21 09:16:02 -06'00'

Cy: Planner Martin Nowakowski
Document Requester Martin Nowakowski

006 869 8201

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.: 006 869 8201	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: 6/16/21	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.: 006869820 1 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: N/A
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: STEPS 2.3.3 N/A DO NOT PERFORM HYDRO TEST.

Work Order No.: 006869820 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: DID NOT DRAIN EXPANSION TANK

Work Order No. 006 86 98 201 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: GF
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: GF
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. 006869820 1 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

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. 006869820 1 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: N/A
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: T Fangio Date: 6/28/21

Name of Craft Worker: Galvin Fragua Z Number: 319584

Signature: Galvin Fragua Date: 6/15/2021

Foreman Verification: TIMOTHY FANGIO Z Number: 282917

Signature: T Fangio Date: 8/5/21

Remarks: STEP 3.8 NACO TEST CHEMICAL NOT US

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.: 006869821	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: 6/28/21	Inspectors: TIMOTHY FANELO

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.: 006869820 1 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: STEP 2.3.3 DO NOT PERFORM HYDRO TEST

Work Order No.: 006 86982 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: DID NOT NEED TO DRAIN EXPANSION TANK

Work Order No. 006869821 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: N/A

Work Order No: 006 869 8201 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.: 006 8698201 Equipment ID No.: B603

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: 006 869 8201 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: TJF
3.9	Record all mechanical maintenance data, testing data, and other notable items.		Initials: TJF
3.10	Notify MC that work on the boiler system is complete.		Initials: TJF

Name of Craft Worker: TIMOTHY FANGIO Z Number: 282917

Signature: TJFangio Date: 6 / 28 / 21

Name of Craft Worker: Calvin Fragua Z Number: 319584

Signature: Calvin Fragua Date: 6 / 22 / 21

Foreman Verification: TIMOTHY FANGIO Z Number: 282917

Signature: TJFangio Date: 8 / 5 / 21

Remarks: STEP 3.8 N/A WATER TEST FOR CHEMICAL NOT US

No: RN101-3-01
Revision: 0

Issued: 11/02/20
Effective Date: 11/02/20

Interim Requirements for Hazardous Energy Identification and Control

Click Here to View P101-3

1.0 PURPOSE

This Requirements Notice (RN) implements a set of interim requirements that are intended to augment Laboratory procedures for the identification and control of hazardous energy. This RN does not supersede or cancel the Laboratory's procedure for the control of hazardous energy, P101-3, *Lockout/Tagout for Hazardous Energy Control;* rather, it supplements the requirements in P101-3. Any conflicts between RN101-3 and P101-3 must be referred to and resolved by the Lockout/Tagout (LO/TO) Program Lead in consultation with the Associate Laboratory Director for Environment, Safety, Health, Quality, Safeguards, and Security (ALDESHQSS).

If this RN is not cancelled or superseded by another document, it will expire one year from the effective date. This RN can be extended as necessary while long-term actions are developed to sustainably improve overall Laboratory performance for the identification and control of hazardous energy.

2.0 AUTHORITY AND APPLICABILITY

2.1 Authority

- Issuing Authority (IA): Deputy Director for Operations (DDOPS)
- Responsible Manager (RM): Chief Operating Officer for Associate Laboratory Director for Environment, Safety, Health, Quality, Safeguards, and Security (ALDESHQSS)
- Responsible Office (RO): Associate Laboratory Director for Environment, Safety, Health, Quality, Safeguards, and Security (ALDESHQSS)

2.2 Applicability

This RN applies to all Laboratory workers, including subcontractors who prepare, review, and execute LO/TO for the control of hazardous energy.

3.0 REQUIREMENTS NOTICE DESCRIPTION

3.1 Worker Involvement in Identifying Hazardous Energy Sources and Isolation Points

P101-3, Section 3.2, requires that a hazardous energy assessment be completed before performing LO/TO and Authorized Workers are responsible for ensuring that this energy assessment is performed. This section establishes Laboratory interim requirements for how this should be done.

3.1.1 Identifying Hazardous Energy Sources

LO/TO procedures must be prepared by using available drawings, work instructions, and the conduct of in-field walk-downs. The preparer of the LO/TO procedure must involve qualified workers, system, and LO/TO program SMEs as necessary in development of the procedure. Existing standing procedures may be used as long as they were effectively planned and field verified using appropriate personnel.

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3.1.2 Identifying and Documenting Isolation Points

Simple LO/TO

A Simple LO/TO task is one that meets the conditions of Simple LO/TO defined in P101-3 *Lockout/Tagout for Hazardous Energy Control*, Section 3.4.1, *Simple LO/TO Procedure*. These Simple LO/TO conditions are also written on the LO/TO Tag.

All Simple LO/TOs require all LO/TO Authorized Workers associated with the task to walk-down the job and sign off on the attached checklist (see Attachment A). If a single worker will be executing the work, a second LO/TO Authorized Worker must participate in the walk-down and sign off on the attached checklist. The signed checklist must be submitted to the lock coordinator before locks and tags are issued. Locks and tags ***will not*** be issued to worker(s) until they have performed the walk-down and signed the checklist.

Complex LO/TO

A Complex LO/TO task is any task that does not meet the conditions of Simple LO/TO. All Complex LO/TOs require the following to walk-down the job and sign off on the attached checklist (see Attachment A):

- The LO/TO Authorized Workers associated with the task,
- The Machinery, System, and/or Equipment (MS&E) owner/operator,
- The preparer of the Form 2244 *Lockout/Tagout LO/TO Orders* or detailed IWD (if used in lieu of the Form 2244).

The signed checklist must be submitted to the lock coordinator before locks and tags are issued. Locks and tags ***will not*** be issued to worker(s) until they have performed the walk-down and signed the checklist.

Note: *The designated person-in-charge (PIC) may represent the preparer if both the PIC and the preparer have walked the job down and discussed the details associated with how the procedure was developed.*

3.2 Verification of Energy Isolation and De-Energization

P101-3, Section 3.6.4 requires that the Authorized Worker verify that isolation and de-energization of the MS&E has been accomplished before starting work. MS&E Owner-Operators are responsible for identifying when Peer Checking is required to be performed. Through this section, the requirement is expanded for all LO/TOs and uses an additional HPI verification tool to ensure that verification of isolation is done adequately every time.

Peer Checking is required for all Simple LO/TOs.

Concurrent Verification is required for all Complex LO/TOs unless Independent Verification is already required by the LO/TO procedure as determined by the MS&E Owner-Operator.

3.2.1 Peer-Checking (PC) for Simple LO/TO

The following Peer Checking steps are to be used for Simple LO/TO:

1. Two people (Authorized Worker and peer) self-checking together at the same time and place.

2. Both people mutually agree that the simple energy control procedure (on the back of the tag) is the appropriate procedure to be followed for this task and all of the conditions of Simple LO/TO are met.
3. The Authorized Worker executes the steps of the procedure, while the peer witnesses the execution of the steps.
4. The peer confirms that the procedure was executed effectively by placing initials next to each step on the back of the tag.

3.2.2 Concurrent Verification (CV) for Complex LO/TO

The following Concurrent Verification steps are to be used for Complex LO/TO:

1. Two people (lead Authorized Worker and second Authorized Worker) working together at the same time and place.
2. Both people mutually agree that the energy control procedure (Form 2244 or detailed IWD) is the appropriate procedure to be followed for the specific task.
3. The lead Authorized Worker executes the first step of the procedure, followed by verification by the second Authorized Worker. This is repeated for each subsequent step.
4. The second Authorized Worker confirms that the procedure was executed effectively by placing initials next to each step on the Form 2244 or detailed IWD.

Note: The second Authorized Worker, who is also the concurrent verifier, must be a qualified worker as described in P101-3, Section 6.1, *Training Requirements*, and will also apply locks and tags to the MS&E.

3.3 Pause Work Responsibilities for Workers and Managers

P101-3, Section 4.6 requires that the Responsible Line Manager (RLM) ensures that workers under their purview who perform LO/TOs are trained, authorized, knowledgeable of the MS&E being locked/tagged, and follow the requirements of the procedure. This section also establishes the required method for the authorized worker and the RLM to have a discussion based on these responsibilities. P101-3 requires the RLM work with the MS&E Owner-Operator to resolve pause/stop work issues identified by Authorized Workers. This is an opportunity for the RLM to express the importance of pausing work when questions arise and to establish themselves as the worker's advocate for safety.

All LO/TO Authorized Workers will have a documented conversation with their RLM to discuss roles and responsibilities associated with performing LO/TO. This is a one-time conversation and can be done at any time. Workers will be given a Crucial Conversation Passport as a reference (see Attachment B).

Note: This action is not a required sequential step in every LO/TO activity.

3.4 Manager Engagement in LO/TO Work Activities

P101-3, Section 4.6 requires the RLM to ensure that workers follow the requirements of the procedure. This section establishes the required validation to ensure that hazardous energy identification and control, including LO/TO, is implemented as expected throughout the Laboratory and to gather feedback for continuous improvement.

The LO/TO Management Observation and Verification (MOV) Guidance Card is required to be used by managers as they perform and document that hazardous energy identification and

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control, including LO/TO, evolutions are being performed per this RN and Laboratory hazardous energy control procedures.

All RLMs who authorize LO/TO work will be required to submit one MOV or Safety Conversation Card for LO/TO work activities per month. RLMs who authorize LO/TO less than once per month will meet this requirement at a frequency equivalent to the authorization interval (i.e., quarterly or semi-annually).

4.0 RESPONSIBILITIES

4.1 Deputy Director for Operations

- Establishes and extends this RN as necessary.

4.2 Associate Laboratory Directors (ALDs)

- Ensure that management, supervision, and staff within their directorates are aware of, and adhere to, this document.

4.3 ALDESHQSS

- Resolves any conflicts that might arise between this RN and P101-3.

4.4 Responsible Line Managers

- Understand the roles and responsibilities associated with LO/TO and how to pause work when concerns arise.
- Ensure authorized workers are actively engaged in all aspects of hazardous energy identification and control procedures, including field walk-downs, application of LO/TO, peer and concurrent verification of correct LO/TO placement and energy isolation/de-energization, sign-off on associated checklists, tags, and procedures, and pause work.
- Use the LO/TO MOV Guidance Card when performing MOVs related to monitoring hazardous energy isolation and control, including LO/TO, evolutions.
- Discuss roles and responsibilities associated with performing hazardous energy identification and control, including LO/TO, with workers and provide a crucial conversation passport as a reference to workers.

4.5 Workers

- When authorized, actively engage in all aspects of hazardous energy identification and control procedures, including field walk-downs, application of LO/TO, peer and concurrent verification of correct LO/TO placement and energy isolation/de-energization, sign-off on associated checklists, tags, and procedures, and pause work.
- Discuss roles and responsibilities associated with performing hazardous energy identification and control, including LO/TO, with manager.
- Understand roles and responsibilities associated with LO/TO and how to pause work when concerns arise.

4.6 LO/TO Procedure Preparers

- Use available drawings, work instructions, and field walk-downs to develop LO/TO procedures.

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- Engage qualified workers, system, and LO/TO program SMEs as necessary in the development of LO/TO procedures.

5.0 IMPLEMENTATION

The requirements in this document are effective on the effective date with the expectation that all requirements be fully implemented by December 1, 2020.

Before December 1, 2020, the following implementation steps will be completed:

1. The LO/TO Program lead will present/roll-out the interim requirements and implementation plan at Leadership Team Extended and Laboratory Operations Council meetings.
2. The Leadership Team, in coordination with the Chief Operating Officers, will present/roll-out interim requirements and management engagement (i.e., MOV) expectations that monitor adherence to hazardous energy identification and control requirements to their respective line organizations.
3. The LO/TO Program lead will coordinate/facilitate three virtual town hall information sessions via WebEx . All LO/TO authorized workers, lock coordinators, managers, STRs, and subcontractors will be invited to attend one session and participate in a discussion on these interim requirements.

LO/TO Committee Representatives and the LO/TO Program Lead will be available as field implementation SMEs. The LO/TO Program Lead will be available for management meetings to communicate these requirements and expectations to our managers.

6.0 TRAINING

No training is required for this RN. P101-3, *Lockout/Tagout for Hazardous Energy Control* lists required training.

7.0 Exception or Variance

To obtain an exception or variance to this RN, the following steps must be followed:

- Managers may request an exception or variance from the Issuing Authority (IA) through the Responsible Office (RO) and Responsible Manager (RM) using Form 3057, *Request for Exception or Variance*.
- At the IA's request, the RO and RM will provide recommendations and supporting information.
- The IA or designee will approve or disapprove the request, and forward the Form 3057 to the Policy Office and copy the requesting manager.
- The Policy Office will send notification that the exception or variance is effective and ready for implementation after Safety Basis Division has completed appropriate reviews.

The Policy Office maintains the official copy of record of the approved correspondence granting the exception or.

8.0 HISTORY

Revision History		
11/02/20	RN101-3-01, Rev. 0	Initial Issue.

9.0 ATTACHMENTS

Attachment A. *Lockout/Tagout Pre-job Walk-down Checklist*

006 869 8201

No: RN101-3-01 Interim Requirements for Hazardous Energy Identification and Control
Attachment A. Lockout/Tagout Pre-job Walk-down Checklist (Page 1 of 2)

Instructions: Perform the pre-job walk-down with the necessary people per Section 3.1 of the Requirements Notice 101-3-01. Complete this checklist and take signed checklist to the lock coordinator. All Authorized Workers are required to participate in the walk-down and sign the checklist in order to check out a lock and tag. If additional workers are added to the job, they must also perform a walk-down of the system and show a signed checklist to the lock coordinator. The signed checklists are to be kept with the parent work document (IWD, work package, etc.).

Work Document Number (e.g., Package/Procedure#): 466962-01

- ☑ We have walked down and discussed the work to be performed.
- ☑ All energy isolation points and positions have been identified and documented.
- ☑ The proper energy control procedure is being used (Simple vs Complex LO/TO).
- ☑ All energy-isolating devices are labeled properly (e.g., labels aren't faded, no hand written modifications).
- ☑ No discrepancies are found between record drawings, labels, panel schedules, and LO/TO procedures.
- ☑ Lockout devices have been identified to support the work.

*If any of the above items are identified to be inadequate, pause work, report the issues to your RLM, and contact the appropriate SMEs to help resolve issues ***before*** performing/resuming work.

Simple Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

Lead Authorized Worker (print name)	Z Number	Signature/Date
TIMOTHY FANGIO	282917	6/14/2021
Authorized Worker (print name)	Z Number	Signature/Date

Complex Lockout/Tagout

By signing below, you acknowledge that you have completed the pre-job walk-down and there are no issues that need to be reported to your Responsible Line Manager before beginning work.

MS&E Owner/Operator (print name)	Z Number	Signature/Date
David Leyba	115210	6-14-21
Preparer or PIC (print name)	Z Number	Signature/Date
Mario Moreno	201536	6-14-21
Lead Authorized Worker (print name)	Z Number	Signature/Date
TIMOTHY FANGIO	282917	6-14-2021
Authorized Worker (print name)	Z Number	Signature/Date
RAYMOND MARTINEZ	334659	6/14/21
Authorized Worker (print name)	Z Number	Signature/Date

Note: Print additional sheets as necessary.

006 869 8201

Attachment B. *Lockout/Tagout Crucial Conversation Passport (Example Only)*
Attachment C. *Implementation Plan for Interim Requirements for Hazardous Energy Identification and Control*

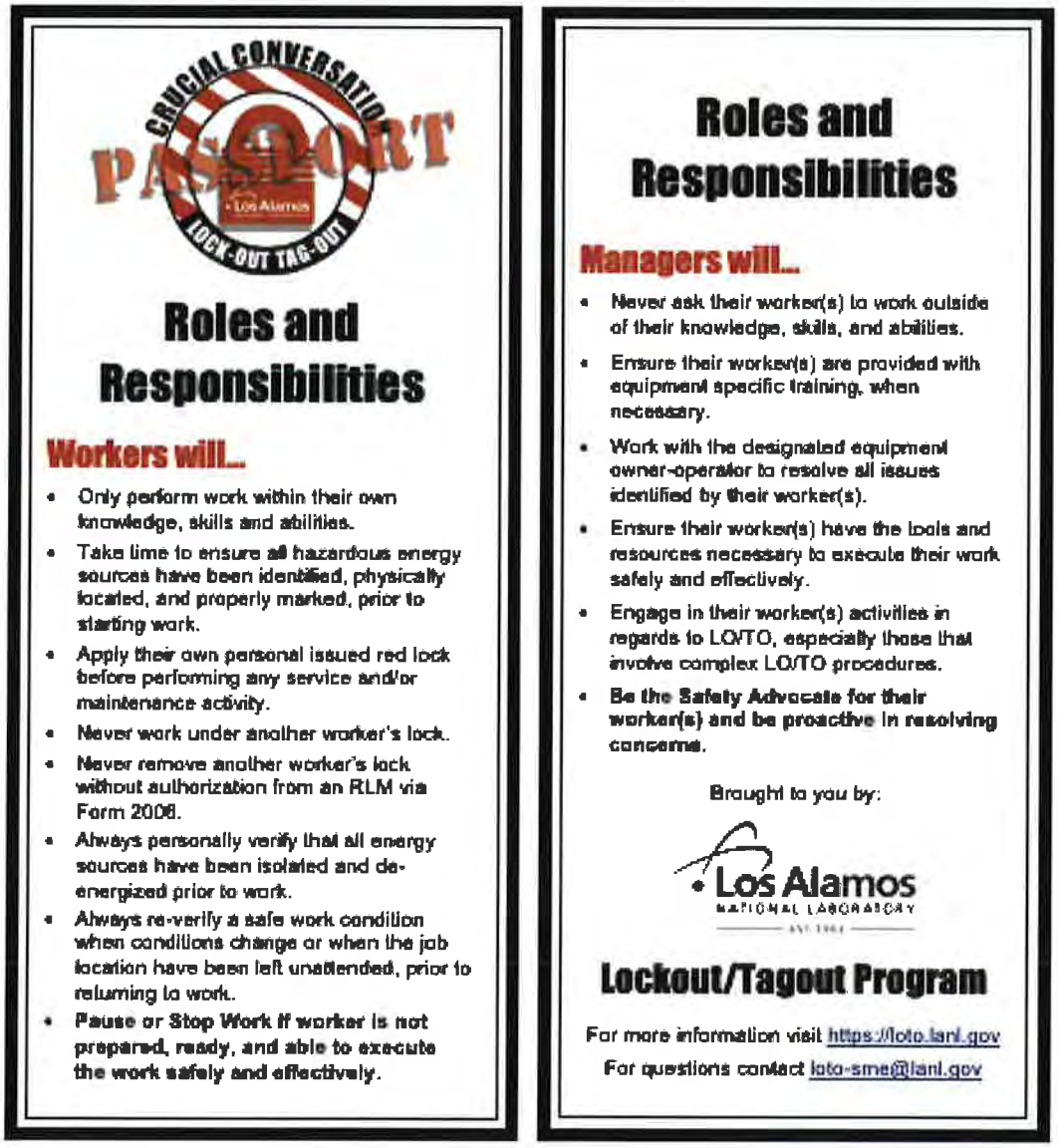
10.0 CONTACT

Lockout/Tagout Program Lead
Telephone: work (505) 664-0548, cell (505) 977-6276

006 869 8201

No: RN101-3-01 Interim Requirements for Hazardous Energy Identification and Control
Attachment B. Lockout/Tagout Crucial Conversation Passport (Example Only) (Page 1 of 1)

Attachment B: LO/TO Crucial Conversation Passport



CRUCIAL CONVERSATION
PASSPORT
LOCK-OUT TAG-OUT

Roles and Responsibilities

Workers will...

- Only perform work within their own knowledge, skills and abilities.
- Take time to ensure all hazardous energy sources have been identified, physically located, and properly marked, prior to starting work.
- Apply their own personal issued red lock before performing any service and/or maintenance activity.
- Never work under another worker's lock.
- Never remove another worker's lock without authorization from an RLM via Form 2006.
- Always personally verify that all energy sources have been isolated and de-energized prior to work.
- Always re-verify a safe work condition when conditions change or when the job location have been left unattended, prior to returning to work.
- **Pause or Stop Work if worker is not prepared, ready, and able to execute the work safely and effectively.**

Roles and Responsibilities

Managers will...

- Never ask their worker(s) to work outside of their knowledge, skills, and abilities.
- Ensure their worker(s) are provided with equipment specific training, when necessary.
- Work with the designated equipment owner-operator to resolve all issues identified by their worker(s).
- Ensure their worker(s) have the tools and resources necessary to execute their work safely and effectively.
- Engage in their worker(s) activities in regards to LO/TO, especially those that involve complex LO/TO procedures.
- **Be the Safety Advocate for their worker(s) and be proactive in resolving concerns.**

Brought to you by:

Los Alamos
NATIONAL LABORATORY

Lockout/Tagout Program

For more information visit https://loto.lanl.gov
For questions contact loto-sme@lanl.gov

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NOTE: Use these buttons to print or save the form. DO NOT use the browser tool bar.

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Form 2244

Lockout/Tagout (LO/TO) Orders

Section 1: General Information

Work Document Number (e.g., Package/Procedure #): 686982-01	LO/TO Remedy ID: 106292
Location of Equipment to be Isolated: TA: 55 Bldg: PF-6 Rm/Other: 103	Description of Machinery, System & Equipment (MS&E) to be worked on: B-602
MS&E Owner/Operator: David Leyba Z Number: 118210	Phone: 5-6812
Shutdown to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No	Re-energize/restart to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No
Reason for LO/TO: (A) FIRESIDE / WATERSIDE	
Group LO/TO (2 or more)? ☒ Yes ☐ No *If yes, a lead authorized worker must be appointed.*	Group lock box used? ☒ Yes ☐ No LOCKBOX # TA55-005
Shift or Personnel Changes? ☐ Yes ☒ No *If yes, a description of how the continuity of LO/TO protection will be ensured must be referenced or attached to this form. (See Section 3.9.6 of P101-3 for details.)*	☐ Continuity of LO/TO protection details described in operating procedure, work instruction, or other work control document. Document Number:

Section 2: Energy Control Procedure

1. Plan the work.
2. Identify and assess hazardous energy.
3. Contact the MS&E owner/operator.
4. Obtain locks and tags from lock coordinator.
5. Notify affected workers.
6. Shutdown MS&E according to **Section 3: Shutdown Sequence**.
7. Isolate and lock out MS&E from energy source, relieve stored energy, and perform verification of isolation according to **Section 4: LO/TO Sequence**.
8. Perform the work.
9. Release MS&E from LO/TO according to **Section 5: Release MS&E from Lockout/Tagout Sequence**.

Section 3: Shutdown Sequence

☒ Perform shutdown according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number: 686982-01

☐ **N/A**; MS&E to be worked on will be isolated according to **Section 4: LO/TO Sequence** (e.g., cannot be shut down)

Detail the process to normally shut down the MS&E below, if not following other document referenced above or N/A.

Step No.	Action/Description	Step No.	Action/Description
☐ 1		☐ 6	
☐ 2		☐ 7	
☐ 3		☐ 8	
☐ 4		☐ 9	
☐ 5		☐ 10	

Section 4: LO/TO Sequence

☒ Perform LO/TO sequence according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:
Describe how to effectively isolate & lockout the MS&E below, if not following other document referenced above.

Isolate & Lockout (Step No.)	Equipment Descriptor (What is being locked out? e.g., machine drive motor, input power to MCC)	Energy Source (e.g., electrical, mechanical, pneumatic, hydraulic, chemical, thermal)	Energy Isolation Device (e.g., specific ID, description, circuit #, lock box #)	Location of Energy Isolation Device (e.g., room number, north wall, south wall)	Required LO/TO Position or Alignment (e.g., off, open, closed, on)	Verification Method (e.g., live/dead/live, crack open, on-off-on-off, peer checking, independent verification)	Verifier's Initials (if req'd)	See Section 5: Release (Step No.)
☐ (1)	B-602	MECHANICAL	NG-B602-V-1	TASS-PF6 RM 103	CLOSED	PEER	JM	☐
☐ (2)	B-602	MECHANICAL	NG-B602/B603-V1	TASS-PF6 RM 103	CLOSED	PEER	JM	☐
☐ (3)	B-602	MECHANICAL	CCHW-B602-V2	TASS-PF6 RM 103	CLOSED	PEER	JM	☐
☐ (4)	B-602	MECHANICAL	CCHW-B602-V1	TASS PF6 RM 103	CLOSED	PEER	JM	☐
☐ (5)	B-602	ELECTRICAL	MCC-603D COMPT. B1L	TASS PF6 RM 101	OFF	LIVE/DEAD/LIVE	JM	☐
☐ (6)	B-602/B-603	MECHANICAL ELECTRICAL	LOCKBOX# TASS-005	TASS PF6 RM 103	LOCKED	PEER	JM	☐
☐ (7)								☐
☐ (8)								☐

Section 5: Release MS&E from Lockout/Tagout Sequence

1. Check the MS&E and immediate area for items that could result in damage or danger on start-up.
2. Check the work area to ensure that all workers have been safely positioned or removed from the work area.
3. Verify that the controls are in neutral or "off" position.
4. Notify the owner/operator and affected workers that work is complete and MS&E is ready to release from LO/TO.
5. Remove the LO/TO device, and re-energize (if appropriate according to MS&E owner/operator) according to the sequence as identified above under Release in **Section 4: LO/TO Sequence** or according to operating procedure, work instruction, or other work control document identified in **Section 4**.
6. Return lock and locking device to Lock Coordinator.

Energy Control Procedure prepared by:

Preparer (print name)	Z Number	Organization	Phone	Signature/Date
TIMOTHY FANGIO	282917	LOG-CS	4-7292	6/14/2021

By signing below, you acknowledge that this energy control procedure and/or referenced documents identify the isolation devices, isolation points, and methods necessary to prevent any unexpected release of hazardous energy.

Energy Control Procedure approved by:

MS&E Owner/Operator (print name)	Z Number	Organization	Phone	Signature/Date
David Leyba	118210	MSTA55	8-6812	6-14-21

Section 6: All Authorized Workers (anyone applying a lock for this activity)

Fill out the following information or print and attach Authorized Workers information from the Lockout/Tagout Remedy Application.

Authorized Workers Name(s)	Z Number	Date Lock Applied	Date Lock Removed
Lead: TIMOTHY FANGID	282917	6-14-21	6-28-21
RAYMOND MARTINEZ	334659	6-14-21	6-28-21
NORMA RAMOS	291737	6-14-21	6-24-21
DUANE SCHROCK	344099	6-14-21	6-24-21
GALVIN FRAGUA	319584	6-14-21	6-24-21
DAVIANA ORTIZ	354564	6-22-21	6-24-21

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Los Alamos NATIONAL LABORATORY EST.1943

Form 2244

Lockout/Tagout (LO/TO) Orders

Section 1: General Information

Work Document Number (e.g., Package/Procedure #): 868982-01	LO/TO Remedy ID: 106292
Location of Equipment to be Isolated: TA: 55 Bldg: PF6 Rm/Other: 103	Description of Machinery, System & Equipment (MS&E) to be worked on: B-603
MS&E Owner/Operator: David Leyba Z Number: 118210	Phone: 5-6812
Shutdown to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No	Re-energize/restart to be performed by MS&E Owner/Operator (as determined by MS&E Owner/Operator) ☐ Yes ☒ No
Reason for LO/TO: (A) FIRESIDE / WATERSIDE	
Group LO/TO (2 or more)? ☒ Yes ☐ No *If yes, a lead authorized worker must be appointed.*	Group lock box used? ☒ Yes ☐ No LockBox# TA55-005
Shift or Personnel Changes? ☐ Yes ☒ No *If yes, a description of how the continuity of LO/TO protection will be ensured must be referenced or attached to this form. (See Section 3.9.6 of P101-3 for details.)*	☐ Continuity of LO/TO protection details described in operating procedure, work instruction, or other work control document. Document Number:

Section 2: Energy Control Procedure

1. Plan the work.
2. Identify and assess hazardous energy.
3. Contact the MS&E owner/operator.
4. Obtain locks and tags from lock coordinator.
5. Notify affected workers.
6. Shutdown MS&E according to **Section 3: Shutdown Sequence**.
7. Isolate and lock out MS&E from energy source, relieve stored energy, and perform verification of isolation according to **Section 4: LO/TO Sequence**.
8. Perform the work.
9. Release MS&E from LO/TO according to **Section 5: Release MS&E from Lockout/Tagout Sequence**.

Section 3: Shutdown Sequence

☒ Perform shutdown according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number: 868982-01

☐ **N/A**; MS&E to be worked on will be isolated according to **Section 4: LO/TO Sequence** (e.g., cannot be shut down)
Detail the process to normally shut down the MS&E below, if not following other document referenced above or N/A.

Step No.	Action/Description	Step No.	Action/Description
☐ 1		☐ 6	
☐ 2		☐ 7	
☐ 3		☐ 8	
☐ 4		☐ 9	
☐ 5		☐ 10	

Section 4: LO/TO Sequence

☒ Perform LO/TO sequence according to operating procedure, work instruction, or other work control document (e.g., IWD, Owner's Manual, SOP).
Document Number:
Describe how to effectively isolate & lockout the MS&E below, if not following other document referenced above.

Isolate & Lockout (Step No.)	Equipment Descriptor (What is being locked out? e.g., machine drive motor, input power to MCC)	Energy Source (e.g., electrical, mechanical, pneumatic, hydraulic, chemical, thermal)	Energy Isolation Device (e.g., specific ID, description, circuit #, lock box #)	Location of Energy Isolation Device (e.g., room number, north wall, south wall)	Required LO/TO Position or Alignment (e.g., off, open, closed, on)	Verification Method (e.g., live/dead/live, crack open, on-off-on-off, peer checking, independent verification)	Verifier's Initials (if req'd)	See Section 5: Release (Step No.)
☐ (1)	B-603	MECHANICAL	NG-B603-V-1	TA55-PF6 RM 103	CLOSED	PEER	RM	☐
☐ (2)	B-603	MECHANICAL	NG-B604/B603-V-1	TA55-PF6 RM 103	CLOSED	PEER	RM	☐
☐ (3)	B-603	MECHANICAL	CCHW-B603-V1	TA55-PF6 RM 103	CLOSED	PEER	RM	☐
☐ (4)	B-603	MECHANICAL	CCHW B603-V2	TA55-PF6 RM 103	CLOSED	PEER	RM	☐
☐ (5)	B-603	ELECTRICAL	MCC-603C COMPT B2R	TA55 PF6 RM 101	OFF	LIVE/DEAD/LIVE	RM	☐
☐ (6)	B-602/B-603	MECHANICAL ELECTRICAL	LOCK BOX# TA55-005	TA55 PF6 RM 103	LOCKED	PEER	RM	☐
☐ (7)								☐
☐ (8)								☐

Section 5: Release MS&E from Lockout/Tagout Sequence

1. Check the MS&E and immediate area for items that could result in damage or danger on start-up.
2. Check the work area to ensure that **all** workers have been safely positioned or removed from the work area.
3. Verify that the controls are in neutral or "off" position.
4. Notify the owner/operator and affected workers that work is complete and MS&E is ready to release from LO/TO.
5. Remove the LO/TO device, and re-energize (if appropriate according to MS&E owner/operator) according to the sequence as identified above under Release in **Section 4: LO/TO Sequence** or according to operating procedure, work instruction, or other work control document identified in **Section 4**.
6. Return lock and locking device to Lock Coordinator.

Energy Control Procedure prepared by:

Preparer (print name)	Z Number	Organization	Phone	Signature/Date
TIMOTHY FANGIO	282917	LOG-CS	4-7252	6/14/2021

By signing below, you acknowledge that this energy control procedure and/or referenced documents identify the isolation devices, isolation points, and methods necessary to prevent any unexpected release of hazardous energy.

Energy Control Procedure approved by:

MS&E Owner/Operator (print name)	Z Number	Organization	Phone	Signature/Date
David Leyba	118210	MSSTA55	5-6812	6-14-21

Section 6: All Authorized Workers (anyone applying a lock for this activity)			
Fill out the following information or print and attach Authorized Workers information from the Lockout/Tagout Remedy Application.			
Authorized Workers Name(s)	**Z Number**	**Date Lock Applied**	**Date Lock Removed**
Lead: TIMOTHY FANGID	282917		6-28-21
RAYMOND MARTINEZ	334654		6-28-21
NORMA RAMOS	291737		6-24-21
DUANE SCHROCK	344099		6-24-21
GALVIN FRAGUA	319584		6-24-21
DAVIANA ORTIZ	354564		6-24-21

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Form 2193

Electrical Risk/Hazard Assessment Record

1. Description of Work to be Performed ☐ NA*

Perform maintenance on the PF6 boilers. LOTO breakers in MCC-603D-B1/L and MCC-603C-A2/R and perform zero voltage verification.

2 Equipment ID(s)	TA	Building	Room(s)
B-602 & B-603	55	0006	

3. P101-13, *Electrical Safety Program*, Hazard Class(es)
Class 1.3b

4. Type of Work
☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Equipment Operation ☐ NA*

5. Equipment Condition(s)
☒ Maintained ☐ Properly Installed ☐ No Evidence of Impending Failure ☐ NA*

6. Environmental Conditions
☒ Dry ☐ Damp ☐ Wet ☐ Confined Space ☐ Elevated Work Surface ☐ NA*

7. Risk Level per P101-13 (See Attachment A, Sections 4.5.2 through 4.5.4)
☐ Low ☒ Moderate ☐ High ☐ NA*

8. Electrical Worker(s)
☐ Alone ☒ Two-Person ☐ Safety Watch ☐ NA*

9. Results of Thermal Risk Assessment (Applies when there is no shock and/or arc flash hazard but there is exposure to a thermal burn [e.g., high current, low voltage]) (See P101-13, Attachment A, Section 4.8):
☒ No Thermal Hazard
☐ No Metallic Items ☐ Heavy Duty Leather Gloves ☐ NA*
☐ Listed Insulated Tools ☐ Safety Glasses or Goggles ☐ Non-Sparking Tools
Other PPE:

10. Results of the Shock Risk Assessment
☐ No Shock Hazard (Equipment <50 VAC or <100 VDC)
Voltage: 480 ☒ AC ☐ DC
Limited Approach Boundary: 3 ft 6 in.
Restricted Approach Boundary: 1 ft 0 in. ☐ Avoid Contact

Dielectric PPE ☐ NA*
☐ Class 00 (500 VAC/750 VDC) ☒ Class 0 (1,000 VAC/1,500 VDC)
☐ Class 1 (7,500 VAC/11,250 VDC) ☐ Class 2 (17,000 VAC/25,500 VDC)
☐ Class 3 (26,000 VAC/39,750 VDC) ☐ Class 4 (36,000 VAC/54,000 VDC)

☐ Gloves ☐ Boots ☐ Blankets ☐ Sleeves ☐ Mats
Other PPE:

Must be documented in the Integrated Work Document (IWD).

11. Results of Arc Flash Risk Assessment:

☐ No Arc Flash Hazard (Equipment <240 VAC supplied by <125 kVA transformer **or** ≤500 A DC)

Method Used:

☐ Facility Electrical Hazard Analysis Tool ☐ Arc Flash Label Information ☐ NFPA 70E (D.2 Lee)

☐ NFPA 70E (D.3 Doughty) ☐ NFPA 70E (D.4 IEEE 1584)/IEEE 1584 ☐ NFPA 70E (D.5 Doan DC)

☐ EFCOG Doan ☐ EFCOG Non-Linear ☐ Other: _____

Arc Flash Boundary: 2 ft 8 in. Incident Energy: .06 cal/cm^2 Working Distance: 18 in.

Arc Flash PPE: (AN-As Needed, AR-Arc Rated) ☐ NA*

☒ <1.2 cal/cm^2 **CATEGORY 0**

Non-melting or untreated natural fiber long-sleeve shirt and long pants, safety glasses or safety goggles, hearing protection, and heavy duty leather gloves or dielectric gloves with leather protectors.

☐ [≥1.2–4] cal/cm^2 _____ cal/cm^2 **CATEGORY 1** *(8 cal/cm^2 must be specified for LOG crafts)*

AR long-sleeve shirt and pants, or AR coverall; AR face shield and AR balaclava, or AR flash suit hood; AR jacket, parka, rainwear, or hard hat liner (AN); Hard hat, safety glasses or safety goggles, hearing protection, and heavy duty leather gloves, or AR gloves, or dielectric gloves with leather protectors.

☐ [≥4–8] cal/cm^2 _____ cal/cm^2 **CATEGORY 2** *(8 cal/cm^2 must be specified for LOG crafts)*

AR long-sleeve shirt and pants, or AR coverall; AR face shield and AR balaclava, or AR flash suit hood; AR jacket, parka, rainwear, or hard hat liner (AN); Hard hat, safety glasses or safety goggles, hearing protection, leather footwear and heavy duty leather gloves, or AR gloves, or dielectric gloves with leather protectors.

☐ [≥8–25] cal/cm^2 _____ cal/cm^2 **CATEGORY 3** *(25 or 40 cal/cm^2 must be specified for LOG crafts)*

AR long-sleeve shirt and pants, or AR coverall; AR flash suit hood; AR jacket, parka, rainwear, or hard hat liner (AN); Hard hat, safety glasses or safety goggles, hearing protection, leather footwear and AR gloves, or dielectric gloves with leather protectors.

☐ [≥25–40] cal/cm^2 _____ cal/cm^2 **CATEGORY 4** *(40 cal/cm^2 must be specified for LOG crafts)*

AR long-sleeve shirt and pants, or AR coverall; AR flash suit hood; AR jacket, parka, rainwear, or hard hat liner (AN); Hard hat, safety glasses or safety goggles, hearing protection, leather footwear and AR gloves, or dielectric gloves with leather protectors.

Other PPE:

12. Additional Risk Control Measures: ☐ NA*

Barricades/Shock Hazards

Must be documented in the Integrated Work Document (IWD).

Preparer (print name)	Z Number	Organization	Phone	Date
Qualified Person or Engineer providing calculations (print name) Eleazar Martinez	Z Number 190284	Organization ES-55	Phone 606-0885	Date 3/9/21
Electrical Safety Officer (print name) Eleazar Martinez	Z Number 190284	Organization ES-55	Phone 606-0885	Date 3/9/21
Electrical Safety Officer Signature ELEAZAR MARTINEZ (Affiliate)	Digitally signed by ELEAZAR MARTINEZ (Affiliate) Date: 2021.03.09 13:55:33 -07'00'			

0068698201

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TA-55 Preventive Maintenance Close Out Sheet

Work Order No.: 006869 8201

Instructions: Enter the requested information prior to submitting PM package for closeout.

Maintenance Coordinator:

- Is the equipment listed for this PM: ☐ ML1 ☐ ML2 ☐ ML3 ☐ ML4
- If deficiencies were noted, provide the FSR # and WO # created to correct the PM deficiency:

FSR #: N/A and WO #: N/A

MC Signature/Z# & Date [signature] 188210 6-28-21

System Engineer:

If corrective action is needed, must it be completed prior to next PM performance: ☐ Yes ☐ No

SE Signature/Z# & Date [signature] 189990 8-9-21

Craft/PM Superintendent:

Was Material used from a TA55 Warehouse? ☐ Yes ☑ No

If "Yes," a Material Pick list must be included in the PM work package.

Signature/Z# & Date [signature] 204536 6/28/2021

Verification signatures:

PM Coordinator Signature/Z# & Date [signature] 170170 8/5/21

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AP-WORK-002: Attachment 11
Maintenance and Site Services
Work Completion Form

Work Order/Task: 00686982O1

Start Date: 6-15-21	Completion Date: 6-28-21

SUMMARIZE THE WORK PERFORMED

Date	
6-28-21	GOT START WORK + PRE JOB BRIEF
	FINISHED (A) PM REMOVED LOTO
	NO ISSUES.

FOR CORRECTIVE WORK – WHAT FAILED AND WHAT WAS FIXED

	Failure Mode Root Cause Code (Circle Root Causes that Apply)	
Failure Mode	Circuit Breaker Tasks	System Restoration Issues
	Digital Component Tasks	Pump Related Tasks
	Doors/Hatches	Procedure Use
	Electrical Determinations	Rigging/Lifting Tasks
	Failed Surveillance	Electrical Switches
	Fastener Tasks	Troubleshooting Issues
	FME Tasks	Valve Related Tasks
	I&C Calibration/Setpoints	Welding
	Mechanical Connections	Work Instruction Issues
	Other (Specify Root Cause)	
Failure Mode Comments	(Add Details) NONE	
	Rework Mode (Circle Rework Causes that Apply)	
Rework	Cause Indeterminate	Life Cycle Management
	Design Deficiency	PM Deficiency
	Intentionally Abbreviated Maintenance	Rule Base Human Performance Deficiency
	Instructional Deficiency	Skill Base Human Performance Deficiency
	Knowledge Based Human Performance Error	Tools/Equipment/Lifts
	Deficiency	Vendor Deficiency
	Operational Deficiency	Work Management Deficiency
		Weather
	Other (Specify Rework Mode)	
Comments	NONE	

0068698201

FOR PMs – SUMMARIZE AS FOUND AND AS LEFT CONDITIONS BELOW		
	As Found Conditions (Circle Conditions that Apply)	
As found	Unanticipated Failure	Within Tolerance
	Failure Not Normal Wear	Satisfactory
	Failure Normal Wear	Superior, Like New
	Outside of Tolerance	Not Applicable
	Reliability Degraded	
	Other (Specify As Found Condition) NONE	
Comments	GOOD WORKING CONDITION	
As left	GOOD WORKING CONDITION	
Parts/Repairs	NEW GASKETS AND HONEYWELL CONTROLS	
Read/meas.	N/A	
Post test info.	N/A	
Problems Encountered (delays, safety, etc.): NONE		
	Delay Codes (Circle Codes that Apply)	
Delay	Access	Operations
	Equipment	RCT Availability
	IWD Workability	Safety Pause
	Material	Weather
		# of Hours_____ Date(s)_____
	Other (Specify Reason for Delay)	
Comments	NONE	
Lessons Learned/Recommendations:		
	NONE	
Name: TIMOTHY FANDO **Z#** 282917 **Signature:** [signature] **Date:** 6-28-24		

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AP-WORK-002: Attachment 11
Maintenance and Site Services
Work Completion Form

0068698201

PIC/SUPT

☑ PM has been completed in its entirety and ready for closure. 6/28/2021

IF A PM COULD NOT BE COMPLETED:

☐ Percentage complete is _____%

☐ Sections that did not work and need to be rescheduled

_____

Reasons why:

MAINTENANCE COORIDATOR/AREA WORK COORDINATOR

Work Package is Complete and may be closed out: YES ☒ NO ☐ GJC 118240 6-28-21

IF no: State Reason

Additional Work Needed? ☐ YES ☒ NO

Document UP/WO/FSR Number: _____

ENGINEERING (FOR MD and CD Work Orders)

IF a configuration baseline has been changed, THEN indicate the changes are to be incorporated into the following documents and/or configuration baseline:

☐ Drawings ☐ FDD/SDD

☐ Procedures ☐ Master Equipment List

☐ Permits ☐ Checklists

SE Name: N/A Signature: Date:

WORK CONTROL

Moderate/High Hazard – WMC/Planner reviewed for Lessons Learned/Feedback

☒ YES ☐ NO N/A ☐

☒ Review of the completed work package is complete per AP-WORK-005, and the work package is ready to be set to complete in CMMS.

Name: Willard Martinez **Z#** 170176 **Signature:** **Date:** 8/5/21

Work Order/Task: 00686982 01

Start Date:	Completion Date:

ADITIONAL DETAILS ON WORK PERFORMED

Date 6/15/21	(Add details on As Found, Failure Mode, and Lessons Learned etc.)
	Prejob by Mario. Performed Electrical PM on B602. Made sure all terminations were properly tightened inspected wire and insulations. Everything looked good no issues while performing electrical P.M. Galvin Fragua 2# 319584 6/15/21
6-16-21	GOT START WORK + PRE JOB BRIEF PERFORMING (A) FIRESIDE/WATERSIDE PM ON B-602 AS PER WORK PACKAGE 28217
6/22/21	Prejob by Mario. Performed electrical portion of PM on B603. Checked all connections / terminations for proper securing. Inspected wire for insulation issues. Everything looked satisfactory. No issues occured during ~~electrical~~ electrical PM. Changed out sensor on top of boiler. Secured all boxes. Electrical Damian Ortiz 2# 354564 6/22/21 Galvin Fragua 2# 319584
6-22-21	GOT START WORK AND PRE JOB BRIEF PERFORMED PM AS PER WORK PACKAGE GOT ALL FILED BACKUP NO LEAKS 28217
6-28-21	GOT START WORK AND PRE JOB BRIEF FINISHED CLOSING BACK DOOR + REMOVED LOTO BOILER BACK ON LINE. 28217

Facility: F01 **Unit:** 550006 **Proj:**
Task Title: 550006 (6M) HOT WATER BOILER WATER TREATMENT (NALCO)
W/O Type: PM W/O Group: Task Priority: 4
Planner: 218305 TRUJILLO
W/O Title: 550006 (6M) HOT WATER BOILER WATER CHEMISTRY TREATMENT(NALCO)
Written To: PF-6 HOT WATER BOILERS
Task Dspln: FTTR Due Date: 10/31/2021
Job Type: PM D-B Determination:N
Hazard Level: MODERATE IWD Requirement:STANDING
Material Required?:

0069639101

Los Alamos NATIONAL LABORATORY EST.1943

Work Order Task
00696391 01
MASTER

Date: 8/26/21

Work Order Task Written To

Facility: F01 **Unit:** 550006 **Op Sys:**
Room: **Area:** **Sys/Cls:**
Equipment: **Component:**
PF-6 HOT WATER BOILERS
Equipment Tag: Alternate Tag:
Work item: PF6-BHW Tech Surv Reqmt Rel: N
PEG Equip Group Type: PEG Equip Group ID:
Crit Safety Control: Property Group:
Maintenance Programs: 1: 2: 3: 4: 5:

Authorization

Start Permission	Victor Dennis			Start Date	9-21-21	
Complete Notice				Complete Date	9.30.21	

NOTE:

*** Refer to attached Form 2101 - Non-Tenant Activity Form - or Form 2102 - Tenant Activity Form - for a description of site specific training or escort and access requirements.**

Work Order 00696391 **Task** 01

Work Order Task Instructions

LOCATION: 550006

.

CRAFT: NALCO/PIPEFITTER AS ESCORT

.

SCOPE OF WORK:

PERFORM SEMI-ANNUAL PER IWD AND CK LIST

RECORD ANY DEFICIENCIES OR NEEDED REPAIRS ON THE PM POST SHEET AND WORK DOCUMENTATION SECTION.

.

CHECK-IN AT THE OPERATIONS CENTER PRIOR TO PERFORMING WORK

WORK BEYOND SCOPE OF PM REQUIRES A SEPARATE WORK ORDER

.

Caution: Proposed work could impact a facility technical safety requirement (TSR), limiting condition of operation (LCO) and /or action statement

Rework Reason/Cause

		Y/N
CDSG	CUSTOMER DESIGN	N
IMCW	IMPROPER CONSTRUCTION/WORKMANSHIP	N
IMDN	IMPROPER DESIGN	N
PDMS	PARTS/MATERIAL DID NOT MEET SPECIFICATIONS	N
WR	WARRANTY REWORK/REPAIR	N

Date: Hours: Crew: Shift:

Comments:

Rework/Approval

Deficiency Tag No: Location: Tag Removed:

Rework Job: N Comments:

Trouble Found/Work Performed

Completion Comments Required: N

Nalco found loop to have a leak due to drops in all chemical levels week after week. We Recommend the leaks be fixed and or Isolated before we add more chemicals

Continue on additional sheets? _____

Work Order 00696391 **Task** 01

Calibrated Tools

Calibrated Tool Used? ☑ Y/N

File ID	Date Used	File ID	Date Used

Work Delay Reason

A	ACCESS	☑ Y/N
EQPT	EQUIPMENT	☑ Y/N
IWD	IWD WORKABILITY	☑ Y/N
LOTO	LOCK OUT/TAG OUT	☑ Y/N
MAT	MATERIAL	☑ Y/N
OPS	OPERATIONS	☑ Y/N
RCT	RCT AVAILABILTY	☑ Y/N
SP	SAFETY PAUSE	☑ Y/N
TEL	TOOLS/EQUIP/LIFTS	☑ Y/N
W	WEATHER	☑ Y/N

Work Date: Hours: Crew: Shift:

Comments:

Major Failure/Action Taken N/A

Major Failure:	N/A	
Major Action Taken:	N/A	
Deficiency Tag Removed:	N/A	Y/N
Deficiency Tag Location:	N/A	
Deficiency Tag ID:	N/A	
Limited Condition of Operation:	N/A	Y/N

Work Completion Signatures

Name	Function/Department	Date
Nick Treise	Nalco	9-28-2021

Comments: (Rework?)

Equipment List Exceptions

Equipment List	Revision	Equipment List Description
PF6-BHW	000	PF6-BHW

Work Order 00696391 Task 01

Equipment List Exceptions

Equipment List	Revision	Equipment List Description
PF6-BHW	000	PF6-BHW

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F01	550006	VNT	103		HW	ML4

Equipment: BHW BHW-602
Name: 98' HOT WATER BOILER 602
Location: East Unit.
Exception Reason:
Comments:
Equipment Tag:

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F01	550006	VNT	103		HW	ML4

Equipment: BHW BHW-603
Name: 99' HOT WATER BOILER 603
Location: West or Central Boiler.
Exception Reason:
Comments:
Equipment Tag:

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F01	550006	VNT	103		HW	ML4

Equipment: BHW BHW-603-2
Name: ORIG. HOT WATER BOILER 603
Location: Was BHW-1,12.18.98.
Exception Reason:
Comments:
Equipment Tag:

References/Document Information

Facility	Type	Sub-Type	Document Number	Sheet
LNL	PROC	STD	403-A.002	
	Title	HOT WATER BOILERS WATER TREATMENT		

Accounting

Percentage	Cost Center	Activity	Account No	Sub Account No
100.00	7D150C	640CL000	XEPR00	M1010000

* * * **End of Report** * * *

Attachment C, TA-55 SSC Equipment Work Release and Acceptance Red Sheet (UET)

(Page 1 of 2)

CAUTION

Work Package # #696391 01

REQUIRED: Proposed work is on a system/component requiring formal status control, and could impact a facility Technical Safety Requirement (TSR). This work package **REQUIRES** facility Operations Center (OC) release **immediately prior to the starting** of any associated work activities/tasks.

REQUIRED: All workers working on systems requiring this attachment must attest, or their RLM/PIC attest, to having the applicable VSS briefing. If workers and/or RLM/PIC CAN NOT attest to having the applicable VSS briefing a worker who does must be present and supervising the work. Not applicable to construction jobs; OCO or PIC/RLM mark training column N/A.

OC Authorization: Sheet ___ of ___

Worker Training Acknowledged (PIC/RLM initials/Z#)	Printed Name of OCO	OCO Signature	Date
[illegible] 129862	JOHN CRISTO		9-21-21
[illegible] 129862	C. CHAVEZ		9/21/21
/			
/			
/			
/			
/			
/			

**Once all available rows have been filled out obtain a new sheet from Work Control.

REQUIRED: A **KNOWLEDGABLE** work package performer(s) is **REQUIRED** to report work package activity/task status to the Operations Center **every time workers stop work for the day.**

REQUIRED: This work package **REQUIRES** facility operations work acceptance **immediately following field completion** of the work. The following **SHALL** be complete prior to submitting for OC Acceptance.

This column to be Completed and Initialed by: Work Package Performer	This column to be Completed and Initialed by: OCS or OCO
N/A Steps if "not applicable"	**N/A Steps if "not applicable"**
N/A PMT complete (criteria determined by appropriate CSE(s), SME or OCS; conducted under conditions emulating normal operation parameters)	N/A Applicable TSR, STP, ISI, system alignment (through operating procedure or SAC) required for the SSC to be declared OPERABLE have been completed, as applicable
N/A SSC left offline following PMT, as applicable	
N/A All LOTOs cleared (locks and lockout devices are returned to the WCCS, or OC if during off-hours)	

Operations Center Acceptance: Confirms RTS (transfer of control from Maintenance to Operations)

JOHN CRISTO — [signature] — 330354 — 9-30-21

Printed Name of OCO | Signature | Z# | Date

OCO Initial for Completion:

N/A OC System Status Board updated, as applicable

Attachment C, TA-55 SSC Equipment Work Release and Acceptance Red Sheet (UET)

(Page 2 of 2)

Daily Job Update Sheet

Work Package # #696391 01

Job Title NMCO

REQUIRED: This sheet is to be filled out and dropped off, by a **KNOWLEDGABLE** worker, with the TA-55 Operations Center prior to commencing work each day. A **KNOWLEDGABLE** worker will pick up the sheet when work is completed for the day, and give the Operations Center a job status update. The sheet should be placed back into the work package so that it is available for the next day the job is worked.

Sheet ___ of ___

Date	Point of Contact	Pager #	Brief description of day's activities
9-21-21	664 6599	664-6599	water testing.
—	NICK TROISE		
9-28-21	NICK TROISE	664-4669	water Testing

**Once all available rows have been filled out obtain a new sheet from Work Control. Only drop off the most current sheet with the Operations Center.

Los Alamos NATIONAL LABORATORY

Form 2103

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD No# 696391 01 Revision No.:

By signing below, I verify that this activity is appropriate to be conducted in the facility and is within the scope of the facility safety basis; area/facility hazards have been identified and addressed; work meets applicable Laboratory environmental, safety, and security requirements, DOE Orders, and other applicable regulatory requirements; and that the appropriate Subject Matter Expert (SME) reviews have been completed.

FOD or FOD designee (e.g., Operations Manager)

Signature/Z-Number/Date **(If required by FOD)**: [signature] 118210 9-21-21

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 review tasks and steps for workability and to ensure that the hazards and controls are described correctly and have not changed.
- The assigned workers are authorized and 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 Number/Date) **Required**: [signature] 297862 9-21-2021

Alternate PIC signature **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 and informing workers that they have a new PIC.)*

Alternate PIC (Signature/Z Number/Date) **Required**: _____

Alternate PIC (Signature/Z Number/Date) **Required**: _____

Pre-Job Brief Content

- Prerequisites, where applicable – things that must be staged, in place, or completed before the work starts
- Worker pause/stop work authority and obligation per P101-18, Procedure for Pause/Stop Work
- Scope of work and work activities including IWD/WCDs, procedures, work package documents, and drawings, as applicable
- Hazards and associated controls, including personal protective equipment, and the resolution of any related questions
- Critical steps* including where they are covered in the IWD/WCD and which HPI technique will be used for each critical step
- Permit and plan requirements and limitations (e.g., penetrations, spark flame) and how permit requirements will be met
- Applicable regulatory requirements [e.g., Technical Safety Requirements (TSR), Code of Federal Regulations (CFR)] including how these requirements can be inadvertently violated if the IWD/WCD is not followed
- Roles and responsibilities including person(s) responsible for making critical decisions (e.g., PIC)
- Handoffs and coordination requirements among workers and multiple PICs, if applicable
- Work site conditions including location of phone and emergency equipment (e.g., fire alarms, fire extinguisher, AED) and how to respond to alarms and emergencies
- Hold points and other notifications/signoffs (e.g., inspections, Industrial Hygiene, radiation protection)
- Applicable Lessons Learned (LL), especially from previous performance of the activity
- Any other information needed to perform this activity in a safe, secure, and environmentally responsible manner

Ask: Does everyone agree with the work tasks/steps and controls, and commit to follow them?

*Critical steps are when "a procedure step, series of steps, or action that, if performed improperly, will cause irreversible harm to equipment, people, or the environment" (DOE-HDBK-1028-2009, Volume 1).

IWD No. #696391 01 Revision No.:

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 Number/Date) 30142G 9/21/21	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)

Los Alamos NATIONAL LABORATORY

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. Basic worker engagement questions are provided below. Additional 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.

#696391 01

Topic	Completed (X)
What permits, permissions, or support are required to safely start this work?	✓
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	✓
What can cause us to go beyond the scope of the work?	✓
What hazards in the work area may not have been considered during planning of this job	✓

Los Alamos NATIONAL LABORATORY

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD No: Revision No.:

By signing below, I verify that this activity is appropriate to be conducted in the facility and is within the scope of the facility safety basis; area/facility hazards have been identified and addressed; work meets applicable Laboratory environmental, safety, and security requirements, DOE Orders, and other applicable regulatory requirements; and that the appropriate Subject Matter Expert (SME) reviews have been completed.

FOD or FOD designee (e.g., Operations Manager)

Signature/Z-Number/Date **(If required by FOD)**: _____

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 review tasks and steps for workability and to ensure that the hazards and controls are described correctly and have not changed.
- The assigned workers are authorized and 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 Number/Date) **Required**: [signature] 297862 9-28-2021

Alternate PIC signature **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 and informing workers that they have a new PIC.)*

Alternate PIC (Signature/Z Number/Date) **Required**: _____

Alternate PIC (Signature/Z Number/Date) **Required**: _____

Pre-Job Brief Content

- Prerequisites, where applicable – things that must be staged, in place, or completed before the work starts
- Worker pause/stop work authority and obligation per P101-18, Procedure for Pause/Stop Work
- Scope of work and work activities including IWD/WCDs, procedures, work package documents, and drawings, as applicable
- Hazards and associated controls, including personal protective equipment, and the resolution of any related questions
- Critical steps* including where they are covered in the IWD/WCD and which HPI technique will be used for each critical step
- Permit and plan requirements and limitations (e.g., penetrations, spark flame) and how permit requirements will be met
- Applicable regulatory requirements [e.g., Technical Safety Requirements (TSR), Code of Federal Regulations (CFR)] including how these requirements can be inadvertently violated if the IWD/WCD is not followed
- Roles and responsibilities including person(s) responsible for making critical decisions (e.g., PIC)
- Handoffs and coordination requirements among workers and multiple PICs, if applicable
- Work site conditions including location of phone and emergency equipment (e.g., fire alarms, fire extinguisher, AED) and how to respond to alarms and emergencies
- Hold points and other notifications/signoffs (e.g., inspections, Industrial Hygiene, radiation protection)
- Applicable Lessons Learned (LL), especially from previous performance of the activity
- Any other information needed to perform this activity in a safe, secure, and environmentally responsible manner

Ask: Does everyone agree with the work tasks/steps and controls, and commit to follow them?

*Critical steps are when "a procedure step, series of steps, or action that, if performed improperly, will cause irreversible harm to equipment, people, or the environment" (DOE-HDBK-1028-2009, Volume 1).

IWD No:	Revision No.:
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 Number/Date) [illegible] 297862 9-28-21	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date) Anthony Barker 310806 9-28-21	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)

Integrated Work Document (IWD) – Form 2100

Los Alamos NATIONAL LABORATORY

Subcontractor IWD – (Subcontract Activity Specific Information)

Subcontract#			**Company Name: NALCO**		
Revision #:			**Activity/Task Title:** WATER TREATMENT ADDITIONS		
Work Document #: (WO # / Task)			**Subcontractor Planner Name** John Troise	**Z#** 239211	**Date:** 3/11/16
TA: 55	**Building:** various	**Room:**	**Additional Location Description:**		

Activity Description/Overview:

Perform semi-annual water treatment preventive maintenance.

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, **STOP WORK**, stabilize the situation, contact your supervisor, the LANL POC and await further instructions before proceeding.

2. Training required to perform this activity:
   - Reference LANL AP-MSS-001.004-2 Subcontractor Training Matrix
   - List additional Trainings, certifications, licenses required to perform this activity

GENERAL HAZARDS ***(identify hazards and associated controls)***

The following PPE is required:
- Safety Shoes
- Safety Glasses with side shields

Slips, Trips and Falls
- Be aware of ground and floor conditions.

Back Strains
- Use proper lifting and bending technique at all times

CHEMICAL TRANSFER HAZARDS (TO BE PERFORMED BY NALCO TECHNICIAN ONLY)

1. NALCO tech to use two man rule at all times. (i.e. escort)

2. Ensure spill kit and eyewash and shower station are available during transfer.

3. NALCO Tech PPE requirements: Chemical resistant apron, full face respirator with cartridge (North no. 75SCP100), safety shoes, chemical resistant gloves (butyl rubber).

4. Replace cartridges with each daily use.

(In case of eye contact with treatment chemicals, activate the portable eyewash fountain and irrigate eyes thoroughly until water flow ceases. In case of skin contact, proceed to the safety shower and rinse the affected area thoroughly. Remove any clothing that may have absorbed treatment chemicals.)

CHEMICAL CONTAINER HANDLING HAZARDS

1. Use proper Drum cart or hand truck to move drums, be aware of floor obstructions and equipment.

2. Check to ensure all drums/containers are sealed and secured prior to movement.

3. PPE requirements: Chemical resistant apron, chemical resistant safety shoes, chemical resistant gloves (butyl rubber), chemical goggles and face shield.

Integrated Work Document (IWD) – Form 2100

Los Alamos NATIONAL LABORATORY

Subcontractor IWD – (Subcontract Activity Specific Information)

Subcontract#			**Company Name: NALCO**		
Revision #:			**Activity/Task Title:** WATER TREATMENT ADDITIONS		
Work Document #: (WO # / Task)			**Subcontractor Planner Name** John Troise	**Z#** 239211	**Date:** 3/11/16
TA: 55	**Building:** various	**Room:**	**Additional Location Description:**		

Task 1: Obtain Sample for Analysis
1. Inform Operations Center prior to starting work.
2. Barricade work area with caution tape.
3. Verify all required chemicals (Nalco TRASAR TRAC 105 and Nalco 73310), approved container to catch excess treated water from system, approved hose for draining system and spill kit are available.
4. Take a water sample at Pot system drain for analysis.
Task 2: Chemical Tranfer / Pot Additions
2.1 Place supply container on secondary containment or in convenient proximity to chemical Add pot,
2.2 If supply container is too large for easy transport. Transfer chemical to proper 5 gallon container provided by NALCO.
2.3 Using Syphon pump/Drum pump/ Parastallic pump and attach transfer lines to container being filled.
2.3.1. Place suction in supply container.
2.4 Ensure adequate ventilation of room that transfer is being performed.
2.5 Using appropriate pump-attach pump and tubing to supply container and receiving container. Ensure tubing is secure to minimize unwanted splash or spill.
2.6 Proceed with transfer – only fill containers so they can be easily managed.
2.7 <u>Do not leave area during transfer process.</u>
2.8 When 5 gallon container is adequately full, stop transfer , remove pump and seal drum. Clean area if any nuisance spills are noted.
2.9 Move 5 gallon container to chemical add Pot, Use secondary containment or spill kit barriers to minimize the effects of a spill should it happen.
2.10 Close chemical add Pot inlet and outlet valves.
2.11 Use approved catch container and hose when draining Pot.
2.12 Open chemical add Pot drain and crack open carefully Pot addition cover.

Attachment FZ0-1

Integrated Work Document (IWD) – Form 2100

Los Alamos NATIONAL LABORATORY

Subcontractor IWD – (Subcontract Activity Specific Information)

Subcontract#			**Company Name: NALCO**		
Revision #:			**Activity/Task Title:** WATER TREATMENT ADDITIONS		
Work Document #: (WO # / Task)			**Subcontractor Planner Name** John Troise	**Z#** 239211	**Date:** 3/11/16
TA: 55	**Building:** various	**Room:**	**Additional Location Description:**		

2.13 When Pot is fully drained, close Pot drain and add chemical as per this task transfer procedure. Very small amounts that are easily managed and in hand sized containers less than 2 gallons may be hand poured into Pot.
2.14 After chemical transfer, if Pot is not full, crack open the Pot inlet valve slightly to allow system water to fill to rim then close inlet valve.
2.15 Close Pot addition cover, check that seals are in good condition and no debris is present.
2.16 Open inlet and outlet valves to Pot and let circulate for at least ten minutes before another addition can be performed.
2.17 After chemical treatment is complete, circulate water for a minimum of (72hrs.). Take sample of Pot feeder system water and add chemicals until desired results are obtained.
2.18 After achieving desired results close inlet and outlet valves, drain pot feeder to approved container and leave drain valve in the open position. (this step is optional, notify SME of as left position.)
2.19 Remove barricade caution tape.
2.20 Notify Operation Center when work is complete.
CONTACT the LANL POC and inform them the work is completed. Complete all the required documentation and return the Master Work Package to the Area Work Control Office.
Insert Rows above for additional Tasks/Steps or attach pages to clearly communicate ESH&Q/S&S hazards and associated controls.

IWD Type	
☒ Moderate-Hazard ☐ High-Hazard /Complex ☐ Standing IWD	The Subcontractor line manager approves work based upon confidence that this IWD has been jointly prepared with the Contractor, the IWD clearly defines Subcontractor provided work tasks/steps linked to hazards and controls associated with the work to be performed, that the work will be performed within ES&H/S&S requirements and will be performed in accordance with this IWD. Signature: _____ Z# 302257 Date: 4-11-16

Subcontractor PIC Signature _____ Z# 302257

277862

Attachment FZ0-1

Integrated Work Document (IWD) – Form 2100

Los Alamos NATIONAL LABORATORY

Subcontractor IWD – (Subcontract Activity Specific Information)

Subcontract#			**Company Name: NALCO**		
Revision #:			**Activity/Task Title:** WATER TREATMENT ADDITIONS		
Work Document #: (WO # / Task)			**Subcontractor Planner Name** John Troise	**Z#** 239211	**Date:** 3/11/16
TA: 55	**Building:** various	**Room:**	**Additional Location Description:**		

Document Preparer Signature	Z# 194072	**Reviewed by SUBCONTRACTOR ES&H Representative**
STR or Designee Signature	Z# 198617	
LANL ES&H Rep Signature R. WINKEL	Z# 120199	Signature
FOD Rep Signature	Z# 118203	Z# _____ Date: 4/10/16
LANL ESO Signature (if required) _____	Z# _____	

HOT WATER BOILERS 6 MONTH

BOILER # PF-C

	Description	S	U	Comments
1	Notify Facility Coordinator and Site Manager that work will be in progress on the boiler system.	✓		
	Maintenance			
2	Obtain a water sample from the boiler drain or an accessible point on the hot water loop system.	✓		
3	Check sample water for boiler water treatment chemical concentration and pH.		✓	NO2 (500-800ppm) 120 Ph(8-9units) 9.15 Conductivity(monitor) 450 TRASAR(2000units) 185 ★
4	If required add, a. Nalco TRAC-105 b. Nalco 73310 If sub-contractor suggests more chemicals to help resolve boiler loop issues Stop and Contact System Engineer.		✓	Nalco added into loop in August 2021. ★
Note:	Not all boiler systems have pot feeders.			
5	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 or use chemical injection pump, as required drain enough water from the closed heating loop as to not fill up surge volume.	✓		Boilers have working Pot Feeder
6	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.		✓	NO2 (500-800ppm) ★ 80 ▼ Ph(8-9units) 9.05 Conductivity(monitor) 429 TRASAR(2000/+-800 units) 170 ▼

Remarks: ★ 9/21/21 Nalco found system to have a leak. until leak is fixed or isolated we will add more product into the loop.

Approved by Alissa Tatro

#696391 01

HOT WATER BOILERS 6 MONTH				
BOILER # PF-6				
Item	**Description**	**S**	**U**	**Comments**
	Post Maintenance		✓	
7	Post maintenance activities shall be conducted in accordance with the work order package instructions, e.g. lock out/tag out, special instructions, etc.	✓		

Remarks: 9-28-21 Nalco tested the loop and found the System to be leaking. The chemical Numbers continue to fall. We Request the leaks be fixed prior to us adding more costly chemical.

Name (craft) Nick Troise / Nalco Z-Number 297862

Signature [signature] Date 9/28/21

Name (craft) _____ Z-Number _____

Signature _____ Date ___/___/___

SE Verification [signature] Date 10/19/21

Approved by Alissa Tatro

#696391 01

Los Alamos NATIONAL LABORATORY EST. 1943

TA-55 Preventive Maintenance Close Out Sheet

Work Order No.: #696391 01

Instructions: Enter the requested information prior to submitting PM package for closeout.

Maintenance Coordinator:

- Is the equipment listed for this PM: ☐ ML1 ☐ ML2 ☐ ML3 ☐ ML4
- If deficiencies were noted, provide the FSR # and WO # created to correct the PM deficiency:

FSR #: NA and WO #: 696494-01

MC Signature/Z# & Date Victor Summa 243191 9.30.21

System Engineer:

If corrective action is needed, must it be completed prior to next PM performance: ☐ Yes ☐ No

SE Signature/Z# & Date [signature] 189910 10-19-21

Craft/PM Superintendent:

Was Material used from a TA55 Warehouse? ☐ Yes ☑ No

If "Yes," a Material Pick list must be included in the PM work package.

Signature/Z# & Date [signature] 204336 9/29/2021

Verification signatures:

PM Coordinator Signature/Z# & Date 240899 10.22.21

Los Alamos NATIONAL LABORATORY EST.1943

AP-WORK-002: Attachment 11
Maintenance and Site Services
Work Completion Form

Work Order/Task: #696391 01

Start Date: 9-28-21		**Completion Date:** 9-28-21
SUMMARIZE THE WORK PERFORMED		
Date		
9-28-21	Nalco performed their normal pm. The HW loop has a leak that needs to be fixed. only after will we be able to add chemical to the loop	
FOR CORRECTIVE WORK – WHAT FAILED AND WHAT WAS FIXED		
	Failure Mode Root Cause Code (Circle Root Causes that Apply)	
Failure Mode	Circuit Breaker Tasks	System Restoration Issues
	Digital Component Tasks	Pump Related Tasks
	Doors/Hatches	Procedure Use
	Electrical Determinations	Rigging/Lifting Tasks
	Failed Surveillance	Electrical Switches
	Fastener Tasks	Troubleshooting Issues
	FME Tasks	Valve Related Tasks
	I&C Calibration/Setpoints	Welding
	Mechanical Connections	Work Instruction Issues
	Other (Specify Root Cause)	System is losing water
Failure Mode Comments	(Add Details)	
	Rework Mode (Circle Rework Causes that Apply)	
Rework	Cause Indeterminate	Life Cycle Management
	Design Deficiency	PM Deficiency
	Intentionally Abbreviated Maintenance	Rule Base Human Performance Deficiency
	Instructional Deficiency	Skill Base Human Performance Deficiency
	Knowledge Based Human Performance Error	Tools/Equipment/Lifts
	Deficiency	Vendor Deficiency
	Operational Deficiency	Work Management Deficiency
		Weather
	Other (Specify Rework Mode)	
Comments		

#696391 01

FOR PMs – SUMMARIZE AS FOUND AND AS LEFT CONDITIONS BELOW		
	As Found Conditions (Circle Conditions that Apply)	
As found	Unanticipated Failure	Within Tolerance
	Failure Not Normal Wear	Satisfactory
	Failure Normal Wear	Superior, Like New
	(Outside of Tolerance)	Not Applicable
	Reliability Degraded	
	Other (Specify As Found Condition)	
Comments	System has a leak	
As left	online	
Parts/Repairs	N/A	

		conductivity	PH	TRE	~~TRE~~ NO2
Read/meas.	9-21	450	9.15	185	120
Post test info	9-28	429 ↓	9.05	17~~5~~↓	80 ↓

Problems Encountered (delays, safety, etc.): NA

	Delay Codes (Circle Codes that Apply) N/A	
Delay	Access	Operations
N/A	Equipment	RCT Availability N/A
	IWD Workability	Safety Pause
	Material	Weather
		# of Hours_____ Date(s)_____
	Other (Specify Reason for Delay) N/A	
Comments	N/A	

Lessons Learned/Recommendations: Please have leaks fixed. We will only add into the loop if system is stable.

Name: Nick Troise **Z#** 297862 **Signature:** [signature] **Date:** 9-28-21

Los Alamos NATIONAL LABORATORY EST. 1943

AP-WORK-002: Attachment 11
Maintenance and Site Services
Work Completion Form

#696391 01

PIC/SUPT

☑ PM has been completed in its entirety and ready for closure.

IF A PM COULD NOT BE COMPLETED: NM Jones 297862 9-28-2021

☑ Percentage complete is 100 %

☐ Sections that did not work and need to be rescheduled

Reasons why:

MAINTENANCE COORIDATOR/AREA WORK COORDINATOR

Work Package is Complete and may be closed out: YES ☑ NO ☐

IF no: State Reason

Additional Work Needed? ☑ YES ☐ NO

Document UP/WO/FSR Number: WO# 696494.01 VS 243197 9.30.21

ENGINEERING (FOR MD and CD Work Orders)

IF a configuration baseline has been changed, THEN indicate the changes are to be incorporated into the following documents and/or configuration baseline:

☐	Drawings	☐	FDD/~~SDD~~
☐	Procedures	☐	Master Equipment List
☐	Permits	☐	Checklists

SE Name: Signature: Date:

WORK CONTROL

Moderate/High Hazard – WMC/Planner reviewed for Lessons Learned/Feedback

☒ YES ☐ NO N/A ☐

☒ Review of the completed work package is complete per AP-WORK-005, and the work package is ready to be set to complete in CMMS.

Name:	**Z#**	**Signature:**	**Date:**
Jennifer DeRyke	241589		10.20.21

Los Alamos NATIONAL LABORATORY EST 1943

AP-WORK-002: Attachment 11
Maintenance and Site Services
Work Completion Form

Work Order/Task: #696391 01

Start Date: 9-21-21	Completion Date:

ADITIONAL DETAILS ON WORK PERFORMED

Date	(Add details on As Found, Failure Mode, and Lessons Learned etc.)
9-21-21	Nalco found system to have a ongoing leak due to a continuous ~~too~~ Drop in conductivity and Nitrite levels. We will Resample next week to trend true data.
	Nick Troise [signature] 297862 9-21-2021
9-28-21	Nalco found the system to be leaking, due to Drops in all levels. please Review the "Hot water Boilers 6 month" Sheets.
	Nick Troise [signature] 297862 9-28-21

ATTACHMENT A807.F.b.

External Combustion

Revised Maintenance Procedures for Sources listed in Table 800.A.

PMI – TA-09/16 Steam Plants – Annual Boiler Waterside/Fireside Checklist

Review frequency 1 yr ☑ 2 yr ☐ 3 yr ☐

Issue date 10/08/21 **Next review** 10/08/22

Reviewed by

Glenn Martinez	Power Plant Maintenance Superintendent
	Z# 190429

Reviewed by

Patrick McCabe	Steam Systems Engineer
	Z# 348093

Approved by

William Newell	Power/Steam/CGTG System Engineer
	Z# 345054

Derivative Classifier Review

James Liljenwall	Classification: VERIFIED UNCLASSIFIED
	Z# 206614

This procedure may only be worked in conjunction with a work control package processed per AP-WORK-002, Work Planning. It may not be used as a stand-alone work control document.

The purpose of this procedure is to provide instructions for performance of the Annual Boiler Waterside/Fireside Checklist at the TA-09/16 Steam Plants.

Work Steps

A Preliminary Items

1. Required boiler training and qualifications:

   a. Boiler Operator: New Mexico Construction Industries Journey Classification as a Journeyman Boiler Operator – High Pressure BO2 (NMAC 14.6.6)

      Note: Boiler Operator Trainee may not operate any boiler devices unless under the direct observation of a Journeyman Boiler Operator (NMAC 14.9.4.29).

b. Pressure Safety Orientation – Course #769 (LANL P101-34)

c. Pressure Safety Advanced – Course #11459 (LANL P101-34)

d. Boiler maintenance crew performing low-NOx verification: boiler training from Sellers Engineering Company or local manufacturer's representative

2. Equipment, tools, instruments:

   • Flue gas analyzer

   • Calibrated boiler pressure gauge

   Record calibration dates on Boiler Checklist (Attachment 1).

3. Supplies, materials:

   • Mobil Polyrex EM grease

   • Slowserve grease

B Boiler Overview

1. TA-09/16 Steam Plant boilers are located at the following eight boiler plants: Plant 1 (TA-16-1480), Plant 4 (TA-16-1483), Plant 5 (TA-16-1484), Plant 8 (TA-16-1487), Plant 11 (TA-16-1490), Plant 12 (TA-16-1491), Plant 13 (TA-09-0282), and Plant 14 (TA-16-1492).
2. Boilers are Sellers Engineering Company fire tube boilers, manufactured in 1995. Each has a maximum allowable working pressure (MAWP) of 150 psig. Supply natural gas pressure is nominally 5 psig. Attachments 2 and 3 contain boiler technical information.
3. Inspection and maintenance consists of the following:

   a. Testing or replacing pressure relief safety valves

   b. Waterside and fireside boiler inspection

   c. Cleaning of debris or scaling found inside the boiler

   d. Inspection and maintenance of various plant components

   e. Steam gauge calibration

   f. Internal and external inspection by a National Board Inspection Code (NBIC) Boiler Inspector

4. Boiler output pressure: 80 psig

   Exception: Boiler output pressure for two boilers at Plant 12 (TA-16-1491): 40 psig

5. There are three pressure switches on top of each boiler: high pressure steam shutdown (High Limit) switch; operating pressure control (OPC) switch; Low-NOx cold start limit control (CSLC) switch.
6. Final settings for all boilers except two at Plant 12 (TA-16-1491):

   a. High pressure steam shutdown (High Limit) switch: 90 psig

b. Operating pressure control (OPC) switch: 80 psig

c. Low-NOx steam pressure (CSLC) switch: 40 psig

Exceptions: Final settings for two boilers at Plant 12 (TA-16-1491):

a. High pressure steam shutdown (High Limit) switch: 45 psig

b. Operating pressure control (OPC) switch: 40 psig

c. Low-NOx steam pressure (CSLC) switch: 20 psig

7. All steam pressure switch setpoint verification must be performed with a calibrated boiler pressure gauge.
   - All gauges used for pressure switch setpoints must have calibration dates, which are to be recorded on Attachment 1 checklist.
8. There are four pressure switches at the steam header: the lead, the lag, and the two low-pressure switches.
9. For all boilers, set the switches to control the lead/lag feature of the boiler.
10. Verify that all pressure switches perform their intended function.
    - If the pressure setting on a switch varies by more than 20% from the boiler pressure gauge, the switch must be replaced.
11. After final tuning of the boiler parameters, adjust the air flow proving switch to about 2 inches water column below the blower pressure setting.
12. Flue gas analyzer will be needed for two scenarios: light off and Low-NOx boiler settings. Record the O2, CO, NOx, temperature, and efficiency. The boilers are to be run in the Low-NOx mode to be compliant with manufacturer's instructions.
13. Complete Attachments 1 and 2 before the boiler is released by UI Engineering to UI Operations. The Steam Facilities System Engineer must be alerted for inspection of boiler components. See Hold Points below.

C External Inspection

HOLD POINT

UI System Engineer and NBIC Boiler Inspector are needed for external boiler inspection. Give at least 7 days advance notice and coordinate with UI System Engineer.

D Secure Boiler(s) and Prepare for Inspection/Maintenance

1. Secure boilers per UI-PROC-76-28-001-R1 Boiler Shut-Down Dry Layup Process.

   Note: References to documents beginning with UI- also include revisions beginning with UIDO- and IFDO-.

2. Drain boilers in accordance with UI-PROC-76-28-002-R1 Steam Plants Boiler Draining.

3. Isolate system if both boilers are being shut off.

   Note: Outage will be required if doing one boiler at a time to perform the feed water tank and steam header maintenance.

   a. Close main steam valve to system.

   b. Drain steam header

   c. Isolate water to feed tank

   d. Unplug water softeners, chemical pump, and continuous blowdown controller.

4. Remove gas supply and vent piping prior to opening front door.

E Waterside Inspection/Maintenance

1. Open flue door and inspect tube sheets for water leakage. If 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.

2. 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.

HOLD POINT

Steam Facilities System Engineer and Chemical Treatment Company Representative are needed for boiler inspection. Give at least 7 days advance notice and coordinate with Steam Facilities System Engineer.

3. 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.

4. Use a high pressure hose to wash sediment out of the bottom and other internals of the boiler.

5. Remove and replace the Kunkle pressure relief valves. New pressure relief valves can be purchased and Attachment 4 identifies the pressure relief valves to order. If new valves are not purchased, test and repair the pressure relief valves in accordance with the Engineering Standard Manual Chapter 17.

HOLD POINT

Steam Facilities System Engineer and NBIC Boiler Inspector are needed for internal boiler inspection. Give at least 7 days advance notice and coordinate with Steam Facilities System Engineer

6. With the support of electricians, remove the OPC, High Limit, and CLSC controls. 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.

F Fireside Inspection/Maintenance

1. Remove all heat extractors and inspect their condition. These devices can be pulled out individually from each of the fire tubes and cleaned if necessary. Repair or replace if necessary.
2. Check gas burners for presence of dirt, lint, or foreign matter. Be sure of ports, gas passages and air passages are free of obstructions.
3. Clean out each main burner with a bottle washer.
4. Check the fireside of furnace and fire tubes for any evidence of soot formation or corrosion. Evidence of soot formation is a sign of improperly adjusted combustion. Brush and vacuum the furnace and fire tubes, if such conditions exist.
5. Drill the pilot manifolds with a #53 drill bit as needed and adjust the pilot manifold position in accordance with the Seller's Owners' Manual.
6. Clean air socks, flame rods, ignitor rod, and replace if needed.
7. Remove fan door and clean fan and shroud. Re-install fan door when complete.
8. Lubricate Baldor blower motor with Polyrex EM (Mobil) grease.
9. Check combustion chamber sight glasses and replace as needed.
10. Check flue door gaskets and other gaskets to make sure that they are in good condition and that they are properly secured. Replace, if required, the flue door gaskets. An ineffective seal may allow flue gases to escape into the boiler room and result in burned gaskets and warped flue doors.
11. Verify the gas low and high limit switches. Record values in Attachment 1.
12. Check the Low-NOx solenoid for proper operation. Remove door and check plunger, clean, and re-grease bearing.
13. After the fireside and waterside surfaces have been inspected by the UI system engineer and by the NBIC boiler inspector, and work is completed, close and secure front and rear flue doors. Reinstall hand hole and manifold covers if applicable; hook up all associated piping and refill boiler to proper level.

G Steam Header Inspection/Maintenance

1. With support of electricians, remove wiring from controls.
2. Remove and clean controls and syphon tubes. Reinstall and replace as needed.
3. Check condition of Y-strainers steam traps, clean and replace as needed.
4. Check the condition of the sparger line controls and safety valves. Repair and replace as needed.

H Feed Water Tank Inspection/Maintenance

1. Electricians go through Feed Water Tank panel to check for loose and broken wires, clean contacts, and inspect.
2. Remove hand holes, inspect tank for deposits and clean as needed.
3. Check condition of anode and replace if needed.
4. Remove and clean temperature gauge.
5. Check condition of sparger line header (if possible) and clean if needed.
6. Remove McDonald Miller strainer. Inspect and replace if needed.
7. Remove and clean all pump strainers, and reinstall.
8. Lubricate Grundfos boiler feed pumps: lubricate the Baldor motor with Polyrex EM (Mobil) grease.
9. Replace hand holes, fill tank, and check for leaks.

I Boiler Gas Train Inspection/Maintenance

1. For Main Gas Regulators, Fisher CS800.
    a. Remove gas regulator diaphragm head on Fisher models, check torque values of orifice. Orifice torque value should be between 25 TO 35 FT-LBS.
    b. Check torque values of 12 diaphragm head bolts, manufacturer specifies 63 TO 90 FT-LBS.
    c. Reinstall gas regulator diaphragm and tighten 4 bolts to manufacturer torque value of 10 to 13 FT-LBS.
2. For Pilot Gas Regulators, Fisher CS200.
    a. Remove gas regulator diaphragm head on, check torque values of orifice. Orifice torque value should be between 35 TO 45 FT-LBS.
    b. Check torque values of 12 diaphragm head bolts, manufacturer specifies 63 TO 90 FT-LBS.
    c. Reinstall gas regulator diaphragm and tighten 4 bolts to manufacturer torque value of 10 to 13 FT-LBS.
3. Grease plug valves on gas supply line. Use Slowserve for Nordstrom Valves Type 555 (-10°F to 500°F).
4. Re-install gas vent and supply piping after closing front door.
5. Check all gas piping from upstream union to the first safety shutoff valve for gas leaks before starting boiler.
6. After start-up of boiler, check all gas piping and fittings from first safety shut-off to boiler combustion chamber for leaks.

J Chemical Equipment Inspection/Maintenance

1. Chemical pump and tank
    a. Empty chemical tank into barrel.
    b. Add water to tank and pump into feed water tank to flush out pump and chemical lines.
    c. Clean any debris accumulated on the Neptune/Leeson chemical feed pumps and the GE/Neptune chemical mixing motors.
    d. Unplug pump until start up
2. 3D Trasar Unit
    a. Remove and clean 3D Trasar conductivity probe for each boiler.
    b. Remove and clean metal filter.
    c. Remove and replace paper filter
    d. Replace back up power batteries
    e. Reprogram 3d Trasar unit after battery replacement.
    f. Perform 2 point calibration on 3D Trasar conductivity probe for each boiler, as per 3D Trasar manual.
    g. Clean 3D Trasar Fluorimeter Flow cell per UI-PROC-76-28-014-R2.
    h. Perform calibration on 3D Trasar Fluorimeter for each boiler.
3. Water Softener
    a. For systems where both boilers are secured for the summer, regenerate water softeners before putting back online. Check for leaks or abnormal operations.
    b. Fill brine tank if needed.
4. Backflow Preventer
    a. Check for leaks and ensure proper operation.

K Post-Maintenance

1. Complete Attachments 1 and 2.
2. Verify the settings for the following steam switches: lead, lag, low boiler pressure.
3. There are three pressure switches on top of each boiler: the high pressure steam shutdown (High Limit) switch, the operating pressure control (OPC) switch, and Low-NOx Cold Start Limit Control (CSLC) switch.
4. Upon initial startup the CSLC switch is adjusted to a pressure above the OPC switch until the initial boiler parameters have been adjusted.

5. Final setpoint configurations:
    a. For all boilers [except two boilers at Plant 12 (16-1491)]:
        - High pressure steam shutdown (High Limit) switch: 90 psig
        - Operating pressure control (OPC) switch: 80 psig
        - Low-NOx cold start limit control (CSLC) switch: 40 psig

    b. For the two boilers at Plant 12 (16-1491):
        - High pressure steam shutdown (High Limit) switch: 45 psig
        - Operating pressure control (OPC) switch: 40 psig
        - Low-NOx cold start limit control (CSLC) switch: 20 psig

        All steam pressure switch setpoint verification must be performed with a calibrated boiler pressure gauge.
6. Verify the Low-NOx cold start limit control switch.
    a. Set to the values above.
    b. Verification of this switch is performed after the initial settings.
    c. Verify that the Low-NOx damper control motor is operating and that the auxiliary solenoid valve on the main gas valve line de-energizes (closes).
7. Check pilot burners and ignition equipment for proper condition and adjustment.
8. Startup boiler per UI-PROC-76-28-008-R1 TA-9/16 Steam Plants Boiler Startup.
9. Visually check burner for proper combustion.
    a. Combustion analysis is verifiable only with a flue gas analyzer and is performed mainly on boilers with power burners.
    b. Adjust fuel/air mixture as needed.
    c. Refer to Attachment 3 for commissioning flue gas analysis results.
10. Ensure completion of functional checklist in Attachment 2.
11. Before the boiler is released to Operations, Steam Facilities System Engineer must review and sign off on Attachments 1 and 2.
    - Ensure correct operation. If problems are found, immediately notify appropriate personnel so corrective action can be taken.

L Appendices and Attachments

Attachment 1. Form 76-28-010.1 Boiler Checklist

Attachment 2. Form 76-28-010.2 Pressure and Flue Gas Analysis

Attachment 3. Baseline Settings

Attachment 4. Approved Steam Safety Valves

M History of Revisions

Document Number	Issue Date	Action
UIDO-PROC-76-28-010-R0	10/08/21	Review and reissue as Utilities & Infrastructure PMI. No changes.
UI-PROC-76-28-010-R2	09/03/20	Review and reissue with changes to work steps and corrections to attachment numbering.
UI-PROC-76-28-010-R1	04/10/19	Convert to PMI with changes.
UI-PROC-76-28-010-R0	05/13/15	New procedure.

Attachment 1. Form 76-28-010.1 Boiler Checklist

Boiler NB #_____

Boiler Location_____

Date(s) Performed_____

Safety valves replaced?_____ S/N #_____

Boiler Pressure (psig)_____ Fireside inspection:_____

Supply gas pressure (psig)_____ Waterside inspection:_____

Flue door gaskets replaced?_____

Verify shutdown switches:

High Limit_____ High Limit set point_____

High Gas_____ High Gas set point_____

Low Gas_____ Low Gas set point_____

OPC_____ OPC set point_____

LWC 1_____

LWC 2_____

Air Proving Switch_____

Boiler set in low NOx setting?_____ CSLC set point_____

Lag set point_____ Lead set point_____

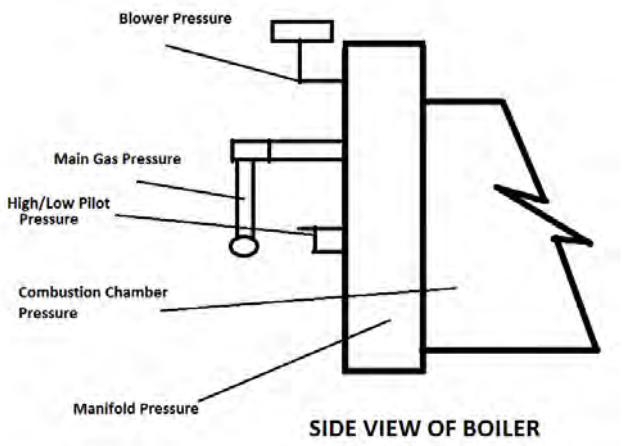
Calibration date on steam boiler pressure gauge_____

Form 76-28-010.1 1/1

Attachment 2. Form 76-28-010.2. Pressure and Flue Gas Analysis

Original boiler commissioning settings are captured in Attachment 3, Baseline Settings.

	Lightoff Readings	Low NOx Readings
Manifold Pressure (wc)		
High Pilot Pressure (wc)		
Low Pilot Pressure (wc)		
Blower Pressure (wc)		
Main Gas Pressure (psig)		
O2 (%)		
CO (ppm)		
NOx (ppm)		



Form 76-28-010.2 1/2

FUNCTIONAL CHECKLIST

- ☐ Steam system
  - o Traps
  - o Y- strainers
- ☐ Condensate return system
- ☐ Gas system
- ☐ Motors operational
- ☐ Pumps operational
- ☐ Feed water system
- ☐ Chemical feed system
- ☐ Blowdown system
  - o Valve controlling continuous blowdown
- ☐ Electrical system
- ☐ Safety shutdown
- ☐ Building
  - o Lights operational
  - o Heating system
  - o Life safety

COMMENTS:_____
_____
_____
_____
_____
_____

Form 76-28-010.2 2/2

Attachment 3. Baseline Settings

							Lightoff Readings						Low NOx readings					
Plant #	Location	Serial #	Boiler HP	High Pilot "wc	Low Pilot "wc	Blower Pressure "wc	Manifold Pressure "wc	Combustion Chamber Pressure "wc	Main Gas Pressure "wc	O2 %	CO ppm	NOx ppm	Manifold Pressure "wc	Combustion Chamber Pressure "wc	Main Gas Pressure "wc	O2 %	CO ppm	NOx ppm
1	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
1	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
4	16-1483-A	100850-B	128	10.2	5	7.5	5.8	2.4	10.8	3.6	7	51	5.8	2.1	12.5	5.9	8	25
4	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
5	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
5	16-1484-B	100848-B	183	11.5	7	8	5.5	2.3	15	3.4	11	53	5.5	2	16	6	10	21
8	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
8	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
11	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
11	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
12	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
12	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
14	16-1492-A	100855-B	85	10	9	10	5.2	2.3	8.5	3	7	53	5.2	2	10.7	6.4	24	24
14	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
13	9-282-A	100849-A	153	10.5	10	8	5.1	2.2	13.6	3.7	11	57	5.1	1.9	15	6.4	6	27
13	9-282-B	100849-B	153	10.5	6	8.4	5.6	2.4	11.3	3.8	12	52	5.6	2.1	12.5	5.9	8	26

Attachment 4. Approved Steam Safety Valves

Plant #	Location	Serial #	ASME #	Nat'L Board #	Boiler Max Steam Capacity (lb/hr)	Safety Valve Inlet	Relief Flow (lb/hr)	Safety Valve Brand	Safety Valve to Order
1	16-1480-A	100852-B	10158	8365	3381	2"	4593	Kunkle	6021HHT01-AM0100
1	16-1480-B	100852-A	10022	8359	3381	2"	4593	Kunkle	6021HHT01-AM0100
4	16-1483-A	100850-B	10324	8375	4416	2"	4593	Kunkle	6021HHT01-AM0100
5	16-1484-A	100848-B	10291	8334	6314	2"	4593	Kunkle	6021HHT01-AM0100
5	16-1484-A	100848-B	10291	8334	6314	1-1/2"	2948	Kunkle	6021GGT01-AM0100
5	16-1484-B	100848-A	10290	8333	6314	2"	4593	Kunkle	6021HHT01-AM0100
5	16-1484-B	100848-A	10290	8333	6314	1-1/2"	2948	Kunkle	6021GGT01-AM0100
8	16-1487-A	100857-B	10314	8355	1932	1-1/2"	2948	Kunkle	6021GGT01-AM0100
8	16-1487-B	100857-A	10313	8354	1932	1-1/2"	2948	Kunkle	6021GGT01-AM0100
11	16-1490-A	100856-B	10329	8388	3278	2"	4593	Kunkle	6021HHT01-AM0100
11	16-1490-B	100856-A	10328	8395	3278	2"	4593	Kunkle	6021HHT01-AM0100
12	16-1491-A	100859-A	10330	8380	828	1-1/2"	1671	Kunkle	6021GGT01-AM0050
12	16-1491-B	100859-B	10331	8381	828	1-1/2"	1671	Kunkle	6021GGT01-AM0050
14	16-1492-A	100855-B	10327	8387	2933	2"	4593	Kunkle	6021HHT01-AM0100
14	16-1492-B	100860-A	10317	8361	2415	2"	4593	Kunkle	6021HHT01-AM0100
13	9-282-A	100849-A	10292	8338	5279	2"	4593	Kunkle	6021HHT01-AM0100
13	9-282-A	100849-A	10292	8338	5279	1-1/2"	2948	Kunkle	6021GGT01-AM0100
13	9-282-B	100849-B	10293	8342	5279	2"	4593	Kunkle	6021HHT01-AM0100
13	9-282-B	100849-B	10293	8342	5279	1-1/2"	2948	Kunkle	6021GGT01-AM0100

ATTACHMENT A907.A.

Chemical Usage

Chemical Purchases from ChemDB

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
N N-DIMETHYLFORMAMIDE	1	Liters(L)	01-Jul-21
PERCHLORIC ACID 70%	500	Milliliter(ML)	01-Jul-21
N-PROPANOL	500	Milliliter(ML)	01-Jul-21
YTTRIUM(III) CHLORIDE ANHYDROUS	50	Gram(GM)	01-Jul-21
AMMONIUM TETRATHIOMOLYBDATE	250	Gram(GM)	01-Jul-21
AMMONIUM TETRATHIOMOLYBDATE	250	Gram(GM)	01-Jul-21
Neodymium (III) acetate hydrate	50	Gram(GM)	01-Jul-21
1000 ug/ml Sodium	30	Milliliter(ML)	01-Jul-21
BENZYL 2-BROMOACETATE	250	Gram(GM)	01-Jul-21
AMMONIUM FLUOBORATE	100	Gram(GM)	01-Jul-21
ACETONITRILE CERTIFIED ACS	500	Milliliter(ML)	01-Jul-21
TETRAHYDROFURAN HPLC GRADE	500	Milliliter(ML)	01-Jul-21
Triethylamine for synthesis	1	Liters(L)	01-Jul-21
MOBIL VACTRA OIL NO. 2	1	Gallon(GAL)	01-Jul-21
MOBIL VACTRA OIL NO. 2	1	Gallon(GAL)	01-Jul-21
MOBIL VACTRA OIL NO. 2	1	Gallon(GAL)	01-Jul-21
ACETONITRILE	1	Liters(L)	01-Jul-21
ACETONITRILE	1	Liters(L)	01-Jul-21
EPO-TEK H22 Part A	1	Ounces(OZ)	01-Jul-21
DIMETHYL SULFOXIDE	1	Liters(L)	01-Jul-21
(-)-QUINIC ACID	25	Gram(GM)	01-Jul-21
But-3-yn-1-amine	5	Gram(GM)	01-Jul-21
But-3-yn-1-amine	5	Gram(GM)	01-Jul-21
TETRAHYDROFURAN-D 99.5 ATOM% D (5/KIT)	10	Milliliter(ML)	01-Jul-21
Buehler Epoxicure 2 Resin	32	Ounces(OZ)	01-Jul-21
LITHIUM CHLORIDE	500	Gram(GM)	01-Jul-21
Hydrochloric Acid	1	Liters(L)	01-Jul-21
Hydrochloric Acid	1	Liters(L)	01-Jul-21
DIPHENYLPHOSPHINE	50	Gram(GM)	01-Jul-21
DI-T-BUTYLPHOSPHINE	5	Gram(GM)	01-Jul-21
DI-T-BUTYLPHOSPHINE	5	Gram(GM)	01-Jul-21
SAMARIUM	10	Gram(GM)	01-Jul-21
ACRYLIC STRUCTURAL ADHESIVE	64	Ounces(OZ)	01-Jul-21
ACRYLIC STRUCTURAL ADHESIVE	64	Ounces(OZ)	01-Jul-21
ACRYLIC STRUCTURAL ADHESIVE	5	Pounds(LB)	01-Jul-21
ACRYLIC STRUCTURAL ADHESIVE	5	Pounds(LB)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 CURE	0.2	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
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PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
PSX 700 LIGHT TINT RESIN	1	Gallon(GAL)	01-Jul-21
AMERCOAT 911	1	Gallon(GAL)	01-Jul-21
AMERCOAT 911	1	Gallon(GAL)	01-Jul-21
AMERCOAT 911	1	Gallon(GAL)	01-Jul-21
AMERCOAT 911	1	Gallon(GAL)	01-Jul-21
PSX 700 CURE	1	Gallon(GAL)	01-Jul-21
CP-11-1 VI-CRYL	2	Gallon(GAL)	01-Jul-21
Yumark EDM	5	Gallon(GAL)	06-Jul-21
MOBIL DTE 25 ULTRA	55	Gallon(GAL)	06-Jul-21
MOBIL DTE 25 ULTRA	55	Gallon(GAL)	06-Jul-21
KRYLON BRIGHT SILVER OR DULL ALUMINUM-1401 1406 1403	11	Ounces(OZ)	06-Jul-21
KRYLON 1401 SILVER SPRAY PAINT	11	Ounces(OZ)	06-Jul-21
KRYLON 1401 SILVER SPRAY PAINT	11	Ounces(OZ)	06-Jul-21
KRYLON 1401 SILVER SPRAY PAINT	11	Ounces(OZ)	06-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
INTERIOR SPRAY ENAMEL	11	Ounces(OZ)	06-Jul-21
INTERIOR SPRAY ENAMEL	11	Ounces(OZ)	06-Jul-21
PROPANE	11	Gallon(GAL)	06-Jul-21
PROPANE	11	Gallon(GAL)	06-Jul-21
PROPANE	11	Gallon(GAL)	06-Jul-21
PROPANE	11	Gallon(GAL)	06-Jul-21
PROPANE	11	Gallon(GAL)	06-Jul-21
Starbond EM-2000 Thick	2	Ounces(OZ)	06-Jul-21
Starbond EM-2000 Thick	2	Ounces(OZ)	06-Jul-21
Starbond EM-2000 Thick	2	Ounces(OZ)	06-Jul-21
Starbond EM-2000 Thick	2	Ounces(OZ)	06-Jul-21
Starbond EM-2000 Thick	2	Ounces(OZ)	06-Jul-21
Starbond KE-150 Black Medium	2	Ounces(OZ)	06-Jul-21
Starbond KE-150 Black Medium	2	Ounces(OZ)	06-Jul-21
Starbond KE-150 Black Medium	2	Ounces(OZ)	06-Jul-21
Starbond KE-150 Black Medium	2	Ounces(OZ)	06-Jul-21
Starbond KE-150 Black Medium	2	Ounces(OZ)	06-Jul-21
Starbond EM-02 Super Fast Thin	2	Ounces(OZ)	06-Jul-21
Starbond EM-02 Super Fast Thin	2	Ounces(OZ)	06-Jul-21
Starbond EM-02 Super Fast Thin	2	Ounces(OZ)	06-Jul-21
Starbond EM-02 Super Fast Thin	2	Ounces(OZ)	06-Jul-21
Starbond EM-02 Super Fast Thin	2	Ounces(OZ)	06-Jul-21
Acetone for gas chromatography ECD and FID SupraSolv	4	Liters(L)	06-Jul-21
Methanol for gas chromatography ECD and FID SupraSolv	4	Liters(L)	06-Jul-21
N-BUTYLLITHIUM	100	Milliliter(ML)	06-Jul-21
N-BUTYLLITHIUM	100	Milliliter(ML)	06-Jul-21
HYDROGEN PEROXIDE	500	Milliliter(ML)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
ARGON GAS	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	06-Jul-21
CARBON DIOXIDE GAS	220	Cubic Feet(CF)	06-Jul-21
CARBON DIOXIDE GAS	220	Cubic Feet(CF)	06-Jul-21
CARBON DIOXIDE GAS	220	Cubic Feet(CF)	06-Jul-21
CARBON DIOXIDE GAS	220	Cubic Feet(CF)	06-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CARBON DIOXIDE GAS	220	Cubic Feet(CF)	06-Jul-21
HYDROCHLORIC ACID OPTIMA-34%	500	Milliliter(ML)	06-Jul-21
Nitric acid 67-69% Optima for Ultra traces analysis	500	Milliliter(ML)	06-Jul-21
Nitric acid 67-69% Optima for Ultra traces analysis	500	Milliliter(ML)	06-Jul-21
ORCINOL MONOHYDRATE	10	Gram(GM)	06-Jul-21
LOCTITE STYCAST 2850FT BK known as STYCAST 2850FT BLK 3#	40	Gram(GM)	06-Jul-21
N-(4-Pentynyl)phthalimide	25	Gram(GM)	06-Jul-21
Zinc chloride hydrate	10	Gram(GM)	06-Jul-21
Zinc chloride hydrate	10	Gram(GM)	06-Jul-21
O-(7-Aza-1H-benzotriazol-1-yl)-N N N' N'-tetramethyluronium hexafluorophosphate	25	Gram(GM)	06-Jul-21
SILVER NITRATE	100	Gram(GM)	06-Jul-21
FOOD GRADE SILICONE SPRAY	16	Ounces(OZ)	07-Jul-21
FOOD GRADE SILICONE SPRAY	16	Ounces(OZ)	07-Jul-21
FOOD GRADE SILICONE SPRAY	16	Ounces(OZ)	07-Jul-21
FOOD GRADE SILICONE SPRAY	16	Ounces(OZ)	07-Jul-21
SODIUM BIS(TRIMETHYLSILYL)AMIDE 1.0M	25	Gram(GM)	07-Jul-21
POTASSIUM TERT-BUTOXIDE	100	Gram(GM)	07-Jul-21
DICHLOROMETHANE D2	25	Milliliter(ML)	07-Jul-21
SULFURIC ACID ACS	225	Pounds(LB)	07-Jul-21
FULLCURE 705	3.6	Kilograms(KG)	07-Jul-21
FS-One Max	10.1	Ounces(OZ)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Jul-21
NaOH Preservation for 250 ml Container	4	Milliliter(ML)	07-Jul-21
NaOH Preservation for 250 ml Container	4	Milliliter(ML)	07-Jul-21
HNO3 Preservation for 500 ml Container	100	Milliliter(ML)	07-Jul-21
HNO3 Preservation for 500 ml Container	100	Milliliter(ML)	07-Jul-21
HNO3 PRESERVATION KIT FOR 1000 ML CONTAINER	100	Milliliter(ML)	07-Jul-21
HNO3 PRESERVATION KIT FOR 1000 ML CONTAINER	100	Milliliter(ML)	07-Jul-21
HNO3 PRESERVATION KIT FOR 1000 ML CONTAINER	100	Milliliter(ML)	07-Jul-21
HNO3 PRESERVATION KIT FOR 1000 ML CONTAINER	100	Milliliter(ML)	07-Jul-21
Compressed Air	220	Cubic Feet(CF)	07-Jul-21
Compressed Air	220	Cubic Feet(CF)	07-Jul-21
Compressed Air	220	Cubic Feet(CF)	07-Jul-21
Compressed Air	220	Cubic Feet(CF)	07-Jul-21
Compressed Air	220	Cubic Feet(CF)	07-Jul-21
Compressed Air	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	07-Jul-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Jul-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Jul-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Jul-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Jul-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Jul-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Jul-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Jul-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Jul-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Jul-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Jul-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Jul-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Oxygen Nitrogen	200	Cubic Feet(CF)	07-Jul-21
OBJET VEROBLUE RGD840	3.6	Kilograms(KG)	07-Jul-21
FULLCURE 705	3.6	Kilograms(KG)	07-Jul-21
OBJET VEROBLUE RGD840	3.6	Kilograms(KG)	07-Jul-21
HIGH-TEMP RTV SILICONE GASKET MAKER	3	Ounces(OZ)	07-Jul-21
Oxygen Nitrogen	200	Cubic Feet(CF)	07-Jul-21
HIGH-TEMP RTV SILICONE GASKET MAKER	3	Ounces(OZ)	07-Jul-21
HIGH-TEMP RTV SILICONE GASKET MAKER	3	Ounces(OZ)	07-Jul-21
MicroCare Fiber Preparation Fluid	3	Ounces(OZ)	07-Jul-21
Water Standard Oven 1% Certified Reference Material for Karl Fischer oven technique Aquastar	5	Gram(GM)	07-Jul-21
Sulfuric Acid (Trace Metal Grade)	500	Milliliter(ML)	08-Jul-21
Sulfuric Acid (Trace Metal Grade)	500	Milliliter(ML)	08-Jul-21
Sulfuric Acid (Trace Metal Grade)	500	Milliliter(ML)	08-Jul-21
Sulfuric Acid (Trace Metal Grade)	500	Milliliter(ML)	08-Jul-21
Ethylene Glycol	4	Liters(L)	08-Jul-21
(S)-(+)-2-Amino-4-bromobutyric acid hydrobromide	25	Gram(GM)	08-Jul-21
H2SO4 500ML PRESERVATION VIALS	100	Milliliter(ML)	08-Jul-21
H2SO4 500ML PRESERVATION VIALS	100	Milliliter(ML)	08-Jul-21
H2SO4 500ML PRESERVATION VIALS	100	Milliliter(ML)	08-Jul-21
HNO3 PRESERVATION KIT FOR 1 GAL CONTAINER	100	Milliliter(ML)	08-Jul-21
SODIUM HYDROXIDE	3000	Milliliter(ML)	08-Jul-21
QUININE SULFATE	60	Gram(GM)	08-Jul-21
BUFFER SOLUTION PH4	1000	Milliliter(ML)	08-Jul-21
BUFFER SOLUTION PH 7.0	1000	Milliliter(ML)	08-Jul-21
BUFFER SOLUTION PH4	4	Liters(L)	08-Jul-21
BUFFER SOLUTION PH 10.00	5	Gallon(GAL)	08-Jul-21
1-STEP ULTRA TMB - ELISA	250	Milliliter(ML)	08-Jul-21
Permacryl Int Latex Semi-Gloss W/B	1	Gallon(GAL)	08-Jul-21
Permacryl Int Latex Semi-Gloss W/B	1	Gallon(GAL)	08-Jul-21
Permacryl Int Latex Semi-Gloss W/B	1	Gallon(GAL)	08-Jul-21
Permacryl Int Latex Semi-Gloss W/B	1	Gallon(GAL)	08-Jul-21
Permacryl Int Latex Semi-Gloss W/B	1	Gallon(GAL)	08-Jul-21
Permacryl Int Latex Semi-Gloss W/B	1	Gallon(GAL)	08-Jul-21
Permacryl Int Latex Semi-Gloss W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Jul-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	08-Jul-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	08-Jul-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	08-Jul-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	08-Jul-21
COTE ALL WHITE BASE	1	Gallon(GAL)	08-Jul-21
COTE ALL WHITE BASE	1	Gallon(GAL)	08-Jul-21
COTE ALL WHITE BASE	1	Gallon(GAL)	08-Jul-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	08-Jul-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	08-Jul-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	08-Jul-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	08-Jul-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	08-Jul-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	08-Jul-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	08-Jul-21
ULTRAPOL B SUSPENSION	4	Ounces(OZ)	08-Jul-21
ULTRAPOL B SUSPENSION	4	Ounces(OZ)	08-Jul-21
MAGNESIUM CHLORIDE ANHYDROUS	5	Kilograms(KG)	08-Jul-21
ICP Tuning Solution	100	Milliliter(ML)	08-Jul-21
ICP Tuning Solution	100	Milliliter(ML)	08-Jul-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	100	Liters(L)	08-Jul-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	100	Liters(L)	08-Jul-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	08-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	08-Jul-21
GC ELECTRONICS HIGH VOLTAGE PUTTY	1.25	Ounces(OZ)	08-Jul-21
3-INDOLEACETIC ACID	250	Milligram(MG)	08-Jul-21
Shredder Oil	180	Ounces(OZ)	08-Jul-21
PLY-7609 SILICONE FLUID	1	Gallon(GAL)	08-Jul-21
FANTASTIK ALL PURPOSE CLEANER	25	Quarts(QT)	08-Jul-21
IRON POWDER	1	Pounds(LB)	08-Jul-21
IRON POWDER	1	Pounds(LB)	08-Jul-21
PYRIDINE-N-OXIDE	25	Gram(GM)	09-Jul-21
ACETANILIDE	5	Gram(GM)	09-Jul-21
N N-DIMETHYLACETAMIDE	1	Liters(L)	09-Jul-21
LITHIUM BROMIDE	100	Gram(GM)	09-Jul-21
SUCROSE	1	Kilograms(KG)	09-Jul-21
FORMULA 77	5	Gallon(GAL)	09-Jul-21
COPPER FOIL	1	Gram(GM)	09-Jul-21
N-(4-Pentynyl)phthalimide	25	Gram(GM)	09-Jul-21
AMMONIUM HEXAFLUOROPHOSPHATE	25	Gram(GM)	09-Jul-21
TETRABUTYLAMMONIUM HEXAFLUOROPHOSPHATE	25	Gram(GM)	09-Jul-21
ATOMIC ABSORPTION STANDARD-1000 PPM URANIUM IN 2% NITRIC ACI	125	Milliliter(ML)	09-Jul-21
Nafion PFSA 20% Dispersions D2020	125	Milliliter(ML)	09-Jul-21
Nafion PFSA 20% Dispersions D2020	125	Milliliter(ML)	09-Jul-21
Nafion PFSA 20% Dispersions D2020	125	Milliliter(ML)	09-Jul-21
Nafion PFSA 20% Dispersions D2020	125	Milliliter(ML)	09-Jul-21
Nafion PFSA 20% Dispersions D2020	125	Milliliter(ML)	09-Jul-21
Nafion PFSA 20% Dispersions D2020	125	Milliliter(ML)	09-Jul-21
Nafion PFSA 20% Dispersions D2020	125	Milliliter(ML)	09-Jul-21
Nafion PFSA 20% Dispersions D2020	125	Milliliter(ML)	09-Jul-21
Nafion PFSA 20% Dispersions D2020	125	Milliliter(ML)	09-Jul-21
Nafion PFSA 20% Dispersions D2020	125	Milliliter(ML)	09-Jul-21
VEROGRAY RGD850	3.6	Kilograms(KG)	09-Jul-21
VEROGRAY RGD850	3.6	Kilograms(KG)	09-Jul-21
VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	09-Jul-21
OBJET VEROBLUE RGD840	3.6	Kilograms(KG)	09-Jul-21
OBJET VEROBLUE RGD840	3.6	Kilograms(KG)	09-Jul-21
ETHYL ALCOHOL-200 PROOF	2	Liters(L)	09-Jul-21
ACETIC ACID GLACIAL	2.5	Liters(L)	09-Jul-21
Support SUP706 B	3.6	Kilograms(KG)	09-Jul-21
Support SUP706 B	3.6	Kilograms(KG)	09-Jul-21
Support SUP706 B	3.6	Kilograms(KG)	09-Jul-21
Support SUP706 B	3.6	Kilograms(KG)	09-Jul-21
Tris(trimethylsilyl) phosphite	25	Milliliter(ML)	09-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Lithium tetramethylcyclopentadienide min. 95%	25	Gram(GM)	09-Jul-21
Lithium tetramethylcyclopentadienide min. 95%	25	Gram(GM)	09-Jul-21
ACETONITRILE ANHYDROUS	1	Liters(L)	09-Jul-21
LITHIUM HEXAFLUOROPHOSPHATE 98%	25	Gram(GM)	09-Jul-21
HYDRAZINE MONOHYDRATE	500	Gram(GM)	09-Jul-21
TERT-BUTYL METHYL ETHER	1	Liters(L)	09-Jul-21
ARGON GAS	220	Cubic Feet(CF)	09-Jul-21
ARGON GAS	220	Cubic Feet(CF)	09-Jul-21
OXYGEN COMPRESSED GAS	40	Cubic Feet(CF)	09-Jul-21
ZINC NITRATE HEXAHYDRATE	500	Gram(GM)	09-Jul-21
CHLOROTRIFLUOROMETHANE	220	Cubic Feet(CF)	09-Jul-21
PHOSPHORIC ACID	100	Gram(GM)	09-Jul-21
Hydrogen 10ppm/Oxygen 10ppm/Bal. Nitrogen	220	Cubic Feet(CF)	09-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	09-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	09-Jul-21
Sulfer Hexafluoride	220	Cubic Feet(CF)	09-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	09-Jul-21
11B Enriched Boron	250	Milliliter(ML)	09-Jul-21
HYDROGEN GAS	220	Cubic Feet(CF)	09-Jul-21
11B Enriched Boron	250	Milliliter(ML)	09-Jul-21
HYDROGEN GAS	220	Cubic Feet(CF)	09-Jul-21
HYDROGEN GAS	220	Cubic Feet(CF)	09-Jul-21
HYDROGEN GAS	220	Cubic Feet(CF)	09-Jul-21
HYDROGEN GAS	220	Cubic Feet(CF)	09-Jul-21
HYDROGEN GAS	220	Cubic Feet(CF)	09-Jul-21
10B Enriched Boron	150	Milliliter(ML)	09-Jul-21
10B Enriched Boron	150	Milliliter(ML)	09-Jul-21
10B Enriched Boron	150	Milliliter(ML)	09-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
10B Enriched Boron	150	Milliliter(ML)	09-Jul-21
10B Enriched Boron	150	Milliliter(ML)	09-Jul-21
ETHANE	40	Cubic Feet(CF)	09-Jul-21
ANION EXCHANGE RESIN AG 1-X8 100-200 MESH	500	Gram(GM)	09-Jul-21
ANION EXCHANGE RESIN AG 1-X8 100-200 MESH	500	Gram(GM)	09-Jul-21
Argon/Nitrogen	40	Cubic Feet(CF)	09-Jul-21
3M General Purpose Adhesive Cleaner PN 08987	15	Ounces(OZ)	09-Jul-21
3M General Purpose Adhesive Cleaner PN 08987	15	Ounces(OZ)	09-Jul-21
3M General Purpose Adhesive Cleaner PN 08987	15	Ounces(OZ)	09-Jul-21
3M General Purpose Adhesive Cleaner PN 08987	15	Ounces(OZ)	09-Jul-21
3M General Purpose Adhesive Cleaner PN 08987	15	Ounces(OZ)	09-Jul-21
3M General Purpose Adhesive Cleaner PN 08987	15	Ounces(OZ)	09-Jul-21
3M General Purpose Adhesive Cleaner PN 08987	15	Ounces(OZ)	09-Jul-21
3M General Purpose Adhesive Cleaner PN 08987	15	Ounces(OZ)	09-Jul-21
3M General Purpose Adhesive Cleaner PN 08987	15	Ounces(OZ)	09-Jul-21
WATER SEALANT	1.2	Gallon(GAL)	09-Jul-21
WATER SEALANT	1.2	Gallon(GAL)	09-Jul-21
3M SUPER 77 SPRAY ADHESIVE	13.44	Ounces(OZ)	09-Jul-21
SODIUM CHLORIDE	1	Kilograms(KG)	09-Jul-21
MAGNESIUM SULFATE ANHYDROUS	2.5	Kilograms(KG)	09-Jul-21
DIESEL FUEL TREATMENT	32	Ounces(OZ)	09-Jul-21
IMIDAZOLE	100	Gram(GM)	09-Jul-21
Oatey Purple Primer	32	Ounces(OZ)	09-Jul-21
VERSENE	100	Milliliter(ML)	09-Jul-21
TOLUENE	1	Liters(L)	09-Jul-21
TOLUENE	1	Liters(L)	09-Jul-21
Mobil 1 5W-40	1	Quarts(QT)	09-Jul-21
Mobil 1 5W-40	1	Quarts(QT)	09-Jul-21
HYDRAZINE MONOHYDRATE	500	Gram(GM)	09-Jul-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	09-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	09-Jul-21
TOLUENE ANHYDROUS	1	Liters(L)	09-Jul-21
TOLUENE ANHYDROUS	1	Liters(L)	09-Jul-21
TOLUENE ANHYDROUS	1	Liters(L)	09-Jul-21
TOLUENE ANHYDROUS	1	Liters(L)	09-Jul-21
TOLUENE ANHYDROUS	1	Liters(L)	09-Jul-21
TOLUENE ANHYDROUS	1	Liters(L)	09-Jul-21
MOBIL 1 5W-50	1	Quarts(QT)	09-Jul-21
MOBIL 1 5W-50	1	Quarts(QT)	09-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	09-Jul-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	09-Jul-21
Valvoline Dexron-VI Full Synthetic ATF	1	Quarts(QT)	09-Jul-21
Valvoline Dexron-VI Full Synthetic ATF	1	Quarts(QT)	09-Jul-21
Valvoline Dexron-VI Full Synthetic ATF	1	Quarts(QT)	09-Jul-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	09-Jul-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	09-Jul-21
POWER GUARD OFF-HIGHWAY HEAVY DUTY DIESEL OIL SAE 40	1	Gallon(GAL)	09-Jul-21
Ridgid Nu-Clear Thread Cutting Oil	1	Gallon(GAL)	09-Jul-21
PERMATEX 26BR HIGH TEMP RTV RED SILICONE GASKET MAKER	3	Ounces(OZ)	09-Jul-21
PERMATEX 26BR HIGH TEMP RTV RED SILICONE GASKET MAKER	3	Ounces(OZ)	09-Jul-21
TRANSISTOR GREASE (HEAT SINK COMPOUND)	4	Ounces(OZ)	09-Jul-21
TRANSISTOR GREASE (HEAT SINK COMPOUND)	4	Ounces(OZ)	09-Jul-21
TRANSISTOR GREASE (HEAT SINK COMPOUND)	4	Ounces(OZ)	09-Jul-21
TRANSISTOR GREASE (HEAT SINK COMPOUND)	4	Ounces(OZ)	09-Jul-21
SIL-GLYDE COMPOUND	4	Ounces(OZ)	09-Jul-21
Gasoila WFP (Water Finding Paste)*	2	Ounces(OZ)	09-Jul-21
SYNTHETIC GREASE	2.5	Ounces(OZ)	09-Jul-21
SILICONE HEAT SINK COMPOUND	1	Ounces(OZ)	09-Jul-21
DIMETHYL SULFOXIDE-D6	100	Gram(GM)	09-Jul-21
Formamidinium iodide	10	Gram(GM)	09-Jul-21
Formamidinium iodide	10	Gram(GM)	09-Jul-21
Formamidinium iodide	10	Gram(GM)	09-Jul-21
Methylammonium iodide ¿ 99% anhydrous	10	Gram(GM)	09-Jul-21
Methylammonium iodide ¿ 99% anhydrous	10	Gram(GM)	09-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Methylammonium iodide ¿ 99% anhydrous	10	Gram(GM)	09-Jul-21
Methylammonium iodide ¿ 99% anhydrous	10	Gram(GM)	09-Jul-21
ALCONOX DETERGENT	1.8	Kilograms(KG)	09-Jul-21
ALCONOX DETERGENT	1.8	Kilograms(KG)	09-Jul-21
AG 1-X4 Resin Chloride Form	500	Gram(GM)	09-Jul-21
PAINT THINNER NO. 1500	1	Gallon(GAL)	12-Jul-21
PAINT THINNER NO. 1500	1	Gallon(GAL)	12-Jul-21
PAINT THINNER NO. 1500	1	Gallon(GAL)	12-Jul-21
PAINT THINNER NO. 1500	1	Gallon(GAL)	12-Jul-21
WALL TEXTURE SPRAY ON	25	Ounces(OZ)	12-Jul-21
WALL TEXTURE SPRAY ON	25	Ounces(OZ)	12-Jul-21
WALL TEXTURE SPRAY ON	25	Ounces(OZ)	12-Jul-21
WALL TEXTURE SPRAY ON	25	Ounces(OZ)	12-Jul-21
WALL TEXTURE SPRAY ON	25	Ounces(OZ)	12-Jul-21
WALL TEXTURE SPRAY ON	25	Ounces(OZ)	12-Jul-21
WALL TEXTURE SPRAY ON	25	Ounces(OZ)	12-Jul-21
WALL TEXTURE SPRAY ON	25	Ounces(OZ)	12-Jul-21
WALL TEXTURE SPRAY ON	25	Ounces(OZ)	12-Jul-21
WALL TEXTURE SPRAY ON	25	Ounces(OZ)	12-Jul-21
WALL TEXTURE SPRAY ON	25	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	12-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	12-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	12-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 CURE US	0.2	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
PSX 700 LIGHT TINT RESIN	3.8	Gallon(GAL)	12-Jul-21
CEROUS NITRATE HEXAHYDRATE	50	Gram(GM)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
PSX 700 CURE	1	Gallon(GAL)	12-Jul-21
POTASSIUM HYDRIDE 30% WT IN MINERAL OIL	75	Gram(GM)	12-Jul-21
POTASSIUM HYDRIDE 30% WT IN MINERAL OIL	75	Gram(GM)	12-Jul-21
2-BROMO-2-BUTENE	100	Gram(GM)	12-Jul-21
2-BROMO-2-BUTENE	100	Gram(GM)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
ammonium hydroxide	500	Milliliter(ML)	12-Jul-21
IODOMETHANE	100	Milliliter(ML)	12-Jul-21
Chlorodimethylsilane	10	Gram(GM)	12-Jul-21
Chlorodimethylsilane	10	Gram(GM)	12-Jul-21
METHANOL	4	Liters(L)	12-Jul-21
METHANOL	4	Liters(L)	12-Jul-21
METHANOL	4	Liters(L)	12-Jul-21
METHANOL	4	Liters(L)	12-Jul-21
MINERAL OIL	1	Liters(L)	12-Jul-21
MINERAL OIL	1	Liters(L)	12-Jul-21
Methylene Chloride Optima	4	Liters(L)	12-Jul-21
Methylene Chloride Optima	4	Liters(L)	12-Jul-21
Methylene Chloride Optima	4	Liters(L)	12-Jul-21
Methylene Chloride Optima	4	Liters(L)	12-Jul-21
Hexanes Certified ACS	4	Liters(L)	12-Jul-21
Hexanes Certified ACS	4	Liters(L)	12-Jul-21
Hexanes Certified ACS	4	Liters(L)	12-Jul-21
Hexanes Certified ACS	4	Liters(L)	12-Jul-21
PROTEINASEK	1	Milliliter(ML)	12-Jul-21
STEARYL ALCOHOL	100	Gram(GM)	12-Jul-21
MAGNESIUM SULFATE ANHYDROUS	1	Kilograms(KG)	12-Jul-21
UREA	100	Gram(GM)	12-Jul-21
TETRABUTYLAMMONIUM HEXAFLUOROPHOSPHATE	25	Gram(GM)	12-Jul-21
AMMONIUM HEXAFLUOROPHOSPHATE	5	Gram(GM)	12-Jul-21
AMMONIUM HEXAFLUOROPHOSPHATE	5	Gram(GM)	12-Jul-21
AMMONIUM TETRAFLUOROBORATE	5	Gram(GM)	12-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Molybdenum Standard for ICP	100	Milliliter(ML)	12-Jul-21
LITHIUM CHLORIDE	500	Gram(GM)	12-Jul-21
Hexanes Certified ACS	4	Liters(L)	12-Jul-21
Hexanes Certified ACS	4	Liters(L)	12-Jul-21
Hexanes Certified ACS	4	Liters(L)	12-Jul-21
Hexanes Certified ACS	4	Liters(L)	12-Jul-21
spitfire ready to use power cleaner	1	Quarts(QT)	12-Jul-21
spitfire ready to use power cleaner	1	Quarts(QT)	12-Jul-21
SULLUBE COMPRESSOR FLUID	5	Gallon(GAL)	12-Jul-21
SULLUBE COMPRESSOR FLUID	5	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	12-Jul-21
Molybdenum plasma standard solution Specpure Mo 1000 µg/ml	50	Milliliter(ML)	12-Jul-21
Rubidium Plasma Standard Solution Specpure Rb1000 µg/ml	50	Milliliter(ML)	12-Jul-21
Niobium plasma standard solution Specpure Nb 10 000mg/ml	50	Milliliter(ML)	12-Jul-21
Cesium plasma standard solution Specpure Cs 1000 µg/ml	50	Milliliter(ML)	12-Jul-21
Poly(3 4-ethylenedioxythiophene)-poly(styrenesulfonate)	5	Gram(GM)	12-Jul-21
Poly(3 4-ethylenedioxythiophene)-poly(styrenesulfonate)	5	Gram(GM)	12-Jul-21
Poly(3 4-ethylenedioxythiophene)-poly(styrenesulfonate)	5	Gram(GM)	12-Jul-21
SOFTCIDE HAND SOAP	32	Ounces(OZ)	12-Jul-21
SOFTCIDE HAND SOAP	32	Ounces(OZ)	12-Jul-21
YTTRIUM ICP STANDARD SOLUTION	100	Milliliter(ML)	13-Jul-21
SULFURIC ACID 95-98%	500	Milliliter(ML)	13-Jul-21
FERRIC AMMONIUM SULFATE DODECAHYDRATE	500	Gram(GM)	13-Jul-21
3-AMINOPROPYLTRIETHOXYSILANE	100	Milliliter(ML)	13-Jul-21
Nitric acid (65 - 70%)	2.5	Liters(L)	13-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
N-HEXANE	4	Liters(L)	13-Jul-21
Sulfuric Acid	2.5	Liters(L)	13-Jul-21
2 5-DIMETHYLFURAN	100	Milliliter(ML)	13-Jul-21
LITHIUM BIS(TRIMETHYLSILYL)AMIDE	1	Liters(L)	13-Jul-21
1-Pentanol ACS reagent 99%	1	Liters(L)	13-Jul-21
tert-Butyldimethylchlorosilane	100	Gram(GM)	13-Jul-21
TETRAHYDROFURAN-D8	10	Gram(GM)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	13-Jul-21
1000 µg/mL Aluminum	30	Milliliter(ML)	13-Jul-21
1000 µg/mL Cadmium	30	Milliliter(ML)	13-Jul-21
1000 µg/mL Cobalt	30	Milliliter(ML)	13-Jul-21
1000 µg/mL Iron	30	Milliliter(ML)	13-Jul-21
1000 µg/mL Magnesium	30	Milliliter(ML)	13-Jul-21
1000 µg/mL Lead	30	Milliliter(ML)	13-Jul-21
1000 µg/mL Strontium	30	Milliliter(ML)	13-Jul-21
1000 µg/mL Arsenic	30	Milliliter(ML)	13-Jul-21
MULTI-ELEMENT SOLUTION 3	100	Milliliter(ML)	13-Jul-21
Zinc plasma standard solution Specpure Zn 1000 (Micro)g/ml	50	Milliliter(ML)	13-Jul-21
MULTI-ELEMENT PLASMA STAN	100	Milliliter(ML)	13-Jul-21
1 3-Di-Boc-2-methylisothiourea	100	Gram(GM)	13-Jul-21
DYSPROSIUM NITRATE PENTAHYDRATE	25	Gram(GM)	13-Jul-21
Weld-On 4	4	Ounces(OZ)	13-Jul-21
DGA Resin Normal	25	Gram(GM)	13-Jul-21
AG 1-X8 100-200 MESH CHLORIDE FORM	500	Milliliter(ML)	13-Jul-21
Weld-On 4	4	Ounces(OZ)	13-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Weld-On 4	4	Ounces(OZ)	13-Jul-21
AG 1-X8 100-200 MESH CHLORIDE FORM	500	Milliliter(ML)	13-Jul-21
AG 1-X8 100-200 MESH CHLORIDE FORM	500	Milliliter(ML)	13-Jul-21
AG MP-1M Anion Exchange Resin	500	Gram(GM)	13-Jul-21
AG MP-1M Anion Exchange Resin	500	Gram(GM)	13-Jul-21
Magnetite Fe3O4	1	Pounds(LB)	13-Jul-21
SUPERIOR NO. 30 SOLDERING FLUX	16	Ounces(OZ)	13-Jul-21
SILVER SOLDER; EASY-FLO	1	Pounds(LB)	13-Jul-21
SILVER SOLDER; EASY-FLO	10	Cubic Centimeter (CC)	13-Jul-21
REAGENT ALCOHOL (ETHANOL ETHYL ALCOHOL)	4	Liters(L)	13-Jul-21
REAGENT ALCOHOL (ETHANOL ETHYL ALCOHOL)	4	Liters(L)	13-Jul-21
REAGENT ALCOHOL (ETHANOL ETHYL ALCOHOL)	4	Liters(L)	13-Jul-21
REAGENT ALCOHOL (ETHANOL ETHYL ALCOHOL)	4	Liters(L)	13-Jul-21
HEPTANE for HPLC 99%	4	Liters(L)	13-Jul-21
HEPTANE for HPLC 99%	4	Liters(L)	13-Jul-21
HEPTANE for HPLC 99%	4	Liters(L)	13-Jul-21
HEPTANE for HPLC 99%	4	Liters(L)	13-Jul-21
Methanol (HPLC)	4	Liters(L)	13-Jul-21
Methanol (HPLC)	4	Liters(L)	13-Jul-21
Methanol (HPLC)	4	Liters(L)	13-Jul-21
Methanol (HPLC)	4	Liters(L)	13-Jul-21
HEPTANOYL CHLORIDE	25	Gram(GM)	13-Jul-21
Nonanoyl chloride	25	Gram(GM)	13-Jul-21
Methyl 3-oxoheptanoate	25	Gram(GM)	14-Jul-21
2 2-DIMETHYL-1 3-DIOXANE-4 6-DIONE	100	Gram(GM)	14-Jul-21
THYMIDINE	100	Gram(GM)	14-Jul-21
AMMONIUM CHLORIDE	500	Gram(GM)	14-Jul-21
N N-DIMETHYLACETAMIDE	2	Liters(L)	14-Jul-21
DICHLOROMETHANE	2	Liters(L)	14-Jul-21
Vitronectin	1	Milliliter(ML)	14-Jul-21
Vitronectin	1	Milliliter(ML)	14-Jul-21
Vitronectin	1	Milliliter(ML)	14-Jul-21
Essential 8 Flex Medium Kit	510	Milliliter(ML)	14-Jul-21
CERIUM(III) CHLORIDE ANHYDROUS	5	Gram(GM)	14-Jul-21
CERIUM(III) CHLORIDE ANHYDROUS	5	Gram(GM)	14-Jul-21
FUMARONITRILE	25	Gram(GM)	14-Jul-21
BENZENE-1 4-DIBORONIC ACID	5	Gram(GM)	14-Jul-21
ETHYL ALCOHOL-200 PROOF	2	Liters(L)	14-Jul-21
ETHYL ALCOHOL-200 PROOF	2	Liters(L)	14-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SODIUM CHLORIDE CERTIFIED ACS	1	Kilograms(KG)	14-Jul-21
SULFURIC ACID 95-98%	1	Liters(L)	14-Jul-21
SULFURIC ACID 95-98%	1	Liters(L)	14-Jul-21
SODIUM HYDROXIDE 50%	1	Liters(L)	14-Jul-21
SODIUM HYDROXIDE 50%	1	Liters(L)	14-Jul-21
TETRAHYDROFURAN D8	10	Gram(GM)	14-Jul-21
NITRIC ACID 70%	2.5	Liters(L)	14-Jul-21
NITRIC ACID 70%	2.5	Liters(L)	14-Jul-21
TRIFLUOROACETIC ACID 99+%	2	Liters(L)	14-Jul-21
Bisphenol A dimethacrylate	50	Gram(GM)	14-Jul-21
POTASSIUM PERMANGANATE SOLUTION 0.1N	500	Milliliter(ML)	14-Jul-21
POTASSIUM PERMANGANATE SOLUTION 0.1N	500	Milliliter(ML)	14-Jul-21
4-Chloro-7H-pyrrolo[2 3-d]pyrimidin-2-amine	25	Gram(GM)	14-Jul-21
CESIUM CARBONATE	100	Gram(GM)	14-Jul-21
CHROMIUM(III) CHLORIDE HEXAHYDRATE	500	Gram(GM)	14-Jul-21
Polytetrafluoroethylene preparation	500	Milliliter(ML)	14-Jul-21
1-Dodecanesulfonyl chloride	1	Gram(GM)	14-Jul-21
LOCTITE SUPER GLUE	5	Gram(GM)	14-Jul-21
LOCTITE SUPER GLUE	5	Gram(GM)	14-Jul-21
CERIUM(III) CHLORIDE HEPTAHYDRATE	100	Gram(GM)	14-Jul-21
TETRAHYDROFURAN ANHYDROUS	2	Liters(L)	14-Jul-21
Hydrogen chloride solution 2.0 M in diethyl ether	100	Milliliter(ML)	14-Jul-21
Hydrogen chloride solution 2.0 M in diethyl ether	100	Milliliter(ML)	14-Jul-21
PENTANE ANHYDROUS	1	Liters(L)	14-Jul-21
PENTANE ANHYDROUS	1	Liters(L)	14-Jul-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Jul-21
Hexane anhydrous 95%	2	Liters(L)	14-Jul-21
Hexane anhydrous 95%	2	Liters(L)	14-Jul-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Jul-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Jul-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Jul-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Jul-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Jul-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Jul-21
FORMIC ACID 96%	100	Milliliter(ML)	14-Jul-21
ALODINE 1200S	5	Gallon(GAL)	14-Jul-21
ReleaSys HT Paste	0.2	Ounces(OZ)	14-Jul-21
ReleaSys HT Paste	0.2	Ounces(OZ)	14-Jul-21
ACETONE ACS	4	Liters(L)	14-Jul-21
ACETONE ACS	4	Liters(L)	14-Jul-21
ACETONE ACS	4	Liters(L)	14-Jul-21
ACETONE ACS	4	Liters(L)	14-Jul-21
ACETONITRILE HPLC	1	Liters(L)	14-Jul-21
N-BUTYL NITRATE	25	Gram(GM)	14-Jul-21
N-BUTYL NITRATE	25	Gram(GM)	14-Jul-21
DIBUTYLTIN DILAURATE	100	Gram(GM)	14-Jul-21
ACETONITRILE-D3 (D 99.8%)	0.75	Milliliter(ML)	14-Jul-21
ACETONITRILE-D3 (D 99.8%)	0.75	Milliliter(ML)	14-Jul-21
ACETONITRILE-D3 (D 99.8%)	0.75	Milliliter(ML)	14-Jul-21
ACETONITRILE-D3 (D 99.8%)	0.75	Milliliter(ML)	14-Jul-21
5-Iodoanthranilic Acid	25	Gram(GM)	14-Jul-21
DGA Resin Normal	50	Gram(GM)	14-Jul-21
MicroCare Fiber Preparation Fluid	3	Ounces(OZ)	15-Jul-21
ISOPROPYL ALCOHOL 70%	1	Liters(L)	15-Jul-21
ISOPROPYL ALCOHOL 70%	1	Liters(L)	15-Jul-21
ISOPROPYL ALCOHOL 70%	1	Liters(L)	15-Jul-21
ISOPROPYL ALCOHOL 70%	1	Liters(L)	15-Jul-21
ISOPROPYL ALCOHOL 70%	1	Liters(L)	15-Jul-21
ISOPROPYL ALCOHOL 70%	1	Liters(L)	15-Jul-21
ISOPROPYL ALCOHOL 70%	1	Liters(L)	15-Jul-21
ISOPROPYL ALCOHOL 70%	1	Liters(L)	15-Jul-21
ISOPROPYL ALCOHOL 70%	1	Liters(L)	15-Jul-21
ISOPROPYL ALCOHOL 70%	1	Liters(L)	15-Jul-21
ISOPROPYL ALCOHOL 70%	1	Liters(L)	15-Jul-21
ISOPROPYL ALCOHOL 70%	1	Liters(L)	15-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Platinum Nominally 50% Ruthenium Nominally 25% On High Surface Area Advanced Carbon Support	5	Gram(GM)	15-Jul-21
Platinum Nominally 50% Ruthenium Nominally 25% On High Surface Area Advanced Carbon Support	5	Gram(GM)	15-Jul-21
Phenylammonium Iodide	25	Gram(GM)	15-Jul-21
LUTETIUM (III) CHLORIDE	1	Gram(GM)	15-Jul-21
CHLOROFORM ANHYDROUS stabilized with 0.5-1% ethanol	1	Liters(L)	15-Jul-21
DICHLOROMETHANE	4	Liters(L)	15-Jul-21
1 10-PHENANTHROLINE	25	Gram(GM)	15-Jul-21
1 10-PHENANTHROLINE	25	Gram(GM)	15-Jul-21
Tungsten (VI) oxide	500	Gram(GM)	15-Jul-21
OMEGATHERM 201 HIGH-TEMP HIGH THERMAL CONDUCTIVITY PASTE	0.5	Ounces(OZ)	15-Jul-21
METHANOL REAGENT ACS	4	Liters(L)	15-Jul-21
METHANOL REAGENT ACS	4	Liters(L)	15-Jul-21
METHANOL REAGENT ACS	4	Liters(L)	15-Jul-21
METHANOL REAGENT ACS	4	Liters(L)	15-Jul-21
9-ANTHRACENECARBOXYLIC ACID	25	Gram(GM)	15-Jul-21
CC FIX	5	Gallon(GAL)	15-Jul-21
CC FIX	5	Gallon(GAL)	15-Jul-21
CC FIX	5	Gallon(GAL)	15-Jul-21
CC FIX	5	Gallon(GAL)	15-Jul-21
M-bond 200 adhesive	1	Ounces(OZ)	15-Jul-21
5-Iodoanthranilic Acid	25	Gram(GM)	15-Jul-21
M-bond 200 adhesive	1	Ounces(OZ)	15-Jul-21
CC FIX	5	Gallon(GAL)	15-Jul-21
CC FIX	5	Gallon(GAL)	15-Jul-21
CC FIX	5	Gallon(GAL)	15-Jul-21
CC FIX	5	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
MATRIX 102 MEMBRANE ADHESIVE	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
Permastic Adhesive	4.75	Gallon(GAL)	15-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	15-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	15-Jul-21
HYDROFLUORIC ACID	4	Liters(L)	15-Jul-21
TES (2-{[TRIS(HYDROXYMETHYL)METHYL]AMINO}-1-ETHANESULFONIC ACID)	50	Gram(GM)	15-Jul-21
Aerosol Duster	8	Ounces(OZ)	15-Jul-21
Aerosol Duster	8	Ounces(OZ)	15-Jul-21
Aerosol Duster	8	Ounces(OZ)	15-Jul-21
Aerosol Duster	8	Ounces(OZ)	15-Jul-21
Aerosol Duster	8	Ounces(OZ)	15-Jul-21
Aerosol Duster	8	Ounces(OZ)	15-Jul-21
Aerosol Duster	8	Ounces(OZ)	15-Jul-21
Aerosol Duster	8	Ounces(OZ)	15-Jul-21
Aerosol Duster	8	Ounces(OZ)	15-Jul-21
Aerosol Duster	8	Ounces(OZ)	15-Jul-21
Aerosol Duster	8	Ounces(OZ)	15-Jul-21
Aerosol Duster	8	Ounces(OZ)	15-Jul-21
1000 ug/mL Niobium	125	Milliliter(ML)	15-Jul-21
Molybdenum 1 000 ug/mL or 10 000 ug/mL	125	Milliliter(ML)	15-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ALLYLMAGNESIUM BROMIDE	100	Milliliter(ML)	15-Jul-21
(12-Phosphonododecyl)phosphonic acid	1	Gram(GM)	15-Jul-21
Melanin	100	Milligram(MG)	15-Jul-21
Ectoine	25	Milligram(MG)	15-Jul-21
Ammonium hydroxide reagent acs	500	Milliliter(ML)	15-Jul-21
Ammonium hydroxide reagent acs	500	Milliliter(ML)	15-Jul-21
Ammonium hydroxide reagent acs	500	Milliliter(ML)	15-Jul-21
Techspray Turbo-Coat Acrylic Conformal Coating	12	Ounces(OZ)	15-Jul-21
Techspray Turbo-Coat Acrylic Conformal Coating	12	Ounces(OZ)	15-Jul-21
Tripropyl phosphite	5	Gram(GM)	15-Jul-21
BORON POWDER	5	Pounds(LB)	15-Jul-21
Alcatel Adixen A121 Hydrocarbon Based Mineral High Temp Vacuum Pump Oil	1	Quarts(QT)	15-Jul-21
Alcatel Adixen A121 Hydrocarbon Based Mineral High Temp Vacuum Pump Oil	1	Quarts(QT)	15-Jul-21
Alcatel Adixen A121 Hydrocarbon Based Mineral High Temp Vacuum Pump Oil	1	Quarts(QT)	15-Jul-21
Alcatel Adixen A121 Hydrocarbon Based Mineral High Temp Vacuum Pump Oil	1	Quarts(QT)	15-Jul-21
EpoKwick FC Hardener	32	Ounces(OZ)	15-Jul-21
EpoKwick FC Resin	3.8	Liters(L)	15-Jul-21
VERSAMID 125	1	Quarts(QT)	15-Jul-21
VERSAMID 125	1	Quarts(QT)	15-Jul-21
VERSAMID 125	1	Quarts(QT)	15-Jul-21
VANADYL(IV) SULFATE HYDRATE 17-23%	100	Gram(GM)	15-Jul-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	100	Liters(L)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
Compressed Air	220	Cubic Feet(CF)	15-Jul-21
Compressed Air	220	Cubic Feet(CF)	15-Jul-21
Compressed Air	220	Cubic Feet(CF)	15-Jul-21
Compressed Air	220	Cubic Feet(CF)	15-Jul-21
Compressed Air	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
ARGON GAS	220	Cubic Feet(CF)	15-Jul-21
CARBON DIOXIDE GAS	220	Cubic Feet(CF)	15-Jul-21
CARBON DIOXIDE GAS	220	Cubic Feet(CF)	15-Jul-21
CARBON DIOXIDE GAS	220	Cubic Feet(CF)	15-Jul-21
CARBON DIOXIDE GAS	220	Cubic Feet(CF)	15-Jul-21
CARBON DIOXIDE GAS	220	Cubic Feet(CF)	15-Jul-21
CARBON DIOXIDE GAS	220	Cubic Feet(CF)	15-Jul-21
CARBON DIOXIDE GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	15-Jul-21
HYDROGEN GAS	100	Liters(L)	15-Jul-21
PENICILLIN STREPTOMYCIN SOL	100	Milliliter(ML)	15-Jul-21
1 2-dimyristoyl-sn-glycero-3-phosphocholine	25	Milligram(MG)	15-Jul-21
1 2-dimyristoyl-sn-glycero-3-phosphocholine	25	Milligram(MG)	15-Jul-21
1 2-dimyristoyl-sn-glycero-3-phosphocholine	25	Milligram(MG)	15-Jul-21
1 2-dimyristoyl-sn-glycero-3-phosphocholine	25	Milligram(MG)	15-Jul-21
ZINC BROMIDE	500	Gram(GM)	15-Jul-21
1-TETRADECENE	1	Liters(L)	15-Jul-21
SODIUM SULFATE ANHYDROUS GRANULAR	2.5	Kilograms(KG)	15-Jul-21
LITHIUM	10	Gram(GM)	15-Jul-21
SODIUM HYDROXIDE PELLETS	2.5	Kilograms(KG)	15-Jul-21
SODIUM HYDROXIDE PELLETS	2.5	Kilograms(KG)	15-Jul-21
SODIUM HYDROXIDE PELLETS	2.5	Kilograms(KG)	15-Jul-21
SODIUM HYDROXIDE PELLETS	2.5	Kilograms(KG)	15-Jul-21
SODIUM HYDROXIDE PELLETS	2.5	Kilograms(KG)	15-Jul-21
SODIUM HYDROXIDE PELLETS	2.5	Kilograms(KG)	15-Jul-21
TERBIUM(III) NITRATE PENTAHYDRATE	5	Gram(GM)	15-Jul-21
CYANURIC ACID	100	Gram(GM)	15-Jul-21
EICHROM UTEVA RESIN	200	Gram(GM)	15-Jul-21
EICHROM UTEVA RESIN	200	Gram(GM)	15-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
LIQUID NAILS ADHESIVE - INTERIOR	10	Ounces(OZ)	16-Jul-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Jul-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Jul-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Jul-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Jul-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Jul-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Jul-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Jul-21
PRS Asphalt Roof Primer	4.75	Gallon(GAL)	16-Jul-21
PRS Asphalt Roof Primer	4.75	Gallon(GAL)	16-Jul-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	16-Jul-21
ZINSSER BIN STAIN KILLER	1	Gallon(GAL)	16-Jul-21
ZINSSER BIN STAIN KILLER	1	Gallon(GAL)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Startex Green Lacquer Thinner	128	Ounces(OZ)	16-Jul-21
Startex Green Lacquer Thinner	128	Ounces(OZ)	16-Jul-21
SULLUBE COMPRESSOR FLUID	5	Gallon(GAL)	16-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	16-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	16-Jul-21
Super Lube O-Ring Silicone Lubricant	4	Ounces(OZ)	16-Jul-21
Super Lube O-Ring Silicone Lubricant	4	Ounces(OZ)	16-Jul-21
Super Lube O-Ring Silicone Lubricant	4	Ounces(OZ)	16-Jul-21
Super Lube O-Ring Silicone Lubricant	4	Ounces(OZ)	16-Jul-21
SHEETROCK Setting-Type Joint Compounds DURABOND 45	25	Pounds(LB)	16-Jul-21
SHEETROCK Setting-Type Joint Compounds DURABOND 45	25	Pounds(LB)	16-Jul-21
ANTIFREEZE & COOLANT	1	Gallon(GAL)	16-Jul-21
ANTIFREEZE & COOLANT	1	Gallon(GAL)	16-Jul-21
ANTIFREEZE & COOLANT	1	Gallon(GAL)	16-Jul-21
VERSACHEM SUPER CLEAR SILICONE	10.3	Ounces(OZ)	16-Jul-21
VERSACHEM SUPER CLEAR SILICONE	10.3	Ounces(OZ)	16-Jul-21
VERSACHEM SUPER CLEAR SILICONE	10.3	Ounces(OZ)	16-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	16-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	16-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	16-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	16-Jul-21
SAE 75W-90 GEAR OIL	1	Quarts(QT)	16-Jul-21
SAE 75W-90 GEAR OIL	1	Quarts(QT)	16-Jul-21
SAE 75W-90 GEAR OIL	1	Quarts(QT)	16-Jul-21
SAE 75W-90 GEAR OIL	1	Quarts(QT)	16-Jul-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	16-Jul-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	16-Jul-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	16-Jul-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	16-Jul-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	16-Jul-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	16-Jul-21
WHITE LITHIUM GREASE	10	Ounces(OZ)	16-Jul-21
WHITE LITHIUM GREASE	10	Ounces(OZ)	16-Jul-21
VALVOLINE AW-32 HYDRAULIC	5	Gallon(GAL)	16-Jul-21
VALVOLINE AW-32 HYDRAULIC	5	Gallon(GAL)	16-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
VALVOLINE AW-32 HYDRAULIC	5	Gallon(GAL)	16-Jul-21
ATF DEX/MERC AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF DEX/MERC AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF DEX/MERC AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF DEX/MERC AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF DEX/MERC AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF DEX/MERC AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	16-Jul-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	16-Jul-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	16-Jul-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	16-Jul-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	16-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	16-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	16-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	16-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	16-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	16-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	16-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	16-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	16-Jul-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	16-Jul-21
EXTENDED LIFE COOLANT	1	Gallon(GAL)	16-Jul-21
CAT TRANSMISSION & DRIVE TRAIN OIL 10W	5	Gallon(GAL)	16-Jul-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Jul-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Jul-21
ARDEX FEATHER FINISH	10	Pounds(LB)	16-Jul-21
ARDEX FEATHER FINISH	10	Pounds(LB)	16-Jul-21
ARDEX FEATHER FINISH	10	Pounds(LB)	16-Jul-21
ARDEX FEATHER FINISH	10	Pounds(LB)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	16-Jul-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	16-Jul-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	16-Jul-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	16-Jul-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	16-Jul-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	16-Jul-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	16-Jul-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	16-Jul-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	16-Jul-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	16-Jul-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	16-Jul-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	16-Jul-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	16-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	16-Jul-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	16-Jul-21
rust reformer	1	Gallon(GAL)	16-Jul-21
rust reformer	1	Gallon(GAL)	16-Jul-21
rust reformer	1	Gallon(GAL)	16-Jul-21
rust reformer	1	Gallon(GAL)	16-Jul-21
rust reformer	1	Gallon(GAL)	16-Jul-21
Permacryl Int Latex Satin N/B	1	Gallon(GAL)	16-Jul-21
Permacryl Int Latex Satin N/B	1	Gallon(GAL)	16-Jul-21
Permacryl Int Latex Satin N/B	1	Gallon(GAL)	16-Jul-21
Cote All N/B	1	Gallon(GAL)	16-Jul-21
Cote All N/B	1	Gallon(GAL)	16-Jul-21
Cote All N/B	1	Gallon(GAL)	16-Jul-21
Cote All N/B	1	Gallon(GAL)	16-Jul-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	16-Jul-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	16-Jul-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	16-Jul-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	16-Jul-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	16-Jul-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	16-Jul-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	16-Jul-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	16-Jul-21
LabIR Thermographic spray paint for high-temperature applications	400	Milliliter(ML)	19-Jul-21
LabIR Thermographic spray paint for high-temperature applications	400	Milliliter(ML)	19-Jul-21
WOOD GLUE TITEBOND III	1	Gallon(GAL)	19-Jul-21
WOOD GLUE TITEBOND III	1	Gallon(GAL)	19-Jul-21
WOOD GLUE TITEBOND III	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Vesta-Syde SQ st Quaternary Ammonium Disinfectant	1	Gallon(GAL)	19-Jul-21
Vesta-Syde SQ st Quaternary Ammonium Disinfectant	1	Gallon(GAL)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
CONCRETE MIX	60	Pounds(LB)	19-Jul-21
Vesta-Syde SQ st Quaternary Ammonium Disinfectant	1	Gallon(GAL)	19-Jul-21
Vesta-Syde SQ st Quaternary Ammonium Disinfectant	1	Gallon(GAL)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
ARDEX-V-1200	50	Pounds(LB)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21
Blue Def	1	Gallon(GAL)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Blue Def	1	Gallon(GAL)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Jul-21
PROPANE	5	Gallon(GAL)	19-Jul-21
PROPANE	5	Pounds(LB)	19-Jul-21
PROPANE	11	Gallon(GAL)	19-Jul-21
PROPANE	11	Gallon(GAL)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	11	Milliliter(ML)	19-Jul-21
PROPANE	11	Gallon(GAL)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
PROPANE	11	Gallon(GAL)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
PROPANE	11	Gallon(GAL)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
HELIUM GAS	150	Milliliter(ML)	19-Jul-21
PROPANE	11	Gallon(GAL)	19-Jul-21
PROPANE	11	Gallon(GAL)	19-Jul-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	19-Jul-21
TPEN	100	Milligram(MG)	19-Jul-21
BRILLIANIZE	32	Ounces(OZ)	19-Jul-21
Gempler's Laundry Detergent	50	Pounds(LB)	19-Jul-21
10M56-2 Tellurium (10 000 µg/mL in 40% HCl)	100	Milliliter(ML)	19-Jul-21
Selenium (IV) chloride	25	Gram(GM)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	19-Jul-21
GACOFLEX- U-66 PART A	5	Gallon(GAL)	19-Jul-21
GACOFLEX- U-66 PART A	5	Gallon(GAL)	19-Jul-21
GACOFLEX- U-66 PART A	5	Gallon(GAL)	19-Jul-21
GacoFlex 2-Part Epoxy Primer/Filler - Part B	5	Cubic Centimeter (CC)	19-Jul-21
GacoFlex 2-Part Epoxy Primer/Filler - Part B	5	Cubic Centimeter (CC)	19-Jul-21
GacoFlex 2-Part Epoxy Primer/Filler - Part B	5	Cubic Centimeter (CC)	19-Jul-21
GacoFlex 2-Part Epoxy Primer/Filler - Part B	5	Cubic Centimeter (CC)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
GacoFlex 2-Part Epoxy Primer/Filler - Part B	5	Cubic Centimeter (CC)	19-Jul-21
Sikalastic 710 Base	5	Gallon(GAL)	19-Jul-21
Sikalastic 710 Base	5	Gallon(GAL)	19-Jul-21
Sikalastic 710 Base	5	Gallon(GAL)	19-Jul-21
Sikalastic 710 Base	5	Gallon(GAL)	19-Jul-21
SODIUM SULFATE ANHYDROUS	500	Gram(GM)	19-Jul-21
Support SUP706 B	1	Kilograms(KG)	19-Jul-21
Support SUP705	1	Kilograms(KG)	19-Jul-21
Support SUP705	1	Kilograms(KG)	19-Jul-21
VeroClear RGD810	1	Kilograms(KG)	19-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	10.1	Ounces(OZ)	19-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	10.1	Ounces(OZ)	19-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	10.1	Ounces(OZ)	19-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	10.1	Ounces(OZ)	19-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	10.1	Ounces(OZ)	19-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	10.1	Ounces(OZ)	19-Jul-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	19-Jul-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	19-Jul-21
MOBIL 1 0W-40	1	Quarts(QT)	19-Jul-21
MOBIL 1 0W-40	1	Quarts(QT)	19-Jul-21
MOBIL 1 0W-40	1	Quarts(QT)	19-Jul-21
MOBIL 1 0W-40	1	Quarts(QT)	19-Jul-21
MOBIL 1 0W-40	1	Quarts(QT)	19-Jul-21
MOBIL 1 0W-40	1	Quarts(QT)	19-Jul-21
MOBIL 1 0W-40	1	Quarts(QT)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	19-Jul-21
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	19-Jul-21
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	19-Jul-21
A/W HYDRAULIC OIL 32	5	Gallon(GAL)	19-Jul-21
TRU RESIN	200	Gram(GM)	19-Jul-21
ERBIUM (III) NITRATE PENTAHYDRATE	25	Gram(GM)	19-Jul-21
40mL Clear HCl Vial - 0.5mL solution	2880	Milliliter(ML)	19-Jul-21
40mL Clear HCl Vial - 0.5mL solution	2880	Milliliter(ML)	19-Jul-21
HYDROCHLORIC ACID 6N	40	Milliliter(ML)	19-Jul-21
HYDROCHLORIC ACID 6N	40	Milliliter(ML)	19-Jul-21
SODIUM SULFATE ANHYDROUS	500	Gram(GM)	20-Jul-21
SODIUM SULFATE ANHYDROUS	500	Gram(GM)	20-Jul-21
SODIUM SULFATE ANHYDROUS	500	Gram(GM)	20-Jul-21
SODIUM SULFATE ANHYDROUS	500	Gram(GM)	20-Jul-21
SODIUM SULFATE ANHYDROUS	500	Gram(GM)	20-Jul-21
SODIUM SULFATE ANHYDROUS	500	Gram(GM)	20-Jul-21
SODIUM SULFATE ANHYDROUS	500	Gram(GM)	20-Jul-21
SODIUM SULFATE ANHYDROUS	500	Gram(GM)	20-Jul-21
SODIUM SULFATE ANHYDROUS	500	Gram(GM)	20-Jul-21
SODIUM SULFATE ANHYDROUS	500	Gram(GM)	20-Jul-21
SODIUM SULFATE ANHYDROUS	500	Gram(GM)	20-Jul-21
3-BROMOPROPIONYL CHLORIDE	25	Gram(GM)	20-Jul-21
DIETHYL ETHER	2.5	Liters(L)	20-Jul-21
DIETHYL ETHER	2.5	Liters(L)	20-Jul-21
DIETHYL ETHER	2.5	Liters(L)	20-Jul-21
SODIUM CHLORIDE	5	Kilograms(KG)	20-Jul-21
HYDROGEN PEROXIDE 30%	500	Milliliter(ML)	20-Jul-21
SODIUM OLEATE	100	Gram(GM)	20-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
1 2-ETHANEDITHIOL	100	Milliliter(ML)	20-Jul-21
LITHIUM PENTAMETHYLCYCLOPENTADIENIDE min 98%	25	Gram(GM)	20-Jul-21
Buehler Epoxicure 2 Resin	64	Ounces(OZ)	20-Jul-21
BUEHLER EPOXICURE HARDENER	0.47	Liters(L)	20-Jul-21
1 2-ETHANEDITHIOL	100	Milliliter(ML)	20-Jul-21
2 2'-Bipyridyl	50	Gram(GM)	20-Jul-21
DEVCON 5 MINUTE EPOXY AMBER	25	Milliliter(ML)	20-Jul-21
NICKEL(II) CHLORIDE HEXAHYDRATE	500	Gram(GM)	20-Jul-21
Graphite conductive adhesive alcohol based	30	Gram(GM)	20-Jul-21
DICHLOROMETHANE	4	Liters(L)	20-Jul-21
DICHLOROMETHANE	4	Liters(L)	20-Jul-21
DICHLOROMETHANE	4	Liters(L)	20-Jul-21
DICHLOROMETHANE	4	Liters(L)	20-Jul-21
ACETONE FOR HPLC	4	Liters(L)	20-Jul-21
TOLUENE	4	Liters(L)	20-Jul-21
ETHYL ACETATE	4	Liters(L)	20-Jul-21
ALUMINUM PHOSPHATE	100	Gram(GM)	20-Jul-21
3-6559 CURE ACCELERATOR	0.45	Kilograms(KG)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
ARGON GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Jul-21
Compressed Air	220	Cubic Feet(CF)	20-Jul-21
Compressed Air	220	Cubic Feet(CF)	20-Jul-21
Compressed Air	220	Cubic Feet(CF)	20-Jul-21
Compressed Air	220	Cubic Feet(CF)	20-Jul-21
CARBON DIOXIDE	50	Pounds(LB)	20-Jul-21
CARBON DIOXIDE	50	Pounds(LB)	20-Jul-21
CARBON DIOXIDE	50	Pounds(LB)	20-Jul-21
CARBON DIOXIDE	50	Pounds(LB)	20-Jul-21
CARBON DIOXIDE	50	Pounds(LB)	20-Jul-21
CARBON DIOXIDE	50	Pounds(LB)	20-Jul-21
CARBON DIOXIDE	50	Pounds(LB)	20-Jul-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	20-Jul-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	20-Jul-21
PROPANE	11	Gallon(GAL)	20-Jul-21
Compressed Air	220	Cubic Feet(CF)	20-Jul-21
Compressed Air	220	Cubic Feet(CF)	20-Jul-21
TERBIUM (III) CHLORIDE HEXAHYDRATE	10	Gram(GM)	21-Jul-21
SYLGARD 184 SILICONE ELASTOMER KIT	1.1	Pounds(LB)	21-Jul-21
Graphite conductive adhesive aqueous based	30	Gram(GM)	21-Jul-21
ETHYL ALCOHOL	1	Gallon(GAL)	21-Jul-21
TES (2-{[TRIS(HYDROXYMETHYL)METHYL]AMINO}-1-ETHANESULFONIC ACID)	50	Gram(GM)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
HIT-HY 270	11.1	Ounces(OZ)	21-Jul-21
Cubic Boron Nitride (CBN)	1	Kilograms(KG)	21-Jul-21
Cubic Boron Nitride (CBN)	1	Kilograms(KG)	21-Jul-21
ETHANOL (ETHYL ALCOHOL)	1	Gallon(GAL)	22-Jul-21
CERIUM(III) SULFATE	50	Gram(GM)	22-Jul-21
Sure Grip Exterior Latex Primer White	5	Gallon(GAL)	22-Jul-21
Sure Grip Exterior Latex Primer White	5	Gallon(GAL)	22-Jul-21
Sure Grip Exterior Latex Primer White	5	Gallon(GAL)	22-Jul-21
Sure Grip Exterior Latex Primer White	5	Gallon(GAL)	22-Jul-21
Sure Grip Exterior Latex Primer White	5	Gallon(GAL)	22-Jul-21
Sure Grip Exterior Latex Primer White	5	Gallon(GAL)	22-Jul-21
Sure Grip Exterior Latex Primer White	5	Gallon(GAL)	22-Jul-21
Phenyl acrylate 97%	25	Gram(GM)	22-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	5	Gallon(GAL)	22-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	5	Gallon(GAL)	22-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	5	Gallon(GAL)	22-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	5	Gallon(GAL)	22-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	5	Gallon(GAL)	22-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	5	Gallon(GAL)	22-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	5	Gallon(GAL)	22-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	5	Gallon(GAL)	22-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	5	Gallon(GAL)	22-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	5	Gallon(GAL)	22-Jul-21
(2-IODOETHYL)BENZENE	100	Gram(GM)	22-Jul-21
VITA-D-CHLOR SLO-TABS	35	Pounds(LB)	22-Jul-21
VITA-D-CHLOR SLO-TABS	35	Pounds(LB)	22-Jul-21
VITA-D-CHLOR SLO-TABS	35	Pounds(LB)	22-Jul-21
VITA-D-CHLOR SLO-TABS	35	Pounds(LB)	22-Jul-21
T PLUS 2	1.75	Ounces(OZ)	22-Jul-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	22-Jul-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	22-Jul-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	22-Jul-21
Automet Lapping Oil	6	Ounces(OZ)	22-Jul-21
METADI FLUID	32	Ounces(OZ)	22-Jul-21
3-IN-ONE MULTIPURPOSE OIL	4	Ounces(OZ)	22-Jul-21
3-IN-ONE MULTIPURPOSE OIL	8	Ounces(OZ)	22-Jul-21
SILICON CARBIDE POWDER	16	Ounces(OZ)	22-Jul-21
DIISOPROPYL FLUOROPHOSPHATE	1	Gram(GM)	22-Jul-21
TRIZOL REAGENT	200	Milliliter(ML)	22-Jul-21
TRIZOL REAGENT	200	Milliliter(ML)	22-Jul-21
DOW CORNING HIGH VACUUM GREASE	2	Ounces(OZ)	22-Jul-21
Acetonitrile-d3 99% atom D	250	Milliliter(ML)	22-Jul-21
Alumina Polishing Solution De-agglomerated 0.05 micron	12	Ounces(OZ)	22-Jul-21
Alumina Polishing Solution De-agglomerated 0.05 micron	12	Ounces(OZ)	22-Jul-21
ALUMINUM OXIDE (ALUMINA POLISHING SUSPENSION-ALPHA) 3.0CR	12	Ounces(OZ)	22-Jul-21
Water Based Stainless Steel Cleaner & Polish	17	Ounces(OZ)	22-Jul-21
BUEHLER METADI DIAMOND PASTE	20	Gram(GM)	22-Jul-21
3-IN-ONE MULTIPURPOSE OIL	4	Ounces(OZ)	22-Jul-21
EPOFIX RESIN	1	Liters(L)	22-Jul-21
EPOFIX RESIN	1	Liters(L)	22-Jul-21
HEXAMETHYLENETETRAMINE	500	Gram(GM)	22-Jul-21
HEXAMETHYLENETETRAMINE	500	Gram(GM)	22-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
GLASS WOOL	50	Gram(GM)	22-Jul-21
THEOPHYLLINE	50	Gram(GM)	22-Jul-21
2 4 5-TRIBROMOIMIDAZOLE	5	Gram(GM)	22-Jul-21
2 4 5-TRIBROMOIMIDAZOLE	5	Gram(GM)	22-Jul-21
2-Bromo-5-nitroimidazole 98%	5	Gram(GM)	22-Jul-21
2-Bromo-5-nitroimidazole 98%	5	Gram(GM)	22-Jul-21
EPOFIX HARDENER	130	Milliliter(ML)	22-Jul-21
EPOFIX HARDENER	130	Milliliter(ML)	22-Jul-21
KRYTOX PERFORMANCE LUBRICANT	2	Ounces(OZ)	22-Jul-21
BENZOPHENONE	5	Gram(GM)	22-Jul-21
BENZOIC ACID STANDARD	5	Gram(GM)	22-Jul-21
HIGH VACUUM GREASE	25	Gram(GM)	22-Jul-21
PROPANE	5	Gallon(GAL)	22-Jul-21
PROPANE	5	Gallon(GAL)	22-Jul-21
TRIFLUOROMETHANE	100	Pounds(LB)	22-Jul-21
CARBON DIOXIDE	50	Pounds(LB)	22-Jul-21
CARBON DIOXIDE	50	Pounds(LB)	22-Jul-21
XENON	0.14	Kilograms(KG)	22-Jul-21
Oxygen Nitrogen	15	Cubic Feet(CF)	22-Jul-21
HELIUM GAS	11	Pounds(LB)	22-Jul-21
N N-DIMETHYLFORMAMIDE	1	Liters(L)	22-Jul-21
4-(AMINOMETHYL)PYRIDINE	100	Gram(GM)	22-Jul-21
10 000 ug/mL Zirconium	1000	Milliliter(ML)	22-Jul-21
2-Bromo-5-nitrobenzoic acid	5	Gram(GM)	22-Jul-21
2-Bromo-5-nitrobenzoic acid	5	Gram(GM)	22-Jul-21
2-Propanol ACS Reagent 99.5%	1	Liters(L)	22-Jul-21
2-Propanol ACS Reagent 99.5%	1	Liters(L)	22-Jul-21
METHANOL REAGENT ACS	1	Liters(L)	22-Jul-21
ACETONE ACS	1	Liters(L)	22-Jul-21
TERBIUM(III) NITRATE HYDRATE	10	Gram(GM)	22-Jul-21
THIONYL CHLORIDE 99+%	1	Liters(L)	22-Jul-21
2-METHYLTETRAHYDROFURAN	2.5	Liters(L)	22-Jul-21
Ethyl Acetate HPLC	4	Liters(L)	22-Jul-21
Ethyl Acetate HPLC	4	Liters(L)	22-Jul-21
Ethyl Acetate HPLC	4	Liters(L)	22-Jul-21
Ethyl Acetate HPLC	4	Liters(L)	22-Jul-21
Ethyl Acetate HPLC	4	Liters(L)	22-Jul-21
Ethyl Acetate HPLC	4	Liters(L)	22-Jul-21
Ethyl Acetate HPLC	4	Liters(L)	22-Jul-21
Ethyl Acetate HPLC	4	Liters(L)	22-Jul-21
Graphite conductive adhesive alcohol based	30	Gram(GM)	22-Jul-21
O-(7-Aza-1H-benzotriazol-1-yl)-N N N' N'-tetramethyluronium hexafluorophosphate	25	Gram(GM)	22-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
O-(7-Aza-1H-benzotriazol-1-yl)-N N N' N'-tetramethyluronium hexafluorophosphate	25	Gram(GM)	22-Jul-21
URIDINE-5'-DIPHOSPHATE DISODIUM SALT	5	Gram(GM)	22-Jul-21
Fisherbrand SUPER FRIENDLY DUSTER AIR'IT	11	Ounces(OZ)	22-Jul-21
Fisherbrand SUPER FRIENDLY DUSTER AIR'IT	11	Ounces(OZ)	22-Jul-21
Fisherbrand SUPER FRIENDLY DUSTER AIR'IT	11	Ounces(OZ)	22-Jul-21
Fisherbrand SUPER FRIENDLY DUSTER AIR'IT	11	Ounces(OZ)	22-Jul-21
Fisherbrand SUPER FRIENDLY DUSTER AIR'IT	11	Ounces(OZ)	22-Jul-21
Fisherbrand SUPER FRIENDLY DUSTER AIR'IT	11	Ounces(OZ)	22-Jul-21
Tetrahydrofuran-d8 (D 99.5%)	10	Milliliter(ML)	22-Jul-21
Tetrahydrofuran-d8 (D 99.5%)	10	Milliliter(ML)	22-Jul-21
TOLUENE ANHYDROUS	2	Liters(L)	22-Jul-21
TOLUENE ANHYDROUS	2	Liters(L)	22-Jul-21
TRIS(2-AMINOETHYL)AMINE	10	Milliliter(ML)	22-Jul-21
ZINC OXIDE	100	Gram(GM)	22-Jul-21
TRIRON X-100	500	Milliliter(ML)	22-Jul-21
AG 1-X8 Resin	500	Gram(GM)	22-Jul-21
PHOSPHOTUNGSSTIC ACID	500	Gram(GM)	22-Jul-21
BENZYLTRIMETHYLAMMONIUM HYDROXIDE SOLUTION 40%	100	Milliliter(ML)	22-Jul-21
1 2-DIBROMOETHANE	250	Gram(GM)	22-Jul-21
MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill White	1	Gallon(GAL)	23-Jul-21
MACROPOXY 646 Fast Cure Epoxy (Part B) Hardener	1	Gallon(GAL)	23-Jul-21
Cubic Boron Nitride (CBN)	2	Kilograms(KG)	23-Jul-21
Cubic Boron Nitride (CBN)	2	Kilograms(KG)	23-Jul-21
HG-1 Ceramic Cement	1	Ounces(OZ)	23-Jul-21
KO-19	16	Ounces(OZ)	23-Jul-21
KO-19	16	Ounces(OZ)	23-Jul-21
KO-19	16	Ounces(OZ)	23-Jul-21
KO-19	16	Ounces(OZ)	23-Jul-21
KO-19	16	Ounces(OZ)	23-Jul-21
KO-19	16	Ounces(OZ)	23-Jul-21
KO-19	16	Ounces(OZ)	23-Jul-21
KO-19	16	Ounces(OZ)	23-Jul-21
KO-19	16	Ounces(OZ)	23-Jul-21
CERIUM(IV) OXIDE NANOPOWDER	25	Gram(GM)	26-Jul-21
Fiber Optic Sensor Installation Kit (FOSAPPKIT)	1	Milliliter(ML)	26-Jul-21
OXYGEN 15%/CARBON MONOXIDE 60PPM/HYDROGEN SULFIDE 20 PPM	58	Liters(L)	26-Jul-21
4000 Series Monosized Particles 10 um	15	Milliliter(ML)	26-Jul-21
4000 Series Monosized Particles 10 um	15	Milliliter(ML)	26-Jul-21
HIGH STRENTH 90 SPRAY ADHESIVE	17.6	Ounces(OZ)	26-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	26-Jul-21
VULKEM 116 LV DARK BRONZE	300	Milliliter(ML)	26-Jul-21
VULKEM 116 LV DARK BRONZE	300	Milliliter(ML)	26-Jul-21
VULKEM 116 LV DARK BRONZE	300	Milliliter(ML)	26-Jul-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	26-Jul-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	26-Jul-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	26-Jul-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	26-Jul-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	26-Jul-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	26-Jul-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	26-Jul-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	26-Jul-21
Sikaflex-1C SL	29	Ounces(OZ)	26-Jul-21
Sikaflex-1C SL	29	Ounces(OZ)	26-Jul-21
Sikaflex-1C SL	29	Ounces(OZ)	26-Jul-21
Sikaflex-1C SL	29	Ounces(OZ)	26-Jul-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Jul-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Jul-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Jul-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Jul-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Jul-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Jul-21
4000 series monosized particles 30 um	15	Milliliter(ML)	26-Jul-21
4000 series monosized particles 30 um	15	Milliliter(ML)	26-Jul-21
4000 series monosized particles 50 um	15	Milliliter(ML)	26-Jul-21
4000 series monosized particles 50 um	15	Milliliter(ML)	26-Jul-21
4000 Series Monosized Particles 70 um	15	Milliliter(ML)	26-Jul-21
4000 Series Monosized Particles 70 um	15	Milliliter(ML)	26-Jul-21
4000 Series Monosized Particles 100 um	15	Milliliter(ML)	26-Jul-21
4000 Series Monosized Particles 100 um	15	Milliliter(ML)	26-Jul-21
4000 Series Monosized Particles 140 um	15	Milliliter(ML)	26-Jul-21
4000 Series Monosized Particles 140 um	15	Milliliter(ML)	26-Jul-21
4000 Series Monosized Particles 200 um	15	Milliliter(ML)	26-Jul-21
4000 Series Monosized Particles 200 um	1	Gram(GM)	26-Jul-21
4000 Series Monosized Particles 400 um	1	Gram(GM)	26-Jul-21
4000 Series Monosized Particles 400 um	1	Gram(GM)	26-Jul-21
4000 Series Monosized Particles 500 um	1	Gram(GM)	26-Jul-21
4000 Series Monosized Particles 500 um	1	Gram(GM)	26-Jul-21
4000 Series Monosized Particles 750 um	1	Gram(GM)	26-Jul-21
4000 Series Monosized Particles 750 um	1	Gram(GM)	26-Jul-21
4000 Series Monosized Particles 1000 um	1	Gram(GM)	26-Jul-21
4000 Series Monosized Particles 1000 um	1	Gram(GM)	26-Jul-21
4000 Series Monosized Particles 300 um	1	Gram(GM)	26-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
4000 Series Monosized Particles 300 um	1	Gram(GM)	26-Jul-21
888-1572 COLORTREND BROWN OXIDE	1	Quarts(QT)	27-Jul-21
888-1572 COLORTREND BROWN OXIDE	1	Quarts(QT)	27-Jul-21
888-1572 COLORTREND BROWN OXIDE	1	Quarts(QT)	27-Jul-21
888-1572 COLORTREND BROWN OXIDE	1	Quarts(QT)	27-Jul-21
888-1572 COLORTREND BROWN OXIDE	1	Quarts(QT)	27-Jul-21
888-1572 COLORTREND BROWN OXIDE	1	Quarts(QT)	27-Jul-21
808-9907 COLORTREND B LAMP BLACK	1	Quarts(QT)	27-Jul-21
808-9907 COLORTREND B LAMP BLACK	1	Quarts(QT)	27-Jul-21
808-9907 COLORTREND B LAMP BLACK	1	Quarts(QT)	27-Jul-21
808-9907 COLORTREND B LAMP BLACK	1	Quarts(QT)	27-Jul-21
808-9907 COLORTREND B LAMP BLACK	1	Quarts(QT)	27-Jul-21
808-9907 COLORTREND B LAMP BLACK	1	Quarts(QT)	27-Jul-21
808-1810 COLORTREND C YELLOW OXIDE	1	Quarts(QT)	27-Jul-21
808-1810 COLORTREND C YELLOW OXIDE	1	Quarts(QT)	27-Jul-21
808-1810 COLORTREND C YELLOW OXIDE	1	Quarts(QT)	27-Jul-21
808-1810 COLORTREND C YELLOW OXIDE	1	Quarts(QT)	27-Jul-21
808-1810 COLORTREND C YELLOW OXIDE	1	Quarts(QT)	27-Jul-21
808-1810 COLORTREND C YELLOW OXIDE	1	Quarts(QT)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Semi-Gloss N/B	1	Gallon(GAL)	27-Jul-21
INSTANT COLD GALVANIZE	14	Ounces(OZ)	27-Jul-21
INSTANT COLD GALVANIZE	14	Ounces(OZ)	27-Jul-21
Hydrochloric acid Trace Metal Grade	500	Milliliter(ML)	27-Jul-21
Hydrochloric acid Trace Metal Grade	500	Milliliter(ML)	27-Jul-21
Pyridine-2 6-dicarboxylic acid for synthesis	100	Gram(GM)	27-Jul-21
Pyridine-2 6-dicarboxylic acid for synthesis	100	Gram(GM)	27-Jul-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	27-Jul-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	27-Jul-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	27-Jul-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	27-Jul-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	27-Jul-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	27-Jul-21
26BR HIGH TEMP RTV RED SILICONE GASKET MAKER 3 OZ	3	Ounces(OZ)	27-Jul-21
TRU RESIN	2	Milliliter(ML)	27-Jul-21
TRU RESIN	2	Milliliter(ML)	27-Jul-21
TRU RESIN	2	Milliliter(ML)	27-Jul-21
TRU RESIN	2	Milliliter(ML)	27-Jul-21
TRU RESIN	2	Milliliter(ML)	27-Jul-21
TRU RESIN	2	Milliliter(ML)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
BRAKE PARTS CLEANER	13	Ounces(OZ)	27-Jul-21
NEODYMIUM(III) CHLORIDE HEXAHYDRATE (99.9% Nd) (REO)	25	Gram(GM)	27-Jul-21
SAMARIUM(III) CHLORIDE HEXAHYDRATE	50	Gram(GM)	27-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ULTRA BLACK GASKET MAKER	3.35	Ounces(OZ)	27-Jul-21
EUROPIUM(III) CHLORIDE HEXAHYDRATE	5	Gram(GM)	27-Jul-21
WD-40 MULTI-USE PRODUCT - [Non-Aerosol]	20	Ounces(OZ)	27-Jul-21
WD-40 MULTI-USE PRODUCT - [Non-Aerosol]	20	Ounces(OZ)	27-Jul-21
WD-40 MULTI-USE PRODUCT - [Non-Aerosol]	20	Ounces(OZ)	27-Jul-21
WD-40 MULTI-USE PRODUCT - [Non-Aerosol]	20	Ounces(OZ)	27-Jul-21
WD-40 MULTI-USE PRODUCT - [Non-Aerosol]	20	Ounces(OZ)	27-Jul-21
WD-40 MULTI-USE PRODUCT - [Non-Aerosol]	20	Ounces(OZ)	27-Jul-21
WD-40 MULTI-USE PRODUCT - [Non-Aerosol]	20	Ounces(OZ)	27-Jul-21
WD-40 MULTI-USE PRODUCT - [Non-Aerosol]	20	Ounces(OZ)	27-Jul-21
WD-40 MULTI-USE PRODUCT - [Non-Aerosol]	20	Ounces(OZ)	27-Jul-21
WD-40 MULTI-USE PRODUCT - [Non-Aerosol]	20	Ounces(OZ)	27-Jul-21
TERBIUM(III) CHLORIDE HEXAHYDRATE	25	Gram(GM)	27-Jul-21
LOCTITE 266	0.34	Ounces(OZ)	27-Jul-21
(LIGHT) HIGH VACUUM GREASE	5.3	Ounces(OZ)	27-Jul-21
(LIGHT) HIGH VACUUM GREASE	5.3	Ounces(OZ)	27-Jul-21
SAE 80W-90 GEAR OIL	1	Quarts(QT)	27-Jul-21
SAE 80W-90 GEAR OIL	1	Quarts(QT)	27-Jul-21
SAE 80W-90 GEAR OIL	1	Quarts(QT)	27-Jul-21
SAE 80W-90 GEAR OIL	1	Quarts(QT)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	27-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	27-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	27-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	27-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	27-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	27-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	27-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	27-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	27-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	27-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	27-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	27-Jul-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	27-Jul-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	27-Jul-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	27-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	27-Jul-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	27-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	27-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	27-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	27-Jul-21
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	27-Jul-21
AW HYDRAULIC OIL 46	5	Gallon(GAL)	27-Jul-21
Superglue/Cyanoacrylate	20	Gram(GM)	27-Jul-21
Superglue/Cyanoacrylate	20	Gram(GM)	27-Jul-21
Superglue/Cyanoacrylate	20	Gram(GM)	27-Jul-21
Superglue/Cyanoacrylate	20	Gram(GM)	27-Jul-21
Superglue/Cyanoacrylate	20	Gram(GM)	27-Jul-21
Superglue/Cyanoacrylate	20	Gram(GM)	27-Jul-21
Superglue/Cyanoacrylate	20	Gram(GM)	27-Jul-21
Superglue/Cyanoacrylate	20	Gram(GM)	27-Jul-21
Superglue/Cyanoacrylate	20	Gram(GM)	27-Jul-21
Superglue/Cyanoacrylate	20	Gram(GM)	27-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SUPER GLUE GEL	0.14	Ounces(OZ)	27-Jul-21
SAE 75W-90 GEAR OIL	1	Quarts(QT)	27-Jul-21
SAE 75W-90 GEAR OIL	1	Quarts(QT)	27-Jul-21
John Deere Hy-Gard	5	Gallon(GAL)	27-Jul-21
John Deere Hy-Gard	5	Gallon(GAL)	27-Jul-21
John Deere Hy-Gard	5	Gallon(GAL)	27-Jul-21
QD Electronic Cleaner (Aerosol)	11	Ounces(OZ)	27-Jul-21
QD Electronic Cleaner (Aerosol)	11	Ounces(OZ)	27-Jul-21
DUPLI-COLOR Acrylic Enamel Aerosol Paint Flat Black	12	Ounces(OZ)	27-Jul-21
DUPLI-COLOR 2-in-1 Filler & Sandable Primer	12	Ounces(OZ)	27-Jul-21
DUPLI-COLOR 2-in-1 Filler & Sandable Primer	12	Ounces(OZ)	27-Jul-21
MOBIL 1 5W-50	1	Quarts(QT)	27-Jul-21
MOBIL 1 5W-50	1	Quarts(QT)	27-Jul-21
MOBIL 1 5W-50	1	Quarts(QT)	27-Jul-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	27-Jul-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	27-Jul-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	27-Jul-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	27-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	27-Jul-21
ANTIFREEZE & COOLANT	1	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
WHITE SOLVENTLESS SILICONE	5	Gallon(GAL)	27-Jul-21
GACO E5320 EPOXY PRIMER PART A	5	Gallon(GAL)	27-Jul-21
GACO E5320 EPOXY PRIMER PART A	5	Gallon(GAL)	27-Jul-21
GACO E5320 EPOXY PRIMER PART A	5	Gallon(GAL)	27-Jul-21
GACO E5320 EPOXY PRIMER PART A	5	Gallon(GAL)	27-Jul-21
GACO E5320 EPOXY PRIMER PART A	5	Gallon(GAL)	27-Jul-21
GACO E5320 EPOXY PRIMER PART B	5	Gallon(GAL)	27-Jul-21
GACO E5320 EPOXY PRIMER PART B	5	Gallon(GAL)	27-Jul-21
GACO E5320 EPOXY PRIMER PART B	5	Gallon(GAL)	27-Jul-21
GACO E5320 EPOXY PRIMER PART B	5	Gallon(GAL)	27-Jul-21
GACO E5320 EPOXY PRIMER PART B	5	Gallon(GAL)	27-Jul-21
Excelsior ASD-800	1	Gallon(GAL)	27-Jul-21
Excelsior ASD-800	1	Gallon(GAL)	27-Jul-21
Excelsior ASD-800	1	Gallon(GAL)	27-Jul-21
Excelsior ASD-800	1	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	27-Jul-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	27-Jul-21
ARDEX FEATHER FINISH	10	Pounds(LB)	27-Jul-21
ARDEX FEATHER FINISH	10	Pounds(LB)	27-Jul-21
ARDEX FEATHER FINISH	10	Pounds(LB)	27-Jul-21
ARDEX FEATHER FINISH	10	Pounds(LB)	27-Jul-21
ARDEX FEATHER FINISH	10	Pounds(LB)	27-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Atlas Copco Roto Z	20	Liters(L)	27-Jul-21
Atlas Copco Roto Z	20	Liters(L)	27-Jul-21
ERBIUM(III) CHLORIDE HEXAHYDRATE	25	Gram(GM)	27-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	28-Jul-21
Homax Wall Texture Pro Grade- Orange Peel	25	Ounces(OZ)	28-Jul-21
Homax Wall Texture Pro Grade- Orange Peel	25	Ounces(OZ)	28-Jul-21
Homax Wall Texture Pro Grade- Orange Peel	25	Ounces(OZ)	28-Jul-21
Homax Wall Texture Pro Grade- Orange Peel	25	Ounces(OZ)	28-Jul-21
Homax Wall Texture Pro Grade- Orange Peel	25	Ounces(OZ)	28-Jul-21
Homax Wall Texture Pro Grade- Orange Peel	25	Ounces(OZ)	28-Jul-21
3M RESIN FK-800	1	Kilograms(KG)	28-Jul-21
3M RESIN FK-800	1	Kilograms(KG)	28-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONATHANE EN-4 PART A URETHANE PREPOLYMER	3	Gallon(GAL)	28-Jul-21
CONATHANE EN-4 PART A URETHANE PREPOLYMER	3	Gallon(GAL)	28-Jul-21
CONATHANE EN-4 PART A URETHANE PREPOLYMER	3	Gallon(GAL)	28-Jul-21
CONATHANE EN-7 PART B CURATIVE	3	Quarts(QT)	28-Jul-21
CONATHANE EN-7 PART B CURATIVE	3	Quarts(QT)	28-Jul-21
CONATHANE EN-7 PART B CURATIVE	3	Quarts(QT)	28-Jul-21
Carbon Dioxide Air	150	Cubic Feet(CF)	28-Jul-21
Carbon Monoxide 1000 ppm in Air	150	Cubic Feet(CF)	28-Jul-21
10 ppm Oxygen Bal Nitrogen	150	Cubic Feet(CF)	28-Jul-21
OXYGEN 1000PPM IN NITROGEN	150	Cubic Feet(CF)	28-Jul-21
OXYGEN 1000PPM IN NITROGEN	150	Cubic Feet(CF)	28-Jul-21
N-BUTYLBENZENESULPHONAMIDE	4	Kilograms(KG)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
NITROGEN GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
HELIUM GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
ARGON GAS	220	Cubic Feet(CF)	28-Jul-21
Compressed Air	220	Cubic Feet(CF)	28-Jul-21
Compressed Air	220	Cubic Feet(CF)	28-Jul-21
Compressed Air	220	Cubic Feet(CF)	28-Jul-21
Compressed Air	220	Cubic Feet(CF)	28-Jul-21
Compressed Air	220	Cubic Feet(CF)	28-Jul-21
Compressed Air	220	Cubic Feet(CF)	28-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Compressed Air	220	Cubic Feet(CF)	28-Jul-21
Compressed Air	220	Cubic Feet(CF)	28-Jul-21
Compressed Air	300	Cubic Feet(CF)	28-Jul-21
Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	28-Jul-21
Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	28-Jul-21
Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	28-Jul-21
Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	28-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Jul-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
10% Methane/90% Argon aka/P-10 P-10 (220 cf)	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
6% Hydrogen 94% Argon	220	Cubic Feet(CF)	28-Jul-21
PROPANE	11	Gallon(GAL)	28-Jul-21
PROPANE	5	Gallon(GAL)	28-Jul-21
PROPANE	5	Gallon(GAL)	28-Jul-21
PROPANE	11	Gallon(GAL)	28-Jul-21
PROPANE	11	Gallon(GAL)	28-Jul-21
PROPANE	11	Gallon(GAL)	28-Jul-21
PROPANE	11	Gallon(GAL)	28-Jul-21
PROPANE	11	Gallon(GAL)	28-Jul-21
PROPANE	11	Gallon(GAL)	28-Jul-21
PROPANE	11	Gallon(GAL)	28-Jul-21
PROPANE	11	Gallon(GAL)	28-Jul-21
PROPANE	11	Gallon(GAL)	28-Jul-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	28-Jul-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	28-Jul-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	28-Jul-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	28-Jul-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	28-Jul-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	28-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ACETYLENE STABILIZED	40	Cubic Feet(CF)	28-Jul-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	28-Jul-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	28-Jul-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	28-Jul-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	28-Jul-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	28-Jul-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	28-Jul-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	28-Jul-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	28-Jul-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	28-Jul-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	28-Jul-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	28-Jul-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	28-Jul-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	28-Jul-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	28-Jul-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	28-Jul-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	28-Jul-21
2.9% Hydrogen/Bal. Argon	220	Cubic Feet(CF)	28-Jul-21
2.9% Hydrogen/Bal. Argon	220	Cubic Feet(CF)	28-Jul-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	28-Jul-21
OXYGEN 10% IN NITROGEN	150	Cubic Feet(CF)	28-Jul-21
SILICONE PRIMER	1	Pint(PT)	28-Jul-21
ZINC BROMIDE	500	Gram(GM)	28-Jul-21
3-AMINOPYRIDINE	1	Kilograms(KG)	28-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ANILINE	500	Gram(GM)	28-Jul-21
CHLOROFORM	1	Liters(L)	28-Jul-21
PARAFORMALDEHYDE	500	Gram(GM)	28-Jul-21
AMMONIUM PERCHLORATE	5	Pounds(LB)	28-Jul-21
AMMONIUM PERCHLORATE	2	Pounds(LB)	28-Jul-21
CUPRIC NITRATE	1	Pounds(LB)	28-Jul-21
POTASSIUM PERCHLORATE	5	Pounds(LB)	28-Jul-21
POTASSIUM PERCHLORATE	5	Pounds(LB)	28-Jul-21
POTASSIUM PERCHLORATE	5	Pounds(LB)	28-Jul-21
GUANIDINE NITRATE	1	Pounds(LB)	28-Jul-21
HYVAC PUMP OIL	1	Quarts(QT)	28-Jul-21
HYVAC PUMP OIL	1	Quarts(QT)	28-Jul-21
HYVAC PUMP OIL	1	Quarts(QT)	28-Jul-21
HYVAC PUMP OIL	1	Quarts(QT)	28-Jul-21
STRONTIUM NITRATE	5	Pounds(LB)	28-Jul-21
STRONTIUM NITRATE	5	Pounds(LB)	28-Jul-21
STRONTIUM NITRATE	5	Pounds(LB)	28-Jul-21
CUPROUS CHLORIDE	1	Pounds(LB)	28-Jul-21
CUPROUS IODIDE	113	Gram(GM)	28-Jul-21
BAKING SODA	10	Pounds(LB)	28-Jul-21
2-NAPHTHOL	50	Gram(GM)	28-Jul-21
CARBON LAMPBLACK	1	Pounds(LB)	28-Jul-21
POLY(TETRAFLUOROETHYLENE)	1	Pounds(LB)	28-Jul-21
SARAN RESIN F 310 [PLASTIC RESIN]	2	Pounds(LB)	28-Jul-21
SARAN RESIN F 310 [PLASTIC RESIN]	2	Pounds(LB)	28-Jul-21
TETRAHYDROPYRAN	500	Milliliter(ML)	29-Jul-21
ALUMINUM CHLORIDE ANHYDROUS	500	Gram(GM)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	29-Jul-21
VACCUM PUMP OIL	1	Gallon(GAL)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
SP 705 Non-Chlorinated Brake & Parts Cleaner	14	Ounces(OZ)	29-Jul-21
VACCUM PUMP OIL	1	Gallon(GAL)	29-Jul-21
ISOPROPYL ALCOHOL	1	Gallon(GAL)	29-Jul-21
ISOPROPYL ALCOHOL	1	Gallon(GAL)	29-Jul-21
ISOPROPYL ALCOHOL	1	Gallon(GAL)	29-Jul-21
DYSPROSIUM(III) CHLORIDE HEXAHYDRATE	25	Gram(GM)	29-Jul-21
GADOLINIUM (III) CHLORIDE HEXAHYDRATE	25	Gram(GM)	29-Jul-21
Stick-Kut Wax Stick Lubricant	15	Ounces(OZ)	29-Jul-21
Stick-Kut Wax Stick Lubricant	15	Ounces(OZ)	29-Jul-21
Stick-Kut Wax Stick Lubricant	15	Ounces(OZ)	29-Jul-21
Stick-Kut Wax Stick Lubricant	15	Ounces(OZ)	29-Jul-21
Stick-Kut Wax Stick Lubricant	15	Ounces(OZ)	29-Jul-21
Stick-Kut Wax Stick Lubricant	15	Ounces(OZ)	29-Jul-21
Stick-Kut Wax Stick Lubricant	15	Ounces(OZ)	29-Jul-21
Stick-Kut Wax Stick Lubricant	15	Ounces(OZ)	29-Jul-21
Stick-Kut Wax Stick Lubricant	15	Ounces(OZ)	29-Jul-21
Stick-Kut Wax Stick Lubricant	15	Ounces(OZ)	29-Jul-21
Stick-Kut Wax Stick Lubricant	15	Ounces(OZ)	29-Jul-21
Stick-Kut Wax Stick Lubricant	15	Ounces(OZ)	29-Jul-21
PRASEODYMIUM(III) NITRATE HEXHYDRATE	10	Gram(GM)	29-Jul-21
MOBIL VACTRA OIL NO. 2	5	Gallon(GAL)	29-Jul-21
Loctite Epoxy Instant Mix	4	Ounces(OZ)	29-Jul-21
MOBIL VACTRA OIL NO. 2	5	Gallon(GAL)	29-Jul-21
NEODYMIUM (III) NITRATE HEXHYDRATE	25	Gram(GM)	29-Jul-21
Loctite Epoxy Instant Mix	4	Ounces(OZ)	29-Jul-21
Blasoclean AF	5	Gallon(GAL)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
TAPMATIC #1 GOLD CUTTING FLUID	11	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
SILICONE SEALANT CLEAR	10	Ounces(OZ)	29-Jul-21
TAPMATIC #1 GOLD CUTTING FLUID	11	Ounces(OZ)	29-Jul-21
TAPMATIC #1 GOLD CUTTING FLUID	11	Ounces(OZ)	29-Jul-21
TAPMATIC #1 GOLD CUTTING FLUID	11	Ounces(OZ)	29-Jul-21
TAPMATIC #1 GOLD CUTTING FLUID	11	Ounces(OZ)	29-Jul-21
TAPMATIC #1 GOLD CUTTING FLUID	11	Ounces(OZ)	29-Jul-21
TAPMATIC #1 GOLD CUTTING FLUID	11	Ounces(OZ)	29-Jul-21
TAPMATIC #1 GOLD CUTTING FLUID	11	Ounces(OZ)	29-Jul-21
TAPMATIC #1 GOLD CUTTING FLUID	11	Ounces(OZ)	29-Jul-21
TAPMATIC #1 GOLD CUTTING FLUID	11	Ounces(OZ)	29-Jul-21
TAPMATIC #1 GOLD CUTTING FLUID	11	Ounces(OZ)	29-Jul-21
TAPMATIC #1 GOLD CUTTING FLUID	11	Ounces(OZ)	29-Jul-21
NO. 1 LIQUID SOLDERING FLUX FOR ALUMINUM	16	Ounces(OZ)	29-Jul-21
CERIUM(IV) OXIDE	100	Gram(GM)	29-Jul-21
CERIUM(IV) SULFATE	25	Gram(GM)	29-Jul-21
Neodymium(III) oxide 99.9% trace metals basis	25	Gram(GM)	29-Jul-21
Erbium(III) oxide 99.9% trace metals basis	25	Gram(GM)	29-Jul-21
Dysprosium(III) oxide 99.9% trace metals basis	25	Gram(GM)	29-Jul-21
Gadolinium(III) oxide 99.9% trace metals basis	25	Gram(GM)	29-Jul-21
PSX 700 Safety Red 1979 Resin	1	Gallon(GAL)	29-Jul-21
PSX 700 Safety Red 1979 Resin	1	Gallon(GAL)	29-Jul-21
PSX 700 Safety Red 1979 Resin	1	Gallon(GAL)	29-Jul-21
PSX 700 Safety Red 1979 Resin	1	Gallon(GAL)	29-Jul-21
MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill White	1	Quarts(QT)	29-Jul-21
PSX 700 CURE	1	Pint(PT)	29-Jul-21
PSX 700 CURE	1	Pint(PT)	29-Jul-21
PSX 700 CURE	1	Pint(PT)	29-Jul-21
PSX 700 CURE	1	Pint(PT)	29-Jul-21
MACROPOXY 646 Fast Cure Epoxy (Part A) - Mill White	1	Quarts(QT)	29-Jul-21
MACROPOXY 646 Fast Cure Epoxy (Part B) Hardener	1	Quarts(QT)	29-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
DOUBLE BUBBLE RED EXTRA FAST SETTING EPOXY	3.5	Gram(GM)	29-Jul-21
MACROPOXY 646 Fast Cure Epoxy (Part B) Hardener	1	Quarts(QT)	29-Jul-21
DOUBLE BUBBLE PURPLE/BEIGE A85 PACKAGE	3.5	Gram(GM)	29-Jul-21
VeroClear RGD810	4	Kilograms(KG)	29-Jul-21
Support SUP706 B	4	Kilograms(KG)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
CLINOPTILILITE ZEOLITE	5827	Pounds(LB)	29-Jul-21
CLINOPTILILITE ZEOLITE	75	Pounds(LB)	29-Jul-21
CLINOPTILILITE ZEOLITE	1005	Pounds(LB)	29-Jul-21
FullCure RGD837 - VeroPureWhite	4	Kilograms(KG)	29-Jul-21
VEROBLACKPLUS RGD875	4	Kilograms(KG)	29-Jul-21
Mercuric Nitrate Digital Titrator Cartridge 2.256 N	100	Milliliter(ML)	29-Jul-21
Mercuric Nitrate Digital Titrator Cartridge 2.256 N	100	Milliliter(ML)	29-Jul-21
Mercuric Nitrate Digital Titrator Cartridge 2.256 N	100	Milliliter(ML)	29-Jul-21
Mercuric Nitrate Digital Titrator Cartridge 2.256 N	100	Milliliter(ML)	29-Jul-21
Mercuric Nitrate Digital Titrator Cartridge 2.256 N	100	Milliliter(ML)	29-Jul-21
Mercuric Nitrate Digital Titrator Cartridge 2.256 N	100	Milliliter(ML)	29-Jul-21
Mercuric Nitrate Digital Titrator Cartridge 2.256 N	100	Milliliter(ML)	29-Jul-21
Mercuric Nitrate Digital Titrator Cartridge 2.256 N	100	Milliliter(ML)	29-Jul-21
Mercuric Nitrate Digital Titrator Cartridge 2.256 N	100	Milliliter(ML)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
Gorilla Construction Adhesive	2.5	Ounces(OZ)	29-Jul-21
POLY(PROPYLENE GLYCOL) DIGYLCIDYL ETHER	250	Milliliter(ML)	29-Jul-21
SYTO 9 green fluorescent nucleic acid stain	100	Milliliter(ML)	29-Jul-21
CHROMIC ACID	100	Gram(GM)	29-Jul-21
Ethyl Ether preserved with 1.5 - 2.5% Ethanol	4	Liters(L)	29-Jul-21
HEXANE	4	Liters(L)	29-Jul-21
HEXANE	4	Liters(L)	29-Jul-21
HEXANE	4	Liters(L)	29-Jul-21
HEXANE	4	Liters(L)	29-Jul-21
ULTIMA GOLD	10	Liters(L)	29-Jul-21
ULTIMA GOLD	10	Liters(L)	29-Jul-21
ULTIMA GOLD	10	Liters(L)	29-Jul-21
ULTIMA GOLD	10	Liters(L)	29-Jul-21
ULTIMA GOLD	10	Liters(L)	29-Jul-21
ULTIMA GOLD	10	Liters(L)	29-Jul-21
ULTIMA GOLD	10	Liters(L)	29-Jul-21
ULTIMA GOLD	10	Liters(L)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
3M Novec 7100 Engineered Fluid	1	Gallon(GAL)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
BLUE DYE EPOXY	3.5	Gram(GM)	29-Jul-21
ALCONOX	1.8	Kilograms(KG)	02-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	02-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
BLUE DYE EPOXY	2	Gram(GM)	02-Aug-21
L GLUTAMINE 100X	100	Milliliter(ML)	02-Aug-21
Ethanol 96% EMSURE Reag. Ph Eur	500	Milliliter(ML)	02-Aug-21
CLEANING FLUID	4	Kilograms(KG)	02-Aug-21
CLEANING FLUID	4	Kilograms(KG)	02-Aug-21
CLEANING FLUID	4	Kilograms(KG)	02-Aug-21
CLEANING FLUID	4	Kilograms(KG)	02-Aug-21
VeroUltraClear Component RGD820	4	Kilograms(KG)	02-Aug-21
Rust-Oleum Glossy Black Paint	12	Ounces(OZ)	02-Aug-21
Rust-Oleum Glossy Black Paint	12	Ounces(OZ)	02-Aug-21
Rust-Oleum Glossy Black Paint	12	Ounces(OZ)	02-Aug-21
Rust-Oleum Glossy Black Paint	12	Ounces(OZ)	02-Aug-21
Rust-Oleum Glossy Black Paint	12	Ounces(OZ)	02-Aug-21
Rust-Oleum Glossy Black Paint	12	Ounces(OZ)	02-Aug-21
Rust-Oleum Glossy Black Paint	12	Ounces(OZ)	02-Aug-21
Rust-Oleum Glossy Black Paint	12	Ounces(OZ)	02-Aug-21
Rust-Oleum Glossy Black Paint	12	Ounces(OZ)	02-Aug-21
Rust-Oleum Glossy Black Paint	12	Ounces(OZ)	02-Aug-21
Rust-Oleum Glossy Black Paint	12	Ounces(OZ)	02-Aug-21
Antimony tin oxide 50 nm 99.5% trace metals basis	25	Gram(GM)	02-Aug-21
VeroYellowV RGD838	4	Kilograms(KG)	02-Aug-21
USA BlueBook Septic Tank Formula	3	Pounds(LB)	02-Aug-21
USA BlueBook Septic Tank Formula	3	Pounds(LB)	02-Aug-21
USA BlueBook Septic Tank Formula	3	Pounds(LB)	02-Aug-21
USA BlueBook Septic Tank Formula	3	Pounds(LB)	02-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
USA BLUEBOOK FORMULA 52 ODOR ELIMINATING ENZYMES	1	Gallon(GAL)	02-Aug-21
USA BLUEBOOK FORMULA 52 ODOR ELIMINATING ENZYMES	1	Gallon(GAL)	02-Aug-21
USA BLUEBOOK FORMULA 52 ODOR ELIMINATING ENZYMES	1	Gallon(GAL)	02-Aug-21
USA BLUEBOOK FORMULA 52 ODOR ELIMINATING ENZYMES	1	Gallon(GAL)	02-Aug-21
Xylenes mixed isomers with ethylbenzene	20	Liters(L)	02-Aug-21
VeroMagentaV RGD852	4	Kilograms(KG)	03-Aug-21
VeroCyanV RGD845	4	Kilograms(KG)	03-Aug-21
DOUBLE BUBBLE PURPLE/BEIGE A85 PKG	3.5	Gram(GM)	03-Aug-21
ANTI SEIZE LUBRICANT	500	Gram(GM)	03-Aug-21
ANTI SEIZE LUBRICANT	500	Gram(GM)	03-Aug-21
3M Hi-Strength Spray Adhesive 90	17.6	Ounces(OZ)	03-Aug-21
3M Hi-Strength Spray Adhesive 90	17.6	Ounces(OZ)	03-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	03-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	03-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
ARGON GAS	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	03-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	03-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	03-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CARBON DIOXIDE	220	Cubic Feet(CF)	03-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	03-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	03-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	03-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	03-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	03-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	03-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	03-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	03-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	03-Aug-21
Compressed Air	220	Cubic Feet(CF)	03-Aug-21
Compressed Air	220	Cubic Feet(CF)	03-Aug-21
Compressed Air	220	Cubic Feet(CF)	03-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	03-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	03-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	03-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	03-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	03-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	03-Aug-21
PROPANE	11	Gallon(GAL)	03-Aug-21
PROPANE	11	Gallon(GAL)	03-Aug-21
PROPANE	11	Gallon(GAL)	03-Aug-21
PROPANE	11	Gallon(GAL)	03-Aug-21
PROPANE	11	Gallon(GAL)	03-Aug-21
ACETYLENE STABILIZED	130	Cubic Feet(CF)	03-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ACETYLENE STABILIZED	130	Cubic Feet(CF)	03-Aug-21
ACETYLENE STABILIZED	130	Cubic Feet(CF)	03-Aug-21
ACETYLENE STABILIZED	130	Cubic Feet(CF)	03-Aug-21
ACETYLENE STABILIZED	240	Cubic Feet(CF)	03-Aug-21
Carbon Monoxide Hydrogen	150	Cubic Feet(CF)	03-Aug-21
Xylenes mixed isomers with ethylbenzene	20	Liters(L)	03-Aug-21
Xylenes mixed isomers with ethylbenzene	20	Liters(L)	03-Aug-21
Xylenes mixed isomers with ethylbenzene	20	Liters(L)	03-Aug-21
Xylenes mixed isomers with ethylbenzene	20	Liters(L)	03-Aug-21
Xylenes mixed isomers with ethylbenzene	20	Liters(L)	03-Aug-21
Xylenes mixed isomers with ethylbenzene	20	Liters(L)	03-Aug-21
Xylenes mixed isomers with ethylbenzene	20	Liters(L)	03-Aug-21
Xylenes mixed isomers with ethylbenzene	20	Liters(L)	03-Aug-21
Xylenes mixed isomers with ethylbenzene	20	Liters(L)	03-Aug-21
ULTIMA GOLD	10	Liters(L)	03-Aug-21
ULTIMA GOLD	10	Liters(L)	03-Aug-21
ULTIMA GOLD	10	Liters(L)	03-Aug-21
ULTIMA GOLD	10	Liters(L)	03-Aug-21
ULTIMA GOLD	10	Liters(L)	03-Aug-21
ULTIMA GOLD	10	Liters(L)	03-Aug-21
YTTERBIUM OXIDE 99.99%	1	Kilograms(KG)	03-Aug-21
Lutetium(III) oxide REacton 99.995% metals basis	1	Kilograms(KG)	03-Aug-21
CERIUM (III) TRIFLUOROMETHANESULFONATE	5	Gram(GM)	03-Aug-21
METHANOL ANHYDROUS	1	Liters(L)	04-Aug-21
DIPHENYLACETYLENE	5	Gram(GM)	04-Aug-21
L-ASCORBIC ACID	100	Gram(GM)	04-Aug-21
L-ASCORBIC ACID	100	Gram(GM)	04-Aug-21
1 3-Dimesityl-1 3-propanedione	1	Gram(GM)	04-Aug-21
BUFFER SOLUTION PH 10.00	500	Milliliter(ML)	04-Aug-21
Amberlite XAD7HP	500	Milliliter(ML)	04-Aug-21
CITRIC AICD	1	Kilograms(KG)	04-Aug-21
Convallatoxin	10	Milligram(MG)	04-Aug-21
ACETONE	1	Liters(L)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
URETHANE ADHESIVE	40	Ounces(OZ)	04-Aug-21
HEXYL ALCOHOL	4	Liters(L)	04-Aug-21
EPOXY TECH. EPOTEK PART A	1	Ounces(OZ)	04-Aug-21
1250 White Ink	8	Ounces(OZ)	04-Aug-21
1250 White Ink	8	Ounces(OZ)	04-Aug-21
Buehler Epothin 2 Hardener / SDS# 9130500	16	Ounces(OZ)	04-Aug-21
Buehler Epothin 2 Resin / SDS# 9130600	32	Ounces(OZ)	04-Aug-21
Dysprosium(III) nitrate pentahydrate	25	Gram(GM)	04-Aug-21
CERIUM(IV) TRIFLUOROMETHANESULFONATE	5	Gram(GM)	04-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
DYSPROSIUM(III) TRIFLUOROMETHANE SULFONATE	5	Gram(GM)	04-Aug-21
CARBON TETRABROMIDE	100	Gram(GM)	04-Aug-21
Kraton G Polymers (SEBS and SEBS OE)	40	Pounds(LB)	04-Aug-21
DIMETHYL SULFOXIDE	100	Milliliter(ML)	04-Aug-21
SULFAMIC ACID	500	Gram(GM)	04-Aug-21
MANGANESE(III) FLUORIDE	10	Gram(GM)	04-Aug-21
COPPER(II) FLUORIDE ANHYDROUS 99.5%	10	Gram(GM)	04-Aug-21
COBALT(III) FLUORIDE	25	Gram(GM)	04-Aug-21
Sodium Aluminum Phosphate Acidic FCC	500	Gram(GM)	05-Aug-21
NITRIC ACID TRACE METAL	2.5	Liters(L)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
SPCUSE 1-GL 2PK MISC RUST REFORMER	1	Gallon(GAL)	05-Aug-21
Hydrochloric Acid Optima	1	Liters(L)	05-Aug-21
Hydrochloric Acid Optima	1	Liters(L)	05-Aug-21
Hydrochloric Acid Optima	1	Liters(L)	05-Aug-21
Hydrochloric Acid Optima	1	Liters(L)	05-Aug-21
Hydrochloric Acid Optima	1	Liters(L)	05-Aug-21
Hydrochloric Acid Optima	1	Liters(L)	05-Aug-21
Hydrochloric Acid Optima	1	Liters(L)	05-Aug-21
Hydrochloric Acid Optima	1	Liters(L)	05-Aug-21
Hydrochloric Acid Optima	1	Liters(L)	05-Aug-21
Image-iT Fixative Solution	500	Milliliter(ML)	05-Aug-21
Image-iT Fixative Solution	500	Milliliter(ML)	05-Aug-21
Image-iT Fixative Solution	500	Milliliter(ML)	05-Aug-21
Image-iT Fixative Solution	500	Milliliter(ML)	05-Aug-21
Image-iT Fixative Solution	500	Milliliter(ML)	05-Aug-21
Image-iT Fixative Solution	500	Milliliter(ML)	05-Aug-21
BIS(TRIMETHYLSILYL)ACETYLENE	10	Gram(GM)	05-Aug-21
METHYL VIOLET	25	Gram(GM)	05-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
TETRAETHYLAMMONIUM TETRAFLUOROBORATE	5	Gram(GM)	05-Aug-21
Eichrom TEVA Resin Eichrom TEVA Resin Cartridge	2	Milliliter(ML)	05-Aug-21
Polyhydroxybutyrate - Biopolymer	1000	Gram(GM)	05-Aug-21
Polyhydroxybutyrate - Biopolymer	1000	Gram(GM)	05-Aug-21
REAGENT ALCOHOL	4	Liters(L)	05-Aug-21
REAGENT ALCOHOL	4	Liters(L)	05-Aug-21
REAGENT ALCOHOL	4	Liters(L)	05-Aug-21
REAGENT ALCOHOL	4	Liters(L)	05-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	05-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	05-Aug-21
Compressed Air	220	Cubic Feet(CF)	05-Aug-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	05-Aug-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	05-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	05-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	05-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	05-Aug-21
POR-15 Dry Time Accelerator	236	Milliliter(ML)	05-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	05-Aug-21
POR-15 Cleaner Degreaser	1	Gallon(GAL)	05-Aug-21
POR-15 Metal Prep	1	Quarts(QT)	05-Aug-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	100	Liters(L)	05-Aug-21
POR-15 Rust Preventive Coating - Gray	1	Quarts(QT)	05-Aug-21
oxygen nitrogen	34	Liters(L)	05-Aug-21
Polyvinyl alcohol partially hydrolyzed (Mw approx.70000) for synthesis	1	Kilograms(KG)	05-Aug-21
Polyvinyl alcohol partially hydrolyzed (Mw approx.70000) for synthesis	1	Kilograms(KG)	05-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Polyvinyl alcohol partially hydrolyzed (Mw approx.70000) for synthesis	1	Kilograms(KG)	05-Aug-21
Polyvinyl alcohol partially hydrolyzed (Mw approx.70000) for synthesis	1	Kilograms(KG)	05-Aug-21
DYSPROSIUM(III) CHLORIDE HEXAHYDRATE	25	Gram(GM)	05-Aug-21
2 3 4-Trihydroxyacetophenone	10	Gram(GM)	05-Aug-21
CUPRIC BROMIDE	25	Gram(GM)	05-Aug-21
Dimethyl sulfoxide-D6 deuteration degree min. 99.8% for NMR spectroscopy MagniSolvTM	50	Milliliter(ML)	05-Aug-21
TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	05-Aug-21
tert-Butylchlorodimethylsilane 98%	25	Gram(GM)	05-Aug-21
Hexane anhydrous 95%	1	Liters(L)	05-Aug-21
Tetrahydrofuran Anhydrous Unstabilized DriSolv	1	Liters(L)	05-Aug-21
Tetrahydrofuran Anhydrous Unstabilized DriSolv	1	Liters(L)	05-Aug-21
Tetrahydrofuran Anhydrous Unstabilized DriSolv	1	Liters(L)	05-Aug-21
POTASSIUM HYDROXIDE 85%	10	Kilograms(KG)	05-Aug-21
Hexanes 99% for spectroscopy ACS mixture of isomers	2.5	Liters(L)	05-Aug-21
Hexanes 99% for spectroscopy ACS mixture of isomers	2.5	Liters(L)	05-Aug-21
Hexanes 99% for spectroscopy ACS mixture of isomers	2.5	Liters(L)	05-Aug-21
Hexanes 99% for spectroscopy ACS mixture of isomers	2.5	Liters(L)	05-Aug-21
Hexanes 99% for spectroscopy ACS mixture of isomers	2.5	Liters(L)	05-Aug-21
PLY-7609 SILICONE FLUID	1	Gallon(GAL)	05-Aug-21
Dichloromethane for HPLC	4	Liters(L)	05-Aug-21
Dichloromethane for HPLC	4	Liters(L)	05-Aug-21
Dichloromethane for HPLC	4	Liters(L)	05-Aug-21
Dichloromethane for HPLC	4	Liters(L)	05-Aug-21
Dichloromethane for HPLC	4	Liters(L)	05-Aug-21
Dichloromethane for HPLC	4	Liters(L)	05-Aug-21
Dichloromethane for HPLC	4	Liters(L)	05-Aug-21
Dichloromethane for HPLC	4	Liters(L)	05-Aug-21
2-METHOXYETHANOL ANHYDROUS	100	Milliliter(ML)	05-Aug-21
2-METHOXYETHANOL ANHYDROUS	100	Milliliter(ML)	05-Aug-21
2-METHOXYETHANOL ANHYDROUS	100	Milliliter(ML)	05-Aug-21
2-METHOXYETHANOL ANHYDROUS	100	Milliliter(ML)	05-Aug-21
2-METHOXYETHANOL ANHYDROUS	1	Liters(L)	05-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Chloroform for HPLC 99.8% amylene stabilized	100	Milliliter(ML)	05-Aug-21
5-Iodoanthranilic Acid	25	Gram(GM)	05-Aug-21
5-Iodoanthranilic Acid	25	Gram(GM)	05-Aug-21
Bismuth(III) chloride anhydrous 99.999% (metal basis)	25	Gram(GM)	05-Aug-21
Iron(III) oxide 99.95% (trace metals basis)	50	Gram(GM)	05-Aug-21
Proscillaridin A	5	Milligram(MG)	05-Aug-21
Graphite Anode Powder 99.95% natural	500	Gram(GM)	05-Aug-21
CALCIUM CHLORIDE ANHYDROUS	500	Gram(GM)	05-Aug-21
CALCIUM CHLORIDE ANHYDROUS	500	Gram(GM)	05-Aug-21
CALCIUM CHLORIDE ANHYDROUS	500	Gram(GM)	05-Aug-21
1-FLUORO-2-NITROBENZENE 99%	250	Milliliter(ML)	05-Aug-21
HYDROBROMIC ACID OPTIMA	2	Liters(L)	05-Aug-21
HYDROBROMIC ACID OPTIMA	2	Liters(L)	05-Aug-21
HYDROBROMIC ACID OPTIMA	2	Liters(L)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
EDTA Digital Titrator Cartridge 0.0800 M	100	Milliliter(ML)	05-Aug-21
SULFURIC ACID STANDARD SOLUTION 5.25N	100	Milliliter(ML)	05-Aug-21
SULFURIC ACID STANDARD SOLUTION 5.25N	100	Milliliter(ML)	05-Aug-21
SULFURIC ACID STANDARD SOLUTION 5.25N	100	Milliliter(ML)	05-Aug-21
SULFURIC ACID STANDARD SOLUTION 5.25N	100	Milliliter(ML)	05-Aug-21
SULFURIC ACID STANDARD SOLUTION 5.25N	100	Milliliter(ML)	05-Aug-21
Hardness 1 Buffer Solution	100	Milliliter(ML)	05-Aug-21
Hardness 1 Buffer Solution	100	Milliliter(ML)	05-Aug-21
Hardness 1 Buffer Solution	100	Milliliter(ML)	05-Aug-21
Hardness 1 Buffer Solution	100	Milliliter(ML)	05-Aug-21
Hardness 1 Buffer Solution	100	Milliliter(ML)	05-Aug-21
Hardness 1 Buffer Solution	100	Milliliter(ML)	05-Aug-21
Hardness 1 Buffer Solution	100	Milliliter(ML)	05-Aug-21
Hardness 1 Buffer Solution	100	Milliliter(ML)	05-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Hardness 1 Buffer Solution	100	Milliliter(ML)	05-Aug-21
Hardness 1 Buffer Solution	100	Milliliter(ML)	05-Aug-21
DMEM	500	Milliliter(ML)	05-Aug-21
DMEM	500	Milliliter(ML)	05-Aug-21
DMEM	500	Milliliter(ML)	05-Aug-21
TERBIUM(III)NITRATE HEXAHYDRATE	2	Gram(GM)	05-Aug-21
DULBECCOS MODIFIED EAGLE	500	Milliliter(ML)	05-Aug-21
DULBECCOS MODIFIED EAGLE	500	Milliliter(ML)	05-Aug-21
DULBECCOS MODIFIED EAGLE	500	Milliliter(ML)	05-Aug-21
DULBECCOS MODIFIED EAGLE	500	Milliliter(ML)	05-Aug-21
DULBECCOS MODIFIED EAGLE	500	Milliliter(ML)	05-Aug-21
DULBECCOS MODIFIED EAGLE	500	Milliliter(ML)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
Hydrochloric acid Trace Metal Grade	4	Liters(L)	05-Aug-21
SODIUM PERIODATE	500	Milliliter(ML)	06-Aug-21
IRON REAGENT	500	Milliliter(ML)	06-Aug-21
MANGANESE POWDER	500	Milliliter(ML)	06-Aug-21
Tricaine-S Topical Anesthetic	500	Gram(GM)	06-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
Sure Grip Exterior Latex Primer D/B	1	Gallon(GAL)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
PAINTERS ACRYLIC LATEX	10.1	Ounces(OZ)	09-Aug-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	09-Aug-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	09-Aug-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	09-Aug-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	09-Aug-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	09-Aug-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	09-Aug-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	09-Aug-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	09-Aug-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	09-Aug-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	09-Aug-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
ALL PURPOSE SPRAY PAINT WHITE	12	Ounces(OZ)	09-Aug-21
ALL PURPOSE SPRAY PAINT WHITE	12	Ounces(OZ)	09-Aug-21
ALL PURPOSE SPRAY PAINT WHITE	12	Ounces(OZ)	09-Aug-21
ALL PURPOSE SPRAY PAINT WHITE	12	Ounces(OZ)	09-Aug-21
ALL PURPOSE SPRAY PAINT WHITE	12	Ounces(OZ)	09-Aug-21
ALL PURPOSE SPRAY PAINT WHITE	12	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
PEEL STOP CLEAR BINDING PRIMER	5	Gallon(GAL)	09-Aug-21
PEEL STOP CLEAR BINDING PRIMER	5	Gallon(GAL)	09-Aug-21
PEEL STOP CLEAR BINDING PRIMER	5	Gallon(GAL)	09-Aug-21
PEEL STOP CLEAR BINDING PRIMER	5	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
PEEL STOP CLEAR BINDING PRIMER	5	Gallon(GAL)	09-Aug-21
SNOOP LEAK DETECT	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	1	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	09-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	09-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	09-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
SOLDER PASTE	30	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	09-Aug-21
POLY(PROPYLENE GLYCOL) TOLYLENE 2 4-DIISOCYANATE TERMINATED	250	Milliliter(ML)	09-Aug-21
Liquid Nails Fiberglass Reinforced Panel Adhesive	3.5	Gallon(GAL)	09-Aug-21
Liquid Nails Fiberglass Reinforced Panel Adhesive	3.5	Gallon(GAL)	09-Aug-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	09-Aug-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	09-Aug-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	09-Aug-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	09-Aug-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	09-Aug-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	09-Aug-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	09-Aug-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	09-Aug-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	09-Aug-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	09-Aug-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	09-Aug-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
SCREWLOOSE	11	Ounces(OZ)	09-Aug-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	09-Aug-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	09-Aug-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	09-Aug-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	09-Aug-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	09-Aug-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	09-Aug-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	09-Aug-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	09-Aug-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	09-Aug-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	09-Aug-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	09-Aug-21
TURBINE OIL	1	Quarts(QT)	09-Aug-21
TURBINE OIL	1	Quarts(QT)	09-Aug-21
YELLOW SPRAY PAINT	12	Ounces(OZ)	09-Aug-21
YELLOW SPRAY PAINT	12	Ounces(OZ)	09-Aug-21
YELLOW SPRAY PAINT	12	Ounces(OZ)	09-Aug-21
YELLOW SPRAY PAINT	12	Ounces(OZ)	09-Aug-21
YELLOW SPRAY PAINT	12	Ounces(OZ)	09-Aug-21
YELLOW SPRAY PAINT	12	Ounces(OZ)	09-Aug-21
YELLOW SPRAY PAINT	12	Ounces(OZ)	09-Aug-21
YELLOW SPRAY PAINT	12	Ounces(OZ)	09-Aug-21
YELLOW SPRAY PAINT	12	Ounces(OZ)	09-Aug-21
YELLOW SPRAY PAINT	12	Ounces(OZ)	09-Aug-21
YELLOW SPRAY PAINT	12	Ounces(OZ)	09-Aug-21
YELLOW SPRAY PAINT	12	Ounces(OZ)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
AMERLOCK SEALER CURE	1	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
DOWSIL 795 Silicone Building Sealant Gray	591	Milliliter(ML)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
MASONRY GROUT	50	Pounds(LB)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
MOBIL SHC GEAR 460	5	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
MOBIL SHC GEAR 460	5	Gallon(GAL)	09-Aug-21
MOBIL SHC GEAR 460	5	Gallon(GAL)	09-Aug-21
MOBIL SHC GEAR 460	5	Gallon(GAL)	09-Aug-21
MOBIL SHC GEAR 460	5	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
N-BUTYLLITHIUM (2.5 M SOLUTION IN HEXANES)	100	Milliliter(ML)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
AMMONIA SOLUTION OPTIMA	1	Liters(L)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
LOCTITE UR 7001 URETHANE SEALANT	10.2	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
CERIUM(III) NITRATE HEXAHYDRATE	100	Gram(GM)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	09-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	09-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	09-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	09-Aug-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	09-Aug-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	5	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	09-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	09-Aug-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Aug-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Aug-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	09-Aug-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	09-Aug-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	09-Aug-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	09-Aug-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
1 1-DIFLUOROETHANE	10	Ounces(OZ)	09-Aug-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	5	Gallon(GAL)	09-Aug-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	5	Gallon(GAL)	09-Aug-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	5	Gallon(GAL)	09-Aug-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	5	Gallon(GAL)	09-Aug-21
Diborane 0.3% in Helium	25	Cubic Feet(CF)	09-Aug-21
Diborane 0.3% in Helium	25	Cubic Feet(CF)	09-Aug-21
Diborane 0.3% in Helium	25	Cubic Feet(CF)	09-Aug-21
Diborane 0.3% in Helium	25	Cubic Feet(CF)	09-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	09-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Resibufogenin	10	Milligram(MG)	09-Aug-21
Dimethylamine Anhydrous	5	Pounds(LB)	09-Aug-21
Hellebrin	5	Milligram(MG)	09-Aug-21
Deslanoside	10	Milligram(MG)	09-Aug-21
Periplocin	10	Milligram(MG)	09-Aug-21
(-)-Voacangarine	5	Milligram(MG)	09-Aug-21
Voacangine	5	Milligram(MG)	09-Aug-21
(+)-Evodiamine	100	Milligram(MG)	09-Aug-21
Dehydroevodiamine (hydrochloride)	25	Milligram(MG)	09-Aug-21
Catharanthine	50	Milligram(MG)	09-Aug-21
Mitragynine	5	Milligram(MG)	09-Aug-21
Ethyl Acetate Reagent ACS	4	Liters(L)	09-Aug-21
Ethyl Acetate Reagent ACS	4	Liters(L)	09-Aug-21
Ethyl Acetate Reagent ACS	4	Liters(L)	09-Aug-21
Ethyl Acetate Reagent ACS	4	Liters(L)	09-Aug-21
ortho-Phosporic acid 85% Suprapur	250	Milliliter(ML)	10-Aug-21
Valproic Acid Sodium Salt	500	Milligram(MG)	10-Aug-21
Trifluoroacetic acid biochemical grade	500	Gram(GM)	10-Aug-21
Ethanol Grain Derived 200 Proof	5	Gallon(GAL)	10-Aug-21
AMMONIUM CERIUM(IV) NITRATE	50	Gram(GM)	10-Aug-21
Trifluoroacetic acid biochemical grade	500	Gram(GM)	10-Aug-21
Trifluoroacetic acid biochemical grade	500	Gram(GM)	10-Aug-21
Trifluoroacetic acid biochemical grade	500	Gram(GM)	10-Aug-21
Trifluoroacetic acid biochemical grade	500	Gram(GM)	10-Aug-21
Trifluoroacetic acid biochemical grade	500	Gram(GM)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
MORPHOLINE	100	Milliliter(ML)	10-Aug-21
DMEM	500	Milliliter(ML)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
Oxygen Nitrogen	150	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
ARGON GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Aug-21
2.9% Hydrogen/Bal. Argon	220	Cubic Feet(CF)	10-Aug-21
2.9% Hydrogen/Bal. Argon	220	Cubic Feet(CF)	10-Aug-21
Compressed Air	220	Cubic Feet(CF)	10-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	10-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	10-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	10-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CARBON DIOXIDE	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	10-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	10-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	10-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	10-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	10-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	10-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	10-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	10-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	10-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	10-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	11	Gallon(GAL)	10-Aug-21
PROPANE	5	Gallon(GAL)	10-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ACETYLENE STABILIZED	240	Cubic Feet(CF)	10-Aug-21
MINIMUM ESSENTIAL MEDIUM (MEM) ALPHA	500	Milliliter(ML)	10-Aug-21
TAE 50X BUFFER SOLUTION	1	Liters(L)	10-Aug-21
AESUB Blue	400	Milliliter(ML)	10-Aug-21
AESUB Blue	400	Milliliter(ML)	10-Aug-21
AESUB Blue	400	Milliliter(ML)	10-Aug-21
AESUB Blue	400	Milliliter(ML)	10-Aug-21
AESUB Blue	400	Milliliter(ML)	10-Aug-21
AESUB Blue	400	Milliliter(ML)	10-Aug-21
AESUB Blue	400	Milliliter(ML)	10-Aug-21
AESUB Blue	400	Milliliter(ML)	10-Aug-21
AESUB Blue	400	Milliliter(ML)	10-Aug-21
AESUB Blue	400	Milliliter(ML)	10-Aug-21
AESUB Blue	400	Milliliter(ML)	10-Aug-21
AESUB Blue	400	Milliliter(ML)	10-Aug-21
Tetraammineplatinum(II) chloride monohydrate Premion	5	Gram(GM)	10-Aug-21
Carbon Monoxide Hydrogen	150	Cubic Feet(CF)	10-Aug-21
CARBON DIOXIDE 5% IN NITROGEN	3.64	Cubic Feet(CF)	10-Aug-21
Dichloromethane 99.8%	4	Liters(L)	10-Aug-21
Dichloromethane 99.8%	4	Liters(L)	10-Aug-21
Dichloromethane 99.8%	4	Liters(L)	10-Aug-21
Dichloromethane 99.8%	4	Liters(L)	10-Aug-21
Filling Solution for Electrodes Containing Potassium Chloride Silver Chloride	4	Ounces(OZ)	10-Aug-21
1 3-DIPHENYLISOBENZOFURAN	5	Gram(GM)	10-Aug-21
THIONYL CHLORIDE 99+%	500	Milliliter(ML)	10-Aug-21
Lead(II) iodide 99.99% trace metals basis perovskite grade	5	Gram(GM)	10-Aug-21
Lead(II) iodide 99.99% trace metals basis perovskite grade	5	Gram(GM)	10-Aug-21
Lead(II) iodide 99.99% trace metals basis perovskite grade	5	Gram(GM)	10-Aug-21
Lead(II) iodide 99.99% trace metals basis perovskite grade	5	Gram(GM)	10-Aug-21
Lead(II) iodide 99.99% trace metals basis perovskite grade	5	Gram(GM)	10-Aug-21
Triphenylmethylium tetrakis(perfluorophenyl)borate	25	Gram(GM)	10-Aug-21
MAGNESIUM SULFATE ANHYDROUS	500	Gram(GM)	10-Aug-21
LEAD(II) CHLORIDE	10	Gram(GM)	10-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Iron(II) sulfate heptahydrate ACS reagent 99%	250	Gram(GM)	10-Aug-21
COPPER(II) CHLORIDE DIHYDRATE	5	Gram(GM)	10-Aug-21
SODIUM TUNGSTATE DIHYDRATE	100	Gram(GM)	10-Aug-21
Ammonium cerium(IV) nitrate 99.99% trace metals basis	10	Gram(GM)	10-Aug-21
Lithium carbonate 99.99% trace metals basis	50	Gram(GM)	10-Aug-21
Dimethylamine Hydrochloride 99%	100	Gram(GM)	10-Aug-21
BUEHLER MASTERPOLISH	32	Ounces(OZ)	10-Aug-21
BUEHLER MASTERPOLISH	32	Ounces(OZ)	10-Aug-21
BUEHLER MASTERPOLISH	32	Ounces(OZ)	10-Aug-21
Graphite conductive adhesive aqueous based	30	Gram(GM)	10-Aug-21
DENATURED ALCOHOL	1	Gallon(GAL)	11-Aug-21
DENATURED ALCOHOL	1	Gallon(GAL)	11-Aug-21
DENATURED ALCOHOL	1	Gallon(GAL)	11-Aug-21
DENATURED ALCOHOL	1	Gallon(GAL)	11-Aug-21
Startex Green Lacquer Thinner	1	Gallon(GAL)	11-Aug-21
Startex Green Lacquer Thinner	1	Gallon(GAL)	11-Aug-21
Startex Green Lacquer Thinner	1	Gallon(GAL)	11-Aug-21
Startex Green Lacquer Thinner	1	Gallon(GAL)	11-Aug-21
Startex Green Lacquer Thinner	1	Gallon(GAL)	11-Aug-21
Startex Green Lacquer Thinner	1	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	11-Aug-21
ZEREX ANTIFREEZE COOLANT	1	Gallon(GAL)	11-Aug-21
ZEREX ANTIFREEZE COOLANT	1	Gallon(GAL)	11-Aug-21
ZEREX ANTIFREEZE COOLANT	1	Gallon(GAL)	11-Aug-21
ZEREX ANTIFREEZE COOLANT	1	Gallon(GAL)	11-Aug-21
HEAVY DUTY SILICONE	7.5	Ounces(OZ)	11-Aug-21
HEAVY DUTY SILICONE	7.5	Ounces(OZ)	11-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ANTIFREEZE COOLANT	1	Gallon(GAL)	11-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	11-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	11-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	11-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	11-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	11-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	11-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	11-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	11-Aug-21
RONSON MULTI-FILL ULTRA BUTANE FUEL	290	Milliliter(ML)	11-Aug-21
RONSON MULTI-FILL ULTRA BUTANE FUEL	290	Milliliter(ML)	11-Aug-21
RONSON MULTI-FILL ULTRA BUTANE FUEL	290	Milliliter(ML)	11-Aug-21
RONSON MULTI-FILL ULTRA BUTANE FUEL	290	Milliliter(ML)	11-Aug-21
RONSON MULTI-FILL ULTRA BUTANE FUEL	290	Milliliter(ML)	11-Aug-21
RONSON MULTI-FILL ULTRA BUTANE FUEL	290	Milliliter(ML)	11-Aug-21
RONSON MULTI-FILL ULTRA BUTANE FUEL	290	Milliliter(ML)	11-Aug-21
RONSON MULTI-FILL ULTRA BUTANE FUEL	290	Milliliter(ML)	11-Aug-21
RONSON MULTI-FILL ULTRA BUTANE FUEL	290	Milliliter(ML)	11-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	510	Gram(GM)	11-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	510	Gram(GM)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
Blue Def	2.5	Gallon(GAL)	11-Aug-21
John Deere Hydraulic Fluid	5	Gallon(GAL)	11-Aug-21
John Deere Hydraulic Fluid	5	Gallon(GAL)	11-Aug-21
Hexanes Certified ACS	4	Liters(L)	11-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Hexanes Certified ACS	4	Liters(L)	11-Aug-21
Hexanes Certified ACS	4	Liters(L)	11-Aug-21
Hexanes Certified ACS	4	Liters(L)	11-Aug-21
LEAD(II) IODIDE	100	Gram(GM)	11-Aug-21
LEAD(II) IODIDE	100	Gram(GM)	11-Aug-21
MOLYBDENUM(V) CHLORIDE	25	Gram(GM)	11-Aug-21
SUCCINIC ANHYDRIDE	250	Gram(GM)	11-Aug-21
DL-1 2-Isopropylideneglycerol	500	Gram(GM)	11-Aug-21
4-Iodophthalonitrile	1	Gram(GM)	11-Aug-21
4-(Hydroxymethyl)benzeneboronic acid	1	Gram(GM)	11-Aug-21
4 5-Dichlorophthalonitrile	5	Gram(GM)	11-Aug-21
4-tert-Butylphenylboronic acid	25	Gram(GM)	11-Aug-21
PALLADIUM(II) ACETATE	1	Gram(GM)	11-Aug-21
TEVA RESIN	2	Milliliter(ML)	11-Aug-21
TEVA RESIN	2	Milliliter(ML)	11-Aug-21
TEVA RESIN	2	Milliliter(ML)	11-Aug-21
TEVA RESIN	2	Milliliter(ML)	11-Aug-21
TEVA RESIN	2	Milliliter(ML)	11-Aug-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	12-Aug-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	12-Aug-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	12-Aug-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	12-Aug-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	12-Aug-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	12-Aug-21
Methanol GR ACS	500	Milliliter(ML)	12-Aug-21
Lead foil	3.5	Gram(GM)	12-Aug-21
Polystyrene standard nominal Mp 162	1	Gram(GM)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Blue Def	2.5	Gallon(GAL)	12-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Blue Def	2.5	Gallon(GAL)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	12-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
LU 204 Dry Film Graphite Lubricant Aerosol	16	Ounces(OZ)	13-Aug-21
BUEHLER POWDERED MOLD RELEASE	2	Ounces(OZ)	13-Aug-21
BUEHLER KONDUCTOMET I	1	Pounds(LB)	13-Aug-21
BUEHLER KONDUCTOMET I	1	Pounds(LB)	13-Aug-21
SIMPLE GREEN	1	Gallon(GAL)	13-Aug-21
PhenoCure Powder & PreMolds	5	Pounds(LB)	13-Aug-21
PhenoCure Powder & PreMolds	5	Pounds(LB)	13-Aug-21
PhenoCure Powder & PreMolds	5	Pounds(LB)	13-Aug-21
FS-ONE MAX Firestop intumescent sealant	10.1	Ounces(OZ)	16-Aug-21
FS-ONE MAX Firestop intumescent sealant	10.1	Ounces(OZ)	16-Aug-21
FS-ONE MAX Firestop intumescent sealant	10.1	Ounces(OZ)	16-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FS-ONE MAX Firestop intumescent sealant	10.1	Ounces(OZ)	16-Aug-21
FS-ONE MAX Firestop intumescent sealant	10.1	Ounces(OZ)	16-Aug-21
FS-ONE MAX Firestop intumescent sealant	10.1	Ounces(OZ)	16-Aug-21
W-60 Oil Well Cement	5	Gallon(GAL)	16-Aug-21
W-60 Oil Well Cement	5	Gallon(GAL)	16-Aug-21
W-60 Oil Well Cement	5	Gallon(GAL)	16-Aug-21
W-60 Oil Well Cement	5	Gallon(GAL)	16-Aug-21
W-60 Oil Well Cement	5	Gallon(GAL)	16-Aug-21
W-60 Oil Well Cement	5	Gallon(GAL)	16-Aug-21
W-60 Oil Well Cement	5	Gallon(GAL)	16-Aug-21
Isoyanate ¿ CHICO Speedseal (SS2 & SS6)	2	Ounces(OZ

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Isoyanate ¿ CHICO Speedseal (SS2 & SS6)	2	Ounces(OZ)	16-Aug-21
Isoyanate ¿ CHICO Speedseal (SS2 & SS6)	2	Ounces(OZ)	16-Aug-21
Isoyanate ¿ CHICO Speedseal (SS2 & SS6)	2	Ounces(OZ)	16-Aug-21
Isoyanate ¿ CHICO Speedseal (SS2 & SS6)	2	Ounces(OZ)	16-Aug-21
Isoyanate ¿ CHICO Speedseal (SS2 & SS6)	2	Ounces(OZ)	16-Aug-21
Isoyanate ¿ CHICO Speedseal (SS2 & SS6)	2	Ounces(OZ)	16-Aug-21
Isoyanate ¿ CHICO Speedseal (SS2 & SS6)	2	Ounces(OZ)	16-Aug-21
Isoyanate ¿ CHICO Speedseal (SS2 & SS6)	2	Ounces(OZ)	16-Aug-21
Isoyanate ¿ CHICO Speedseal (SS2 & SS6)	2	Ounces(OZ)	16-Aug-21
Isoyanate ¿ CHICO Speedseal (SS2 & SS6)	2	Ounces(OZ)	16-Aug-21
Isoyanate ¿ CHICO Speedseal (SS2 & SS6)	2	Ounces(OZ)	16-Aug-21
SODIUM DICHROMATE DIHYDRATE	1	Kilograms(KG)	16-Aug-21
SODIUM IODIDE	500	Gram(GM)	17-Aug-21
W.A. HAMMOND DRIERITE (INDICATING DRIERITE)	5	Pounds(LB)	17-Aug-21
METHYLENE CHLORIDE DICHLOROMETHANE	200	Liters(L)	17-Aug-21
MOBIL DTE 25 ULTRA	55	Gallon(GAL)	17-Aug-21
MOBIL DTE 25 ULTRA	55	Gallon(GAL)	17-Aug-21
MOBIL DTE 25 ULTRA	55	Gallon(GAL)	17-Aug-21
MOBIL DTE 25 ULTRA	55	Gallon(GAL)	17-Aug-21
SODIUM TUNGSTATE DIHYDRATE	25	Gram(GM)	17-Aug-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	17-Aug-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	17-Aug-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	17-Aug-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	17-Aug-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	17-Aug-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	17-Aug-21
VEROCLEAR RGD810	3.5	Kilograms(KG)	17-Aug-21
VEROCLEAR RGD810	3.5	Kilograms(KG)	17-Aug-21
HYDROFLUORIC ACID OPTIMA	500	Milliliter(ML)	17-Aug-21
HYDROFLUORIC ACID OPTIMA	500	Milliliter(ML)	17-Aug-21
HYDROFLUORIC ACID OPTIMA	500	Milliliter(ML)	17-Aug-21
DIETHYL ETHER	4	Liters(L)	17-Aug-21
DIETHYL ETHER	4	Liters(L)	17-Aug-21
MICRO-BLAZE EMERGENCY LIQUID SPILL CONTROL	5	Gallon(GAL)	17-Aug-21
VEROBLACKPLUS RGD875	3.5	Kilograms(KG)	17-Aug-21
VEROBLACKPLUS RGD875	3.5	Kilograms(KG)	17-Aug-21
VEROBLACKPLUS RGD875	3.5	Kilograms(KG)	17-Aug-21
VEROBLACKPLUS RGD875	3.5	Kilograms(KG)	17-Aug-21
VEROBLACKPLUS RGD875	3.5	Kilograms(KG)	17-Aug-21
VEROBLACKPLUS RGD875	3.5	Kilograms(KG)	17-Aug-21
VEROBLACKPLUS RGD875	3.5	Kilograms(KG)	17-Aug-21
VEROBLACKPLUS RGD875	3.5	Kilograms(KG)	17-Aug-21
VEROBLACKPLUS RGD875	3.5	Kilograms(KG)	17-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
VEROCLEAR RGD810	3.5	Kilograms(KG)	17-Aug-21
VEROCLEAR RGD810	3.5	Kilograms(KG)	17-Aug-21
BUEHLER RELEASE AGENT	4	Ounces(OZ)	17-Aug-21
BUEHLER RELEASE AGENT	4	Ounces(OZ)	17-Aug-21
ACETIC ACID	2.5	Liters(L)	17-Aug-21
ISOPROPYL ALCOHOL 2-PROPANOL HPLC GRADE	4	Liters(L)	17-Aug-21
METHYLHYDROGEN POLYSILOXANE	1	Pint(PT)	17-Aug-21
DIC [N N'-Diisopropylcarbodiimide]	100	Milliliter(ML)	17-Aug-21
DIC [N N'-Diisopropylcarbodiimide]	100	Milliliter(ML)	17-Aug-21
DIC [N N'-Diisopropylcarbodiimide]	100	Milliliter(ML)	17-Aug-21
DIC [N N'-Diisopropylcarbodiimide]	100	Milliliter(ML)	17-Aug-21
DIC [N N'-Diisopropylcarbodiimide]	100	Milliliter(ML)	17-Aug-21
DIC [N N'-Diisopropylcarbodiimide]	100	Milliliter(ML)	17-Aug-21
LEAD(II) IODIDE	50	Gram(GM)	17-Aug-21
LEAD(II) IODIDE	50	Gram(GM)	17-Aug-21
VANADIUM POWDER	5	Gram(GM)	17-Aug-21
VANADIUM POWDER	5	Gram(GM)	17-Aug-21
VANADIUM POWDER	5	Gram(GM)	17-Aug-21
VANADIUM POWDER	5	Gram(GM)	17-Aug-21
Dimethoxydiphenylsilane	100	Milliliter(ML)	17-Aug-21
Dimethoxydiphenylsilane	100	Milliliter(ML)	17-Aug-21
Dimethoxydiphenylsilane	100	Milliliter(ML)	17-Aug-21
9-FLUORENONE	100	Gram(GM)	17-Aug-21
9-FLUORENONE	100	Gram(GM)	17-Aug-21
9-FLUORENONE	100	Gram(GM)	17-Aug-21
OLEYLAMINE 70%	500	Gram(GM)	17-Aug-21
3-AMINOPROPYLTRIETHOXYSILANE	100	Milliliter(ML)	17-Aug-21
Sulfur pieces puratronic	250	Gram(GM)	17-Aug-21
TORR SEAL	135	Gram(GM)	17-Aug-21
BUFFER SOLUTION PH 10.00 COLOR-CODED BLUE SB115-4; SB115-20; SB115-500	500	Milliliter(ML)	17-Aug-21
Buffer Solution pH 7.00 Color-Coded Yellow Certified	500	Milliliter(ML)	17-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SODA ASH	50	Pounds(LB)	18-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SODA ASH	50	Pounds(LB)	18-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
SODA ASH	50	Pounds(LB)	18-Aug-21
John Deere Hy-Gard Transmission/Hydraulic Oil	5	Gallon(GAL)	18-Aug-21
John Deere Hy-Gard Transmission/Hydraulic Oil	5	Gallon(GAL)	18-Aug-21
John Deere Hy-Gard Transmission/Hydraulic Oil	5	Gallon(GAL)	18-Aug-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	18-Aug-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	18-Aug-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	18-Aug-21
AW 32 HYDRAULIC FLUID	5	Gallon(GAL)	18-Aug-21
WHITE LITHIUM GREASE	10	Ounces(OZ)	18-Aug-21
WHITE LITHIUM GREASE	10	Ounces(OZ)	18-Aug-21
TCS Slideway Lubricant	5	Gallon(GAL)	18-Aug-21
MOBIL DTE 24	5	Gallon(GAL)	18-Aug-21
MOBIL DTE 24	5	Gallon(GAL)	18-Aug-21
MOBIL DTE 24	5	Gallon(GAL)	18-Aug-21
MOBIL DTE 24	5	Gallon(GAL)	18-Aug-21
Blasoclean AF	5	Gallon(GAL)	18-Aug-21
Synergy 735	55	Gallon(GAL)	18-Aug-21
CAUSTIC POTASH SOLUTION	50	Pounds(LB)	18-Aug-21
CAUSTIC POTASH SOLUTION	50	Pounds(LB)	18-Aug-21
CAUSTIC POTASH SOLUTION	50	Pounds(LB)	18-Aug-21
CAUSTIC POTASH SOLUTION	50	Pounds(LB)	18-Aug-21
CAUSTIC POTASH SOLUTION	50	Pounds(LB)	18-Aug-21
CAUSTIC POTASH SOLUTION	50	Pounds(LB)	18-Aug-21
CAUSTIC POTASH SOLUTION	50	Pounds(LB)	18-Aug-21
CAUSTIC POTASH SOLUTION	50	Pounds(LB)	18-Aug-21
CAUSTIC POTASH SOLUTION	50	Pounds(LB)	18-Aug-21
CAUSTIC POTASH SOLUTION	50	Pounds(LB)	18-Aug-21
CAUSTIC POTASH SOLUTION	50	Pounds(LB)	18-Aug-21
CAUSTIC POTASH SOLUTION	50	Pounds(LB)	18-Aug-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	18-Aug-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	18-Aug-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	18-Aug-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	18-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	18-Aug-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	18-Aug-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 1UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 1UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 1UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 1UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 1UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 1UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 1UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	18-Aug-21
DIAMOND SUSPENSION POLYCRYSTALLINE 3UM	16	Ounces(OZ)	18-Aug-21
POLYCRYSTALLINE DIAMOND SUSPENSION 6UM	16	Ounces(OZ)	18-Aug-21
POLYCRYSTALLINE DIAMOND SUSPENSION 6UM	16	Ounces(OZ)	18-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
POLYCRYSTALLINE DIAMOND SUSPENSION 6UM	16	Ounces(OZ)	18-Aug-21
POLYCRYSTALLINE DIAMOND SUSPENSION 6UM	16	Ounces(OZ)	18-Aug-21
9 MICRON POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	18-Aug-21
9 MICRON POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	18-Aug-21
9 MICRON POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	18-Aug-21
9 MICRON POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	18-Aug-21
9 MICRON POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	18-Aug-21
9 MICRON POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	18-Aug-21
9 MICRON POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	18-Aug-21
9 MICRON POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	18-Aug-21
9 MICRON POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	18-Aug-21
9 MICRON POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	18-Aug-21
PELCO CONDUCTIVE GRAPHITE	30	Gram(GM)	18-Aug-21
PELCO CONDUCTIVE GRAPHITE	30	Gram(GM)	18-Aug-21
OP-S NonDry	1	Liters(L)	18-Aug-21
OP-S NonDry	1	Liters(L)	18-Aug-21
OP-S NonDry	1	Liters(L)	18-Aug-21
OP-S NonDry	1	Liters(L)	18-Aug-21
OP-S NonDry	1	Liters(L)	18-Aug-21
OP-S NonDry	1	Liters(L)	18-Aug-21
OP-S NonDry	1	Liters(L)	18-Aug-21
OP-S NonDry	1	Liters(L)	18-Aug-21
OP-S NonDry	1	Liters(L)	18-Aug-21
OP-S NonDry	1	Liters(L)	18-Aug-21
OP-S NonDry	1	Liters(L)	18-Aug-21
OP-S NonDry	1	Liters(L)	18-Aug-21
4-IODOANILINE	25	Gram(GM)	18-Aug-21
BIS(TRIPHENYLPHOSPHINE)PALLADIUM(II) DICHLORIDE	5	Gram(GM)	18-Aug-21
COPPER(I) IODIDE 99.999%	25	Gram(GM)	18-Aug-21
SPhos	1	Gram(GM)	18-Aug-21
POTASSIUM PHOSPHATE TRIBASIC	500	Gram(GM)	18-Aug-21
TRIETHYLAMINE	500	Milliliter(ML)	18-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Toluene anhydrous 99.9% (Assay)	1	Liters(L)	18-Aug-21
MALEIMIDE	2	Gram(GM)	18-Aug-21
WD-40 AEROSOL	16	Ounces(OZ)	18-Aug-21
WD-40 AEROSOL	16	Ounces(OZ)	18-Aug-21
WD-40 AEROSOL	16	Ounces(OZ)	18-Aug-21
WD-40 AEROSOL	16	Ounces(OZ)	18-Aug-21
WD-40 AEROSOL	16	Ounces(OZ)	18-Aug-21
WD-40 AEROSOL	16	Ounces(OZ)	18-Aug-21
WD-40 AEROSOL	16	Ounces(OZ)	18-Aug-21
WD-40 AEROSOL	16	Ounces(OZ)	18-Aug-21
WD-40 AEROSOL	16	Ounces(OZ)	18-Aug-21
WD-40 AEROSOL	16	Ounces(OZ)	18-Aug-21
WD-40 AEROSOL	16	Ounces(OZ)	18-Aug-21
WD-40 AEROSOL	16	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
3M SUPER 77 SPRAY ADHESIVE	18	Ounces(OZ)	18-Aug-21
Momentive RTV103	2.8	Ounces(OZ)	18-Aug-21
Momentive RTV103	2.8	Ounces(OZ)	18-Aug-21
Momentive RTV103	2.8	Ounces(OZ)	18-Aug-21
AP-D Powder 1UM	1	Kilograms(KG)	18-Aug-21
AP-D Powder 3UM	1	Kilograms(KG)	18-Aug-21
AP-D Powder 3UM	1	Kilograms(KG)	18-Aug-21
OP-U NONDRY	5	Liters(L)	18-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
OP-U NONDRY	5	Liters(L)	18-Aug-21
OP-U NONDRY	5	Liters(L)	18-Aug-21
OP-U NONDRY	5	Liters(L)	18-Aug-21
OLEYLAMINE	25	Gram(GM)	18-Aug-21
Nickel (II) fluoride anhydrous	10	Gram(GM)	18-Aug-21
PYRIDINE	1	Liters(L)	18-Aug-21
TETRAPHENYLCYCLOPENTADIENONE	100	Gram(GM)	18-Aug-21
SILVER NITRATE 99.9995%	25	Gram(GM)	18-Aug-21
FURFURYL ALCOHOL	250	Gram(GM)	18-Aug-21
PENTAERYTHRITOL	50	Gram(GM)	18-Aug-21
N N'-DICYCLOHEXYLCARBODIIMIDE 99%	100	Gram(GM)	18-Aug-21
Polyethyleneimine branched M. W. 10 000	500	Gram(GM)	18-Aug-21
Titanium Dioxide (TiO2) Nanopowder Doped with 5 wt% Niobium (Nb) Rutile APS: 15-20	25	Gram(GM)	18-Aug-21
TiN(Titanium Nitride) 99.2+% 20 nm Cubic	25	Gram(GM)	18-Aug-21
2 2 6 6-Tetramethyl-4-piperidone monohydrate	10	Gram(GM)	18-Aug-21
N-(tert-Butoxycarbonyl)glycine	25	Gram(GM)	18-Aug-21
N-(tert-Butoxycarbonyl)glycine	25	Gram(GM)	18-Aug-21
BCA PROTEIN ASSAY REAGENT B	25	Milliliter(ML)	18-Aug-21
Colorimetric Peptide AssayReagent B	25	Milliliter(ML)	18-Aug-21
ZIRCONIUM STANDARD	100	Milliliter(ML)	18-Aug-21
RAM MOLD RELEASE 225 (AEROSOL)	9	Ounces(OZ)	18-Aug-21
RAM MOLD RELEASE 225 (AEROSOL)	9	Ounces(OZ)	18-Aug-21
RAM MOLD RELEASE 225 (AEROSOL)	9	Ounces(OZ)	18-Aug-21
RAM MOLD RELEASE 225 (AEROSOL)	9	Ounces(OZ)	18-Aug-21
RAM MOLD RELEASE 225 (AEROSOL)	9	Ounces(OZ)	18-Aug-21
RAM MOLD RELEASE 225 (AEROSOL)	9	Ounces(OZ)	18-Aug-21
RAM MOLD RELEASE 225 (AEROSOL)	9	Ounces(OZ)	18-Aug-21
RAM MOLD RELEASE 225 (AEROSOL)	9	Ounces(OZ)	18-Aug-21
RAM MOLD RELEASE 225 (AEROSOL)	9	Ounces(OZ)	18-Aug-21
RAM MOLD RELEASE 225 (AEROSOL)	9	Ounces(OZ)	18-Aug-21
RAM MOLD RELEASE 225 (AEROSOL)	9	Ounces(OZ)	18-Aug-21
RAM MOLD RELEASE 225 (AEROSOL)	9	Ounces(OZ)	18-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Smart Strip Pro	1	Gallon(GAL)	19-Aug-21
Permacryl Int. Latex Semi-Gloss Pure W/B	1	Gallon(GAL)	19-Aug-21
Permacryl Int. Latex Semi-Gloss Pure W/B	1	Gallon(GAL)	19-Aug-21
Permacryl Int. Latex Semi-Gloss Pure W/B	1	Gallon(GAL)	19-Aug-21
Permacryl Int. Latex Semi-Gloss Pure W/B	1	Gallon(GAL)	19-Aug-21
Permacryl Int. Latex Semi-Gloss Pure W/B	1	Gallon(GAL)	19-Aug-21
Permacryl Ext Latex Semi-Gloss N/B	114	Ounces(OZ)	19-Aug-21
Permacryl Ext Latex Semi-Gloss N/B	114	Ounces(OZ)	19-Aug-21
Permacryl Ext Latex Semi-Gloss N/B	114	Ounces(OZ)	19-Aug-21
Permacryl Ext Latex Semi-Gloss N/B	114	Ounces(OZ)	19-Aug-21
Permacryl Ext Latex Semi-Gloss N/B	114	Ounces(OZ)	19-Aug-21
Permacryl Ext Latex Semi-Gloss N/B	114	Ounces(OZ)	19-Aug-21
Permacryl Ext Latex Semi-Gloss N/B	114	Ounces(OZ)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	19-Aug-21
PSX 700 SAFETY YELLOW 1979 RESIN	0.8	Gallon(GAL)	19-Aug-21
PSX 700 SAFETY YELLOW 1979 RESIN	0.8	Gallon(GAL)	19-Aug-21
PSX 700 SAFETY YELLOW 1979 RESIN	0.8	Gallon(GAL)	19-Aug-21
PSX 700 SAFETY YELLOW 1979 RESIN	0.8	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
PSX 700 NEUTRAL TINT RESIN	0.64	Gallon(GAL)	19-Aug-21
Cote All M.F. (Safety) Red	128	Ounces(OZ)	19-Aug-21
Cote All M.F. (Safety) Red	128	Ounces(OZ)	19-Aug-21
Cote All M.F. (Safety) Red	128	Ounces(OZ)	19-Aug-21
Cote All M.F. (Safety) Red	128	Ounces(OZ)	19-Aug-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	19-Aug-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
PSX 700 CURE	0.2	Ounces(OZ)	19-Aug-21
TRAFFIC PAINT WHITE NM	640	Ounces(OZ)	19-Aug-21
TRAFFIC PAINT WHITE NM	640	Ounces(OZ)	19-Aug-21
TRAFFIC PAINT WHITE NM	640	Ounces(OZ)	19-Aug-21
TRAFFIC PAINT WHITE NM	640	Ounces(OZ)	19-Aug-21
POLWAYTER FST-MINI-6BG	1.7	Ounces(OZ)	19-Aug-21
POLWAYTER FST-MINI-6BG	1.7	Ounces(OZ)	19-Aug-21
POLWAYTER FST-MINI-6BG	1.7	Ounces(OZ)	19-Aug-21
Trifluoroacetic Acid (TFA) LC-MS Grade	50	Milliliter(ML)	19-Aug-21
VEROWHITEPLUS RGD835	3.6	Kilograms(KG)	19-Aug-21
VEROWHITEPLUS RGD835	3.6	Kilograms(KG)	19-Aug-21
VEROWHITEPLUS RGD835	3.6	Kilograms(KG)	19-Aug-21
VEROWHITEPLUS RGD835	3.6	Kilograms(KG)	19-Aug-21
VEROWHITEPLUS RGD835	3.6	Kilograms(KG)	19-Aug-21
VERO YELLOW RGD836	3.6	Kilograms(KG)	19-Aug-21
VERO MAGENTA RGD851	3.6	Kilograms(KG)	19-Aug-21
POLY(ETHYLENE GLYCOL)DIACRYLATE	100	Milliliter(ML)	19-Aug-21
LITHIUM CHLORIDE	25	Gram(GM)	19-Aug-21
BORON POWDER	10	Gram(GM)	19-Aug-21
Silica Silicon Dioxide Quartz Sand	100	Gram(GM)	19-Aug-21
TITANIUM(IV) OXIDE RUTILE	100	Gram(GM)	19-Aug-21
Indium powder 99+%	9.2	Gram(GM)	19-Aug-21
Indium powder 99+%	9.2	Gram(GM)	19-Aug-21
SODIUM BORODEUTERIDE (D4 99%) 90-95% Chemical Purity	1	Gram(GM)	19-Aug-21
SODIUM BORODEUTERIDE (D4 99%) 90-95% Chemical Purity	1	Gram(GM)	19-Aug-21
NITRIC ACID 70%	2.5	Liters(L)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITRIC ACID 70%	2.5	Liters(L)	19-Aug-21
NITRIC ACID 70%	2.5	Liters(L)	19-Aug-21
NITRIC ACID 70%	2.5	Liters(L)	19-Aug-21
BLASTICIDIN	100	Milligram(MG)	19-Aug-21
BLASTICIDIN	100	Milligram(MG)	19-Aug-21
BLASTICIDIN	100	Milligram(MG)	19-Aug-21
BLASTICIDIN	100	Milligram(MG)	19-Aug-21
BLASTICIDIN	100	Milligram(MG)	19-Aug-21
BLASTICIDIN	100	Milligram(MG)	19-Aug-21
BLASTICIDIN	100	Milligram(MG)	19-Aug-21
BLASTICIDIN	100	Milligram(MG)	19-Aug-21
BLASTICIDIN	100	Milligram(MG)	19-Aug-21
BLASTICIDIN	100	Milligram(MG)	19-Aug-21
FORMIC ACID	50	Milliliter(ML)	19-Aug-21
BORON POWDER	10	Gram(GM)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	40	Cubic Feet(CF)	19-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	19-Aug-21
Oxygen Nitrogen	35	Liters(L)	19-Aug-21
Oxygen Nitrogen	35	Liters(L)	19-Aug-21
Oxygen Nitrogen	35	Liters(L)	19-Aug-21
Oxygen Nitrogen	3.64	Cubic Feet(CF)	19-Aug-21
Oxygen 21% Helium balance	220	Cubic Feet(CF)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	100	Cubic Feet(CF)	19-Aug-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	100	Cubic Feet(CF)	19-Aug-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	100	Cubic Feet(CF)	19-Aug-21
Compressed Air	220	Cubic Feet(CF)	19-Aug-21
Compressed Air	220	Cubic Feet(CF)	19-Aug-21
Compressed Air	220	Cubic Feet(CF)	19-Aug-21
Compressed Air	220	Cubic Feet(CF)	19-Aug-21
Compressed Air	220	Cubic Feet(CF)	19-Aug-21
Compressed Air	220	Cubic Feet(CF)	19-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	19-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	19-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	19-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	19-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	19-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	19-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	19-Aug-21
ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	19-Aug-21
ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	19-Aug-21
75% ARGON/25% CARBON DIOXIDE	220	Cubic Feet(CF)	19-Aug-21
ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	19-Aug-21
ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	19-Aug-21
ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	19-Aug-21
ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	19-Aug-21
ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	19-Aug-21
ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	19-Aug-21
ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	19-Aug-21
ARGON 94% HYDROGEN 6%	220	Cubic Feet(CF)	19-Aug-21
75% ARGON/25% CARBON DIOXIDE	220	Cubic Feet(CF)	19-Aug-21
75% ARGON/25% CARBON DIOXIDE	220	Cubic Feet(CF)	19-Aug-21
75% ARGON/25% CARBON DIOXIDE	220	Cubic Feet(CF)	19-Aug-21
75% ARGON/25% CARBON DIOXIDE	220	Cubic Feet(CF)	19-Aug-21
Carbon Monoxide .1000%/Bal. Hydrogen	125	Cubic Feet(CF)	19-Aug-21
Carbon Monoxide .1000%/Bal. Hydrogen	125	Cubic Feet(CF)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	5	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
PROPANE	11	Gallon(GAL)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	19-Aug-21
RED TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
RED TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21
BLUE TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21
BLUE TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21
BLUE TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21
BLUE TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	640	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	128	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	128	Ounces(OZ)	19-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	113.9	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	128	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	128	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	128	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	128	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	128	Ounces(OZ)	19-Aug-21
RED TRAFFIC PAINT	128	Ounces(OZ)	19-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	113.9	Ounces(OZ)	19-Aug-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	19-Aug-21
888-9907 COLORTREND LAMP BLACK	32	Ounces(OZ)	19-Aug-21
888-9907 COLORTREND LAMP BLACK	32	Ounces(OZ)	19-Aug-21
888-9907 COLORTREND LAMP BLACK	32	Ounces(OZ)	19-Aug-21
888-9907 COLORTREND LAMP BLACK	32	Ounces(OZ)	19-Aug-21
888-9907 COLORTREND LAMP BLACK	32	Ounces(OZ)	19-Aug-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	19-Aug-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	19-Aug-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	19-Aug-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	19-Aug-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	19-Aug-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	19-Aug-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	19-Aug-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	19-Aug-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	19-Aug-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	19-Aug-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	19-Aug-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	19-Aug-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	19-Aug-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	19-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	19-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	113.9	Ounces(OZ)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Vers-Acryl 222 S/G Finish Neutral Base	113.9	Ounces(OZ)	19-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	113.9	Ounces(OZ)	19-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	113.9	Ounces(OZ)	19-Aug-21
Vers-Acryl 222 S/G Finish Neutral Base	113.9	Ounces(OZ)	19-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	19-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	19-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	19-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	19-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
SILICONE METAL	10.1	Ounces(OZ)	19-Aug-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	19-Aug-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	19-Aug-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	19-Aug-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	19-Aug-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	19-Aug-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	19-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	19-Aug-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	19-Aug-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	19-Aug-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	19-Aug-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
5 MINUTE EPOXY	50	Milliliter(ML)	19-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	20-Aug-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	20-Aug-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	20-Aug-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	20-Aug-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	20-Aug-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	20-Aug-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	20-Aug-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	20-Aug-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	20-Aug-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	20-Aug-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	20-Aug-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	20-Aug-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	20-Aug-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	20-Aug-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	20-Aug-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	20-Aug-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	20-Aug-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	20-Aug-21
Cote All N/B	116	Ounces(OZ)	20-Aug-21
Cote All N/B	116	Ounces(OZ)	20-Aug-21
Cote All N/B	116	Ounces(OZ)	20-Aug-21
Cote All N/B	116	Ounces(OZ)	20-Aug-21
Cote All N/B	116	Ounces(OZ)	20-Aug-21
Cote All N/B	116	Ounces(OZ)	20-Aug-21
Cote All N/B	116	Ounces(OZ)	20-Aug-21
Cote All N/B	116	Ounces(OZ)	20-Aug-21
Permacryl Int Latex Semi-Gloss W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Semi-Gloss W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Semi-Gloss W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Semi-Gloss W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Semi-Gloss W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Semi-Gloss W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Semi-Gloss W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Semi-Gloss W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Semi-Gloss W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Semi-Gloss W/B	5	Gallon(GAL)	20-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Permacryl Int Latex Semi-Gloss W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Semi-Gloss M/B	5	Gallon(GAL)	20-Aug-21
ISOPROPYL ALCOHOL	1	Gallon(GAL)	20-Aug-21
ISOPROPYL ALCOHOL	1	Gallon(GAL)	20-Aug-21
ISOPROPYL ALCOHOL	1	Gallon(GAL)	20-Aug-21
ISOPROPYL ALCOHOL	1	Gallon(GAL)	20-Aug-21
Denatured Ethyl Alcohol	1	Gallon(GAL)	20-Aug-21
Denatured Ethyl Alcohol	1	Gallon(GAL)	20-Aug-21
Denatured Ethyl Alcohol	1	Gallon(GAL)	20-Aug-21
Denatured Ethyl Alcohol	1	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Flat W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Flat W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Flat W/B	5	Gallon(GAL)	20-Aug-21
Permacryl Int Latex Flat W/B	5	Gallon(GAL)	20-Aug-21
JOINT COMPOUND FOR SHEETROCK	4.5	Gallon(GAL)	20-Aug-21
JOINT COMPOUND FOR SHEETROCK	4.5	Gallon(GAL)	20-Aug-21
JOINT COMPOUND FOR SHEETROCK	4.5	Gallon(GAL)	20-Aug-21
JOINT COMPOUND FOR SHEETROCK	4.5	Gallon(GAL)	20-Aug-21
JOINT COMPOUND FOR SHEETROCK	4.5	Gallon(GAL)	20-Aug-21
JOINT COMPOUND FOR SHEETROCK	4.5	Gallon(GAL)	20-Aug-21
JOINT COMPOUND FOR SHEETROCK	4.5	Gallon(GAL)	20-Aug-21
JOINT COMPOUND FOR SHEETROCK	4.5	Gallon(GAL)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
WALL TEXTURE ORANGE PEEL OIL BASED	25	Ounces(OZ)	20-Aug-21
HYDRANAL COULOMAT CG-K	50	Milliliter(ML)	20-Aug-21
HYDRANAL COULOMAT CG-K	50	Milliliter(ML)	20-Aug-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	20-Aug-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	20-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	20-Aug-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	20-Aug-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	20-Aug-21
DIMETHYLSULFOXIDE	50	Milliliter(ML)	20-Aug-21
DIMETHYLSULFOXIDE	50	Milliliter(ML)	20-Aug-21
N N-DIMETHYL-P-NITROSOANILINE	25	Gram(GM)	20-Aug-21
1-OCTYNE	25	Gram(GM)	20-Aug-21
Diphenyl(2 4 6-trimethylbenzoyl)phosphine oxide	10	Gram(GM)	20-Aug-21
Benzonitrile ReagentPlus 99%	100	Milliliter(ML)	20-Aug-21
DRIERITE 6 MESH	454	Gram(GM)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	20-Aug-21
METADI SUPREME POLYCRYSTALLINE DIAMOND	8	Ounces(OZ)	20-Aug-21
METADI SUPREME POLYCRYSTALLINE DIAMOND	1	Gallon(GAL)	20-Aug-21
Buehler Metadi Supreme Polycrystalline Diamond Susp. 1 micron	1	Gallon(GAL)	20-Aug-21
METADI SUPREME POLYCRYSTALLINE DIAMOND SUSPENSION 3UM	1	Gallon(GAL)	20-Aug-21
Buehler Metadi Supreme Polycrystalline Diamond Susp. 1 micron	32	Ounces(OZ)	20-Aug-21
METADI SUPREME POLYCRYS 30MIC	32	Ounces(OZ)	20-Aug-21
METADI SUPREME POLYCRYS 45MIC	8	Ounces(OZ)	20-Aug-21
COPPER (II) CHLORIDE ANHYDROUS	50	Gram(GM)	20-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
COPPER (II) CHLORIDE ANHYDROUS	50	Gram(GM)	20-Aug-21
Hydrogen Peroxide 30% (w/w) ACS Reagent Grade	500	Milliliter(ML)	20-Aug-21
Hydrogen Peroxide 30% (w/w) ACS Reagent Grade	500	Milliliter(ML)	20-Aug-21
Hydrogen Peroxide 30% (w/w) ACS Reagent Grade	500	Milliliter(ML)	20-Aug-21
Hydrogen Peroxide 30% (w/w) ACS Reagent Grade	500	Milliliter(ML)	20-Aug-21
Cesium chloride ultrapure	100	Gram(GM)	20-Aug-21
HEXANES	4	Liters(L)	20-Aug-21
HEXANES	4	Liters(L)	20-Aug-21
HEXANES	4	Liters(L)	20-Aug-21
HEXANES	4	Liters(L)	20-Aug-21
BENZOYL CHLORIDE 99+%	100	Milliliter(ML)	20-Aug-21
TETRAHYDROFURAN ANHYDROUS 99.9%	100	Milliliter(ML)	20-Aug-21
TETRAHYDROFURAN ANHYDROUS 99.9%	100	Milliliter(ML)	20-Aug-21
ISOPROPYL ALCOHOL EXCEEDS A.C.S. SPECIFICATIONS HPLC GRADE	1	Liters(L)	20-Aug-21
ISOPROPYL ALCOHOL EXCEEDS A.C.S. SPECIFICATIONS HPLC GRADE	1	Liters(L)	20-Aug-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	20-Aug-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	20-Aug-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	20-Aug-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	20-Aug-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	20-Aug-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
TRAFFIC STRIPING PAINT	18	Ounces(OZ)	20-Aug-21
SODIUM TRIFLUOROMETHANESULFONATE	25	Gram(GM)	20-Aug-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	20-Aug-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	20-Aug-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	20-Aug-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	20-Aug-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	20-Aug-21
Tremflex 834 Clear	300	Milliliter(ML)	20-Aug-21
Tremflex 834 Clear	300	Milliliter(ML)	20-Aug-21
Tremflex 834 Clear	300	Milliliter(ML)	20-Aug-21
Tremflex 834 Clear	300	Milliliter(ML)	20-Aug-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	20-Aug-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	20-Aug-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	20-Aug-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	20-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	20-Aug-21
Tremflex 834 Clear	300	Milliliter(ML)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
BONDO BODY FILLER	7	Pounds(LB)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
LOW VOC PVC SOLVENT CEMENTS: 902 EZ-1; 903 POOL PRO; 920 TRANSITION; 905 PVC CLEAR 904 HD Clear; 906 HD GRAY; 922 WET WELD	1	Pint(PT)	20-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	20-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	20-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	20-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	20-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	20-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	20-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	20-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	20-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	20-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	20-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	20-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	121.6	Ounces(OZ)	20-Aug-21
Compressed Air	10	Ounces(OZ)	20-Aug-21
Compressed Air	10	Ounces(OZ)	20-Aug-21
Compressed Air	10	Ounces(OZ)	20-Aug-21
CHICO A SEALING COMPOUND	4.3	Pounds(LB)	20-Aug-21
CHICO A SEALING COMPOUND	4.3	Pounds(LB)	20-Aug-21
CHICO A SEALING COMPOUND	4.3	Pounds(LB)	20-Aug-21
CHICO A SEALING COMPOUND	4.3	Pounds(LB)	20-Aug-21
CHICO A SEALING COMPOUND	4.3	Pounds(LB)	20-Aug-21
CHICO A SEALING COMPOUND	4.3	Pounds(LB)	20-Aug-21
CHICO A SEALING COMPOUND	4.3	Pounds(LB)	20-Aug-21
CHICO A SEALING COMPOUND	4.3	Pounds(LB)	20-Aug-21
CHICO A SEALING COMPOUND	4.3	Pounds(LB)	20-Aug-21
CHICO A SEALING COMPOUND	4.3	Pounds(LB)	20-Aug-21
CHICO A SEALING COMPOUND	4.3	Pounds(LB)	20-Aug-21
CHICO A SEALING COMPOUND	4.3	Pounds(LB)	20-Aug-21
BORON NITRIDE	50	Gram(GM)	23-Aug-21
Evap-Fresh No Rinse Evaporator Cleaner and Disinfectant	1	Gallon(GAL)	23-Aug-21
Evap-Fresh No Rinse Evaporator Cleaner and Disinfectant	1	Gallon(GAL)	23-Aug-21
Evap-Fresh No Rinse Evaporator Cleaner and Disinfectant	1	Gallon(GAL)	23-Aug-21
Evap-Fresh No Rinse Evaporator Cleaner and Disinfectant	1	Gallon(GAL)	23-Aug-21
Evap-Fresh No Rinse Evaporator Cleaner and Disinfectant	1	Gallon(GAL)	23-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Evap-Fresh No Rinse Evaporator Cleaner and Disinfectant	1	Gallon(GAL)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
PURPLE PRIMER FOR CPVC OR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
SOLVENT CEMENT FOR PVC	32	Ounces(OZ)	23-Aug-21
MOBIL SHC 629	5	Gallon(GAL)	23-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	23-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	23-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	23-Aug-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	23-Aug-21
GE Silicone II Window and Door Sealant	9.8	Ounces(OZ)	23-Aug-21
GE Silicone II Window and Door Sealant	9.8	Ounces(OZ)	23-Aug-21
GE Silicone II Window and Door Sealant	9.8	Ounces(OZ)	23-Aug-21
GE Silicone II Window and Door Sealant	9.8	Ounces(OZ)	23-Aug-21
GE Silicone II Window and Door Sealant	9.8	Ounces(OZ)	23-Aug-21
GE Silicone II Window and Door Sealant	9.8	Ounces(OZ)	23-Aug-21
DAP ACRYLIC LATEX CAULK WITH SILICONE	10.8	Ounces(OZ)	23-Aug-21
DAP ACRYLIC LATEX CAULK WITH SILICONE	10.8	Ounces(OZ)	23-Aug-21
DAP ACRYLIC LATEX CAULK WITH SILICONE	10.8	Ounces(OZ)	23-Aug-21
TETRAMETHYLAMMONIUM BOROHYDRIDE	10	Gram(GM)	23-Aug-21
SODIUM BOROHYDRIDE 99%	100	Gram(GM)	23-Aug-21
N-HYDROXYSULFOSUCCINIMIDE SODIUM SALT	500	Milligram(MG)	23-Aug-21
TETRAHYDROFURAN	2.5	Liters(L)	23-Aug-21
Semi Metals Plasma Standard	100	Milliliter(ML)	23-Aug-21
Palladium foil	0.75	Gram(GM)	23-Aug-21
METHANOL ANHYDROUS	250	Milliliter(ML)	23-Aug-21
AVICEL PH-101	1	Kilograms(KG)	23-Aug-21
Ethyl Acetate HiPerSolv CHROMANORM	4	Liters(L)	23-Aug-21
Ethyl Acetate HiPerSolv CHROMANORM	4	Liters(L)	23-Aug-21
Ethyl Acetate HiPerSolv CHROMANORM	4	Liters(L)	23-Aug-21
Ethyl Acetate HiPerSolv CHROMANORM	4	Liters(L)	23-Aug-21
TRIETHYLAMINE	100	Milliliter(ML)	23-Aug-21
SODIUM BORODEUTERIDE	1	Gram(GM)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
HALTHANE 73-18 2 PART KIT	40	Ounces(OZ)	23-Aug-21
Molybdenum powder -250 mesh	250	Gram(GM)	23-Aug-21
NIOBIUM POWDER -325 MESH	500	Gram(GM)	23-Aug-21
NIOBIUM POWDER -325 MESH	500	Gram(GM)	23-Aug-21
Tantalum Powder -325 mesh	500	Gram(GM)	23-Aug-21
Tantalum Powder -325 mesh	500	Gram(GM)	23-Aug-21
Tantalum Powder -325 mesh	500	Gram(GM)	23-Aug-21
Bismuth Powder -325 mesh 99.5% metals basis	500	Gram(GM)	23-Aug-21
Bismuth Powder -325 mesh 99.5% metals basis	500	Gram(GM)	23-Aug-21
Bismuth Powder -325 mesh 99.5% metals basis	500	Gram(GM)	23-Aug-21
Bismuth Powder -325 mesh 99.5% metals basis	500	Gram(GM)	23-Aug-21
Bismuth Powder -325 mesh 99.5% metals basis	500	Gram(GM)	23-Aug-21
Bismuth Powder -325 mesh 99.5% metals basis	500	Gram(GM)	23-Aug-21
Bismuth Powder -325 mesh 99.5% metals basis	500	Gram(GM)	23-Aug-21
Bismuth Powder -325 mesh 99.5% metals basis	500	Gram(GM)	23-Aug-21
Bismuth Powder -325 mesh 99.5% metals basis	500	Gram(GM)	23-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Highly-Refined Petroleum Lubricant Oils	1	Gallon(GAL)	23-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
AMERLOCK SEALER HRD 00333521	1	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	24-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	24-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	24-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	24-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
Satinamel W/B	1	Gallon(GAL)	24-Aug-21
Satinamel W/B	1	Gallon(GAL)	24-Aug-21
Satinamel W/B	1	Gallon(GAL)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	24-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	24-Aug-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	24-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	24-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	24-Aug-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	24-Aug-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	24-Aug-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	24-Aug-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	24-Aug-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	24-Aug-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	24-Aug-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	24-Aug-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	24-Aug-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	24-Aug-21
Expi293 Expression Medium	1000	Milliliter(ML)	24-Aug-21
TEM WEDGE POLISHER KIT	1	Gram(GM)	24-Aug-21
KODAK PROFESSIONAL Film Cement	0.5	Ounces(OZ)	24-Aug-21
ALCOHOL REAGENT	1	Gallon(GAL)	24-Aug-21
ALCOHOL REAGENT	1	Gallon(GAL)	24-Aug-21
ALCOHOL REAGENT	1	Gallon(GAL)	24-Aug-21
ALCOHOL REAGENT	1	Gallon(GAL)	24-Aug-21
Ethanol absolute for analysis EMSURE ACS ISO Reag. Ph	25	Liters(L)	24-Aug-21
Dichloromethane for gas chromatography ECD and FID SupraSolv	2.5	Liters(L)	24-Aug-21
KODAK PROFESSIONAL Film Cement	0.5	Ounces(OZ)	24-Aug-21
N N-DIMETHYLFORMAMIDE	1	Liters(L)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	24-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
2 TON EPOXY	50	Milliliter(ML)	24-Aug-21
Compressed Air	220	Cubic Feet(CF)	24-Aug-21
Compressed Air	220	Cubic Feet(CF)	24-Aug-21
Compressed Air	220	Cubic Feet(CF)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	24-Aug-21
01 BLEND ACRYLIC LACQUER THINNER 210 04046579	5	Gallon(GAL)	24-Aug-21
01 BLEND ACRYLIC LACQUER THINNER 210 04046579	5	Gallon(GAL)	24-Aug-21
01 BLEND ACRYLIC LACQUER THINNER 210 04046579	5	Gallon(GAL)	24-Aug-21
01 BLEND ACRYLIC LACQUER THINNER 210 04046579	5	Gallon(GAL)	24-Aug-21
01 BLEND ACRYLIC LACQUER THINNER 210 04046579	5	Gallon(GAL)	24-Aug-21
25% Carbon Dioxide 75% Argon	220	Cubic Feet(CF)	24-Aug-21
25% Carbon Dioxide 75% Argon	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	24-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Aug-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Aug-21
CARBON MONOXIDE 1000PPM IN NITROGEN	150	Cubic Feet(CF)	24-Aug-21
CARBON MONOXIDE 1000PPM IN NITROGEN	150	Cubic Feet(CF)	24-Aug-21
Oxygen Nitrogen	150	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	24-Aug-21
ARGON GAS	220	Cubic Feet(CF)	24-Aug-21
ARGON GAS	220	Cubic Feet(CF)	24-Aug-21
ARGON GAS	220	Cubic Feet(CF)	24-Aug-21
ARGON GAS	220	Cubic Feet(CF)	24-Aug-21
ARGON GAS	220	Cubic Feet(CF)	24-Aug-21
ARGON GAS	220	Cubic Feet(CF)	24-Aug-21
ARGON GAS	220	Cubic Feet(CF)	24-Aug-21
ARGON GAS	220	Cubic Feet(CF)	24-Aug-21
ARGON GAS	220	Cubic Feet(CF)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	24-Aug-21
Helium/Oxygen	220	Cubic Feet(CF)	24-Aug-21
Helium/Oxygen	220	Cubic Feet(CF)	24-Aug-21
CARBON MONOXIDE 1000PPM IN NITROGEN	150	Cubic Feet(CF)	24-Aug-21
Oxygen 5%/Bal. Nitrogen	150	Cubic Feet(CF)	24-Aug-21
N N-DIMETHYLFORMAMIDE	1	Liters(L)	24-Aug-21
N N-DIMETHYLFORMAMIDE	1	Liters(L)	24-Aug-21
N N-DIMETHYLFORMAMIDE	1	Liters(L)	24-Aug-21
N N-DIMETHYLFORMAMIDE	1	Liters(L)	24-Aug-21
EPOXY SET RESIN	128	Ounces(OZ)	24-Aug-21
EPOXY SET RESIN	128	Ounces(OZ)	24-Aug-21
EPOXY SET RESIN	128	Ounces(OZ)	24-Aug-21
EPOXY SET HARDENER	16	Ounces(OZ)	24-Aug-21
EPOXY SET HARDENER	16	Ounces(OZ)	24-Aug-21
EPOXY SET HARDENER	16	Ounces(OZ)	24-Aug-21
EPON RESIN 815C	1	Gallon(GAL)	24-Aug-21
EPON RESIN 815C	1	Gallon(GAL)	24-Aug-21
EPON RESIN 815C	1	Gallon(GAL)	24-Aug-21
EPON RESIN 815C	1	Gallon(GAL)	24-Aug-21
Tough Resin	1	Liters(L)	24-Aug-21
OCTYLTRICHLOROSILANE	25	Gram(GM)	24-Aug-21
OCTYLTRICHLOROSILANE	25	Gram(GM)	24-Aug-21
ETHYLPHOSPHONIC ACID	25	Gram(GM)	24-Aug-21
CHLOROFORM-D	100	Milliliter(ML)	24-Aug-21
ACETONE-D6	100	Milliliter(ML)	24-Aug-21
Acetonitrile-d3 99% atom D	10	Milliliter(ML)	24-Aug-21
Acetonitrile-d3 99% atom D	10	Milliliter(ML)	24-Aug-21
Acetonitrile-d3 99% atom D	10	Milliliter(ML)	24-Aug-21
ACETONE ACS	4	Liters(L)	24-Aug-21
ACETONE ACS	4	Liters(L)	24-Aug-21
ACETONE ACS	4	Liters(L)	24-Aug-21
ACETONE ACS	4	Liters(L)	24-Aug-21
TITANIUM(III) FLUORIDE	10	Gram(GM)	24-Aug-21
Sulfuric acid 25% for analysis EMSURE	1	Liters(L)	24-Aug-21
Sulfuric acid 25% for analysis EMSURE	1	Liters(L)	24-Aug-21
BORON NITRIDE	5	Kilograms(KG)	24-Aug-21
TNS (Trypsin Neutralizing Solution)	100	Milliliter(ML)	24-Aug-21
TNS (Trypsin Neutralizing Solution)	100	Milliliter(ML)	24-Aug-21
TNS (Trypsin Neutralizing Solution)	100	Milliliter(ML)	24-Aug-21
TRYPSIN-EDTA	100	Milliliter(ML)	24-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
TRYPSIN-EDTA	100	Milliliter(ML)	24-Aug-21
TRYPSIN-EDTA	100	Milliliter(ML)	24-Aug-21
PHTHALIC ANHYDRIDE	500	Gram(GM)	24-Aug-21
SODIUM ACETATE ANHYDROUS	250	Gram(GM)	24-Aug-21
Neodymium(III) oxide 99.9% trace metals basis	10	Gram(GM)	24-Aug-21
SODIUM PERRHENATE 99.9	5	Gram(GM)	24-Aug-21
AMMONIUM CERIUM (IV)SULFATE DIHYDRATE	100	Gram(GM)	24-Aug-21
Collagenase Type I from Clostridium histolyticum	100	Milliliter(ML)	24-Aug-21
Plasmin from human plasma	15	Milligram(MG)	24-Aug-21
Oxalic acid purified grade 99.999% trace metals basis	100	Gram(GM)	24-Aug-21
4-TERT-BUTYLCALIX[4]ARENE	5	Gram(GM)	24-Aug-21
4-TERT-BUTYLCALIX[4]ARENE	5	Gram(GM)	24-Aug-21
4-TERT-BUTYLCALIX[6]ARENE	5	Gram(GM)	24-Aug-21
RED INSULATING VARNISH	2	Ounces(OZ)	25-Aug-21
RED INSULATING VARNISH	2	Ounces(OZ)	25-Aug-21
KRYLON Fusion Gloss Black	12	Ounces(OZ)	25-Aug-21
KRYLON Fusion Gloss Black	12	Ounces(OZ)	25-Aug-21
KRYLON Fusion Gloss Black	12	Ounces(OZ)	25-Aug-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	25-Aug-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	25-Aug-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	25-Aug-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	25-Aug-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	25-Aug-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	25-Aug-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	25-Aug-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	25-Aug-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	25-Aug-21
DUPLI-COLOR 2-in-1 Filler & Sandable Primer	12	Ounces(OZ)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
DUPLI-COLOR 2-in-1 Filler & Sandable Primer	12	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	25-Aug-21
Brakleen Brake Parts Cleaner (aerosol)	14	Ounces(OZ)	25-Aug-21
Brakleen Brake Parts Cleaner (aerosol)	14	Ounces(OZ)	25-Aug-21
Brakleen Brake Parts Cleaner (aerosol)	14	Ounces(OZ)	25-Aug-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	25-Aug-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	25-Aug-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	25-Aug-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	25-Aug-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	25-Aug-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	25-Aug-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	25-Aug-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	25-Aug-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	25-Aug-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	25-Aug-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	25-Aug-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	25-Aug-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	25-Aug-21
PERMATEX ULTRA BLACK	3.35	Ounces(OZ)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21

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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21

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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21

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Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Parts Plus SAE 5W-30 SYNTHETIC BLEND PP3470 MOTOR OIL	1	Quarts(QT)	25-Aug-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	25-Aug-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	25-Aug-21
Zerex Asian Vehicle AFC RTU Antifreeze Coolant	1	Gallon(GAL)	25-Aug-21
DIAMOND	1	Gram(GM)	25-Aug-21
ACETONITRILE-D3 (D 99.8%)	25	Gram(GM)	25-Aug-21
TRIMETHYLSILYLTRIFLUOROMETHANESULFONATE	10	Gram(GM)	25-Aug-21
PHOSPHORIC ACID	500	Milliliter(ML)	25-Aug-21
MINERAL SPIRITS	1	Gallon(GAL)	25-Aug-21
MINERAL SPIRITS	1	Gallon(GAL)	25-Aug-21
FOAM SEALANT	250	Milliliter(ML)	25-Aug-21
FOAM SEALANT	250	Milliliter(ML)	25-Aug-21
FOAM SEALANT	250	Milliliter(ML)	25-Aug-21
1-Phenylpiperazine	100	Gram(GM)	25-Aug-21
12-CROWN-4	5	Gram(GM)	25-Aug-21
p-Benzoquinone	100	Gram(GM)	25-Aug-21
PHENYLMAGNESIUM BROMIDE	800	Milliliter(ML)	25-Aug-21
SODIUM CHROMATE	500	Gram(GM)	25-Aug-21
Triphosgene	5	Gram(GM)	25-Aug-21
SODIUM CARBONATE ANHYDROUS	500	Gram(GM)	25-Aug-21
18-crown-6	25	Gram(GM)	25-Aug-21
Lutetium at 10 000 ug/mL in 4% HCL	100	Milliliter(ML)	25-Aug-21
Erbium 10 000 ug/mL in 4% HCL	100	Milliliter(ML)	25-Aug-21
Holmium 10 000 ug/mL in 4% HCL	100	Milliliter(ML)	25-Aug-21
Dysprosium 10 000 ug/mL in 4% HCL	100	Milliliter(ML)	25-Aug-21
Gadolinium 10 000 ug/mL in 4% HCL	100	Milliliter(ML)	25-Aug-21
LITHIUM CHLORIDE ANHYDROUS	10	Gram(GM)	25-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
LANTHANUM (III) CHLORIDE ANHYDROUS	5	Gram(GM)	25-Aug-21
NEODYMIUM (III) CHLORIDE	5	Gram(GM)	25-Aug-21
CERIUM(III) CHLORIDE ANHYDROUS	5	Gram(GM)	25-Aug-21
HEXANES	4	Liters(L)	25-Aug-21
HEXANES	4	Liters(L)	25-Aug-21
HEXANES	4	Liters(L)	25-Aug-21
HEXANES	4	Liters(L)	25-Aug-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	25-Aug-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	25-Aug-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	25-Aug-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	25-Aug-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	25-Aug-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	25-Aug-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	25-Aug-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	25-Aug-21
ULTIMA GOLD	10	Liters(L)	25-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	300	Milliliter(ML)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
RECTORSEAL TRU-BLU PIPE THREAD SEALANT	8	Ounces(OZ)	26-Aug-21
4922N Conductive Silver Composition	100	Gram(GM)	26-Aug-21
6838 Silver Paste	100	Gram(GM)	26-Aug-21
4-Formylbenzoic acid	25	Gram(GM)	26-Aug-21
N-TETRADECYL-N N-DIMETHYL-3-AMMONIO-1-PROPANESULFONATE	5	Gram(GM)	26-Aug-21
732 MULTI PURPOSE SEALANT BLACK	10.1	Ounces(OZ)	26-Aug-21
732 MULTI PURPOSE SEALANT BLACK	10.1	Ounces(OZ)	26-Aug-21
DUPLI-COLOR® Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	26-Aug-21
Expo White Board Cleaner	8	Ounces(OZ)	26-Aug-21
Expo White Board Cleaner	8	Ounces(OZ)	26-Aug-21
Expo White Board Cleaner	8	Ounces(OZ)	26-Aug-21
Expo White Board Cleaner	8	Ounces(OZ)	26-Aug-21
Expo White Board Cleaner	8	Ounces(OZ)	26-Aug-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	26-Aug-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	26-Aug-21
PREMIUM HYDRAULIC FLUID AW-32	5	Gallon(GAL)	26-Aug-21
PREMIUM HYDRAULIC FLUID AW-32	5	Gallon(GAL)	26-Aug-21
PREMIUM HYDRAULIC FLUID AW-32	5	Gallon(GAL)	26-Aug-21
MOBIL 1 5W-30	5	Quarts(QT)	26-Aug-21
MOBIL 1 5W-30	5	Quarts(QT)	26-Aug-21
MOBIL 1 5W-30	5	Quarts(QT)	26-Aug-21
MOBIL 1 5W-30	5	Quarts(QT)	26-Aug-21
MOBIL 1 5W-30	5	Quarts(QT)	26-Aug-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	500	Liters(L)	26-Aug-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	500	Liters(L)	26-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	250	Liters(L)	26-Aug-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	250	Liters(L)	26-Aug-21
Motorcraft MERCON LV ATF	1	Quarts(QT)	26-Aug-21
Motorcraft MERCON LV ATF	1	Quarts(QT)	26-Aug-21
Motorcraft MERCON LV ATF	1	Quarts(QT)	26-Aug-21
Motorcraft MERCON LV ATF	1	Quarts(QT)	26-Aug-21
Motorcraft MERCON LV ATF	1	Quarts(QT)	26-Aug-21
Motorcraft MERCON LV ATF	1	Quarts(QT)	26-Aug-21
Motorcraft MERCON LV ATF	1	Quarts(QT)	26-Aug-21
Motorcraft MERCON LV ATF	1	Quarts(QT)	26-Aug-21
Motorcraft MERCON LV ATF	1	Quarts(QT)	26-Aug-21
Motorcraft MERCON LV ATF	1	Quarts(QT)	26-Aug-21
Motorcraft MERCON LV ATF	1	Quarts(QT)	26-Aug-21
Motorcraft MERCON LV ATF	1	Quarts(QT)	26-Aug-21
Compressed Air	220	Cubic Feet(CF)	26-Aug-21
Compressed Air	220	Cubic Feet(CF)	26-Aug-21
Compressed Air	220	Cubic Feet(CF)	26-Aug-21
JOHNSEN'S NON-CHLORINATATED BRAKE PARTS CLEANER CALIFORNIA 5 GALLON	5	Gallon(GAL)	26-Aug-21
Oxygen Nitrogen	100	Liters(L)	26-Aug-21
Oxygen Nitrogen	100	Liters(L)	26-Aug-21
AW HYDRAULIC OIL 46	5	Gallon(GAL)	26-Aug-21
AW HYDRAULIC OIL 46	5	Gallon(GAL)	26-Aug-21
Parts Plus SAE 80W-90 GEAR OIL	5	Gallon(GAL)	26-Aug-21
ULTIMA GOLD	10	Liters(L)	26-Aug-21
ULTIMA GOLD	10	Liters(L)	26-Aug-21
ULTIMA GOLD	10	Liters(L)	26-Aug-21
ULTIMA GOLD	10	Liters(L)	26-Aug-21
ULTIMA GOLD	10	Liters(L)	26-Aug-21
ULTIMA GOLD	10	Liters(L)	26-Aug-21
ULTIMA GOLD	10	Liters(L)	26-Aug-21
ULTIMA GOLD	10	Liters(L)	26-Aug-21
ULTIMA GOLD	10	Liters(L)	26-Aug-21
ULTIMA GOLD	10	Liters(L)	26-Aug-21
ULTIMA GOLD	10	Liters(L)	26-Aug-21
1 2-BENZENEDITHIOL	1	Gram(GM)	26-Aug-21
BISPHENOL A DIGLYCIDYL ETHER	250	Gram(GM)	26-Aug-21
FLUOROBENZENE	500	Gram(GM)	26-Aug-21
FLUOROBENZENE	500	Gram(GM)	26-Aug-21
ALUMINA ALUMINUM OXIDE POWDER	1	Pounds(LB)	26-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
AGAROSE	100	Gram(GM)	26-Aug-21
Tergitol TMN 10	250	Milliliter(ML)	26-Aug-21
Ethyl Acetate Environmental Grade 99.5+%	4	Liters(L)	26-Aug-21
Ethyl Acetate Environmental Grade 99.5+%	4	Liters(L)	26-Aug-21
Ethyl Acetate Environmental Grade 99.5+%	4	Liters(L)	26-Aug-21
Ethyl Acetate Environmental Grade 99.5+%	4	Liters(L)	26-Aug-21
Ethyl Acetate Environmental Grade 99.5+%	4	Liters(L)	26-Aug-21
Ethyl Acetate Environmental Grade 99.5+%	4	Liters(L)	26-Aug-21
Ethanol gradient grade for liquid chromatography LiChrosolv	4	Liters(L)	26-Aug-21
METHANOL	4	Liters(L)	26-Aug-21
METHANOL	4	Liters(L)	26-Aug-21
METHANOL	4	Liters(L)	26-Aug-21
METHANOL	4	Liters(L)	26-Aug-21
Synergy 735	55	Gallon(GAL)	26-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	27-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	27-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	27-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	27-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	27-Aug-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	27-Aug-21
Signature Series 5080 Pressure Sensitive Adhesive	1	Gallon(GAL)	30-Aug-21
Signature Series 5080 Pressure Sensitive Adhesive	1	Gallon(GAL)	30-Aug-21
Signature Series 5080 Pressure Sensitive Adhesive	1	Gallon(GAL)	30-Aug-21
Signature Series 5080 Pressure Sensitive Adhesive	1	Gallon(GAL)	30-Aug-21
Signature Series 5080 Pressure Sensitive Adhesive	1	Gallon(GAL)	30-Aug-21
Signature Series 5080 Pressure Sensitive Adhesive	1	Gallon(GAL)	30-Aug-21
Signature Series 5080 Pressure Sensitive Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	30-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	30-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	30-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	30-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	30-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	30-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	30-Aug-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	30-Aug-21
PSX 700 pearl gray resin	1	Gallon(GAL)	30-Aug-21
PSX 700 pearl gray resin	1	Gallon(GAL)	30-Aug-21
PSX 700 pearl gray resin	1	Gallon(GAL)	30-Aug-21
PSX 700 pearl gray resin	1	Gallon(GAL)	30-Aug-21
PSX 700 pearl gray resin	1	Gallon(GAL)	30-Aug-21
PSX 700 pearl gray resin	1	Gallon(GAL)	30-Aug-21
PSX 700 pearl gray resin	1	Gallon(GAL)	30-Aug-21
PSX 700 pearl gray resin	1	Gallon(GAL)	30-Aug-21
COTE ALL WHITE BASE	123.9	Gallon(GAL)	30-Aug-21
COTE ALL WHITE BASE	123.9	Gallon(GAL)	30-Aug-21
COTE ALL WHITE BASE	123.9	Gallon(GAL)	30-Aug-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	30-Aug-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	30-Aug-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	30-Aug-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	30-Aug-21
Cote All N/B	1	Gallon(GAL)	30-Aug-21
Cote All N/B	1	Gallon(GAL)	30-Aug-21
XIM PRIMER 400 CLEAR	10	Ounces(OZ)	30-Aug-21
XIM PRIMER 400 CLEAR	10	Ounces(OZ)	30-Aug-21
XIM PRIMER 400 CLEAR	10	Ounces(OZ)	30-Aug-21
XIM PRIMER 400 CLEAR	10	Ounces(OZ)	30-Aug-21
XIM PRIMER 400 CLEAR	10	Ounces(OZ)	30-Aug-21
XIM PRIMER 400 CLEAR	10	Ounces(OZ)	30-Aug-21
XIM PRIMER 400 CLEAR	10	Ounces(OZ)	30-Aug-21
XIM PRIMER 400 CLEAR	10	Ounces(OZ)	30-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
XIM PRIMER 400 CLEAR	10	Ounces(OZ)	30-Aug-21
XIM PRIMER 400 CLEAR	10	Ounces(OZ)	30-Aug-21
XIM PRIMER 400 CLEAR	10	Ounces(OZ)	30-Aug-21
XIM PRIMER 400 CLEAR	10	Ounces(OZ)	30-Aug-21
D-MYO-INOSITOL	500	Gram(GM)	30-Aug-21
D-MYO-INOSITOL	500	Gram(GM)	30-Aug-21
ChemSafe Gold	5	Gallon(GAL)	30-Aug-21
ChemSafe Gold	5	Gallon(GAL)	30-Aug-21
ChemSafe Gold	5	Gallon(GAL)	30-Aug-21
STEEL BLUE LAYOUT FLUID	12	Ounces(OZ)	30-Aug-21
STEEL BLUE LAYOUT FLUID	12	Ounces(OZ)	30-Aug-21
STEEL BLUE LAYOUT FLUID	12	Ounces(OZ)	30-Aug-21
HYDROBROMIC ACID OPTIMA	2	Liters(L)	30-Aug-21
HYDROBROMIC ACID OPTIMA	2	Liters(L)	30-Aug-21
HYDROBROMIC ACID OPTIMA	2	Liters(L)	30-Aug-21
SODIUM BICARBONATE	10	Ounces(OZ)	30-Aug-21
Rutaecarpine	25	Milligram(MG)	30-Aug-21
POLYACRYLIC ACID	100	Gram(GM)	30-Aug-21
(12-Phosphonododecyl)phosphonic acid	1	Gram(GM)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10	Ounces(OZ)	30-Aug-21
ChemSafe 500C	5	Gallon(GAL)	31-Aug-21
ChemSafe 500C	5	Gallon(GAL)	31-Aug-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	31-Aug-21
Ardex P 51	1	Gallon(GAL)	31-Aug-21
Ardex P 51	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	31-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-21
PSX 700 CURE	0.2	Gallon(GAL)	31-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	31-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	31-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	31-Aug-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	31-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	31-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	31-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	31-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	31-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	31-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	31-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	31-Aug-21
ARDEX FEATHER FINISH	10	Pounds(LB)	31-Aug-21
MOBIL SHC GEAR 460	5	Gallon(GAL)	31-Aug-21
MOBIL SHC GEAR 460	5	Gallon(GAL)	31-Aug-21
MOBIL SHC GEAR 460	5	Gallon(GAL)	31-Aug-21
MOBIL SHC GEAR 460	5	Gallon(GAL)	31-Aug-21
MOBIL DTE 24	5	Gallon(GAL)	31-Aug-21
ES COMPLEAT OAT 50/50 PREDILUTED; ES COMPLEAT OAT 60/40 PREDILUTED; ES COMPLEAT OAT 40/60 PREDILUTED	1	Gallon(GAL)	31-Aug-21
ES COMPLEAT OAT 50/50 PREDILUTED; ES COMPLEAT OAT 60/40 PREDILUTED; ES COMPLEAT OAT 40/60 PREDILUTED	1	Gallon(GAL)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ES COMPLEAT OAT 50/50 PREDILUTED; ES COMPLEAT OAT 60/40 PREDILUTED; ES COMPLEAT OAT 40/60 PREDILUTED	1	Gallon(GAL)	31-Aug-21
ES COMPLEAT OAT 50/50 PREDILUTED; ES COMPLEAT OAT 60/40 PREDILUTED; ES COMPLEAT OAT 40/60 PREDILUTED	1	Gallon(GAL)	31-Aug-21
ES COMPLEAT OAT 50/50 PREDILUTED; ES COMPLEAT OAT 60/40 PREDILUTED; ES COMPLEAT OAT 40/60 PREDILUTED	1	Gallon(GAL)	31-Aug-21
ES COMPLEAT OAT 50/50 PREDILUTED; ES COMPLEAT OAT 60/40 PREDILUTED; ES COMPLEAT OAT 40/60 PREDILUTED	1	Gallon(GAL)	31-Aug-21
ES COMPLEAT OAT 50/50 PREDILUTED; ES COMPLEAT OAT 60/40 PREDILUTED; ES COMPLEAT OAT 40/60 PREDILUTED	1	Gallon(GAL)	31-Aug-21
ES COMPLEAT OAT 50/50 PREDILUTED; ES COMPLEAT OAT 60/40 PREDILUTED; ES COMPLEAT OAT 40/60 PREDILUTED	1	Gallon(GAL)	31-Aug-21
ES COMPLEAT OAT 50/50 PREDILUTED; ES COMPLEAT OAT 60/40 PREDILUTED; ES COMPLEAT OAT 40/60 PREDILUTED	1	Gallon(GAL)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	31-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	31-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	31-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	31-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	31-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	31-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	31-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	31-Aug-21
MOBIL 1 5W-50	1	Quarts(QT)	31-Aug-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	31-Aug-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	31-Aug-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	31-Aug-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	31-Aug-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	31-Aug-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	31-Aug-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	31-Aug-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	31-Aug-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	31-Aug-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	31-Aug-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	31-Aug-21
AW 32 HYDRAULIC FLUID	5	Gallon(GAL)	31-Aug-21
AW 32 HYDRAULIC FLUID	5	Gallon(GAL)	31-Aug-21
AW 32 HYDRAULIC FLUID	5	Gallon(GAL)	31-Aug-21
K KOOL-P CLEAR	5	Gallon(GAL)	31-Aug-21
Blaw-Kote	5	Gallon(GAL)	31-Aug-21
Blaw-Kote	5	Gallon(GAL)	31-Aug-21
Blaw-Kote	5	Gallon(GAL)	31-Aug-21
Blaw-Kote	5	Gallon(GAL)	31-Aug-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	31-Aug-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	31-Aug-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	31-Aug-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	31-Aug-21
PROPANE	57	Gallon(GAL)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	100	Liters(L)	31-Aug-21
ARGON GAS	100	Liters(L)	31-Aug-21
ARGON GAS	100	Liters(L)	31-Aug-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	31-Aug-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	31-Aug-21
NITROGEN GAS	100	Liters(L)	31-Aug-21
HELIUM GAS	100	Liters(L)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	100	Liters(L)	31-Aug-21
HELIUM GAS	100	Liters(L)	31-Aug-21
HELIUM GAS	100	Liters(L)	31-Aug-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	31-Aug-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
ARGON GAS	220	Cubic Feet(CF)	31-Aug-21
Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	31-Aug-21
Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	31-Aug-21
Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	31-Aug-21
Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	31-Aug-21
Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	31-Aug-21
Compressed Air	220	Cubic Feet(CF)	31-Aug-21
CARBON DIOXIDE	220	Cubic Feet(CF)	31-Aug-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	31-Aug-21
HELIUM GAS	150	Milliliter(ML)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	11	Gallon(GAL)	31-Aug-21
PROPANE	5	Gallon(GAL)	31-Aug-21
OXYGEN COMPRESSED GAS	40	Cubic Feet(CF)	31-Aug-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	31-Aug-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	31-Aug-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	31-Aug-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	31-Aug-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	31-Aug-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	31-Aug-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	31-Aug-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	31-Aug-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	100	Liters(L)	31-Aug-21
NITROGEN GAS	40	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	40	Cubic Feet(CF)	31-Aug-21
NITROGEN GAS	100	Liters(L)	31-Aug-21
ARGON GAS	40	Cubic Feet(CF)	31-Aug-21
ARGON GAS	40	Cubic Feet(CF)	31-Aug-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	31-Aug-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	31-Aug-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	31-Aug-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	31-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	31-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	31-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	31-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	31-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	31-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	31-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	31-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	31-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	31-Aug-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	31-Aug-21
ACETYLENE STABILIZED	240	Cubic Feet(CF)	31-Aug-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	31-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	31-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	31-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	31-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	31-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	31-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	31-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	31-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	31-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	31-Aug-21
HELIUM GAS	220	Cubic Feet(CF)	31-Aug-21
COLORTREND BROWN OXIDE 888-1572	32	Ounces(OZ)	01-Sep-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	01-Sep-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	01-Sep-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	01-Sep-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	01-Sep-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	01-Sep-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	01-Sep-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	01-Sep-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	01-Sep-21
808-2551 COLORTREND AXX ORGANIC YELLOW	32	Ounces(OZ)	01-Sep-21
808-0972 COLORTREND ORE ORGANIC ORANGE	1	Liters(L)	01-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
808-0972 COLORTREND ORE ORGANIC ORANGE	1	Liters(L)	01-Sep-21
808-0972 COLORTREND ORE ORGANIC ORANGE	1	Liters(L)	01-Sep-21
808-0972 COLORTREND ORE ORGANIC ORANGE	1	Liters(L)	01-Sep-21
808-0972 COLORTREND ORE ORGANIC ORANGE	1	Liters(L)	01-Sep-21
808-0972 COLORTREND ORE ORGANIC ORANGE	1	Liters(L)	01-Sep-21
808-0972 COLORTREND ORE ORGANIC ORANGE	1	Liters(L)	01-Sep-21
808-0972 COLORTREND ORE ORGANIC ORANGE	1	Liters(L)	01-Sep-21
808-0972 COLORTREND ORE ORGANIC ORANGE	1	Liters(L)	01-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	01-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	01-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	01-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	01-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	01-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	01-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	01-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	01-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	01-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	01-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	01-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	01-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	01-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	01-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	01-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	01-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	01-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	01-Sep-21
888-0836 COLORTREND ORGANIC RED R	1	Liters(L)	01-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	1	Liters(L)	01-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	1	Liters(L)	01-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	1	Liters(L)	01-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	1	Liters(L)	01-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	1	Liters(L)	01-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	1	Liters(L)	01-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	1	Liters(L)	01-Sep-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	01-Sep-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	01-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	01-Sep-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	01-Sep-21
808-0422 COLORTREND V MAGENTA	32	Ounces(OZ)	01-Sep-21
Resuflor 3746 High Performance Epoxy (Part B) Hardener	1	Gallon(GAL)	01-Sep-21
SODIUM PERIODATE	500	Milliliter(ML)	01-Sep-21
SODIUM PERIODATE	500	Milliliter(ML)	01-Sep-21
Kraton G Polymers (SEBS and SEBS OE)	40	Pounds(LB)	03-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	03-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	03-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	03-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	03-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	03-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	03-Sep-21
Nalco 22341	503	Pounds(LB)	03-Sep-21
NALCO 8735 ALKALINEITY SO	639	Pounds(LB)	03-Sep-21
NALCO 7408 CHLORINE SCAVENGER SOLUTION	55	Gallon(GAL)	03-Sep-21
SODIUM CHLORIDE	50	Pounds(LB)	03-Sep-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	03-Sep-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	03-Sep-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	03-Sep-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	03-Sep-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	03-Sep-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	03-Sep-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	03-Sep-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	03-Sep-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	03-Sep-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	03-Sep-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	03-Sep-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	03-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	03-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	03-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	03-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	03-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	03-Sep-21
808-7214 COLORTREND E PHTHALO BLUE	32	Ounces(OZ)	03-Sep-21
YELLOW IRON OXIDE	32	Ounces(OZ)	03-Sep-21
YELLOW IRON OXIDE	32	Ounces(OZ)	03-Sep-21
YELLOW IRON OXIDE	32	Ounces(OZ)	03-Sep-21
YELLOW IRON OXIDE	32	Ounces(OZ)	03-Sep-21
YELLOW IRON OXIDE	32	Ounces(OZ)	03-Sep-21
YELLOW IRON OXIDE	32	Ounces(OZ)	03-Sep-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	03-Sep-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	03-Sep-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	03-Sep-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	03-Sep-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	03-Sep-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	03-Sep-21
888-1572 COLORTREND BROWN OXIDE	32	Ounces(OZ)	03-Sep-21
888-1572 COLORTREND BROWN OXIDE	32	Ounces(OZ)	03-Sep-21
888-1572 COLORTREND BROWN OXIDE	32	Ounces(OZ)	03-Sep-21
888-1572 COLORTREND BROWN OXIDE	32	Ounces(OZ)	03-Sep-21
888-1572 COLORTREND BROWN OXIDE	32	Ounces(OZ)	03-Sep-21
888-1572 COLORTREND BROWN OXIDE	32	Ounces(OZ)	03-Sep-21
888-2551 COLORTREND ORGANIC YELLOW AXX	32	Ounces(OZ)	03-Sep-21
888-2551 COLORTREND ORGANIC YELLOW AXX	32	Ounces(OZ)	03-Sep-21
888-2551 COLORTREND ORGANIC YELLOW AXX	32	Ounces(OZ)	03-Sep-21
888-2551 COLORTREND ORGANIC YELLOW AXX	32	Ounces(OZ)	03-Sep-21
888-2551 COLORTREND ORGANIC YELLOW AXX	32	Ounces(OZ)	03-Sep-21
888-2551 COLORTREND ORGANIC YELLOW AXX	32	Ounces(OZ)	03-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	03-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	03-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	03-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	03-Sep-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	5	Gallon(GAL)	03-Sep-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	5	Gallon(GAL)	03-Sep-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	5	Gallon(GAL)	03-Sep-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	5	Gallon(GAL)	03-Sep-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	5	Gallon(GAL)	03-Sep-21
Avalon Premium 100% Acrylic Interior Satin M/B	121.6	Ounces(OZ)	03-Sep-21
Avalon Premium 100% Acrylic Interior Satin M/B	121.6	Ounces(OZ)	03-Sep-21
Avalon Premium 100% Acrylic Interior Satin M/B	121.6	Ounces(OZ)	03-Sep-21
Avalon Premium 100% Acrylic Interior Satin M/B	121.6	Ounces(OZ)	03-Sep-21
DENATURED ALCOHOL	1	Gallon(GAL)	03-Sep-21
DENATURED ALCOHOL	1	Gallon(GAL)	03-Sep-21
DENATURED ALCOHOL	1	Gallon(GAL)	03-Sep-21
DENATURED ALCOHOL	1	Gallon(GAL)	03-Sep-21
DENATURED ALCOHOL	1	Gallon(GAL)	03-Sep-21
DENATURED ALCOHOL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	03-Sep-21
FERRIC CHLORIDE 40% SOLUTION	3500	Pounds(LB)	03-Sep-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	03-Sep-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	03-Sep-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	03-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	03-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	03-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	03-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	03-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	03-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	03-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	03-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	03-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	03-Sep-21
PSX 700A Clear Coat Resin	1	Gallon(GAL)	03-Sep-21
PSX 700A Clear Coat Resin	1	Gallon(GAL)	03-Sep-21
NALCO 1720 OXYGEN SCAVENGER SOLUTION	528	Pounds(LB)	03-Sep-21
TRI-ACT 1820 SOLUTION	450	Pounds(LB)	03-Sep-21
HEXANE MIXTURE OF ISOMERS	2.5	Liters(L)	03-Sep-21
SODIUM AZIDE	100	Gram(GM)	03-Sep-21
BENZENE	2	Liters(L)	03-Sep-21
Avalon Premium 100% Acrylic Interior Satin UW/B	121.6	Ounces(OZ)	03-Sep-21
Avalon Premium 100% Acrylic Interior Satin UW/B	121.6	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
SANDING SEALER	1	Quarts(QT)	03-Sep-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	03-Sep-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	03-Sep-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	03-Sep-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	03-Sep-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	03-Sep-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	03-Sep-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	03-Sep-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	03-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	03-Sep-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	03-Sep-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	03-Sep-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	03-Sep-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	03-Sep-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	03-Sep-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	03-Sep-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	03-Sep-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	03-Sep-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	03-Sep-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	03-Sep-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	03-Sep-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	03-Sep-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	03-Sep-21
Masters Armor Gloss	1	Gallon(GAL)	03-Sep-21
Masters Armor Gloss	1	Gallon(GAL)	03-Sep-21
Masters Armor Gloss	1	Gallon(GAL)	03-Sep-21
Masters Armor Gloss	1	Gallon(GAL)	03-Sep-21
OM Polyurethane gloss	1	Ounces(OZ)	03-Sep-21
OM Polyurethane gloss	1	Ounces(OZ)	03-Sep-21
OM Polyurethane gloss	1	Ounces(OZ)	03-Sep-21
OM Polyurethane gloss	1	Ounces(OZ)	03-Sep-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	100	Liters(L)	03-Sep-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	100	Liters(L)	03-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	07-Sep-21
MS-222L Aero-Duster	10	Ounces(OZ)	07-Sep-21
HIT-RE500	11.1	Ounces(OZ)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	07-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	07-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	07-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	07-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	07-Sep-21
Compressed Air	220	Cubic Feet(CF)	07-Sep-21
Compressed Air	220	Cubic Feet(CF)	07-Sep-21
Compressed Air	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21
PROPANE	11	Gallon(GAL)	07-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	100	Liters(L)	07-Sep-21
ARGON GAS	220	Cubic Feet(CF)	07-Sep-21
MicroC 2000	2700	Pounds(LB)	07-Sep-21
MicroC 2000	2700	Pounds(LB)	07-Sep-21
SILICONE OIL	2	Liters(L)	07-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	07-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	07-Sep-21
SILICONE OIL	2	Liters(L)	07-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	07-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
MAGNESIUM CHLORIDE 30% SOLUTION	300	Gallon(GAL)	07-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	32	Ounces(OZ)	07-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	32	Ounces(OZ)	07-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	32	Ounces(OZ)	07-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	32	Ounces(OZ)	07-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	32	Ounces(OZ)	07-Sep-21
888-2040 COLORTREND MEDIUM YELLOW T	32	Ounces(OZ)	07-Sep-21
888-0836 COLORTREND ORGANIC RED R	1	Liters(L)	07-Sep-21
888-0836 COLORTREND ORGANIC RED R	1	Liters(L)	07-Sep-21
888-0836 COLORTREND ORGANIC RED R	1	Liters(L)	07-Sep-21
888-0836 COLORTREND ORGANIC RED R	1	Liters(L)	07-Sep-21
888-0836 COLORTREND ORGANIC RED R	1	Liters(L)	07-Sep-21
888-0836 COLORTREND ORGANIC RED R	1	Liters(L)	07-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	07-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	1	Gallon(GAL)	07-Sep-21
PB PENETRATING CATALYST	11	Ounces(OZ)	07-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PB PENETRATING CATALYST	11	Ounces(OZ)	07-Sep-21
PB PENETRATING CATALYST	11	Ounces(OZ)	07-Sep-21
PB PENETRATING CATALYST	11	Ounces(OZ)	07-Sep-21
PB PENETRATING CATALYST	11	Ounces(OZ)	07-Sep-21
Hexanes GR ACS	4	Liters(L)	07-Sep-21
808-0422 COLORTREND V MAGENTA	32	Ounces(OZ)	07-Sep-21
808-0422 COLORTREND V MAGENTA	32	Ounces(OZ)	07-Sep-21
808-0422 COLORTREND V MAGENTA	32	Ounces(OZ)	07-Sep-21
808-0422 COLORTREND V MAGENTA	32	Ounces(OZ)	07-Sep-21
808-0422 COLORTREND V MAGENTA	32	Ounces(OZ)	07-Sep-21
808-0422 COLORTREND V MAGENTA	32	Ounces(OZ)	07-Sep-21
AMMONIUM CHLORIDE	200	Gram(GM)	07-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	07-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	07-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	07-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	07-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	07-Sep-21
808-5511 COLORTREND D PHTHALO GREEN	32	Ounces(OZ)	07-Sep-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	07-Sep-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	07-Sep-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	07-Sep-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	07-Sep-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	07-Sep-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	07-Sep-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	07-Sep-21
Sodium hydroxide anhydrous free-flowing pellets Redi-Dri(TM) ACS reagent >/=97%	2.5	Kilograms(KG)	07-Sep-21
METHANOL ANHYDROUS	2	Liters(L)	07-Sep-21
TEM WEDGE POLISHER KIT	1	Gram(GM)	07-Sep-21
TEM WEDGE POLISHER KIT	1	Gram(GM)	07-Sep-21
TEM WEDGE POLISHER KIT	1	Gram(GM)	07-Sep-21
Cross Sectioning Tool Kit	1	Gram(GM)	07-Sep-21
Cross Sectioning Tool Kit	1	Gram(GM)	07-Sep-21
MINERAL OIL	1	Liters(L)	07-Sep-21
MINERAL OIL	1	Liters(L)	07-Sep-21
MINERAL OIL	1	Liters(L)	07-Sep-21
MINERAL OIL	1	Liters(L)	07-Sep-21
MINERAL OIL	1	Liters(L)	07-Sep-21
MINERAL OIL	1	Liters(L)	07-Sep-21
MINERAL OIL	1	Liters(L)	07-Sep-21
MINERAL OIL	1	Liters(L)	07-Sep-21
MINERAL OIL	1	Liters(L)	07-Sep-21
MINERAL OIL	1	Liters(L)	07-Sep-21
1 4-DIOXANE	1	Liters(L)	07-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
3M(TM) Scotch-Weld(TM) Structural Plastic Adhesive DP8010 Blue	1.52	Ounces(OZ)	07-Sep-21
3M(TM) Scotch-Weld(TM) Structural Plastic Adhesive DP8010 Blue	1.52	Ounces(OZ)	07-Sep-21
3M(TM) Scotch-Weld(TM) Structural Plastic Adhesive DP8010 Blue	1.52	Ounces(OZ)	07-Sep-21
3M(TM) Scotch-Weld(TM) Structural Plastic Adhesive DP8010 Blue	1.52	Ounces(OZ)	07-Sep-21
AERKROIL	10	Ounces(OZ)	07-Sep-21
AERKROIL	10	Ounces(OZ)	07-Sep-21
AERKROIL	10	Ounces(OZ)	07-Sep-21
AERKROIL	10	Ounces(OZ)	07-Sep-21
AERKROIL	10	Ounces(OZ)	07-Sep-21
AERKROIL	10	Ounces(OZ)	07-Sep-21
AERKROIL	10	Ounces(OZ)	07-Sep-21
AERKROIL	10	Ounces(OZ)	07-Sep-21
AERKROIL	10	Ounces(OZ)	07-Sep-21
AERKROIL	10	Ounces(OZ)	07-Sep-21
AERKROIL	10	Ounces(OZ)	07-Sep-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	08-Sep-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	08-Sep-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	08-Sep-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	08-Sep-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	08-Sep-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	08-Sep-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	08-Sep-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	08-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	08-Sep-21
PSX 700 SAFETY YELLOW 1979 RESIN	0.8	Ounces(OZ)	08-Sep-21
PSX 700 SAFETY YELLOW 1979 RESIN	0.8	Ounces(OZ)	08-Sep-21
PSX 700 SAFETY YELLOW 1979 RESIN	0.8	Ounces(OZ)	08-Sep-21
PSX 700 SAFETY YELLOW 1979 RESIN	0.8	Ounces(OZ)	08-Sep-21
Cote All M.F. (Safety) Red	128	Ounces(OZ)	08-Sep-21
Cote All M.F. (Safety) Red	128	Ounces(OZ)	08-Sep-21
Cote All M.F. (Safety) Red	128	Ounces(OZ)	08-Sep-21
Cote All M.F. (Safety) Red	128	Ounces(OZ)	08-Sep-21
Cote All Safety Blue	128	Ounces(OZ)	08-Sep-21
Cote All Safety Blue	128	Ounces(OZ)	08-Sep-21
Cote All Safety Blue	128	Ounces(OZ)	08-Sep-21
Cote All Safety Blue	128	Ounces(OZ)	08-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	08-Sep-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	08-Sep-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	08-Sep-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	08-Sep-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	08-Sep-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	08-Sep-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	08-Sep-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	08-Sep-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	08-Sep-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	08-Sep-21
KRYLON Industrial TOUGH COAT Acrylic Enamel Bright Red	12	Ounces(OZ)	08-Sep-21
PSX 700 NEUTRAL TINT RESIN	0.64	Ounces(OZ)	08-Sep-21
PSX 700 NEUTRAL TINT RESIN	0.64	Ounces(OZ)	08-Sep-21
PSX 700 NEUTRAL TINT RESIN	0.64	Ounces(OZ)	08-Sep-21
PSX 700 NEUTRAL TINT RESIN	0.64	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
SILICONE METAL	10.1	Ounces(OZ)	08-Sep-21
Permacryl Int Latex Satin W/B	5	Gallon(GAL)	08-Sep-21
Permacryl Int Latex Satin W/B	5	Gallon(GAL)	08-Sep-21
Permacryl Int Latex Satin W/B	5	Gallon(GAL)	08-Sep-21
Permacryl Int Latex Satin W/B	5	Gallon(GAL)	08-Sep-21
Permacryl Int Latex Satin W/B	5	Gallon(GAL)	08-Sep-21
Permacryl Int Latex Satin W/B	5	Gallon(GAL)	08-Sep-21
Fiber Optic Sensor Installation Kit (FOSAPPKIT)	1	Milliliter(ML)	08-Sep-21
TORR SEAL VACUUM HIGH VACUUM EPOXY	118	Gram(GM)	08-Sep-21
Nye Lubricants SMARTGEL OC-431A	3	Cubic Centimeter (CC)	08-Sep-21
Nye Lubricants SMARTGEL OC-431A	3	Cubic Centimeter (CC)	08-Sep-21
Epoxy Powder - Black Glass Filled Non-Stick Formula	5	Pounds(LB)	08-Sep-21
Epoxy Powder - Black Glass Filled Non-Stick Formula	5	Pounds(LB)	08-Sep-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	08-Sep-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	08-Sep-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	08-Sep-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	08-Sep-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	08-Sep-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	08-Sep-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	08-Sep-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	08-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	08-Sep-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	08-Sep-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	08-Sep-21
BLUE LUBE DIAMOND EXTEDER	32	Ounces(OZ)	08-Sep-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	08-Sep-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	08-Sep-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	08-Sep-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	08-Sep-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	08-Sep-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	08-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	08-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	08-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	08-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	08-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	08-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	08-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	08-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	08-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	08-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	08-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Blue Def	1	Gallon(GAL)	08-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Blue Def	1	Gallon(GAL)	08-Sep-21
Chemsafe Clear	5	Gallon(GAL)	08-Sep-21
Chemsafe Clear	5	Gallon(GAL)	08-Sep-21
Chemsafe Clear	5	Gallon(GAL)	08-Sep-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	08-Sep-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	08-Sep-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	08-Sep-21
Permacryl Int Latex Satin W/B	5	Gallon(GAL)	08-Sep-21
Permacryl Int Latex Satin W/B	5	Gallon(GAL)	08-Sep-21
Permacryl Int Latex Satin W/B	5	Gallon(GAL)	08-Sep-21
Permacryl Int Latex Satin W/B	5	Gallon(GAL)	08-Sep-21
URANIUM	0.7	Gram(GM)	08-Sep-21
URANIUM	0.7	Gram(GM)	08-Sep-21
LMM 6000 Black for Metal	12	Ounces(OZ)	08-Sep-21
LEAD(II) CHLORIDE	10	Gram(GM)	08-Sep-21
rust reformer	1	Gallon(GAL)	08-Sep-21
rust reformer	1	Gallon(GAL)	08-Sep-21
rust reformer	1	Gallon(GAL)	08-Sep-21
rust reformer	1	Gallon(GAL)	08-Sep-21
rust reformer	1	Gallon(GAL)	08-Sep-21
DENATURED ALCOHOL	1	Gallon(GAL)	08-Sep-21
DENATURED ALCOHOL	1	Gallon(GAL)	08-Sep-21
COLORTREND TITANIUM WHITE KX 888-0018	32	Ounces(OZ)	08-Sep-21
COLORTREND TITANIUM WHITE KX 888-0018	32	Ounces(OZ)	08-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
COLORTREND TITANIUM WHITE KX 888-0018	32	Ounces(OZ)	08-Sep-21
COLORTREND TITANIUM WHITE KX 888-0018	32	Ounces(OZ)	08-Sep-21
COLORTREND TITANIUM WHITE KX 888-0018	32	Ounces(OZ)	08-Sep-21
COLORTREND TITANIUM WHITE KX 888-0018	32	Ounces(OZ)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
COTE ALL DEEP BASE	1	Gallon(GAL)	08-Sep-21
Hilti HIT-HY 200-R	11.1	Ounces(OZ)	08-Sep-21
Hilti HIT-HY 200-R	11.1	Ounces(OZ)	08-Sep-21
Hilti HIT-HY 200-R	11.1	Ounces(OZ)	08-Sep-21
Hilti HIT-HY 200-R	11.1	Ounces(OZ)	08-Sep-21
PAINT THINNER 1500	1	Gallon(GAL)	08-Sep-21
PAINT THINNER 1500	1	Gallon(GAL)	08-Sep-21
PAINT THINNER 1500	1	Gallon(GAL)	08-Sep-21
PAINT THINNER 1500	1	Gallon(GAL)	08-Sep-21
PAINT THINNER 1500	1	Gallon(GAL)	08-Sep-21
PAINT THINNER 1500	1	Gallon(GAL)	08-Sep-21
PAINT THINNER 1500	1	Gallon(GAL)	08-Sep-21
PAINT THINNER 1500	1	Gallon(GAL)	08-Sep-21
PAINT THINNER 1500	1	Gallon(GAL)	08-Sep-21
PAINT THINNER 1500	1	Gallon(GAL)	08-Sep-21
PAINT THINNER 1500	1	Gallon(GAL)	08-Sep-21
PAINT THINNER 1500	1	Gallon(GAL)	08-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	08-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	08-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	08-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	08-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	08-Sep-21
Cote All Gloss Jet Black	128	Ounces(OZ)	08-Sep-21
Cote All Gloss Jet Black	128	Ounces(OZ)	08-Sep-21
Cote All Gloss Jet Black	128	Ounces(OZ)	08-Sep-21
Cote All Gloss Jet Black	128	Ounces(OZ)	08-Sep-21
Cote All Gloss Jet Black	128	Ounces(OZ)	08-Sep-21
Cote All Gloss Jet Black	128	Ounces(OZ)	08-Sep-21
Cote All Gloss Jet Black	128	Ounces(OZ)	08-Sep-21
Cote All Gloss Jet Black	128	Ounces(OZ)	08-Sep-21
Cote All Gloss Jet Black	128	Ounces(OZ)	08-Sep-21
Cote All Gloss Jet Black	128	Ounces(OZ)	08-Sep-21
Cote All Gloss Jet Black	128	Ounces(OZ)	08-Sep-21
Cote All Gloss Jet Black	128	Ounces(OZ)	08-Sep-21
Avalon Premium 100% Acrylic Interior Satin N/B	1	Gallon(GAL)	08-Sep-21
Avalon Premium 100% Acrylic Interior Satin N/B	1	Gallon(GAL)	08-Sep-21
Avalon Premium 100% Acrylic Interior Satin N/B	1	Gallon(GAL)	08-Sep-21
SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	08-Sep-21
SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	08-Sep-21
SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	08-Sep-21
ROTO OIL	5	Gallon(GAL)	08-Sep-21
ROTO OIL	5	Gallon(GAL)	08-Sep-21
ROTO OIL	5	Gallon(GAL)	08-Sep-21
ROTO OIL	5	Gallon(GAL)	08-Sep-21
Hilti HIT-HY-200-A	11	Ounces(OZ)	08-Sep-21
ChemSafe 500C	5	Gallon(GAL)	08-Sep-21
ChemSafe 500C	5	Gallon(GAL)	08-Sep-21
Hilti HIT-HY-200-A	11	Ounces(OZ)	08-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	08-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	08-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	08-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	08-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	08-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	08-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	08-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	08-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	08-Sep-21
HFC Free Invertible Air Duster	10	Ounces(OZ)	09-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HFC Free Invertible Air Duster	10	Ounces(OZ)	09-Sep-21
DIETHANOLAMINE (305)	2	Liters(L)	09-Sep-21
DIETHANOLAMINE (305)	2	Liters(L)	09-Sep-21
DEVCON 5-MINUTE EPOXY HARDENER	25	Milliliter(ML)	09-Sep-21
DEVCON 5-MINUTE EPOXY HARDENER	25	Milliliter(ML)	09-Sep-21
DEVCON 5-MINUTE EPOXY HARDENER	25	Milliliter(ML)	09-Sep-21
DEVCON 5-MINUTE EPOXY HARDENER	25	Milliliter(ML)	09-Sep-21
DEVCON 5-MINUTE EPOXY HARDENER	25	Milliliter(ML)	09-Sep-21
DEVCON 5-MINUTE EPOXY HARDENER	25	Milliliter(ML)	09-Sep-21
DEVCON 5-MINUTE EPOXY HARDENER	25	Milliliter(ML)	09-Sep-21
DEVCON 5-MINUTE EPOXY HARDENER	25	Milliliter(ML)	09-Sep-21
DEVCON 5-MINUTE EPOXY HARDENER	25	Milliliter(ML)	09-Sep-21
SILICONE GREASE	5	Gram(GM)	09-Sep-21
SILICONE GREASE	5	Gram(GM)	09-Sep-21
ISOOLEIC ACID	8	Gram(GM)	09-Sep-21
SILICONE GREASE	5	Gram(GM)	09-Sep-21
ISOOLEIC ACID	8	Gram(GM)	09-Sep-21
ISOOLEIC ACID	8	Gram(GM)	09-Sep-21
Butane-1 4-diammonium iodide	10	Gram(GM)	09-Sep-21
Butane-1 4-diammonium bromide	10	Gram(GM)	09-Sep-21
n-Octylammonium iodide	10	Gram(GM)	09-Sep-21
n-Propylammonium Iodide	5	Gram(GM)	09-Sep-21
Nitric acid red fuming	100	Milliliter(ML)	09-Sep-21
Nitric acid red fuming	100	Milliliter(ML)	09-Sep-21
BENZOPHENONE IMINE	5	Gram(GM)	09-Sep-21
TRIS(DIBENZYLIDENEACETONE)DIPALLADIUM(0)	5	Gram(GM)	09-Sep-21
IRON REAGENT	500	Milliliter(ML)	09-Sep-21
IRON REAGENT	500	Milliliter(ML)	09-Sep-21
MANGANESE POWDER	500	Milliliter(ML)	09-Sep-21
MANGANESE POWDER	500	Milliliter(ML)	09-Sep-21
CHROMAVER 3	500	Milliliter(ML)	09-Sep-21
CHROMAVER 3	500	Milliliter(ML)	09-Sep-21
CHROMAVER 3	500	Milliliter(ML)	09-Sep-21
CHROMAVER 3	500	Milliliter(ML)	09-Sep-21
N-Bromosuccinimide 99%	500	Gram(GM)	09-Sep-21
SILICA GEL 60 (70-230 MESH ASTM)	5	Kilograms(KG)	09-Sep-21
SILICA GEL 60 (70-230 MESH ASTM)	5	Kilograms(KG)	09-Sep-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	11-Sep-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	11-Sep-21
PWR-4 Flux Remover	1	Gallon(GAL)	12-Sep-21
PWR-4 Flux Remover	1	Gallon(GAL)	12-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ETHYL ALCOHOL	1	Gallon(GAL)	13-Sep-21
Valvoline NON-DETERGENT SAE 30 MOTOR OIL	1	Quarts(QT)	13-Sep-21
Valvoline NON-DETERGENT SAE 30 MOTOR OIL	1	Quarts(QT)	13-Sep-21
Valvoline NON-DETERGENT SAE 30 MOTOR OIL	1	Quarts(QT)	13-Sep-21
Valvoline NON-DETERGENT SAE 30 MOTOR OIL	1	Quarts(QT)	13-Sep-21
Valvoline NON-DETERGENT SAE 30 MOTOR OIL	1	Quarts(QT)	13-Sep-21
Valvoline NON-DETERGENT SAE 30 MOTOR OIL	1	Quarts(QT)	13-Sep-21
Valvoline NON-DETERGENT SAE 30 MOTOR OIL	1	Quarts(QT)	13-Sep-21
Valvoline NON-DETERGENT SAE 30 MOTOR OIL	1	Quarts(QT)	13-Sep-21
Valvoline NON-DETERGENT SAE 30 MOTOR OIL	1	Quarts(QT)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	13-Sep-21
Zerex DEX-COOL Orange OAT Formula RTU Antifreeze Coolant	1	Gallon(GAL)	13-Sep-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	13-Sep-21
PERMACRYL INTERIOR FLAT WHITE BASE	608	Ounces(OZ)	13-Sep-21
PERMACRYL INTERIOR FLAT WHITE BASE	608	Ounces(OZ)	13-Sep-21
PERMACRYL INTERIOR FLAT WHITE BASE	608	Ounces(OZ)	13-Sep-21
PERMACRYL INTERIOR FLAT WHITE BASE	608	Ounces(OZ)	13-Sep-21
PERMACRYL INTERIOR FLAT WHITE BASE	608	Ounces(OZ)	13-Sep-21
PERMACRYL INTERIOR FLAT WHITE BASE	608	Ounces(OZ)	13-Sep-21
PERMACRYL INTERIOR FLAT WHITE BASE	608	Ounces(OZ)	13-Sep-21
PERMACRYL INTERIOR FLAT WHITE BASE	608	Ounces(OZ)	13-Sep-21
PERMACRYL INTERIOR FLAT WHITE BASE	608	Ounces(OZ)	13-Sep-21
PERMACRYL INTERIOR FLAT WHITE BASE	608	Ounces(OZ)	13-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	13-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	13-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	13-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	13-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	13-Sep-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	13-Sep-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	13-Sep-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	13-Sep-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	13-Sep-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	13-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	13-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	13-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	13-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	13-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	13-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	13-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	13-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	13-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	13-Sep-21
40% HYDROGEN/BAL. NITROGEN	40	Cubic Feet(CF)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	14-Sep-21
DIVERSEY FLOOR SEALER/FINISH	5	Gallon(GAL)	14-Sep-21
DIVERSEY FLOOR SEALER/FINISH	5	Gallon(GAL)	14-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	14-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	14-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	14-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	14-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	14-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	14-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	14-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	14-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	14-Sep-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	14-Sep-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	14-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	14-Sep-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	14-Sep-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	14-Sep-21
PORCH AND FLOOR COATING ANTI SKID	1	Gallon(GAL)	14-Sep-21
PORCH AND FLOOR COATING ANTI SKID	1	Gallon(GAL)	14-Sep-21
PORCH AND FLOOR COATING ANTI SKID	1	Gallon(GAL)	14-Sep-21
PORCH AND FLOOR COATING ANTI SKID	1	Gallon(GAL)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	14-Sep-21
Chemsafe Clear	5	Gallon(GAL)	14-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	14-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	14-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	14-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	14-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	14-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	14-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	14-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	14-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	14-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	14-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	14-Sep-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	14-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	14-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	14-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	14-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	14-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	14-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	14-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	14-Sep-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	14-Sep-21
Cote All J.D. (Safety) Yellow AZ-3433	1	Gallon(GAL)	14-Sep-21
Cote All J.D. (Safety) Yellow AZ-3433	1	Gallon(GAL)	14-Sep-21
3M FIRE BARRIER EXPANTROL(TM) SEAL	12.8	Ounces(OZ)	14-Sep-21
3M FIRE BARRIER EXPANTROL(TM) SEAL	12.8	Ounces(OZ)	14-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Sep-21
Sulfer Hexafluoride	220	Cubic Feet(CF)	15-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	15-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CARBON DIOXIDE	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	15-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	15-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	15-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	15-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	15-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	15-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	15-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	15-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	15-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	15-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	15-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	15-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	15-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	15-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	15-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	15-Sep-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	15-Sep-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	15-Sep-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	15-Sep-21
PermAcryl Interior Latex Satin Enamel DS-1531	5	Gallon(GAL)	15-Sep-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	15-Sep-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	15-Sep-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	15-Sep-21
Henry 430 ClearPro Clear VCT Floor Adhesive	4	Gallon(GAL)	15-Sep-21
Henry 430 ClearPro Clear VCT Floor Adhesive	4	Gallon(GAL)	15-Sep-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	15-Sep-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	15-Sep-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	15-Sep-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	15-Sep-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	15-Sep-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	15-Sep-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	15-Sep-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	15-Sep-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	15-Sep-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	15-Sep-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	15-Sep-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	15-Sep-21
GE Silicone II Window and Door Sealant	10.1	Ounces(OZ)	15-Sep-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	15-Sep-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	15-Sep-21
SULLUBE COMPRESSOR FLUID	5	Gallon(GAL)	15-Sep-21
XIM PRIMER 400 CLEAR	12	Ounces(OZ)	15-Sep-21
XIM PRIMER 400 CLEAR	12	Ounces(OZ)	15-Sep-21
XIM PRIMER 400 CLEAR	12	Ounces(OZ)	15-Sep-21
XIM PRIMER 400 CLEAR	12	Ounces(OZ)	15-Sep-21
XIM PRIMER 400 CLEAR	12	Ounces(OZ)	15-Sep-21
XIM PRIMER 400 CLEAR	12	Ounces(OZ)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
FS-One Max	10.1	Milliliter(ML)	15-Sep-21
BRITE TOUCH General Purpose Paint Gloss White BT40	10	Ounces(OZ)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BRITE TOUCH General Purpose Paint Gloss White BT40	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Paint Gloss White BT40	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Paint Gloss White BT40	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Paint Gloss White BT40	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Paint Gloss White BT40	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	15-Sep-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	15-Sep-21
CAT HYDO ADVANCED 10	5	Gallon(GAL)	15-Sep-21
CAT HYDO ADVANCED 10	5	Gallon(GAL)	15-Sep-21
CAT HYDO ADVANCED 10	5	Gallon(GAL)	15-Sep-21
CAT HYDO ADVANCED 10	5	Gallon(GAL)	15-Sep-21
John Deere Hy-Gard Transmission/Hydraulic Oil	5	Gallon(GAL)	15-Sep-21
John Deere Hy-Gard Transmission/Hydraulic Oil	5	Gallon(GAL)	15-Sep-21
John Deere Hy-Gard Transmission/Hydraulic Oil	5	Gallon(GAL)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
John Deere Hy-Gard Transmission/Hydraulic Oil	5	Gallon(GAL)	15-Sep-21
O Reilly AW hydraulic oils all grades

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PRESTONE RV ANTIFREEZE	1	Gallon(GAL)	15-Sep-21
PRESTONE RV ANTIFREEZE	1	Gallon(GAL)	15-Sep-21
PRESTONE RV ANTIFREEZE	1	Gallon(GAL)	15-Sep-21
PRESTONE RV ANTIFREEZE	1	Gallon(GAL)	15-Sep-21
PRESTONE RV ANTIFREEZE	1	Gallon(GAL)	15-Sep-21
PRESTONE RV ANTIFREEZE	1	Gallon(GAL)	15-Sep-21
PRESTONE RV ANTIFREEZE	1	Gallon(GAL)	15-Sep-21
PRESTONE RV ANTIFREEZE	1	Gallon(GAL)	15-Sep-21
PRESTONE RV ANTIFREEZE	1	Gallon(GAL)	15-Sep-21
PRESTONE RV ANTIFREEZE	1	Gallon(GAL)	15-Sep-21
PRESTONE RV ANTIFREEZE	1	Gallon(GAL)	15-Sep-21
PRESTONE RV ANTIFREEZE	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Prime Guard -50 RV & Marine Antifreeze	1	Gallon(GAL)	15-Sep-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	15-Sep-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	15-Sep-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	15-Sep-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	15-Sep-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	15-Sep-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	15-Sep-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	15-Sep-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	15-Sep-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	15-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Sep-21
Compressed Air	220	Cubic Feet(CF)	15-Sep-21
Compressed Air	220	Cubic Feet(CF)	15-Sep-21
Compressed Air	220	Cubic Feet(CF)	15-Sep-21
Compressed Air	20	Cubic Feet(CF)	15-Sep-21
Compressed Air	20	Cubic Feet(CF)	15-Sep-21
Compressed Air	20	Cubic Feet(CF)	15-Sep-21
Compressed Air	20	Cubic Feet(CF)	15-Sep-21
Compressed Air	20	Cubic Feet(CF)	15-Sep-21
Compressed Air	20	Cubic Feet(CF)	15-Sep-21
Compressed Air	20	Cubic Feet(CF)	15-Sep-21
NITROUS OXIDE	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
ARGON GAS	220	Cubic Feet(CF)	15-Sep-21
Hydrogen 5%/Nitrogen 10%/Balance Carbon Dioxide	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Sep-21
Orange Peel Formula / Knock Down Formula	20	Ounces(OZ)	15-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Orange Peel Formula / Knock Down Formula	20	Ounces(OZ)	15-Sep-21
Orange Peel Formula / Knock Down Formula	20	Ounces(OZ)	15-Sep-21
Orange Peel Formula / Knock Down Formula	20	Ounces(OZ)	15-Sep-21
Orange Peel Formula / Knock Down Formula	20	Ounces(OZ)	15-Sep-21
Orange Peel Formula / Knock Down Formula	20	Ounces(OZ)	15-Sep-21
Orange Peel Formula / Knock Down Formula	20	Ounces(OZ)	15-Sep-21
Orange Peel Formula / Knock Down Formula	20	Ounces(OZ)	15-Sep-21
Orange Peel Formula / Knock Down Formula	20	Ounces(OZ)	15-Sep-21
Orange Peel Formula / Knock Down Formula	20	Ounces(OZ)	15-Sep-21
Orange Peel Formula / Knock Down Formula	20	Ounces(OZ)	15-Sep-21
Orange Peel Formula / Knock Down Formula	20	Ounces(OZ)	15-Sep-21
SYNTHETIC COMPRESSOR OIL 1200	24	Ounces(OZ)	15-Sep-21
SeaPrep Agarose	25	Gram(GM)	16-Sep-21
METHYL VIOLOGEN HYDRATE	1	Gram(GM)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
ORANGE PEEL SPRAY ON TEXTURE WATER BASED	20	Ounces(OZ)	16-Sep-21
TETRAETHYL ORTHOSILICATE	1	Liters(L)	16-Sep-21
METHANOL	4	Liters(L)	16-Sep-21
METHANOL	4	Liters(L)	16-Sep-21
METHANOL	4	Liters(L)	16-Sep-21
METHANOL	4	Liters(L)	16-Sep-21
70% denatured ethanol solution	1	Gallon(GAL)	16-Sep-21
70% denatured ethanol solution	1	Gallon(GAL)	16-Sep-21
ISOPROPYL ALCOHOL	4	Liters(L)	16-Sep-21
ISOPROPYL ALCOHOL	4	Liters(L)	16-Sep-21
ISOPROPYL ALCOHOL	4	Liters(L)	16-Sep-21
ISOPROPYL ALCOHOL	4	Liters(L)	16-Sep-21
ISOPROPYL ALCOHOL	4	Liters(L)	16-Sep-21
ISOPROPYL ALCOHOL	4	Liters(L)	16-Sep-21
ISOPROPYL ALCOHOL	4	Liters(L)	16-Sep-21
ISOPROPYL ALCOHOL	4	Liters(L)	16-Sep-21
3M Fluorinert Electronic Liquid FC-770	44	Pounds(LB)	16-Sep-21
3M Fluorinert Electronic Liquid FC-770	44	Pounds(LB)	16-Sep-21
3M Fluorinert Electronic Liquid FC-770	44	Pounds(LB)	16-Sep-21
3M Fluorinert Electronic Liquid FC-770	44	Pounds(LB)	16-Sep-21
3M Fluorinert Electronic Liquid FC-770	44	Pounds(LB)	16-Sep-21
METHYL ETHYL KETONE	4	Liters(L)	16-Sep-21
METHYL ETHYL KETONE	4	Liters(L)	16-Sep-21
METHYL ETHYL KETONE	4	Liters(L)	16-Sep-21
METHYL ETHYL KETONE	4	Liters(L)	16-Sep-21
METHYL ETHYL KETONE	4	Liters(L)	16-Sep-21
METHYL ETHYL KETONE	4	Liters(L)	16-Sep-21
METHYL ETHYL KETONE	4	Liters(L)	16-Sep-21
METHYL ETHYL KETONE	4	Liters(L)	16-Sep-21
METHYL ETHYL KETONE	4	Liters(L)	16-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
METHYL ETHYL KETONE	4	Liters(L)	16-Sep-21
METHYL ETHYL KETONE	4	Liters(L)	16-Sep-21
METHYL ETHYL KETONE	4	Liters(L)	16-Sep-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	16-Sep-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	16-Sep-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	16-Sep-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	16-Sep-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	16-Sep-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
Molybdenum powder -250 mesh	250	Gram(GM)	16-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	16-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Sep-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	16-Sep-21
PROPANE	11	Gallon(GAL)	16-Sep-21
PROPANE	11	Gallon(GAL)	16-Sep-21
PROPANE	11	Gallon(GAL)	16-Sep-21
Argon/Nitrogen	200	Cubic Feet(CF)	16-Sep-21
CARBON DIOXIDE	200	Cubic Feet(CF)	16-Sep-21
CARBON DIOXIDE	200	Cubic Feet(CF)	16-Sep-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	16-Sep-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	16-Sep-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	16-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	16-Sep-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	16-Sep-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	16-Sep-21
INDUSTRIAL CHOICE SPRAY ENAMEL	12	Ounces(OZ)	16-Sep-21
INDUSTRIAL CHOICE SPRAY ENAMEL	12	Ounces(OZ)	16-Sep-21
INDUSTRIAL CHOICE SPRAY ENAMEL	12	Ounces(OZ)	16-Sep-21
INDUSTRIAL CHOICE SPRAY ENAMEL	12	Ounces(OZ)	16-Sep-21
INDUSTRIAL CHOICE SPRAY ENAMEL	12	Ounces(OZ)	16-Sep-21
INDUSTRIAL CHOICE SPRAY ENAMEL	12	Ounces(OZ)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
DENATURED ALCOHOL	1	Quarts(QT)	16-Sep-21
DENATURED ALCOHOL	1	Quarts(QT)	16-Sep-21
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21
RACEMIC-2 2'-BIS(DIPHENYLPHOSPHINO)-1 1'-BINAPHTHYL	5	Gram(GM)	16-Sep-21
WEST R-630	55	Gallon(GAL)	16-Sep-21
Praseodymium (III) chloride heptahydrate	25	Gram(GM)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
Neodymium(III) chloride anhydrous (99.9% Nd) (REO)	10	Gram(GM)	16-Sep-21
NEODYMIUM(III) CHLORIDE HEXAHYDRATE (99.9% Nd) (REO)	250	Gram(GM)	16-Sep-21
HELIUM GAS	20	Cubic Feet(CF)	16-Sep-21
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	16-Sep-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	250	Liters(L)	16-Sep-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	500	Liters(L)	16-Sep-21
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21
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Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21
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BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21
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BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BROMICIDE TABLETS	22.68	Kilograms(KG)	16-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
WEST C-358	55	Gallon(GAL)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
WEST C-358	55	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
COMPRESSOR LUBRICANT	3.96	Gallon(GAL)	16-Sep-21
SODIUM METASILICATE PENTAHYDRATE	500	Gram(GM)	16-Sep-21
GADOLINIUM(III) NITRATE HEXAHYDRATE	25	Gram(GM)	16-Sep-21
DIBENZOYLMETHANE (1 3-DIPHENYL-1 3-PROPANEDIONE)	25	Gram(GM)	16-Sep-21
N-METHYL-N-(TRIMETHYLSILYL) TRIFLUOROACETAMIDE	1	Milliliter(ML)	16-Sep-21
N-METHYL-N-(TRIMETHYLSILYL) TRIFLUOROACETAMIDE	1	Milliliter(ML)	16-Sep-21
N-METHYL-N-(TRIMETHYLSILYL) TRIFLUOROACETAMIDE	1	Milliliter(ML)	16-Sep-21
SILICONE POLYMER PLY-7601	1	Pint(PT)	16-Sep-21
MANGANESE(II) CHLORIDE	1	Pint(PT)	17-Sep-21
POLYETHYLENIMINE ON SILICA GEL POWDER 40-200 MESH	10	Milliliter(ML)	17-Sep-21
POLYETHYLENIMINE ON SILICA GEL POWDER 40-200 MESH	10	Milliliter(ML)	17-Sep-21
POLYETHYLENIMINE ON SILICA GEL POWDER 40-200 MESH	10	Milliliter(ML)	17-Sep-21
POLYETHYLENIMINE ON SILICA GEL POWDER 40-200 MESH	10	Milliliter(ML)	17-Sep-21
2-Aminomethyl-15-crown-5	1	Gram(GM)	17-Sep-21
ETHYLENEDIAMINE TETRACETIC ACID FERRIC-SODIUM SALT	100	Gram(GM)	17-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ZINC DUST <10MICRON	1	Kilograms(KG)	17-Sep-21
TETRAMETHYLAMMONIUM CHLORIDE	1	Gram(GM)	17-Sep-21
TETRAMETHYLAMMONIUM CHLORIDE	1	Gram(GM)	17-Sep-21
SILICONE POLYMER PLY-7601	1	Pint(PT)	17-Sep-21
SILICONE POLYMER PLY-7601	1	Pint(PT)	17-Sep-21
SILICONE POLYMER PLY-7608	1	Pint(PT)	17-Sep-21
HIT-RE 500 V3	330	Milliliter(ML)	17-Sep-21
HIT-RE 500 V3	330	Milliliter(ML)	17-Sep-21
HIT-RE 500 V3	330	Milliliter(ML)	17-Sep-21
HIT-RE 500 V3	330	Milliliter(ML)	17-Sep-21
HIT-RE 500 V3	330	Milliliter(ML)	17-Sep-21
HIT-RE 500 V3	330	Milliliter(ML)	17-Sep-21
WHITE LITHIUM GREASE AEROSOL	10	Ounces(OZ)	17-Sep-21
WHITE LITHIUM GREASE AEROSOL	10	Ounces(OZ)	17-Sep-21
WHITE LITHIUM GREASE AEROSOL	10	Ounces(OZ)	17-Sep-21
WHITE LITHIUM GREASE AEROSOL	10	Ounces(OZ)	17-Sep-21
WHITE LITHIUM GREASE AEROSOL	10	Ounces(OZ)	17-Sep-21
WHITE LITHIUM GREASE AEROSOL	10	Ounces(OZ)	17-Sep-21
WHITE LITHIUM GREASE AEROSOL	10	Ounces(OZ)	17-Sep-21
WHITE LITHIUM GREASE AEROSOL	10	Ounces(OZ)	17-Sep-21
WHITE LITHIUM GREASE AEROSOL	10	Ounces(OZ)	17-Sep-21
WHITE LITHIUM GREASE AEROSOL	10	Ounces(OZ)	17-Sep-21
WHITE LITHIUM GREASE AEROSOL	10	Ounces(OZ)	17-Sep-21
WHITE LITHIUM GREASE AEROSOL	10	Ounces(OZ)	17-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Sep-21
FANTASTIK ALL PURPOSE CLEANER	35	Ounces(OZ)	17-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	17-Sep-21
ETHYLAMINE ANHYDROUS	100	Gram(GM)	17-Sep-21
2-PHENOXYETHANOL	1	Liters(L)	17-Sep-21
CHLOROFORM	4	Liters(L)	17-Sep-21
CHLOROFORM	4	Liters(L)	17-Sep-21
CHLOROFORM	4	Liters(L)	17-Sep-21
CHLOROFORM	4	Liters(L)	17-Sep-21
Kraton G Polymers (SEBS and SEBS OE)	32	Pounds(LB)	17-Sep-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	17-Sep-21
MicroC 2000	2700	Pounds(LB)	17-Sep-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	17-Sep-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	17-Sep-21
MicroC 2000	2700	Pounds(LB)	17-Sep-21
MicroC 2000	2700	Pounds(LB)	17-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	17-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Hydrochloric Acid 30-31%	3000	Pounds(LB)	17-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	17-Sep-21
FERRIC CHLORIDE 40% SOLUTION	3500	Pounds(LB)	17-Sep-21
SODIUM CHLORIDE	50	Pounds(LB)	17-Sep-21
SODIUM CHLORIDE	50	Pounds(LB)	17-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	17-Sep-21
METHYLAMINE 2.0M IN THF	1000	Milliliter(ML)	17-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	17-Sep-21
Hydrochloric Acid 30-31%	3000	Pounds(LB)	17-Sep-21
FERRIC CHLORIDE 40% SOLUTION	3500	Pounds(LB)	17-Sep-21
ETHYL ALCOHOL-200 PROOF	4	Gallon(GAL

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ETHYL ALCOHOL-200 PROOF	4	Gallon(GAL)	17-Sep-21
NALCO 7408 CHLORINE SCAVENGER SOLUTION	55	Gallon(GAL)	17-Sep-21
NALCO 8735	639	Pounds(LB)	17-Sep-21
TRI-ACT 1820 SOLUTION	450	Pounds(LB)	17-Sep-21
NALCO 1720 OXYGEN SCAVENGER SOLUTION	528	Pounds(LB)	17-Sep-21
CAUSTIC SODA SOLUTION (50%)	1	Pounds(LB)	17-Sep-21
Nexguard 22350	551	Pounds(LB)	17-Sep-21
Nexguard 22350	551	Pounds(LB)	17-Sep-21
Nexguard 22350	551	Pounds(LB)	17-Sep-21
Nexguard 22350	551	Pounds(LB)	17-Sep-21
Nexguard 22350	551	Pounds(LB)	17-Sep-21
Nexguard 22350	551	Pounds(LB)	17-Sep-21
CONATHANE EN-4 PART A URETHANE PREPOLYMER	5	Gallon(GAL)	20-Sep-21
CONATHANE EN-4 PART A URETHANE PREPOLYMER	5	Gallon(GAL)	20-Sep-21
CONATHANE EN-4 PART A URETHANE PREPOLYMER	5	Gallon(GAL)	20-Sep-21
CONATHANE EN-4 PART A URETHANE PREPOLYMER	5	Gallon(GAL)	20-Sep-21
CONATHANE EN-4 PART A URETHANE PREPOLYMER	5	Gallon(GAL)	20-Sep-21
CONATHANE EN-7 PART B CURATIVE	5	Liters(L)	20-Sep-21
CONATHANE EN-7 PART B CURATIVE	5	Liters(L)	20-Sep-21
CONATHANE EN-7 PART B CURATIVE	5	Liters(L)	20-Sep-21
CONATHANE EN-7 PART B CURATIVE	5	Liters(L)	20-Sep-21
CONATHANE EN-7 PART B CURATIVE	5	Liters(L)	20-Sep-21
1250 White Ink	5	Ounces(OZ)	20-Sep-21
1250 White Ink	5	Ounces(OZ)	20-Sep-21
1250 White Ink	5	Ounces(OZ)	20-Sep-21
1250 White Ink	5	Ounces(OZ)	20-Sep-21
1250 White Ink	5	Ounces(OZ)	20-Sep-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	220	Cubic Feet(CF)	20-Sep-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	220	Cubic Feet(CF)	20-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	20-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	20-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	20-Sep-21
PC Flex Mask	6	Ounces(OZ)	20-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PC Flex Mask	6	Ounces(OZ)	20-Sep-21
PC Flex Mask	6	Ounces(OZ)	20-Sep-21
PC Flex Mask	6	Ounces(OZ)	20-Sep-21
PC Flex Mask	6	Ounces(OZ)	20-Sep-21
PC Flex Mask	6	Ounces(OZ)	20-Sep-21
Cote All Midtone Base	120.3	Ounces(OZ)	20-Sep-21
Cote All Midtone Base	120.3	Ounces(OZ)	20-Sep-21
Cote All Hwy (Safety) Orange	128	Ounces(OZ)	20-Sep-21
COTE ALL DEEP BASE	118	Ounces(OZ)	20-Sep-21
FLOR-COTE	128	Ounces(OZ)	20-Sep-21
Cote All Universal White Primer L/F R/I	1	Gallon(GAL)	20-Sep-21
XIM Primer White 400	3.61	Liters(L)	20-Sep-21
EPOXY RESIN	1	Ounces(OZ)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	20-Sep-21
ISOPROPYL ALCOHOL 99% 4L	1	Quarts(QT)	20-Sep-21
ISOPROPYL ALCOHOL 99% 4L	1	Quarts(QT)	20-Sep-21
ISOPROPYL ALCOHOL 99% 4L	1	Quarts(QT)	20-Sep-21
ISOPROPYL ALCOHOL 99% 4L	1	Quarts(QT)	20-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	20-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	20-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	20-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	20-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	20-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	20-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	20-Sep-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	20-Sep-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	20-Sep-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	20-Sep-21
CHERRY RED DIAMOND SPRAY PAINT#DS550-013	12	Ounces(OZ)	21-Sep-21
CHERRY RED DIAMOND SPRAY PAINT#DS550-013	12	Ounces(OZ)	21-Sep-21
CHERRY RED DIAMOND SPRAY PAINT#DS550-013	12	Ounces(OZ)	21-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CHERRY RED DIAMOND SPRAY PAINT#DS550-013	12	Ounces(OZ)	21-Sep-21
CHERRY RED DIAMOND SPRAY PAINT#DS550-013	12	Ounces(OZ)	21-Sep-21
CHERRY RED DIAMOND SPRAY PAINT#DS550-013	12	Ounces(OZ)	21-Sep-21
Diamond Spray Paint - Flat Black	12	Ounces(OZ)	21-Sep-21
Diamond Spray Paint - Flat Black	12	Ounces(OZ)	21-Sep-21
Diamond Spray Paint - Flat Black	12	Ounces(OZ)	21-Sep-21
Diamond Spray Paint - Flat Black	12	Ounces(OZ)	21-Sep-21
Diamond Spray Paint - Flat Black	12	Ounces(OZ)	21-Sep-21
Diamond Spray Paint - Flat Black	12	Ounces(OZ)	21-Sep-21
STARTEX PAINT THINNER	2.5	Gallon(GAL)	21-Sep-21
STARTEX PAINT THINNER	2.5	Gallon(GAL)	21-Sep-21
Satinamel W/B	123	Ounces(OZ)	21-Sep-21
Avalon Premium 100% Acrylic Interior Flat W/B	608	Ounces(OZ)	21-Sep-21
WEST R-630 SULFITE	55	Gallon(GAL)	21-Sep-21
WEST R-630 SULFITE	55	Gallon(GAL)	21-Sep-21
WEST R-630 SULFITE	55	Gallon(GAL)	21-Sep-21
N-BUTYLLITHIUM (2.5 M SOLUTION IN HEXANES)	100	Milliliter(ML)	21-Sep-21
N-BUTYLLITHIUM (2.5 M SOLUTION IN HEXANES)	100	Milliliter(ML)	21-Sep-21
N-BUTYLLITHIUM (2.5 M SOLUTION IN HEXANES)	100	Milliliter(ML)	21-Sep-21
N-BUTYLLITHIUM (2.5 M SOLUTION IN HEXANES)	100	Milliliter(ML)	21-Sep-21
TETRAETHYLAMMONIUM TETRACHLOROCOBALTATE (II)	1	Gram(GM)	21-Sep-21
TETRAETHYLAMMONIUM TETRACHLOROCOBALTATE (II)	1	Gram(GM)	21-Sep-21
L-ASCORBIC ACID	100	Gram(GM)	21-Sep-21
L-ASCORBIC ACID	100	Gram(GM)	21-Sep-21
L-ASCORBIC ACID	100	Gram(GM)	21-Sep-21
L-ASCORBIC ACID	100	Gram(GM)	21-Sep-21
L-ASCORBIC ACID	100	Gram(GM)	21-Sep-21
L-ASCORBIC ACID	100	Gram(GM)	21-Sep-21
2-METHYLIMIDAZOLE	500	Gram(GM)	21-Sep-21
IRON POWDER	1	Kilograms(KG)	21-Sep-21
Water Soluble Dispensable Solder Paste	10	Cubic Centimeter (CC)	21-Sep-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	21-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	21-Sep-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	21-Sep-21
WEST R-630	55	Gallon(GAL)	21-Sep-21
WEST R-630	55	Gallon(GAL)	21-Sep-21
WEST R-630	55	Gallon(GAL)	21-Sep-21
WEST R-630	55	Gallon(GAL)	21-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	608	Ounces(OZ)	21-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	608	Ounces(OZ)	21-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	608	Ounces(OZ)	21-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	608	Ounces(OZ)	21-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	608	Ounces(OZ)	21-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	608	Ounces(OZ)	21-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	608	Ounces(OZ)	21-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	608	Ounces(OZ)	21-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	608	Ounces(OZ)	21-Sep-21
Support SUP706 B	3.6	Kilograms(KG)	21-Sep-21
PermAcryl Interior Latex Satin Enamel DS-1531	608	Ounces(OZ)	21-Sep-21
SUNNYSIDE LACQUER THINNER	1	Gallon(GAL)	21-Sep-21
Support SUP706 B	3.6	Kilograms(KG)	21-Sep-21
Support SUP706 B	3.6	Kilograms(KG)	21-Sep-21
Support SUP706 B	3.6	Kilograms(KG)	21-Sep-21
PermAcryl Interior Latex Satin Enamel DS-1531	608	Ounces(OZ)	21-Sep-21
SUNNYSIDE LACQUER THINNER	1	Gallon(GAL)	21-Sep-21
SUNNYSIDE LACQUER THINNER	1	Gallon(GAL)	21-Sep-21
SUNNYSIDE LACQUER THINNER	1	Gallon(GAL)	21-Sep-21
SUNNYSIDE LACQUER THINNER	1	Gallon(GAL)	21-Sep-21
SUNNYSIDE LACQUER THINNER	1	Gallon(GAL)	21-Sep-21
OBJET VEROBLUE RGD840	3.6	Kilograms(KG)	21-Sep-21
SUNNYSIDE LACQUER THINNER	5	Gallon(GAL)	21-Sep-21
OBJET VEROBLUE RGD840	3.6	Kilograms(KG)	21-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SUNNYSIDE LACQUER THINNER	5	Gallon(GAL)	21-Sep-21
SUNNYSIDE LACQUER THINNER	5	Gallon(GAL)	21-Sep-21
SUNNYSIDE LACQUER THINNER	5	Gallon(GAL)	21-Sep-21
SUNNYSIDE LACQUER THINNER	5	Gallon(GAL)	21-Sep-21
SUNNYSIDE LACQUER THINNER	5	Gallon(GAL)	21-Sep-21
GENERAL POLYMERS 3746 High Performance Epoxy (Part B) Hardener	5	Gallon(GAL)	21-Sep-21
Durango Exterior Acrylic Latex Flat Mid-Tone Base	602	Ounces(OZ)	21-Sep-21
Resuflor 3746 High Performance Epoxy (Part B) Hardener	1	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
Resuflor 3746 High Performance Epoxy (Part B) Hardener	1	Gallon(GAL)	21-Sep-21
Resuflor 3746 High Performance Epoxy (Part B) Hardener	1	Gallon(GAL)	21-Sep-21
Resuflor 3746 High Performance Epoxy (Part B) Hardener	1	Gallon(GAL)	21-Sep-21
Resuflor 3746 High Performance Epoxy (Part B) Hardener	1	Gallon(GAL)	21-Sep-21
Resuflor 3746 High Performance Epoxy (Part B) Hardener	1	Gallon(GAL)	21-Sep-21
Resuflor 3746 High Performance Epoxy (Part B) Hardener	1	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.83	Gallon(GAL)	21-Sep-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	21-Sep-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	21-Sep-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	21-Sep-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	21-Sep-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	21-Sep-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	21-Sep-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	21-Sep-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	21-Sep-21
TANGOBLACK PLUS FLX980	3.6	Kilograms(KG)	21-Sep-21
VEROWHITEPLUS RGD835	3.6	Kilograms(KG)	21-Sep-21
OP-S NonDry	5	Liters(L)	21-Sep-21
OP-S NonDry	5	Liters(L)	21-Sep-21
OP-S NonDry	5	Liters(L)	21-Sep-21
OP-S NonDry	5	Liters(L)	21-Sep-21
ACETONE	1	Gallon(GAL)	21-Sep-21
ACETONE	1	Gallon(GAL)	21-Sep-21
ACETONE	1	Gallon(GAL)	21-Sep-21
ACETONE	1	Gallon(GAL)	21-Sep-21
BLASOCUT 2000 Universal	5	Gallon(GAL)	21-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
MOLYKOTE High Vacuum Grease	5.3	Ounces(OZ)	21-Sep-21
MOLYKOTE High Vacuum Grease	5.3	Ounces(OZ)	21-Sep-21
MOLYKOTE High Vacuum Grease	5.3	Ounces(OZ)	21-Sep-21
MOLYKOTE High Vacuum Grease	5.3	Ounces(OZ)	21-Sep-21
MOLYKOTE High Vacuum Grease	5.3	Ounces(OZ)	21-Sep-21
AMMONIUM NITRATE	1	Kilograms(KG)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
HH-66 VINYL CEMENT	1	Quarts(QT)	21-Sep-21
Ethylenediaminetetraacetic acid ferric sodium salt trihydrate	250	Gram(GM)	21-Sep-21
SILICON (IV) OXIDE 99.9	100	Gram(GM)	21-Sep-21
1-NAPHTHYLAMINE	25	Gram(GM)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Henkel Loctite Hysol EA 9394 AERO Epoxy Adhesive Gray	50	Milliliter(ML)	21-Sep-21
Lithium perchlorate 99.99% trace metals basis	50	Gram(GM)	21-Sep-21
2-PYRIDINECARBOXALDEHYDE	25	Gram(GM)	21-Sep-21
N N-DIMETHYLFORMAMIDE	2	Liters(L)	21-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	21-Sep-21
ARDEX FEATHER FINISH	10	Pounds(LB)	21-Sep-21
Ardex P 51	1	Gallon(GAL)	21-Sep-21
Ardex P 51	1	Gallon(GAL)	21-Sep-21
Bromobenzene 99.5%	100	Milliliter(ML)	21-Sep-21
2-Propanol anhydrous 99+%	100	Milliliter(ML)	21-Sep-21
NON-SHRINK GROUT	50	Pounds(LB)	21-Sep-21
Krytox LVP grease	2	Ounces(OZ)	21-Sep-21
Krytox LVP grease	2	Ounces(OZ)	21-Sep-21
(S)-(-)-1 1'-BI-2-NAPHTHOL	25	Gram(GM)	21-Sep-21
Finium DTM-AT S/G Acrylic N/B	121.6	Ounces(OZ)	21-Sep-21
Finium DTM-AT S/G Acrylic N/B	121.6	Ounces(OZ)	21-Sep-21
METHYL PARABEN	500	Gram(GM)	21-Sep-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	21-Sep-21
COTE ALL NEUTRAL BASE	116	Ounces(OZ)	21-Sep-21
Vers-Acryl 222 S/G Finish Neutral Base	1	Gallon(GAL)	21-Sep-21
Dimethyl sulfoxide anhydrous 99.9%	100	Milliliter(ML)	21-Sep-21
Dimethyl sulfoxide anhydrous 99.9%	100	Milliliter(ML)	21-Sep-21
KILZ STAIN SEALER	1	Gallon(GAL)	22-Sep-21
KILZ STAIN SEALER	1	Gallon(GAL)	22-Sep-21
KILZ STAIN SEALER	1	Gallon(GAL)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
KILZ STAIN SEALER	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	22-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	22-Sep-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	22-Sep-21
KILZ STAIN SEALER	1	Gallon(GAL)	22-Sep-21
KILZ STAIN SEALER	1	Gallon(GAL)	22-Sep-21
QUINSYN-PLUS SYNTHETIC AIR COMPRESSOR FLUID	5	Gallon(GAL)	22-Sep-21
Diamond Spray Paint Gloss Black	123.9	Ounces(OZ)	22-Sep-21
Diamond Spray Paint Gloss Black	123.9	Ounces(OZ)	22-Sep-21
Diamond Spray Paint Gloss Black	123.9	Ounces(OZ)	22-Sep-21
Diamond Spray Paint Gloss Black	123.9	Ounces(OZ)	22-Sep-21
Diamond Spray Paint Gloss Black	123.9	Ounces(OZ)	22-Sep-21
Diamond Spray Paint Gloss Black	123.9	Ounces(OZ)	22-Sep-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	22-Sep-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	22-Sep-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	22-Sep-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	22-Sep-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	22-Sep-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	22-Sep-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	22-Sep-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	22-Sep-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	22-Sep-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	22-Sep-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	22-Sep-21
PROPANE	5	Gallon(GAL)	22-Sep-21
PROPANE	11	Gallon(GAL)	22-Sep-21
PROPANE	11	Gallon(GAL)	22-Sep-21
PROPANE	11	Gallon(GAL)	22-Sep-21
PROPANE	11	Gallon(GAL)	22-Sep-21
PROPANE	5	Gallon(GAL)	22-Sep-21
OXYGEN COMPRESSED GAS	80	Cubic Feet(CF)	22-Sep-21
Repro Light Part A and B	1	Gallon(GAL)	22-Sep-21
Repro Light Part A and B	1	Gallon(GAL)	22-Sep-21
Repro Light Part A and B	1	Gallon(GAL)	22-Sep-21
Repro Light Part A and B	1	Gallon(GAL)	22-Sep-21
Repro Light Part A and B	1	Gallon(GAL)	22-Sep-21
Repro Light Part A and B	1	Gallon(GAL)	22-Sep-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	22-Sep-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	22-Sep-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	22-Sep-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	22-Sep-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	22-Sep-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	22-Sep-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	22-Sep-21
Carbon Monoxide 501 PPM Nitrogen	80	Cubic Feet(CF)	22-Sep-21
Carbon Monoxide 501 PPM Nitrogen	80	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
ARGON GAS	220	Cubic Feet(CF)	22-Sep-21
Trimethoxyphenylsilane	50	Gram(GM)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
Propylphosphonic Acid	1	Gram(GM)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Sep-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	22-Sep-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	22-Sep-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	22-Sep-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
Sprayon MR 312 - Dry Zinc Stearate Release Agent	12	Ounces(OZ)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	22-Sep-21
2-BUTANONE	100	Gram(GM)	22-Sep-21
2-BUTANONE	100	Gram(GM)	22-Sep-21
FORMALDEHYDE SOLUTION	100	Milliliter(ML)	22-Sep-21
FORMALDEHYDE SOLUTION	100	Milliliter(ML)	22-Sep-21
SODIUM BROMIDE	500	Gram(GM)	22-Sep-21
SODIUM BROMIDE	500	Gram(GM)	22-Sep-21
SODIUM BROMIDE	500	Gram(GM)	22-Sep-21
SODIUM BROMIDE	500	Gram(GM)	22-Sep-21
TITANIUM (IV) ISOPROPOXIDE	25	Milliliter(ML)	22-Sep-21
Aquivion D72-25BS liquid dispersion 25% in water PFSA eq wt 720 g/mole SO3H stabilized CF3 polymer chain ends	25	Milliliter(ML)	22-Sep-21
Aquivion D72-25BS liquid dispersion 25% in water PFSA eq wt 720 g/mole SO3H stabilized CF3 polymer chain ends	25	Milliliter(ML)	22-Sep-21
Aquivion D72-25BS liquid dispersion 25% in water PFSA eq wt 720 g/mole SO3H stabilized CF3 polymer chain ends	25	Milliliter(ML)	22-Sep-21
Aquivion D72-25BS liquid dispersion 25% in water PFSA eq wt 720 g/mole SO3H stabilized CF3 polymer chain ends	25	Milliliter(ML)	22-Sep-21
Aquivion D72-25BS liquid dispersion 25% in water PFSA eq wt 720 g/mole SO3H stabilized CF3 polymer chain ends	25	Milliliter(ML)	22-Sep-21
Trimethylphenylammonium tribromide	25	Gram(GM)	22-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	22-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	22-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	22-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	22-Sep-21
Compressed Air	220	Cubic Feet(CF)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	22-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	22-Sep-21
Compressed Air	220	Cubic Feet(CF)	22-Sep-21
Compressed Air	220	Cubic Feet(CF)	22-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	22-Sep-21
Deuterium chloride 20 wt % solution in D20	5	Kilograms(KG)	22-Sep-21
Deuterium chloride 20 wt % solution in D20	5	Kilograms(KG)	22-Sep-21
Deuterium chloride 20 wt % solution in D20	5	Kilograms(KG)	22-Sep-21
Deuterium chloride 20 wt % solution in D20	5	Kilograms(KG)	22-Sep-21
Deuterium chloride 20 wt % solution in D20	5	Kilograms(KG)	22-Sep-21
Deuterium chloride 20 wt % solution in D20	5	Kilograms(KG)	22-Sep-21
PROPANE	25	Gallon(GAL)	22-Sep-21
DEUTERIUM OXIDE	10	Milliliter(ML)	22-Sep-21
DEUTERIUM OXIDE	10	Milliliter(ML)	22-Sep-21
DEUTERIUM OXIDE	10	Milliliter(ML)	22-Sep-21
DEUTERIUM OXIDE	10	Milliliter(ML)	22-Sep-21
DEUTERIUM OXIDE	10	Milliliter(ML)	22-Sep-21
DEUTERIUM OXIDE	10	Milliliter(ML)	22-Sep-21
Mia 64 Ceramic Spheres	2	Quarts(QT)	22-Sep-21
Mia 64 Ceramic Spheres	2	Quarts(QT)	22-Sep-21
Mia 64 Ceramic Spheres	2	Quarts(QT)	22-Sep-21
ALCONOX DETERGENT	4	Pounds(LB)	22-Sep-21
BENZYL METHACRYLATE	250	Milliliter(ML)	22-Sep-21
DIISOBUTYLALUMINUM HYDRIDE	100	Milliliter(ML)	22-Sep-21
SODIUM HYDROXIDE PELLETS	1	Kilograms(KG)	22-Sep-21
SODIUM HYDROXIDE PELLETS	1	Kilograms(KG)	22-Sep-21
Ethyl Pyrazole-3-carboxylate	5	Gram(GM)	22-Sep-21
Ethyl Pyrazole-3-carboxylate	5	Gram(GM)	22-Sep-21
Oxalyldihydrazide	250	Gram(GM)	22-Sep-21
ACETONITRILE HPLC	4	Liters(L)	22-Sep-21
POTASSIUM DIHYDROGENPHOSPHATE	1	Ounces(OZ)	22-Sep-21
POTASSIUM DIHYDROGENPHOSPHATE	1	Ounces(OZ)	22-Sep-21
LOCTITE 242 THREADLOCKER	1.69	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
Thermal Adhesive Deltabond 152-1B	1	Ounces(OZ)	22-Sep-21
METHYLENEDI-P-PHENYL DIISOCYANATE	500	Gram(GM)	22-Sep-21
Diamond Powder GMM 30-40	1000	Gram(GM)	22-Sep-21
Diamond Powder GMM 30-40	1000	Gram(GM)	22-Sep-21
Diamond Powder GMM 30-40	1000	Gram(GM)	22-Sep-21
PERMACRYL INTERIOR FLAT MIDTONE BASE	120.3	Ounces(OZ)	22-Sep-21
MOLECULAR BIOLOGY GRADE ETHANOL	4	Liters(L)	22-Sep-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	22-Sep-21
Cote All Satin Black	128	Ounces(OZ)	22-Sep-21
Cote All Satin Black	128	Ounces(OZ)	22-Sep-21
Cote All Satin Black	128	Ounces(OZ)	22-Sep-21
Cote All Satin Black	128	Ounces(OZ)	22-Sep-21
Cote All Satin Black	128	Ounces(OZ)	22-Sep-21
CP 506 Smoke and Acoustic Sealant	5	Gallon(GAL)	22-Sep-21
Alcohol A.C.S Ethyl Alcohol 200 proof	1	Gallon(GAL)	22-Sep-21
CP 506 Smoke and Acoustic Sealant	5	Gallon(GAL)	22-Sep-21
JB WELD STIK	2	Ounces(OZ)	22-Sep-21
JB WELD STIK	2	Ounces(OZ)	22-Sep-21
JB WELD STIK	2	Ounces(OZ)	22-Sep-21
JB WELD STIK	2	Ounces(OZ)	22-Sep-21
JB WELD STIK	2	Ounces(OZ)	22-Sep-21
JB WELD STIK	2	Ounces(OZ)	22-Sep-21
JB WELD STIK	2	Ounces(OZ)	22-Sep-21
JB WELD STIK	2	Ounces(OZ)	22-Sep-21
JB WELD STIK	2	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
HILTI FS-ONE #259579	10	Ounces(OZ)	22-Sep-21
JB WELD EPOXY HARDENER	0.85	Ounces(OZ)	22-Sep-21
JB WELD EPOXY HARDENER	0.85	Ounces(OZ)	22-Sep-21
LOCTITE SF 7090 SOLVENTLESS PRIMER	1	Ounces(OZ)	22-Sep-21
MINWAX HIGH PERFORMANCE WOOD FILLER PART A	12	Ounces(OZ)	22-Sep-21
MINWAX HIGH PERFORMANCE WOOD FILLER PART B	0.75	Ounces(OZ)	22-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
GENERAL POLYMERS 3746 High Performance Epoxy (Part B) Hardener	5	Gallon(GAL)	23-Sep-21
GENERAL POLYMERS 3746 High Performance Epoxy (Part B) Hardener	5	Gallon(GAL)	23-Sep-21
GENERAL POLYMERS 3746 High Performance Epoxy (Part B) Hardener	5	Gallon(GAL)	23-Sep-21
KEMIKO ACID STAIN BLUE 37A-2	1	Gallon(GAL)	23-Sep-21
KEMIKO ACID STAIN BLUE 37A-2	1	Gallon(GAL)	23-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
KEMIKO ACID STAIN BLUE 37A-2	1	Gallon(GAL)	23-Sep-21
KEMIKO ACID STAIN BLUE 37A-2	1	Gallon(GAL)	23-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	23-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	23-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	23-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	23-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	23-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	23-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	23-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	23-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	23-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	23-Sep-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gallon(GAL)	23-Sep-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gallon(GAL)	23-Sep-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gallon(GAL)	23-Sep-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	23-Sep-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	23-Sep-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	23-Sep-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	23-Sep-21
PORCH AND FLOOR COATING ANTI SKID	116	Ounces(OZ)	23-Sep-21
PORCH AND FLOOR COATING ANTI SKID	116	Ounces(OZ)	23-Sep-21
PORCH AND FLOOR COATING ANTI SKID	116	Ounces(OZ)	23-Sep-21
PORCH AND FLOOR COATING ANTI SKID	116	Ounces(OZ)	23-Sep-21
COTE ALL WHITE BASE	1	Gallon(GAL)	23-Sep-21
COTE ALL WHITE BASE	1	Gallon(GAL)	23-Sep-21
COTE ALL WHITE BASE	1	Gallon(GAL)	23-Sep-21
COTE ALL WHITE BASE	1	Gallon(GAL)	23-Sep-21
Vers-Acryl 222 S/G Finish Safety Red	1	Gallon(GAL)	23-Sep-21
Vers-Acryl 222 S/G Finish Safety Red	1	Gallon(GAL)	23-Sep-21
Vers-Acryl 222 S/G Finish Safety Red	1	Gallon(GAL)	23-Sep-21
Vers-Acryl 222 S/G Finish Safety Red	1	Gallon(GAL)	23-Sep-21
PEEL AWAY SMART STRIP PRO	5	Gallon(GAL)	23-Sep-21
PEEL AWAY SMART STRIP PRO	5	Gallon(GAL)	23-Sep-21
PEEL AWAY SMART STRIP PRO	5	Gallon(GAL)	23-Sep-21
PEEL AWAY SMART STRIP PRO	5	Gallon(GAL)	23-Sep-21
PEEL AWAY SMART STRIP PRO	5	Gallon(GAL)	23-Sep-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	23-Sep-21
Vers-Acryl 222 S/G Finish Safety Yellow	1	Gallon(GAL)	23-Sep-21
Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	23-Sep-21
Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	23-Sep-21
Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	23-Sep-21
Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	23-Sep-21
Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	23-Sep-21
Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	23-Sep-21
Finium DTM-AT S/G Acrylic W/B	1	Gallon(GAL)	23-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	23-Sep-21
Avalon Premium 100% Acrylic Interior Satin W/B	1	Gallon(GAL)	23-Sep-21
CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	23-Sep-21
CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	23-Sep-21
CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	23-Sep-21
CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	23-Sep-21
CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	23-Sep-21
CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	23-Sep-21
CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	23-Sep-21
CD 1201 Neutra-Force Heavy Duty Degreaser	1	Gallon(GAL)	23-Sep-21
Defacer Eraser Graffiti Remover	1	Gallon(GAL)	23-Sep-21
Defacer Eraser Graffiti Remover	1	Gallon(GAL)	23-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
Resuflor 3746 High Performance Epoxy (Part A) Clear	5	Gallon(GAL)	23-Sep-21
GENERAL POLYMERS 3746 High Performance Epoxy (Part B) Hardener	5	Gallon(GAL)	23-Sep-21
GENERAL POLYMERS 3746 High Performance Epoxy (Part B) Hardener	5	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Smart Strip Pro	1	Gallon(GAL)	23-Sep-21
Permacryl Int Latex Satin W/B	121	Ounces(OZ)	23-Sep-21
HIT-RE 500 V3	11.1	Ounces(OZ)	23-Sep-21
Permacryl Int Latex Satin W/B	121	Ounces(OZ)	23-Sep-21
Permacryl Int Latex Satin W/B	121	Ounces(OZ)	23-Sep-21
Permacryl Int Latex Satin W/B	121	Ounces(OZ)	23-Sep-21
Permacryl Int Latex Satin W/B	121	Ounces(OZ)	23-Sep-21
HIT-RE 500 V3	11.1	Ounces(OZ)	23-Sep-21
HIT-RE 500 V3	11.1	Ounces(OZ)	23-Sep-21
PSX 700 HP YELLOW TINT RESIN	0.68	Gallon(GAL)	23-Sep-21
BIN PRIMER SEALER	1	Gallon(GAL)	23-Sep-21
Satinamel W/B	123	Ounces(OZ)	23-Sep-21
Satinamel W/B	123	Ounces(OZ)	23-Sep-21
Satinamel W/B	123	Ounces(OZ)	23-Sep-21
Satinamel W/B	123	Ounces(OZ)	23-Sep-21
PSX 700 Safety Red 1979 Resin	0.8	Gram(GM)	23-Sep-21
PSX 700 Safety Red 1979 Resin	0.8	Gram(GM)	23-Sep-21
Paramount Ext. 100% Acrylic Flat N/B	113	Ounces(OZ)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	23-Sep-21
Paramount Ext. 100% Acrylic Flat N/B	113	Ounces(OZ)	23-Sep-21
Paramount Ext. 100% Acrylic Flat N/B	113	Ounces(OZ)	23-Sep-21
COTE ALL DEEP BASE	118	Ounces(OZ)	23-Sep-21
COTE ALL DEEP BASE	118	Ounces(OZ)	23-Sep-21
COTE ALL WHITE BASE	123.9	Ounces(OZ)	23-Sep-21
COTE ALL WHITE BASE	123.9	Ounces(OZ)	23-Sep-21
COTE ALL WHITE BASE	123.9	Ounces(OZ)	23-Sep-21
COTE ALL WHITE BASE	123.9	Ounces(OZ)	23-Sep-21
Cote All M.F. (Safety) Red	123.9	Ounces(OZ)	23-Sep-21
Avalon Premium 100% Acrylic Interior Satin W/B	5	Gallon(GAL)	23-Sep-21
GENERAL POLYMERS 3746 High Performance Epoxy (Part B) Hardener	5	Gallon(GAL)	23-Sep-21
JOINT COMPOUND	4.5	Gallon(GAL)	23-Sep-21
JOINT COMPOUND	4.5	Gallon(GAL)	23-Sep-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	23-Sep-21
Resuflor 3569 Multi-Purpose Epoxy (Part B) Fast Cure Hardener	4	Gallon(GAL)	23-Sep-21
TETRAHYDROFURAN (UV)	4	Liters(L)	23-Sep-21
TETRAHYDROFURAN (UV)	4	Liters(L)	23-Sep-21
TETRAHYDROFURAN (UV)	4	Liters(L)	23-Sep-21
TETRAHYDROFURAN (UV)	4	Liters(L)	23-Sep-21
TETRAHYDROFURAN	4	Liters(L)	23-Sep-21
TETRAHYDROFURAN	4	Liters(L)	23-Sep-21
TETRAHYDROFURAN	4	Liters(L)	23-Sep-21
TETRAHYDROFURAN	4	Liters(L)	23-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ETHYL ACETATE	4	Liters(L)	23-Sep-21
ETHYL ACETATE	4	Liters(L)	23-Sep-21
ETHYL ACETATE	4	Liters(L)	23-Sep-21
ETHYL ACETATE	4	Liters(L)	23-Sep-21
CHLOROFORM-D	7.5	Milliliter(ML)	23-Sep-21
Ethyl Acetate Environmental Grade 99.5+%	200	Liters(L)	23-Sep-21
Ethyl Acetate Environmental Grade 99.5+%	200	Liters(L)	23-Sep-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	23-Sep-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	23-Sep-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	23-Sep-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	23-Sep-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	23-Sep-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	23-Sep-21
Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	23-Sep-21
ETHYL ACETATE	4	Liters(L)	23-Sep-21
3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE TUBE KIT (GRAY)	43	Milliliter(ML)	23-Sep-21
3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE TUBE KIT (GRAY)	43	Milliliter(ML)	23-Sep-21
3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE TUBE KIT (GRAY)	43	Milliliter(ML)	23-Sep-21
3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE TUBE KIT (GRAY)	43	Milliliter(ML)	23-Sep-21
3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE TUBE KIT (GRAY)	43	Milliliter(ML)	23-Sep-21
3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE TUBE KIT (GRAY)	43	Milliliter(ML)	23-Sep-21
3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE TUBE KIT (GRAY)	43	Milliliter(ML)	23-Sep-21
3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE TUBE KIT (GRAY)	43	Milliliter(ML)	23-Sep-21
3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE TUBE KIT (GRAY)	43	Milliliter(ML)	23-Sep-21
3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE TUBE KIT (GRAY)	43	Milliliter(ML)	23-Sep-21
3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE TUBE KIT (GRAY)	43	Milliliter(ML)	23-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
3M SCOTCH-WELD 2216 B/A EPOXY ADHESIVE TUBE KIT (GRAY)	43	Milliliter(ML)	23-Sep-21
Masterbond EP21TDCHT-LO (Part-A) Epoxy resin	0.5	Pint(PT)	23-Sep-21
Masterbond EP21TDCHT-LO (Part-B) Epoxy resin	0.5	Pint(PT)	23-Sep-21
RUBIDIUM	5	Gram(GM)	23-Sep-21
POTASSIUM METAL 99.95%	5	Gram(GM)	23-Sep-21
ARATHANE 5753 A	140	Gram(GM)	23-Sep-21
ARATHANE 5753 B	1	Quarts(QT)	23-Sep-21
POLY(HEXAMETHYLENE DIISOCYANATE)	100	Milliliter(ML)	23-Sep-21
4-(DIMETHYLAMINO)PICOLINALDEHYDE	1	Gram(GM)	23-Sep-21
Duo Fill 400 Quick-Cure Spray Foam Insulation	12.5	Ounces(OZ)	23-Sep-21
ISOPROPYL ALCOHOL	1	Liters(L)	23-Sep-21
ISOPROPYL ALCOHOL	1	Liters(L)	23-Sep-21
DICHLOROMETHANE	5	Liters(L)	23-Sep-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	23-Sep-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	23-Sep-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	23-Sep-21
Dipentyl pentylfosfonate	1	Gram(GM)	23-Sep-21
DIMETHYL ETHYLPHOSPHONATE	250	Milligram(MG)	23-Sep-21
CHLOROFORM-D	100	Milliliter(ML)	23-Sep-21
CHLOROFORM-D	100	Milliliter(ML)	23-Sep-21
CHLOROFORM-D	100	Milliliter(ML)	23-Sep-21
1 4-DIISOCYANATOBUTANE	5	Gram(GM)	23-Sep-21
ETHYL ALCOHOL-200 PROOF	4	Liters(L)	23-Sep-21
SODIUM AZIDE	5	Gram(GM)	23-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	24-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	24-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	24-Sep-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	24-Sep-21
EPON RESIN 815C	1	Gallon(GAL)	24-Sep-21
EPON RESIN 815C	1	Gallon(GAL)	24-Sep-21
EPON RESIN 815C	1	Gallon(GAL)	24-Sep-21
EPON RESIN 815C	1	Gallon(GAL)	24-Sep-21
EPON RESIN 815C	1	Gallon(GAL)	24-Sep-21
Avalon Premium 100% Acrylic Interior Satin UW/B	5	Gallon(GAL)	24-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	24-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	24-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	24-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	24-Sep-21
Amerlock Sealer HRD	1	Gallon(GAL)	27-Sep-21
Amerlock Sealer HRD	1	Gallon(GAL)	27-Sep-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	27-Sep-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	27-Sep-21
PORCH AND FLOOR COATING ANTI SKID	1	Gallon(GAL)	27-Sep-21
SNOOP LIQUID LEAK DETECTOR	1	Gallon(GAL)	27-Sep-21
SNOOP LIQUID LEAK DETECTOR	1	Gallon(GAL)	27-Sep-21
SNOOP LIQUID LEAK DETECTOR	1	Gallon(GAL)	27-Sep-21
SNOOP LIQUID LEAK DETECTOR	1	Gallon(GAL)	27-Sep-21
SNOOP LIQUID LEAK DETECTOR	1	Gallon(GAL)	27-Sep-21
SNOOP LIQUID LEAK DETECTOR	1	Gallon(GAL)	27-Sep-21
SNOOP LIQUID LEAK DETECTOR	1	Gallon(GAL)	27-Sep-21
SNOOP LIQUID LEAK DETECTOR	1	Gallon(GAL)	27-Sep-21
SNOOP LIQUID LEAK DETECTOR	1	Gallon(GAL)	27-Sep-21
SNOOP LIQUID LEAK DETECTOR	1	Gallon(GAL)	27-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SNOOP LIQUID LEAK DETECTOR	1	Gallon(GAL)	27-Sep-21
SNOOP LIQUID LEAK DETECTOR	1	Gallon(GAL)	27-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	27-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	27-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	27-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	27-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	27-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	27-Sep-21
PSX 700 CURE	0.2	Gallon(GAL)	27-Sep-21
METHYL PARABEN	25	Gram(GM)	27-Sep-21
HYDRANAL WATER STD 0.1	4	Milliliter(ML)	27-Sep-21
HYDRANAL WATER STD 0.1	4	Milliliter(ML)	27-Sep-21
Diamond Spray Paint Sun Yellow	12	Ounces(OZ)	27-Sep-21
Diamond Spray Paint Sun Yellow	12	Ounces(OZ)	27-Sep-21
Diamond Spray Paint Sun Yellow	12	Ounces(OZ)	27-Sep-21
Diamond Spray Paint Sun Yellow	12	Ounces(OZ)	27-Sep-21
Diamond Spray Paint Sun Yellow	12	Ounces(OZ)	27-Sep-21
Diamond Spray Paint Sun Yellow	12	Ounces(OZ)	27-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	27-Sep-21
Zinsser BULLS EYE 1-2-3	1	Gallon(GAL)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	13	Ounces(OZ)	27-Sep-21
COLORTREND REE ORGANIC RED	32	Ounces(OZ)	27-Sep-21
HYDROFLUORIC ACID OPTIMA	500	Milliliter(ML)	27-Sep-21
COLORTREND REE ORGANIC RED	32	Ounces(OZ)	27-Sep-21
COLORTREND REE ORGANIC RED	32	Ounces(OZ)	27-Sep-21
COLORTREND REE ORGANIC RED	32	Ounces(OZ)	27-Sep-21
COLORTREND REE ORGANIC RED	32	Ounces(OZ)	27-Sep-21
COLORTREND REE ORGANIC RED	32	Ounces(OZ)	27-Sep-21
COLORTREND REE ORGANIC RED	32	Ounces(OZ)	27-Sep-21
COLORTREND REE ORGANIC RED	32	Ounces(OZ)	27-Sep-21
COLORTREND REE ORGANIC RED	32	Ounces(OZ)	27-Sep-21
COLORTREND REE ORGANIC RED	32	Ounces(OZ)	27-Sep-21
HYDROFLUORIC ACID OPTIMA	500	Milliliter(ML)	27-Sep-21
HYDROFLUORIC ACID OPTIMA	500	Milliliter(ML)	27-Sep-21
HYDROFLUORIC ACID OPTIMA	500	Milliliter(ML)	27-Sep-21
ACETONE	4	Liters(L)	27-Sep-21
ACETONE	4	Liters(L)	27-Sep-21
OBJET VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	27-Sep-21
OBJET VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	27-Sep-21
O-PHOSPORIC ACID	500	Milliliter(ML)	27-Sep-21
O-PHOSPORIC ACID	500	Milliliter(ML)	27-Sep-21
MOLD MAX 40 SILICONE RUBBER COMPOUND PART A	2.95	Pounds(LB)	27-Sep-21
MOLD MAX 40 SILICONE RUBBER COMPOUND PART A	2.95	Pounds(LB)	27-Sep-21
MOLD MAX 40 SILICONE RUBBER COMPOUND PART A	2.95	Pounds(LB)	27-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
MOLD MAX 40 SILICONE RUBBER COMPOUND PART A	2.95	Pounds(LB)	27-Sep-21
MOLD MAX 40 SILICONE RUBBER COMPOUND PART A	2.95	Pounds(LB)	27-Sep-21
TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	27-Sep-21
TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	27-Sep-21
TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	27-Sep-21
TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	27-Sep-21
TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	27-Sep-21
TETRAHYDROFURAN ANHYDROUS	1	Liters(L)	27-Sep-21
DI-TERT-BUTYLPHOSPHINE	5	Gram(GM)	27-Sep-21
DI-TERT-BUTYLPHOSPHINE	5	Gram(GM)	27-Sep-21
Tri-o-tolylphosphine 99%	5	Gram(GM)	27-Sep-21
SPI SILVER EPOXY	30	Gram(GM)	27-Sep-21
ALIZARIN RED S	25	Gram(GM)	27-Sep-21
GLYCINE	500	Gram(GM)	27-Sep-21
CERIUM(III) CHLORIDE HEPTAHYDRATE	25	Gram(GM)	27-Sep-21
reillex hpq polymer ion exchange resin	1	Kilograms(KG)	27-Sep-21
Compressed Air	220	Cubic Feet(CF)	27-Sep-21
15% OXYGEN BAL. NITROGEN	58	Liters(L)	27-Sep-21
15% OXYGEN BAL. NITROGEN	58	Liters(L)	27-Sep-21
15% OXYGEN BAL. NITROGEN	58	Liters(L)	27-Sep-21
HEXAFLUOROPROPENE	60	Pounds(LB)	27-Sep-21
ARATHANE 5750-A/B	1	Quarts(QT)	27-Sep-21
SODIUM TELLURIDE	2	Gram(GM)	27-Sep-21
SODIUM TELLURIDE	2	Gram(GM)	27-Sep-21
2 2'-BITHIOPHENE	10	Gram(GM)	27-Sep-21
2 2'-BITHIOPHENE	10	Gram(GM)	27-Sep-21
Thioacetamide ACS	25	Gram(GM)	27-Sep-21
LUDOX TM-50 colloidal silica	4	Liters(L)	27-Sep-21
MANGANESE(III) ACETATE DIHYDRATE	25	Gram(GM)	27-Sep-21
Chromium(II) chloride 95%	5	Gram(GM)	27-Sep-21
CADMIUM NITRATE TETRAHYDRATE	100	Gram(GM)	27-Sep-21
POTASSIUM HYDRIDE 30% WT IN MINERAL OIL	75	Gram(GM)	27-Sep-21
HEPES BUFFER 1M SOLUTION	100	Milliliter(ML)	27-Sep-21
1 2 3 4-TETRAMETHYL-1 3-CYCLOPENTADIENE	5	Gram(GM)	27-Sep-21
1-Butyl-3-methylimidazolium bis(trifluoromethylsulfonyl)imide	25	Gram(GM)	27-Sep-21
2 2'-(9H-fluorene-9 9-diyl)diethanol	10	Gram(GM)	27-Sep-21
SODIUM PHOSPHATE 96%	500	Gram(GM)	27-Sep-21
TITANIUM(III) CHLORIDE	100	Milliliter(ML)	27-Sep-21
Double Bubble Epoxy Extra Fast Setting Red	4	Gram(GM)	27-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Double Bubble Epoxy Extra Fast Setting Red	4	Gram(GM)	27-Sep-21
Double Bubble Epoxy Extra Fast Setting Red	4	Gram(GM)	27-Sep-21
Double Bubble Epoxy Extra Fast Setting Red	4	Gram(GM)	27-Sep-21
50X TAE BUFFER	1	Liters(L)	27-Sep-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	250	Liters(L)	27-Sep-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	250	Liters(L)	27-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	27-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	27-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	27-Sep-21
Optishield Corrosion Inhibitor	1	Gallon(GAL)	27-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
VULKEM 116 WHITE	300	Milliliter(ML)	28-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	28-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	28-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	28-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	28-Sep-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	28-Sep-21
COTE ALL NEUTRAL BASE	116	Ounces(OZ)	28-Sep-21
COTE ALL NEUTRAL BASE	116	Ounces(OZ)	28-Sep-21
Cote All Universal White Primer L/F R/I	128	Ounces(OZ)	28-Sep-21
Cote All Safety Green	128	Ounces(OZ)	28-Sep-21
Cote All Safety Green	128	Ounces(OZ)	28-Sep-21
Cote All Safety Green	128	Ounces(OZ)	28-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	117	Gallon(GAL)	28-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	117	Gallon(GAL)	28-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	117	Gallon(GAL)	28-Sep-21
Avalon Premium 100% Acrylic Interior Semi-Gloss D/B	117	Gallon(GAL)	28-Sep-21
50X TAE BUFFER	1	Liters(L)	28-Sep-21
Fiamm Sport Horn Fiamm Big Horn	8	Ounces(OZ)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Fiamm Sport Horn Fiamm Big Horn	8	Ounces(OZ)	28-Sep-21
Fiamm Sport Horn Fiamm Big Horn	8	Ounces(OZ)	28-Sep-21
Fiamm Sport Horn Fiamm Big Horn	8	Ounces(OZ)	28-Sep-21
Diamond Powder	1000	Gram(GM)	28-Sep-21
Fiamm Sport Horn Fiamm Big Horn	8	Ounces(OZ)	28-Sep-21
Diamond Powder	1000	Gram(GM)	28-Sep-21
Fiamm Sport Horn Fiamm Big Horn	8	Ounces(OZ)	28-Sep-21
Diamond Powder GMM 6-12	1000	Gram(GM)	28-Sep-21
Diamond Powder GMM 6-12	1000	Gram(GM)	28-Sep-21
CFS-S SIL GG Firestop silicone sealant	10.1	Ounces(OZ)	28-Sep-21
CFS-S SIL GG Firestop silicone sealant	10.1	Ounces(OZ)	28-Sep-21
CFS-S SIL GG Firestop silicone sealant	10.1	Ounces(OZ)	28-Sep-21
CFS-S SIL GG Firestop silicone sealant	10.1	Ounces(OZ)	28-Sep-21
CONCRETE MIX	60	Pounds(LB

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONCRETE MIX	60	Pounds(LB)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONCRETE MIX	60	Pounds(LB)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONCRETE MIX	60	Pounds(LB)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONCRETE MIX	60	Pounds(LB)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONCRETE MIX	60	Pounds(LB)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONCRETE MIX	60	Pounds(LB)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONCRETE MIX	60	Pounds(LB)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
CONCRETE MIX	60	Pounds(LB)	28-Sep-21
Ethyl Ether Laboratory Grade	4	Liters(L)	28-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	28-Sep-21
Heptanes mixture of isomers	19	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
DIETHYL ETHER ANHYDROUS	4	Liters(L)	28-Sep-21
WEST R-630	55	Gallon(GAL)	28-Sep-21
WEST R-630	55	Gallon(GAL)	28-Sep-21
WEST R-630	55	Gallon(GAL)	28-Sep-21
WEST R-630	55	Gallon(GAL)	28-Sep-21
WEST R-630	55	Gallon(GAL)	28-Sep-21
WEST R-630	55	Gallon(GAL)	28-Sep-21
WEST R-630	55	Gallon(GAL)	28-Sep-21
WEST R-630	55	Gallon(GAL)	28-Sep-21
WEST R-630	55	Gallon(GAL)	28-Sep-21
WEST R-630	55	Gallon(GAL)	28-Sep-21
Triamyl Phosphate	5	Milliliter(ML)	28-Sep-21
N-BROMOSUCCINIMIDE	100	Gram(GM)	28-Sep-21
THIANTHRENE	25	Gram(GM)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
3M Scotch-Weld Metal Primer 3901	0.5	Pint(PT)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
WEST C-358	55	Gallon(GAL)	28-Sep-21
TETRAHYDROFURAN	20	Liters(L)	28-Sep-21
LOCTITE SI 5421 Loctite 5421 Electrically Conductive Silicone Sealant	50	Milliliter(ML)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
ETHANOL 200 PROOF	1	Pint(PT)	28-Sep-21
CERIUM(III) NITRATE HEXAHYDRATE	100	Gram(GM)	28-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	28-Sep-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	28-Sep-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	28-Sep-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	28-Sep-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	28-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	28-Sep-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	28-Sep-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	28-Sep-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	28-Sep-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	28-Sep-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	28-Sep-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	28-Sep-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	28-Sep-21
X-100	128	Ounces(OZ)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
NITRIC ACID CERTIFIED ACS	2.5	Liters(L)	29-Sep-21
Tantalum Powder -325 mesh	500	Gram(GM)	29-Sep-21
Tantalum Powder -325 mesh	500	Gram(GM)	29-Sep-21
Tantalum Powder -325 mesh	500	Gram(GM)	29-Sep-21
Tantalum Powder -325 mesh	500	Gram(GM)	29-Sep-21
Clorox Commercial Solutions Formula 409 Cleaner Degreaser Disinfectant	1	Gallon(GAL)	29-Sep-21
Clorox Commercial Solutions Formula 409 Cleaner Degreaser Disinfectant	1	Gallon(GAL)	29-Sep-21
Clorox Commercial Solutions Formula 409 Cleaner Degreaser Disinfectant	1	Gallon(GAL)	29-Sep-21
Clorox Commercial Solutions Formula 409 Cleaner Degreaser Disinfectant	1	Gallon(GAL)	29-Sep-21
ACETONE ACS	4	Liters(L)	29-Sep-21
ACETONE ACS	4	Liters(L)	29-Sep-21
ACETONE ACS	4	Liters(L)	29-Sep-21
ACETONE ACS	4	Liters(L)	29-Sep-21
HYDROXYLAMINE	250	Milliliter(ML)	29-Sep-21
HYDROXYLAMINE	250	Milliliter(ML)	29-Sep-21
HYDROXYLAMINE	250	Milliliter(ML)	29-Sep-21
HYDROXYLAMINE	250	Milliliter(ML)	29-Sep-21
HYDROXYLAMINE	250	Milliliter(ML)	29-Sep-21
1 2-Dichlorobenzene anhydrous 99%	2	Liters(L)	29-Sep-21
Compressed Air	40	Cubic Feet(CF)	29-Sep-21
Compressed Air	220	Cubic Feet(CF)	29-Sep-21
Compressed Air	220	Cubic Feet(CF)	29-Sep-21
Compressed Air	220	Cubic Feet(CF)	29-Sep-21
Compressed Air	220	Cubic Feet(CF)	29-Sep-21
Compressed Air	220	Cubic Feet(CF)	29-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PROPANE	11	Gallon(GAL)	29-Sep-21
PROPANE	11	Gallon(GAL)	29-Sep-21
PROPANE	11	Gallon(GAL)	29-Sep-21
PROPANE	11	Gallon(GAL)	29-Sep-21
PROPANE	11	Gallon(GAL)	29-Sep-21
PROPANE	11	Gallon(GAL)	29-Sep-21
PROPANE	11	Gallon(GAL)	29-Sep-21
PROPANE	11	Gallon(GAL)	29-Sep-21
PROPANE	11	Gallon(GAL)	29-Sep-21
PROPANE	5	Gallon(GAL)	29-Sep-21
PROPANE	5	Gallon(GAL)	29-Sep-21
PROPANE	50	Gallon(GAL)	29-Sep-21
PROPANE	50	Gallon(GAL)	29-Sep-21
PROPANE	50	Gallon(GAL)	29-Sep-21
Hydrogen 15%/Bal. Nitrogen	20	Cubic Feet(CF)	29-Sep-21
Ethyl Alcohol 200 Proof Absolute ACS/USP Grade	1	Pint(PT)	29-Sep-21
OXYGEN 1000PPM IN NITROGEN	220	Cubic Feet(CF)	29-Sep-21
CARBON DIOXIDE	200	Cubic Feet(CF)	29-Sep-21
TETRAFLUOROMETHANE	200	Cubic Feet(CF)	29-Sep-21
TETRAFLUOROMETHANE	200	Cubic Feet(CF)	29-Sep-21
100ppm Water/Balance Helium	180	Cubic Feet(CF)	29-Sep-21
OXYGEN IN NITROGEN	80	Cubic Feet(CF)	29-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	29-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	29-Sep-21
CARBON DIOXIDE	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
NITROGEN GAS	220	Cubic Feet(CF)	29-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Sep-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
HELIUM GAS	220	Cubic Feet(CF)	29-Sep-21
Methane/Nitrogen	220	Cubic Feet(CF)	29-Sep-21
Alcohol A.C.S Ethyl Alcohol 200 proof	1	Gallon(GAL)	30-Sep-21
fantastik General Purpose Cleaner Disinfectant Sanitizer	32	Ounces(OZ)	30-Sep-21
FANTASTIK SPRAY CLEANER	32	Ounces(OZ)	30-Sep-21
FANTASTIK SPRAY CLEAN	32	Ounces(OZ)	30-Sep-21
FANTASTIK SPRAY CLEANER	32	Ounces(OZ)	30-Sep-21
FANTASTIK SPRAY CLEANER	32	Ounces(OZ)	30-Sep-21
770-WASTELOCK-ABSORBANT	25	Pounds(LB)	30-Sep-21
770-WASTELOCK-ABSORBANT	25	Pounds(LB)	30-Sep-21
770-WASTELOCK-ABSORBANT	25	Pounds(LB)	30-Sep-21
770-WASTELOCK-ABSORBANT	25	Pounds(LB)	30-Sep-21
770-WASTELOCK-ABSORBANT	25	Pounds(LB)	30-Sep-21
770-WASTELOCK-ABSORBANT	25	Pounds(LB)	30-Sep-21
770-WASTELOCK-ABSORBANT	25	Pounds(LB)	30-Sep-21
770-WASTELOCK-ABSORBANT	25	Pounds(LB)	30-Sep-21
770-WASTELOCK-ABSORBANT	25	Pounds(LB)	30-Sep-21
Nitric Acid Fuming (Certified ACS)	400	Milliliter(ML)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
Nitric acid (65 - 70%)	2.5	Liters(L)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Essential 8 Flex Medium Kit	510	Milliliter(ML)	30-Sep-21
Essential 8 Flex Medium Kit	510	Milliliter(ML)	30-Sep-21
Essential 8 Flex Medium Kit	510	Milliliter(ML)	30-Sep-21
Essential 8 Flex Medium Kit	510	Milliliter(ML)	30-Sep-21
Essential 8 Medium	500	Milliliter(ML)	30-Sep-21
Essential 8 Medium	500	Milliliter(ML)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21
COPPER(II) SULFATE PENTAHYDRATE	5	Gram(GM)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	30-Sep-21
FERROUS SULFATE HEPTAHYDRATE	5	Gram(GM)	30-Sep-21
ALUMINUM OXIDE (12.5 MICRON)	8	Pounds(LB)	01-Oct-21
MAGNESIUM CHLORIDE ANHYDROUS	100	Gram(GM)	01-Oct-21
MAGNESIUM SULFATE ANHYDROUS	500	Gram(GM)	01-Oct-21
Potassium Chloride ACS reagent 99.0-100.5%	25	Gram(GM)	01-Oct-21
SODIUM CHLORIDE FOR BIOLOGICAL WORK	500	Gram(GM)	01-Oct-21
ZINC SULFATE HEPTAHYDRATE	100	Gram(GM)	01-Oct-21
D-[+]-GLUCOSE	100	Gram(GM)	01-Oct-21
Sodium pyruvate BioReagent suitable for cell culture suitable for insect cell culture 99%	25	Gram(GM)	01-Oct-21
HEPES solution BioPerformance Certified 1M	500	Milliliter(ML)	01-Oct-21
POTASSIUM PHOSPHATE MONOBASIC	100	Gram(GM)	01-Oct-21
SODIUM PHOSPHATE DIBASIC	100	Gram(GM)	01-Oct-21
SODIUM PHOSPHATE DIBASIC	100	Gram(GM)	01-Oct-21
SODIUM PHOSPHATE DIBASIC	100	Gram(GM)	01-Oct-21
Phenol Red BioReagent	5	Gram(GM)	01-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Phenol red solution .5% sterile-filtered BioReagent	100	Milliliter(ML)	01-Oct-21
ETHYLENEDIAMINETETRAACETIC ACID	100	Gram(GM)	01-Oct-21
GERMANIUM PIECES	100	Gram(GM)	01-Oct-21
GERMANIUM PIECES	100	Gram(GM)	01-Oct-21
GERMANIUM PIECES	100	Gram(GM)	01-Oct-21
LANTHANUM 1000 UG/ML STANDARD SOLUTION	30	Milliliter(ML)	01-Oct-21
1000 ug/ml Cerium	30	Milliliter(ML)	01-Oct-21
NIOBIUM POWDER -325 MESH	500	Gram(GM)	01-Oct-21
NIOBIUM POWDER -325 MESH	500	Gram(GM)	01-Oct-21
NIOBIUM POWDER -325 MESH	500	Gram(GM)	01-Oct-21
NIOBIUM POWDER -325 MESH	500	Gram(GM)	01-Oct-21
NIOBIUM POWDER -325 MESH	500	Gram(GM)	01-Oct-21
NIOBIUM POWDER -325 MESH	500	Gram(GM)	01-Oct-21
FERROUS CHLORIDE TETRAHYDRATE	250	Gram(GM)	01-Oct-21
PROPYLENE OXIDE	250	Milliliter(ML)	01-Oct-21
POLYETHYLENIMINE ON SILICA GEL POWDER 40-200 MESH	10	Milliliter(ML)	01-Oct-21
POLYETHYLENIMINE ON SILICA GEL POWDER 40-200 MESH	10	Milliliter(ML)	01-Oct-21
POLYETHYLENIMINE ON SILICA GEL POWDER 40-200 MESH	10	Milliliter(ML)	01-Oct-21
POLYETHYLENIMINE ON SILICA GEL POWDER 40-200 MESH	10	Milliliter(ML)	01-Oct-21
POLYETHYLENIMINE ON SILICA GEL POWDER 40-200 MESH	10	Milliliter(ML)	01-Oct-21
POLYETHYLENIMINE ON SILICA GEL POWDER 40-200 MESH	10	Milliliter(ML)	01-Oct-21
SODIUM NITRATE	2.5	Kilograms(KG)	01-Oct-21
Mult-E-Prime 500RI	1	Gallon(GAL)	01-Oct-21
SODIUM NITRATE	2.5	Kilograms(KG)	01-Oct-21
Sodium hydroxide anhydrous free-flowing pellets Redi-Dri(TM) ACS reagent >/=97%	2.5	Kilograms(KG)	01-Oct-21
Sodium hydroxide anhydrous free-flowing pellets Redi-Dri(TM) ACS reagent >/=97%	2.5	Kilograms(KG)	01-Oct-21
Lightweight Filler	0.8	Gallon(GAL)	01-Oct-21
CHROMIUM (III) FLUORIDE	1	Gram(GM)	01-Oct-21
COTE ALL NEUTRAL BASE	116	Ounces(OZ)	01-Oct-21
DI-TERT-BUTYL DICARBONATE	100	Gram(GM)	01-Oct-21
Cote All Satin Black	128	Ounces(OZ)	01-Oct-21
SODIUM PHOSPHATE DIBASIC	500	Gram(GM)	01-Oct-21
SURFACE-CLEANSE/930	1	Liters(L)	01-Oct-21
PSX 700 Safety Red 1979 Resin	0.8	Gallon(GAL)	01-Oct-21
PSX 700 LIGHT TINT RESIN	0.77	Gallon(GAL)	01-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	01-Oct-21
COTE ALL DEEP BASE	118	Ounces(OZ)	01-Oct-21
Frosted Glass Specialty Coating	11	Ounces(OZ)	01-Oct-21
Frosted Glass Specialty Coating	11	Ounces(OZ)	01-Oct-21
Frosted Glass Specialty Coating	11	Ounces(OZ)	01-Oct-21
Frosted Glass Specialty Coating	11	Ounces(OZ)	01-Oct-21
Frosted Glass Specialty Coating	11	Ounces(OZ)	01-Oct-21
Precision Color Grey	12	Ounces(OZ)	01-Oct-21
Precision Color Grey	12	Ounces(OZ)	01-Oct-21
Precision Color Grey	12	Ounces(OZ)	01-Oct-21
Precision Color Grey	12	Ounces(OZ)	01-Oct-21
Precision Color Grey	12	Ounces(OZ)	01-Oct-21
Test General Chemical - Sucrose	1	Kilograms(KG)	01-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	01-Oct-21
Krylon ColorMaxx Gloss Emerald Green	12	Ounces(OZ)	01-Oct-21
Krylon ColorMaxx Gloss Emerald Green	12	Ounces(OZ)	01-Oct-21
Krylon ColorMaxx Gloss Emerald Green	12	Ounces(OZ)	01-Oct-21
Krylon ColorMaxx Gloss Emerald Green	12	Ounces(OZ)	01-Oct-21
Krylon ColorMaxx Gloss Emerald Green	12	Ounces(OZ)	01-Oct-21
Krylon ColorMaxx Gloss Emerald Green	12	Ounces(OZ)	01-Oct-21
Loctite PL S10 Polyurethane - Concrete & Masonry Sealant	10	Ounces(OZ)	01-Oct-21
Loctite PL S10 Polyurethane - Concrete & Masonry Sealant	10	Ounces(OZ)	01-Oct-21
Loctite PL S10 Polyurethane - Concrete & Masonry Sealant	10	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
CONTACT CLEANER 2000	13	Ounces(OZ)	01-Oct-21
PURPLE PRIMER	1	Quarts(QT)	01-Oct-21
PURPLE PRIMER	1	Quarts(QT)	01-Oct-21
PURPLE PRIMER	1	Quarts(QT)	01-Oct-21
PURPLE PRIMER	1	Quarts(QT)	01-Oct-21
PURPLE PRIMER	1	Quarts(QT)	01-Oct-21
CHILDERS CP-11 VI-CRYL	1	Gallon(GAL)	01-Oct-21
CHILDERS CP-11 VI-CRYL	1	Gallon(GAL)	01-Oct-21
CHILDERS CP-11 VI-CRYL	1	Gallon(GAL)	01-Oct-21
BRAKLEEN	14	Ounces(OZ)	01-Oct-21
BRAKLEEN	14	Ounces(OZ)	01-Oct-21
BRAKLEEN	14	Ounces(OZ)	01-Oct-21
BRAKLEEN	14	Ounces(OZ)	01-Oct-21
BRAKLEEN	14	Ounces(OZ)	01-Oct-21
BRAKLEEN	14	Ounces(OZ)	01-Oct-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Type S Hydrated Lime	50	Pounds(LB)	01-Oct-21
Excelsior AW-510	4	Gallon(GAL)	04-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	04-Oct-21
PEEL AWAY 7	5	Gallon(GAL)	04-Oct-21
Mult-E-Prime 500RI	128	Ounces(OZ)	04-Oct-21
Mult-E-Prime 500RI	128	Ounces(OZ)	04-Oct-21
Cabot Australian Timber Oil Natural	1	Gallon(GAL)	04-Oct-21
Zinsser B-I-N Shellac-Based White Interior/Spot Exterior Primer and Sealer - White	1	Gallon(GAL)	04-Oct-21
Nitric Acid Fuming (Certified ACS)	400	Milliliter(ML)	04-Oct-21
Nitric Acid Fuming (Certified ACS)	400	Milliliter(ML)	04-Oct-21
Nitric Acid Fuming (Certified ACS)	400	Milliliter(ML)	04-Oct-21
Nitric Acid Fuming (Certified ACS)	400	Milliliter(ML)	04-Oct-21
Nitric Acid Fuming (Certified ACS)	400	Milliliter(ML)	04-Oct-21
MALEIC ANHYDRIDE	500	Gram(GM)	04-Oct-21
PALLADIUM ON CARBON 10% WT	50	Gram(GM)	04-Oct-21
1 2-BUTANEDIOL	500	Gram(GM)	04-Oct-21
1 2-BUTANEDIOL	500	Gram(GM)	04-Oct-21
NITRATE NITROGEN STANDARD	100	Milliliter(ML)	04-Oct-21
TOC 1000 mg/l Calibration Standard	100	Milliliter(ML)	04-Oct-21
Silicon Standard for ICP	100	Milliliter(ML)	04-Oct-21
Perchloric Acid 65-71% OmniTrace UltraTM	500	Milliliter(ML)	04-Oct-21
FORMALDEHYDE SOLUTION	250	Milliliter(ML)	04-Oct-21
PENTANE ANHYDROUS	1	Liters(L)	04-Oct-21
Lipopolysaccharides from Pseudomonas aeruginosa 10	25	Milligram(MG)	04-Oct-21
PUMP OIL VACUUM 4L	4	Liters(L)	04-Oct-21
MAGNESIUM CHLORIDE HEXAHYDRATE	100	Gram(GM)	04-Oct-21
THYMIDINE	1	Gram(GM)	04-Oct-21
ALPHA-LIPOIC ACID	1	Gram(GM)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
L-ASCORBIC ACID	25	Gram(GM)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	04-Oct-21
SODIUM BICARBONATE	2.5	Kilograms(KG)	04-Oct-21
SODIUM BICARBONATE	2.5	Kilograms(KG)	04-Oct-21
1 4-Dioxane anhydrous 99.8%	100	Milliliter(ML)	04-Oct-21
3-Vinylbenzaldehyde	5	Gram(GM)	04-Oct-21
3-Vinylbenzaldehyde	5	Gram(GM)	04-Oct-21
Silver chloride ReagentPlus 99%	100	Gram(GM)	04-Oct-21
Silver chloride ReagentPlus 99%	100	Gram(GM)	04-Oct-21
1-ETHYL-3-METHYLIMIDAZOLIUM TETRAFLUOROBORATE	100	Gram(GM)	04-Oct-21
Sodium acetate ACS reagent 99%	100	Gram(GM)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
TREE MARKING PAINT	12	Ounces(OZ)	04-Oct-21
DIPHENYLCARBAZONE REAGENT POWDER PILLOWS	100	Milliliter(ML)	04-Oct-21
DIPHENYLCARBAZONE REAGENT POWDER PILLOWS	100	Milliliter(ML)	04-Oct-21
DIPHENYLCARBAZONE REAGENT POWDER PILLOWS	100	Milliliter(ML)	04-Oct-21
DIPHENYLCARBAZONE REAGENT POWDER PILLOWS	100	Milliliter(ML)	04-Oct-21
DIPHENYLCARBAZONE REAGENT POWDER PILLOWS	100	Milliliter(ML)	04-Oct-21
DIPHENYLCARBAZONE REAGENT POWDER PILLOWS	100	Milliliter(ML)	04-Oct-21
DIPHENYLCARBAZONE REAGENT POWDER PILLOWS	100	Milliliter(ML)	04-Oct-21
DIPHENYLCARBAZONE REAGENT POWDER PILLOWS	100	Milliliter(ML)	04-Oct-21
DIPHENYLCARBAZONE REAGENT POWDER PILLOWS	100	Milliliter(ML)	04-Oct-21
ACETONITRILE CERTIFIED ACS	20	Liters(L)	04-Oct-21
2-Propanol ACS Reagent 99.5%	4	Liters(L)	04-Oct-21
2-Propanol ACS Reagent 99.5%	4	Liters(L)	04-Oct-21
SODIUM HYDROXIDE PELLETS	2.5	Kilograms(KG)	04-Oct-21
SODIUM HYDROXIDE PELLETS	2.5	Kilograms(KG)	04-Oct-21
IRON(III) NITRATE NONAHYDRATE	100	Gram(GM)	04-Oct-21
POLANE Exterior Catalyst V66 VC232	1	Gallon(GAL)	04-Oct-21
POLANE Exterior Catalyst V66 VC232	1	Gallon(GAL)	04-Oct-21
POLANE Exterior Catalyst V66 VC232	1	Gallon(GAL)	04-Oct-21
Havoline Automatic Transmission Fluid MD-3	1	Quarts(QT)	04-Oct-21
CERTIFIED REFRACTIVE INDEX LIQUID	7.4	Cubic Centimeter (CC)	04-Oct-21
CERTIFIED REFRACTIVE INDEX LIQUID	7.4	Cubic Centimeter (CC)	04-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CERTIFIED REFRACTIVE INDEX LIQUID	7.4	Cubic Centimeter (CC)	04-Oct-21
Xylenes mixed isomers with ethylbenzene	2.5	Liters(L)	04-Oct-21
HYDROFLUORIC ACID OPTIMA	500	Milliliter(ML)	04-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	04-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	04-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	04-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	04-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	04-Oct-21
1 2-Dichlorobenzene 99+% for HPLC ACROS Organics	1	Liters(L)	04-Oct-21
HEXANE HPLC	4	Liters(L)	04-Oct-21
HEXANE HPLC	4	Liters(L)	04-Oct-21
HEXANE HPLC	4	Liters(L)	04-Oct-21
HEXANE HPLC	4	Liters(L)	04-Oct-21
HEXANES REAGENT	500	Milliliter(ML)	04-Oct-21
HEXANES REAGENT	500	Milliliter(ML)	04-Oct-21
HEXANES REAGENT	500	Milliliter(ML)	04-Oct-21
HEXANES REAGENT	500	Milliliter(ML)	04-Oct-21
HEXANES REAGENT	500	Milliliter(ML)	04-Oct-21
HEXANES REAGENT	500	Milliliter(ML)	04-Oct-21
CALCIUM SULFATE DIHYDRATE	1	Kilograms(KG)	04-Oct-21
CALCIUM SULFATE DIHYDRATE	1	Kilograms(KG)	04-Oct-21
CALCIUM SULFATE DIHYDRATE	1	Kilograms(KG)	04-Oct-21
CALCIUM SULFATE DIHYDRATE	1	Kilograms(KG)	04-Oct-21
CALCIUM SULFATE DIHYDRATE	1	Kilograms(KG)	04-Oct-21
AMMONIUM CHLORIDE	2.5	Gram(GM)	04-Oct-21
AMMONIUM CHLORIDE	2.5	Gram(GM)	04-Oct-21
SODIUM SULFATE	2.5	Kilograms(KG)	04-Oct-21
SODIUM SULFATE	2.5	Kilograms(KG)	04-Oct-21
1 2-Dichlorobenzene 99+% for HPLC ACROS Organics	1	Liters(L)	04-Oct-21
DISODIUM FUMARATE	100	Gram(GM)	04-Oct-21
POTASSIUM FERRICYANIDE	100	Gram(GM)	04-Oct-21
TETRAMETHYLAMMONIUM HYDROXIDE	1	Kilograms(KG)	04-Oct-21
NEOCUPROINE	5	Gram(GM)	04-Oct-21
Silicon Standard for ICP	125	Milliliter(ML)	04-Oct-21
Citric acid Electrophoresis Grade	2	Kilograms(KG)	04-Oct-21
Supelco® 37 Component FAME Mix	1	Milliliter(ML)	04-Oct-21
Cytop Amorphous Fluoropolymer	100	Gram(GM)	04-Oct-21
1 4-DIOXANE-2 3-DIOL	10	Gram(GM)	04-Oct-21
4-4'-DIHYDROXYDIPHENYL	25	Gram(GM)	04-Oct-21
1 3-BENZENEDIMETHANOL	5	Gram(GM)	04-Oct-21
Ethyl 3 3-Bis(methylthio)-2-cyanoacrylate	25	Gram(GM)	04-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Cytop CT-SOLV180 Perfluorotrialkylamine	100	Gram(GM)	04-Oct-21
trans-1 4-Cyclohexane diisocyanate	5	Gram(GM)	04-Oct-21
1 6-Diaminohexane	500	Gram(GM)	04-Oct-21
4 4-METHYLENEBIS(PHENYLISOCYANATE)	100	Gram(GM)	04-Oct-21
2-BUTYNE-1 4-DIOL	250	Gram(GM)	04-Oct-21
(S(-(+)-3-CHLORO-1 2-PROPANEDIOL	5	Gram(GM)	04-Oct-21
(S(-(+)-3-CHLORO-1 2-PROPANEDIOL	5	Gram(GM)	04-Oct-21
DIPHENYLDICHLOROSILANE	500	Gram(GM)	04-Oct-21
DICHLORODIMETHYLSILANE	500	Gram(GM)	04-Oct-21
Support SUP706 B	3.6	Kilograms(KG)	05-Oct-21
VEROCLEAR RGD810	3.6	Kilograms(KG)	05-Oct-21
VEROCLEAR RGD810	3.6	Kilograms(KG)	05-Oct-21
VEROBLACKPLUS RGD875	4	Kilograms(KG)	05-Oct-21
FullCure RGD837 - VeroPureWhite	4	Kilograms(KG)	05-Oct-21
FullCure RGD837 - VeroPureWhite	4	Kilograms(KG)	05-Oct-21
FullCure RGD837 - VeroPureWhite	4	Kilograms(KG)	05-Oct-21
Big Blu Leak Detector Solution	32	Ounces(OZ)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
ETHYL ALCOHOL-200 PROOF	4	Liters(L)	05-Oct-21
ACETONE FOR HPLC	4	Liters(L)	05-Oct-21
HEXANE	4	Liters(L)	05-Oct-21
HEXANE	4	Liters(L)	05-Oct-21
HEXANE	4	Liters(L)	05-Oct-21
HEXANE	4	Liters(L)	05-Oct-21
Triethylamine for synthesis	1	Liters(L)	05-Oct-21
ISOPROPYL ALCOHOL	4	Liters(L)	05-Oct-21
GLYCINE	100	Gram(GM)	05-Oct-21
L-ASPARTIC ACID	100	Gram(GM)	05-Oct-21
L-PROLINE	100	Gram(GM)	05-Oct-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	05-Oct-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	05-Oct-21
PROPANE	11	Gallon(GAL)	05-Oct-21
PROPANE	11	Gallon(GAL)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
ARGON GAS	220	Cubic Feet(CF)	05-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	05-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	05-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	05-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	05-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	05-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CARBON DIOXIDE	220	Cubic Feet(CF)	05-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	05-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	05-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	05-Oct-21
HYDROGEN 5% IN ARGON	300	Cubic Feet(CF)	05-Oct-21
HYDROGEN 5% IN ARGON	300	Cubic Feet(CF)	05-Oct-21
HYDROGEN 4% BAL HELIUM	220	Cubic Feet(CF)	05-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
SULFUR HEXAFLUORIDE	220	Cubic Feet(CF)	05-Oct-21
PROPANE	11	Gallon(GAL)	05-Oct-21
PROPANE	11	Gallon(GAL)	05-Oct-21
PROPANE	11	Gallon(GAL)	05-Oct-21
PROPANE	11	Gallon(GAL)	05-Oct-21
PROPANE	11	Gallon(GAL)	05-Oct-21
Compressed Air	220	Cubic Feet(CF)	05-Oct-21
Compressed Air	220	Cubic Feet(CF)	05-Oct-21
Compressed Air	220	Cubic Feet(CF)	05-Oct-21
Compressed Air	220	Cubic Feet(CF)	05-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	05-Oct-21
Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	05-Oct-21
Argon 75% Carbon Dioxide 25%	220	Cubic Feet(CF)	05-Oct-21
ACETYLENE STABILIZED	240	Cubic Feet(CF)	05-Oct-21
ACETYLENE STABILIZED	240	Cubic Feet(CF)	05-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	05-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	05-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	05-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	05-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	05-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	05-Oct-21
SEAGUARD Solvent #130	1	Gallon(GAL)	06-Oct-21
SEAGUARD Solvent #130	1	Gallon(GAL)	06-Oct-21
SEAGUARD Solvent #130	1	Gallon(GAL)	06-Oct-21
SEAGUARD Solvent #130	1	Gallon(GAL)	06-Oct-21
SEAGUARD Solvent #130	1	Gallon(GAL)	06-Oct-21
SEAGUARD Solvent #130	1	Gallon(GAL)	06-Oct-21
Total Ground Carbon Conductive Coating (Aerosol) 838AR	340	Gram(GM)	06-Oct-21
FOLIC ACID	10	Gram(GM)	06-Oct-21
NICOTINAMIDE	100	Gram(GM)	06-Oct-21
DICHLOROMETHANE	4	Liters(L)	06-Oct-21
DICHLOROMETHANE	4	Liters(L)	06-Oct-21
DICHLOROMETHANE	4	Liters(L)	06-Oct-21
DICHLOROMETHANE	4	Liters(L)	06-Oct-21
LOCTITE 401 INSTANT ADHESIVE PRISM	0.7	Ounces(OZ)	06-Oct-21
LOCTITE 401 INSTANT ADHESIVE PRISM	0.7	Ounces(OZ)	06-Oct-21
LOCTITE 401 INSTANT ADHESIVE PRISM	0.7	Ounces(OZ)	06-Oct-21
LOCTITE 401 INSTANT ADHESIVE PRISM	0.7	Ounces(OZ)	06-Oct-21
MES FREE ACID MONOHYDRATE	100	Gram(GM)	06-Oct-21
PHOSPHORIC ACID	500	Milliliter(ML)	06-Oct-21
PHOSPHORIC ACID	500	Milliliter(ML)	06-Oct-21
PHOSPHORIC ACID	500	Milliliter(ML)	06-Oct-21
3M Thermally Conductive Adhesive TC-2707	50	Milliliter(ML)	06-Oct-21
3M Thermally Conductive Adhesive TC-2707	50	Milliliter(ML)	06-Oct-21
3M Thermally Conductive Adhesive TC-2707	50	Milliliter(ML)	06-Oct-21
3M Thermally Conductive Adhesive TC-2707	50	Milliliter(ML)	06-Oct-21
3M Thermally Conductive Adhesive TC-2707	50	Milliliter(ML)	06-Oct-21
3M Thermally Conductive Adhesive TC-2707	50	Milliliter(ML)	06-Oct-21
3M Thermally Conductive Adhesive TC-2707	50	Milliliter(ML)	06-Oct-21
3M Thermally Conductive Adhesive TC-2707	50	Milliliter(ML)	06-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
3M Thermally Conductive Adhesive TC-2707	50	Milliliter(ML)	06-Oct-21
3M Thermally Conductive Adhesive TC-2707	50	Milliliter(ML)	06-Oct-21
3M Thermally Conductive Adhesive TC-2707	50	Milliliter(ML)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
Boron Nitride Coating Spray II	13	Ounces(OZ)	06-Oct-21
tert-Butyl methyl ether for gas chromatography ECD and FID SupraSolv	1	Liters(L)	06-Oct-21
tert-Butyl methyl ether for gas chromatography ECD and FID SupraSolv	1	Liters(L)	06-Oct-21
CALCIUM HYDROXIDE	2.5	Kilograms(KG)	06-Oct-21
CALCIUM HYDROXIDE	2.5	Kilograms(KG)	06-Oct-21
HighPrepTM PCR PCR Clean up System	5	Milliliter(ML)	06-Oct-21
SELVOL Polyvinyl alcohol 5-30% solutions	1	Gallon(GAL)	06-Oct-21
SELVOL Polyvinyl alcohol 5-30% solutions	1	Gallon(GAL)	06-Oct-21
SELVOL Polyvinyl alcohol 5-30% solutions	1	Gallon(GAL)	06-Oct-21
SELVOL Polyvinyl alcohol 5-30% solutions	1	Gallon(GAL)	06-Oct-21
SELVOL Polyvinyl alcohol 5-30% solutions	1	Gallon(GAL)	06-Oct-21
FULLCURE 705	3.6	Kilograms(KG)	06-Oct-21
FULLCURE 705	3.6	Kilograms(KG)	06-Oct-21
FULLCURE 705	3.6	Kilograms(KG)	06-Oct-21
FULLCURE 705	3.6	Kilograms(KG)	06-Oct-21
FULLCURE 705	3.6	Kilograms(KG)	06-Oct-21
FULLCURE 705	3.6	Kilograms(KG)	06-Oct-21
FULLCURE 705	3.6	Kilograms(KG)	06-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FULLCURE 705	3.6	Kilograms(KG)	06-Oct-21
FULLCURE 705	3.6	Kilograms(KG)	06-Oct-21
FULLCURE 705	3.6	Kilograms(KG)	06-Oct-21
TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	06-Oct-21
TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	06-Oct-21
TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	06-Oct-21
TOTAL CHLORINE BUFFER SOLUTION # 22635-11	473	Milliliter(ML)	06-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	06-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	06-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	06-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	06-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	06-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	06-Oct-21
DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	06-Oct-21
DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	06-Oct-21
DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	06-Oct-21
DPD FREE CHLORINE REAGENT	10	Milliliter(ML)	06-Oct-21
NITRAVER X NITROGEN REAGENT SET	50	Milligram(MG)	06-Oct-21
NITRAVER X NITROGEN REAGENT SET	50	Milligram(MG)	06-Oct-21
NITRAVER X NITROGEN REAGENT SET	50	Milligram(MG)	06-Oct-21
NITRAVER X NITROGEN REAGENT SET	50	Milligram(MG)	06-Oct-21
NITRAVER X NITROGEN REAGENT SET	50	Milligram(MG)	06-Oct-21
NITRAVER X NITROGEN REAGENT SET	50	Milligram(MG)	06-Oct-21
NITRAVER X NITROGEN REAGENT SET	50	Milligram(MG)	06-Oct-21
NITRAVER X NITROGEN REAGENT SET	50	Milligram(MG)	06-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITRAVER X NITROGEN REAGENT SET	50	Milligram(MG)	06-Oct-21
HYDRANAL COULOMAT AK (2-METHOXYETHANOL)	500	Milliliter(ML)	06-Oct-21
HYDRANAL COULOMAT AK (2-METHOXYETHANOL)	500	Milliliter(ML)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
Clear Photoreactive Resin	1	Liters(L)	06-Oct-21
NITROGEN COMPRESSED GAS	105	Liters(L)	06-Oct-21
NITROGEN COMPRESSED GAS	105	Liters(L)	06-Oct-21
SCREEN & KEYBOARD CLEANER	4	Ounces(OZ)	06-Oct-21
SCREEN & KEYBOARD CLEANER	4	Ounces(OZ)	06-Oct-21
CARBON MONOXIDE/HELIUM	40	Cubic Feet(CF)	06-Oct-21
Hydrogen Air	17	Cubic Feet(CF)	06-Oct-21
500PPM CARBON DIOXIDE/BAL	1.2	Cubic Feet(CF)	06-Oct-21
Agencourt AMPure XP	60	Milliliter(ML)	06-Oct-21
MINERAL OIL	500	Milliliter(ML)	06-Oct-21
MINERAL OIL	500	Milliliter(ML)	06-Oct-21
Support SUP706 B	3.6	Kilograms(KG)	06-Oct-21
Support SUP706 B	3.6	Kilograms(KG)	06-Oct-21
Support SUP706 B	3.6	Kilograms(KG)	06-Oct-21
Support SUP706 B	3.6	Kilograms(KG)	06-Oct-21
Support SUP706 B	3.6	Kilograms(KG)	06-Oct-21
Support SUP706 B	3.6	Kilograms(KG)	06-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Support SUP706 B	3.6	Kilograms(KG)	06-Oct-21
Support SUP706 B	3.6	Kilograms(KG)	06-Oct-21
Support SUP706 B	3.6	Kilograms(KG)	06-Oct-21
Support SUP706 B	3.6	Kilograms(KG)	06-Oct-21
TANGOBLACK FLX973	3.6	Kilograms(KG)	06-Oct-21
TANGOBLACK FLX973	3.6	Kilograms(KG)	06-Oct-21
Model Cleaning Fluid	3.6	Kilograms(KG)	06-Oct-21
Model Cleaning Fluid	3.6	Kilograms(KG)	06-Oct-21
Support Cleaning Fluid	3.6	Kilograms(KG)	06-Oct-21
Support Cleaning Fluid	3.6	Kilograms(KG)	06-Oct-21
VeroUltraClear Component RGD820	3.6	Kilograms(KG)	06-Oct-21
VeroUltraClear Component RGD820	3.6	Kilograms(KG)	06-Oct-21
METHYL CELLULOSE	100	Gram(GM)	06-Oct-21
1 3-DIFLUOROBENZENE	100	Gram(GM)	06-Oct-21
TOLUENE	4	Liters(L)	06-Oct-21
TOLUENE	4	Liters(L)	06-Oct-21
TOLUENE	4	Liters(L)	06-Oct-21
TOLUENE	4	Liters(L)	06-Oct-21
PARAFORMALDEHYDE-13C	1	Gram(GM)	06-Oct-21
CERIUM(III) NITRATE HEXAHYDRATE	500	Gram(GM)	06-Oct-21
CERIUM(III) NITRATE HEXAHYDRATE	500	Gram(GM)	06-Oct-21
CERIUM(III) NITRATE HEXAHYDRATE	500	Gram(GM)	06-Oct-21
CYCLOHEXANE	1	Liters(L)	06-Oct-21
CYCLOHEXANE	1	Liters(L)	06-Oct-21
CYCLOHEXANE	1	Liters(L)	06-Oct-21
CYCLOHEXANE	1	Liters(L)	06-Oct-21
CYCLOHEXANE	1	Liters(L)	06-Oct-21
CYCLOHEXANE	1	Liters(L)	06-Oct-21
TETRAETHYLENE GLYCOL DIACRYLATE	1	Liters(L)	06-Oct-21
DIETHYL ETHER ANHYDROUS	1	Liters(L)	06-Oct-21
DIETHYL ETHER ANHYDROUS	1	Liters(L)	06-Oct-21
DIETHYL ETHER ANHYDROUS	1	Liters(L)	06-Oct-21
DIETHYL ETHER ANHYDROUS	1	Liters(L)	06-Oct-21
DIETHYL ETHER ANHYDROUS	1	Liters(L)	06-Oct-21
2-Ethylhexane-1 3-diol	500	Milliliter(ML)	06-Oct-21
2-tert-Butylpropane-1 3-diol	5	Gram(GM)	06-Oct-21
2 5-Dimethyl-3-hexyne-2 5-diol	100	Gram(GM)	06-Oct-21
PENTAERYTHRITOL	250	Gram(GM)	06-Oct-21
PSX 700 Black Resin	0.8	Gallon(GAL)	07-Oct-21
PSX 700 Black Resin	0.8	Gallon(GAL)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
ZEP FRESHEN DISINFECTANT SPRAY MIST	15.5	Ounces(OZ)	07-Oct-21
HOCUT 795 B	55	Gallon(GAL)	07-Oct-21
MOBIL DTE 24 HYDRAULIC OIL	55	Gallon(GAL)	07-Oct-21
MOBIL DTE 24 HYDRAULIC OIL	55	Gallon(GAL)	07-Oct-21
RED TRAFFIC PAINT L/F	1	Gallon(GAL)	07-Oct-21
RED TRAFFIC PAINT L/F	1	Gallon(GAL)	07-Oct-21
PSX 700 CURE	0.2	Gallon(GAL)	07-Oct-21
PSX 700 CURE	0.2	Gallon(GAL)	07-Oct-21
DENATURED ALCOHOL SOLVENT	1	Gallon(GAL)	07-Oct-21
DENATURED ALCOHOL SOLVENT	1	Gallon(GAL)	07-Oct-21
DENATURED ALCOHOL SOLVENT	1	Gallon(GAL)	07-Oct-21
DENATURED ALCOHOL SOLVENT	1	Gallon(GAL)	07-Oct-21
DENATURED ALCOHOL SOLVENT	1	Gallon(GAL)	07-Oct-21
DENATURED ALCOHOL SOLVENT	1	Gallon(GAL)	07-Oct-21
DENATURED ALCOHOL SOLVENT	1	Gallon(GAL)	07-Oct-21
DENATURED ALCOHOL SOLVENT	1	Gallon(GAL)	07-Oct-21
DENATURED ALCOHOL SOLVENT	1	Gallon(GAL)	07-Oct-21
DENATURED ALCOHOL SOLVENT	1	Gallon(GAL)	07-Oct-21
DENATURED ALCOHOL SOLVENT	1	Gallon(GAL)	07-Oct-21
DENATURED ALCOHOL SOLVENT	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21
PAINT THINNER	1	Gallon(GAL)	07-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PEEL AWAY 7	5	Gallon(GAL)	07-Oct-21
CP-11-2 VICRYL BLACK	2	Gallon(GAL)	07-Oct-21
CP-11-2 VICRYL BLACK	2	Gallon(GAL)	07-Oct-21
CP-11-2 VICRYL BLACK	2	Gallon(GAL)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SODA ASH	50	Pounds(LB)	07-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
SODA ASH	50	Pounds(LB)	07-Oct-21
Shell Diala S2 ZX-A	55	Gallon(GAL)	07-Oct-21
Shell Diala S2 ZX-A	55	Gallon(GAL)	07-Oct-21
Shell Diala S2 ZX-A	55	Gallon(GAL)	07-Oct-21
Shell Diala S2 ZX-A	55	Gallon(GAL)	07-Oct-21
Shell Diala S2 ZX-A	55	Gallon(GAL)	07-Oct-21
Shell Diala S2 ZX-A	55	Gallon(GAL)	07-Oct-21
QUIN-CIP COMPRESSOR OIL S	5	Gallon(GAL)	07-Oct-21
QUIN-CIP COMPRESSOR OIL S	5	Gallon(GAL)	07-Oct-21
QUIN-CIP COMPRESSOR OIL S	5	Gallon(GAL)	07-Oct-21
SODIUM ETHOXIDE	100	Gram(GM)	07-Oct-21
TaqPath ProAmp Multiplex Master Mix	10	Milliliter(ML)	07-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	07-Oct-21
Zinc Silicate Manganese-doped 98%	500	Gram(GM)	07-Oct-21
CFS-SP WB Firestop Joint Spray	5	Gallon(GAL)	08-Oct-21
CFS-SP WB Firestop Joint Spray	5	Gallon(GAL)	08-Oct-21
3M SUPER 77 SPRAY ADHESIVE	16.75	Ounces(OZ)	08-Oct-21
3M SUPER 77 SPRAY ADHESIVE	16.75	Ounces(OZ)	08-Oct-21
3M SUPER 77 SPRAY ADHESIVE	16.75	Ounces(OZ)	08-Oct-21
3M SUPER 77 SPRAY ADHESIVE	16.75	Ounces(OZ)	08-Oct-21
DTE-24 HYDRAULIC OIL	55	Gallon(GAL)	08-Oct-21
DTE 24 HYDRAULIC OIL	55	Gallon(GAL)	08-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	11-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	11-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	11-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	11-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	11-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	11-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	11-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	11-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	11-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	11-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	11-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	11-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	11-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	11-Oct-21
O-PHOSPHORIC ACID 85%	500	Milliliter(ML)	11-Oct-21
DP 1030 Water Based Duct Sealant (Caulking)	1	Gallon(GAL)	11-Oct-21
CLR	28	Ounces(OZ)	11-Oct-21
NuRinse Hand Sanitizer	16	Ounces(OZ)	11-Oct-21
NuRinse Hand Sanitizer	16	Ounces(OZ)	11-Oct-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	11-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	11-Oct-21
SJ-27 COMPRESSOR OIL	24	Ounces(OZ)	11-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	11-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	11-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	11-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	11-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	11-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	11-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	11-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	11-Oct-21
Nitrate TNTplus Vial Test LR	13.5	Milligram(MG)	11-Oct-21
Nitrate TNTplus Vial Test LR	13.5	Milligram(MG)	11-Oct-21
Nitrate TNTplus Vial Test LR	13.5	Milligram(MG)	11-Oct-21
Nitrate TNTplus Vial Test LR	13.5	Milligram(MG)	11-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Nitrate TNTplus Vial Test LR	13.5	Milligram(MG)	11-Oct-21
Nitrate TNTplus Vial Test LR	13.5	Milligram(MG)	11-Oct-21
Nitrate TNTplus Vial Test LR	13.5	Milligram(MG)	11-Oct-21
Nitrate TNTplus Vial Test LR	13.5	Milligram(MG)	11-Oct-21
Nitrate TNTplus Vial Test LR	13.5	Milligram(MG)	11-Oct-21
Nitrate TNTplus Vial Test LR	13.5	Milligram(MG)	11-Oct-21
Phosphorus TNTplus Vial Test LR	1.5	Milligram(MG)	11-Oct-21
Phosphorus TNTplus Vial Test LR	1.5	Milligram(MG)	11-Oct-21
Phosphorus TNTplus Vial Test LR	1.5	Milligram(MG)	11-Oct-21
Phosphorus TNTplus Vial Test LR	1.5	Milligram(MG)	11-Oct-21
Phosphorus TNTplus Vial Test LR	1.5	Milligram(MG)	11-Oct-21
ETHYL ALCOHOL-200 PROOF	4	Gallon(GAL)	11-Oct-21
ETHYL ALCOHOL-200 PROOF	4	Gallon(GAL)	11-Oct-21
ETHYL ALCOHOL-200 PROOF	4	Gallon(GAL)	11-Oct-21
ETHYL ALCOHOL-200 PROOF	4	Gallon(GAL)	11-Oct-21
Nitric acid (65 - 70%)	2	Liters(L)	11-Oct-21
Nitric acid (65 - 70%)	2	Liters(L)	11-Oct-21
Nitric acid (65 - 70%)	2	Liters(L)	11-Oct-21
Nitric acid (65 - 70%)	2	Liters(L)	11-Oct-21
Nitric acid (65 - 70%)	2	Liters(L)	11-Oct-21
Nitric acid (65 - 70%)	2	Liters(L)	11-Oct-21
Nitric acid (65 - 70%)	2	Liters(L)	11-Oct-21
Nitric acid (65 - 70%)	2	Liters(L)	11-Oct-21
Hydrochloric Acid Optima	1	Liters(L)	11-Oct-21
Hydrochloric Acid Optima	1	Liters(L)	11-Oct-21
Hydrochloric Acid Optima	1	Liters(L)	11-Oct-21
ACETONE ACS	4	Liters(L)	11-Oct-21
ACETONE ACS	4	Liters(L)	11-Oct-21
ACETONE ACS	4	Liters(L)	11-Oct-21
ACETONE ACS	4	Liters(L)	11-Oct-21
Hydrochloric acid Trace Metal Grade	500	Milliliter(ML)	12-Oct-21
Hydrochloric acid Trace Metal Grade	500	Milliliter(ML)	12-Oct-21
ACETYLENE STABILIZED	10	Cubic Feet(CF)	12-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ACETYLENE STABILIZED	10	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	10	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	10	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	10	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	10	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	10	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	10	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	10	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	10	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	12-Oct-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	12-Oct-21
Hydrogen Air	220	Cubic Feet(CF)	12-Oct-21
CARBON MONOXIDE 200PPM IN AIR	34	Cubic Feet(CF)	12-Oct-21
SODIUM HYDROXIDE PELLETS	500	Gram(GM)	12-Oct-21
Hydrochloric acid Trace Metal Grade	500	Milliliter(ML)	12-Oct-21
Hydrochloric acid Trace Metal Grade	500	Milliliter(ML)	12-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
N N-DIMETHYLFORMAMIDE	1	Liters(L)	12-Oct-21
ACETONE	4	Liters(L)	12-Oct-21
MOLECULAR BIOLOGY GRADE ETHANOL	500	Milliliter(ML)	12-Oct-21
L(+)-TARTARIC ACID	500	Gram(GM)	12-Oct-21
BISMUTH (III) NITRATE PENTAHYDRATE	25	Gram(GM)	12-Oct-21
BISMUTH (III) NITRATE PENTAHYDRATE	25	Gram(GM)	12-Oct-21
BISMUTH (III) NITRATE PENTAHYDRATE	25	Gram(GM)	12-Oct-21
Citric acid Electrophoresis Grade	2	Kilograms(KG)	12-Oct-21
Ethyl Pyrazole-3-carboxylate	5	Gram(GM)	12-Oct-21
Ethyl Pyrazole-3-carboxylate	5	Gram(GM)	12-Oct-21
Guanosine 5'-[Beta y-imido]triphosphate trisodium salt hydrate	5	Milligram(MG)	12-Oct-21
1 2-Dibromo-4 5-difluorobenzene	25	Gram(GM)	12-Oct-21
Tetrapropyl orthosilicate	500	Milliliter(ML)	12-Oct-21
Tetrapropyl orthosilicate	500	Milliliter(ML)	12-Oct-21
METHYL ALCOHOL	2.5	Liters(L)	12-Oct-21
NITRIC ACID	125	Milliliter(ML)	12-Oct-21
GACOFLEX S-20	5	Gallon(GAL)	12-Oct-21
GACOFLEX S-20	5	Gallon(GAL)	12-Oct-21
GACOFLEX S-20	5	Gallon(GAL)	12-Oct-21
GACOFLEX S-20	5	Gallon(GAL)	12-Oct-21
GACOFLEX S-20	5	Gallon(GAL)	12-Oct-21
GACOFLEX S-20	5	Gallon(GAL)	12-Oct-21
GACOFLEX S-20	5	Gallon(GAL)	12-Oct-21
GACOFLEX S-20	5	Gallon(GAL)	12-Oct-21
SOLIDSENSE ALL PURPOSE SUPER CONCENTRATE	2.31	Pounds(LB)	12-Oct-21
SOLIDSENSE ALL PURPOSE SUPER CONCENTRATE	2.31	Pounds(LB)	12-Oct-21
SOLIDSENSE ALL PURPOSE SUPER CONCENTRATE	2.31	Pounds(LB)	12-Oct-21
SOLIDSENSE ALL PURPOSE SUPER CONCENTRATE	2.31	Pounds(LB)	12-Oct-21
SULLUBE COMPRESSOR FLUID	5	Gallon(GAL)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
STIHL BAR & CHAIN LUBRICANT	1	Quarts(QT)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	12-Oct-21
Evap Pow'R C	1	Gallon(GAL)	12-Oct-21
Evap Pow'R C	1	Gallon(GAL)	12-Oct-21
UCON Lubricant 50-HB-2000	1	Quarts(QT)	12-Oct-21
AvistaClean MF 3000	350	Pounds(LB)	12-Oct-21
AvistaClean MF 3000	350	Pounds(LB)	12-Oct-21
AvistaClean MF 3000	350	Pounds(LB)	12-Oct-21
TRIS(TRIMETHYLSILYL)PHOSPHINE	1	Gram(GM)	12-Oct-21
SODIUM ACETATE ANHYDROUS	1	Kilograms(KG)	12-Oct-21
DMH-1 Tocris Bioscience	10	Milligram(MG)	12-Oct-21
Triethyl 1 3 5-triazine-2 4 6-tricarboxylate	5	Gram(GM)	12-Oct-21
1 4-Dioxane anhydrous 99.8%	1	Liters(L)	12-Oct-21
1 4-Dioxane anhydrous 99.8%	1	Liters(L)	12-Oct-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	12-Oct-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	12-Oct-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	12-Oct-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	12-Oct-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	12-Oct-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	12-Oct-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	12-Oct-21
ACETYLCHOLINE CHLORIDE	100	Gram(GM)	12-Oct-21
Calcium Carbonate Powder GR ACS	500	Gram(GM)	12-Oct-21
AMMONNIUM CHLORIDE	500	Gram(GM)	12-Oct-21
HyClone SFX-Insect	1000	Milliliter(ML)	12-Oct-21
HyClone SFX-Insect	1000	Milliliter(ML)	12-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HyClone SFX-Insect	1000	Milliliter(ML)	12-Oct-21
HyClone SFX-Insect	1000	Milliliter(ML)	12-Oct-21
HyClone SFX-Insect	1000	Milliliter(ML)	12-Oct-21
HyClone SFX-Insect	1000	Milliliter(ML)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
SYNFILM 68	1	Quarts(QT)	12-Oct-21
Flash Duster Spray	11	Ounces(OZ)	13-Oct-21
Speedball w/s Block Printing Ink	8	Ounces(OZ)	13-Oct-21
Flash Duster Spray	11	Ounces(OZ)	13-Oct-21
Flash Duster Spray	11	Ounces(OZ)	13-Oct-21
Flash Duster Spray	11	Ounces(OZ)	13-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Flash Duster Spray	11	Ounces(OZ)	13-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITRIC ACID 70%	2.5	Liters(L)	13-Oct-21
NITRIC ACID 70%	2.5	Liters(L)	13-Oct-21
NITRIC ACID 70%	2.5	Liters(L)	13-Oct-21
NITRIC ACID 70%	2.5	Liters(L)	13-Oct-21
NITRIC ACID 70%	2.5	Liters(L)	13-Oct-21
NITRIC ACID 70%	2.5	Liters(L)	13-Oct-21
NITRIC ACID 70%	2.5	Liters(L)	13-Oct-21
HEXAMETHYLDISILOXANE 98%	500	Milliliter(ML)	13-Oct-21
HEXAMETHYLDISILOXANE 98%	500	Milliliter(ML)	13-Oct-21
HEXAMETHYLDISILOXANE 98%	500	Milliliter(ML)	13-Oct-21
HEXAMETHYLDISILOXANE 98%	500	Milliliter(ML)	13-Oct-21
HEXAMETHYLDISILOXANE 98%	500	Milliliter(ML)	13-Oct-21
HEXAMETHYLDISILOXANE 98%	500	Milliliter(ML)	13-Oct-21
HEXAMETHYLDISILOXANE 98%	500	Milliliter(ML)	13-Oct-21
HEXAMETHYLDISILOXANE 98%	500	Milliliter(ML)	13-Oct-21
HEXAMETHYLDISILOXANE 98%	500	Milliliter(ML)	13-Oct-21
HEXAMETHYLDISILOXANE 98%	500	Milliliter(ML)	13-Oct-21
1000 µg/mL Arsenic	125	Milliliter(ML)	13-Oct-21
1000 µg/mL Cadmium	125	Milliliter(ML)	13-Oct-21
1000 µg/mL Cobalt	125	Milliliter(ML)	13-Oct-21
INDIUM STANDARD	125	Milliliter(ML)	14-Oct-21
LANL-CCS-1	125	Milliliter(ML)	14-Oct-21
AG 50W-X8 RESIN	500	Gram(GM)	14-Oct-21
Eichrom Ln Resin	50	Gram(GM)	14-Oct-21
Eichrom Ln Resin	50	Gram(GM)	14-Oct-21
Eichrom Ln Resin	50	Gram(GM)	14-Oct-21
Eichrom Ln Resin	50	Gram(GM)	14-Oct-21
Eichrom Ln Resin	50	Gram(GM)	14-Oct-21
Eichrom Ln Resin	50	Gram(GM)	14-Oct-21
LANL-C2-REV1 Custom Solution	250	Milliliter(ML)	14-Oct-21
RUTHENIUM STANDARD	30	Milliliter(ML)	14-Oct-21
NITRIC ACID	500	Milliliter(ML)	14-Oct-21
MOBIL SHC GEAR 460	5	Gallon(GAL)	14-Oct-21
MOBIL SHC GEAR 460	5	Gallon(GAL)	14-Oct-21
DIESEL FUEL SUPPLEMENT	80	Ounces(OZ)	14-Oct-21
Mobil 1 5W-40	1	Quarts(QT)	14-Oct-21
Mobil 1 5W-40	1	Quarts(QT)	14-Oct-21
Mobil 1 5W-40	1	Quarts(QT)	14-Oct-21
Mobil 1 5W-40	1	Quarts(QT)	14-Oct-21
Mobil 1 5W-40	1	Quarts(QT)	14-Oct-21
Mobil 1 5W-40	1	Quarts(QT)	14-Oct-21
Sodium hydroxide 50 wt% solution in water	500	Milliliter(ML)	14-Oct-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	14-Oct-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	14-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	14-Oct-21
ATF+4 AUTOMATIC TRANSMISSION FLUID	1	Quarts(QT)	14-Oct-21
NITRIC ACID	500	Milliliter(ML)	14-Oct-21
NITRIC ACID	500	Milliliter(ML)	14-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Oct-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Quarts(QT)	14-Oct-21
NITRIC ACID	500	Milliliter(ML)	14-Oct-21
NITRIC ACID	500	Milliliter(ML)	14-Oct-21
NITRIC ACID	500	Milliliter(ML)	14-Oct-21
80W-90 Gear Oil	5	Gallon(GAL)	14-Oct-21
SODIUM HYDROXIDE 50% SOLUTION	1	Liters(L)	14-Oct-21
SODIUM HYDROXIDE 50% SOLUTION	1	Liters(L)	14-Oct-21
SODIUM HYDROXIDE 50% SOLUTION	1	Liters(L)	14-Oct-21
SODIUM HYDROXIDE 50% SOLUTION	1	Liters(L)	14-Oct-21
SODIUM HYDROXIDE 50% SOLUTION	1	Liters(L)	14-Oct-21
SODIUM HYDROXIDE 50% SOLUTION	1	Liters(L)	14-Oct-21
SODIUM HYDROXIDE 50% SOLUTION	1	Liters(L)	14-Oct-21
SODIUM HYDROXIDE 50% SOLUTION	1	Liters(L)	14-Oct-21
SODIUM HYDROXIDE 50% SOLUTION	1	Liters(L)	14-Oct-21
John Deere Hy-Gard Transmission/Hydraulic Oil	5	Gallon(GAL)	14-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Bobcat All Season Hydraulic-Hydrostatic Fluid	5	Gallon(GAL)	14-Oct-21
FORANE 22	30	Pounds(LB)	14-Oct-21
FORANE 22	30	Pounds(LB)	14-Oct-21
FORANE 22	30	Pounds(LB)	14-Oct-21
FORANE 22	30	Pounds(LB)	14-Oct-21
FORANE 22	30	Pounds(LB)	14-Oct-21
FORANE 22	30	Pounds(LB)	14-Oct-21
FORANE 22	30	Pounds(LB)	14-Oct-21
FORANE 22	30	Pounds(LB)	14-Oct-21
FORANE 22	30	Pounds(LB)	14-Oct-21
FORANE 22	30	Pounds(LB)	14-Oct-21
R 410A	30	Pounds(LB)	14-Oct-21
R 410A	30	Pounds(LB)	14-Oct-21
R 410A	30	Pounds(LB)	14-Oct-21
R 410A	30	Pounds(LB)	14-Oct-21
R 410A	30	Pounds(LB)	14-Oct-21
R 410A	30	Pounds(LB)	14-Oct-21
R 410A	30	Pounds(LB)	14-Oct-21
R 410A	30	Pounds(LB)	14-Oct-21
R 410A	30	Pounds(LB)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	14-Oct-21
ARGON GAS	220	Cubic Feet(CF)	14-Oct-21
ARGON GAS	220	Cubic Feet(CF)	14-Oct-21
ARGON GAS	220	Cubic Feet(CF)	14-Oct-21
ARGON GAS	220	Cubic Feet(CF)	14-Oct-21
ARGON GAS	220	Cubic Feet(CF)	14-Oct-21
ARGON GAS	220	Cubic Feet(CF)	14-Oct-21
ARGON GAS	220	Cubic Feet(CF)	14-Oct-21
ARGON GAS	220	Cubic Feet(CF)	14-Oct-21
ARGON GAS	220	Cubic Feet(CF)	14-Oct-21
ARGON GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	40	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
PROPANE	11	Gallon(GAL)	14-Oct-21
PROPANE	11	Gallon(GAL)	14-Oct-21
PROPANE	11	Gallon(GAL)	14-Oct-21
PROPANE	11	Gallon(GAL)	14-Oct-21
PROPANE	11	Gallon(GAL)	14-Oct-21
PROPANE	11	Gallon(GAL)	14-Oct-21
PROPANE	11	Gallon(GAL)	14-Oct-21
PROPANE	11	Gallon(GAL)	14-Oct-21
PROPANE	11	Gallon(GAL)	14-Oct-21
PROPANE	11	Gallon(GAL)	14-Oct-21
PROPANE	11	Gallon(GAL)	14-Oct-21
1000ppm Carbon Monoxide/Balance Nitrogen	200	Cubic Feet(CF)	14-Oct-21
1000ppm Carbon Monoxide/Balance Nitrogen	200	Cubic Feet(CF)	14-Oct-21
1000ppm Carbon Monoxide/Balance Nitrogen	200	Cubic Feet(CF)	14-Oct-21
Oxygen Nitrogen	200	Cubic Feet(CF)	14-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Compressed Air	220	Cubic Feet(CF)	14-Oct-21
Compressed Air	220	Cubic Feet(CF)	14-Oct-21
Compressed Air	220	Cubic Feet(CF)	14-Oct-21
Compressed Air	220	Cubic Feet(CF)	14-Oct-21
Compressed Air	220	Cubic Feet(CF)	14-Oct-21
Compressed Air	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	14-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
Hydrogen UHP	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	14-Oct-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	14-Oct-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	14-Oct-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	14-Oct-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	14-Oct-21
Double Bubble Urethane High Shear Strength D85	3.5	Gram(GM)	14-Oct-21
ACETONE ACS	500	Milliliter(ML)	15-Oct-21
ACETONE ACS	500	Milliliter(ML)	15-Oct-21
Vermiculite	12	Pounds(LB)	15-Oct-21
Vermiculite	12	Pounds(LB)	15-Oct-21
LUMINOX DETERGENT	1	Gallon(GAL)	15-Oct-21
SODIUM PERSULFATE	1	Kilograms(KG)	15-Oct-21
tert-Butyldiphenylchlorosilane	100	Milliliter(ML)	15-Oct-21
BROMIDE STANDARD	125	Milliliter(ML)	15-Oct-21
Decon's Ethanol 200 Proof	4	Gallon(GAL)	15-Oct-21
Decon's Ethanol 200 Proof	4	Gallon(GAL)	15-Oct-21
Decon's Ethanol 200 Proof	4	Gallon(GAL)	15-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Decon's Ethanol 200 Proof	4	Gallon(GAL)	15-Oct-21
Decon's Ethanol 200 Proof	4	Gallon(GAL)	15-Oct-21
Decon's Ethanol 200 Proof	4	Gallon(GAL)	15-Oct-21
Decon's Ethanol 200 Proof	4	Gallon(GAL)	15-Oct-21
Decon's Ethanol 200 Proof	4	Gallon(GAL)	15-Oct-21
HYDROGEN PEROXIDE 30%	4	Liters(L)	15-Oct-21
HYDROGEN PEROXIDE 30%	4	Liters(L)	15-Oct-21
HYDROGEN PEROXIDE 30%	4	Liters(L)	15-Oct-21
HYDROGEN PEROXIDE 30%	4	Liters(L)	15-Oct-21
HYDROGEN PEROXIDE 30%	4	Liters(L)	15-Oct-21
HYDROGEN PEROXIDE 30%	4	Liters(L)	15-Oct-21
HYDROGEN PEROXIDE 30%	4	Liters(L)	15-Oct-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	15-Oct-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	15-Oct-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	15-Oct-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	15-Oct-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	15-Oct-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	15-Oct-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	15-Oct-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	15-Oct-21
Celite 535 filter aid flux calcined	1	Kilograms(KG)	15-Oct-21
TRIISOPROPYLSILANE	50	Gram(GM)	15-Oct-21
BRIGHT ELECTROLESS GOLD	250	Milliliter(ML)	15-Oct-21
Diisopropyl chlorophosphate	5	Gram(GM)	15-Oct-21
Vermiculite	12	Pounds(LB)	15-Oct-21
Vermiculite	12	Pounds(LB)	15-Oct-21
AvistaClean MF 1000A	350	Pounds(LB)	15-Oct-21
AvistaClean MF 1000A	350	Pounds(LB)	15-Oct-21
AvistaClean MF 1000A	350	Pounds(LB)	15-Oct-21
HYDROCHLORIC ACID OPTIMA-34%	1	Liters(L)	15-Oct-21
NITRIC ACID 69-71%	500	Milliliter(ML)	15-Oct-21
AMMONIUM HYDROXIDE 28-30%	500	Milliliter(ML)	15-Oct-21
ETHYL ALCOHOL-200 PROOF	1	Pint(PT)	15-Oct-21
ETHYL ALCOHOL-200 PROOF	1	Pint(PT)	15-Oct-21
ETHYL ALCOHOL-200 PROOF	1	Pint(PT)	15-Oct-21
ETHYL ALCOHOL-200 PROOF	1	Pint(PT)	15-Oct-21
CRESOL RED 0.04 WT. % SOLUTION IN WATER	120	Milliliter(ML)	15-Oct-21
BROMOPHENOL BLUE SOLUTION 0.04%	125	Milliliter(ML)	15-Oct-21
AMMONIUM CHLORIDE	500	Gram(GM)	15-Oct-21
ZINC GRANULES	100	Gram(GM)	15-Oct-21
ZINC	250	Gram(GM)	15-Oct-21
NITRIC ACID 69-71%	500	Milliliter(ML)	15-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
AMMONIUM HYDROXIDE 28-30%	500	Milliliter(ML)	15-Oct-21
SODIUM SULFATE	500	Gram(GM)	15-Oct-21
UTEVA RESIN	200	Gram(GM)	15-Oct-21
RELEASE AGENT	16	Ounces(OZ)	15-Oct-21
UTEVA RESIN	200	Gram(GM)	15-Oct-21
1000 ug/mL Mercury	125	Milliliter(ML)	15-Oct-21
1000 ug/mL Phosphorus	125	Milliliter(ML)	15-Oct-21
1000 ug/mL Sulfur	125	Milliliter(ML)	15-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Oct-21
RECTORSEAL 5 PIPE THREAD SEALANT	1	Pint(PT)	18-Oct-21
ALUMINUM CUTTING FLUID (TAP MAGIC ALUMINUM)	4	Ounces(OZ)	18-Oct-21
KRYLON RUST TOUGH Enamel Gloss Black	12	Ounces(OZ)	18-Oct-21
KRYLON RUST TOUGH Enamel Gloss Black	12	Ounces(OZ)	18-Oct-21
KRYLON RUST TOUGH Enamel Gloss Black	12	Ounces(OZ)	18-Oct-21
KRYLON RUST TOUGH Enamel Gloss Black	12	Ounces(OZ)	18-Oct-21
KRYLON RUST TOUGH Enamel Gloss Black	12	Ounces(OZ)	18-Oct-21
KRYLON RUST TOUGH Enamel Gloss Black	12	Ounces(OZ)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
RV AND MARINE ANTI-FREEZE	1	Gallon(GAL)	18-Oct-21
ANTI-SEIZ-LUBRICANT	4	Ounces(OZ)	18-Oct-21
ANTI-SEIZ-LUBRICANT	4	Ounces(OZ)	18-Oct-21
Polaris PS-4	1	Quarts(QT)	18-Oct-21
JOHNSEN'S STARTING FLUID	10.7	Ounces(OZ)	18-Oct-21
DIESEL 911	80	Ounces(OZ)	18-Oct-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	18-Oct-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	18-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	18-Oct-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	18-Oct-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	18-Oct-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	18-Oct-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	18-Oct-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	18-Oct-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	18-Oct-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	18-Oct-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	18-Oct-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	18-Oct-21
HYDROGEN FLUORIDE	12	Pounds(LB)	18-Oct-21
HYDROGEN FLUORIDE	15.7	Pounds(LB)	18-Oct-21
HYDROGEN FLUORIDE	12.7	Pounds(LB)	18-Oct-21
CHLORINE TRIFLUORIDE	5.5	Pounds(LB)	18-Oct-21
1000 ug/mL Boron	125	Milliliter(ML)	18-Oct-21
1000 ug/mL Zirconium	125	Milliliter(ML)	18-Oct-21
Double Bubble Urethane High Shear Strength D85	3.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
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ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
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ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
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ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
ANGSTROMBOND	2.5	Gram(GM)	18-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
VITA-D-CHLOR SLO-TABS	4	Ounces(OZ)	19-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	19-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	19-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARDEX FEATHER FINISH	10	Pounds(LB)	19-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARDEX FEATHER FINISH	10	Pounds(LB)	19-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	19-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	19-Oct-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	19-Oct-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	19-Oct-21
SBS FLASHING CEMENT MATRIX 202	4.75	Gallon(GAL)	19-Oct-21
TIRE AND TUBE MOUNTING COMPOUND	25	Pounds(LB)	19-Oct-21
TIRE AND TUBE MOUNTING COMPOUND	25	Pounds(LB)	19-Oct-21
TIRE AND TUBE MOUNTING COMPOUND	25	Pounds(LB)	19-Oct-21
TIRE AND TUBE MOUNTING COMPOUND	25	Pounds(LB)	19-Oct-21
TIRE AND TUBE MOUNTING COMPOUND	25	Pounds(LB)	19-Oct-21
TIRE AND TUBE MOUNTING COMPOUND	25	Pounds(LB)	19-Oct-21
TIRE AND TUBE MOUNTING COMPOUND	25	Pounds(LB)	19-Oct-21
P-10 (90% ARGON 10% METHANE)	300	Cubic Feet(CF)	19-Oct-21
P-10 (90% ARGON 10% METHANE)	300	Cubic Feet(CF)	19-Oct-21
P-10 (90% ARGON 10% METHANE)	300	Cubic Feet(CF)	19-Oct-21
P-10 (90% ARGON 10% METHANE)	300	Cubic Feet(CF)	19-Oct-21
P-10 (90% ARGON 10% METHANE)	300	Cubic Feet(CF)	19-Oct-21
P-10 (90% ARGON 10% METHANE)	300	Cubic Feet(CF)	19-Oct-21
P-10 (90% ARGON 10% METHANE)	300	Cubic Feet(CF)	19-Oct-21
P-10 (90% ARGON 10% METHANE)	300	Cubic Feet(CF)	19-Oct-21
P-10 (90% ARGON 10% METHANE)	300	Cubic Feet(CF)	19-Oct-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	20-Oct-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	20-Oct-21
VITA-D-CHLOR SLO-TABS	35	Pounds(LB)	20-Oct-21
VITA-D-CHLOR SLO-TABS	35	Pounds(LB)	20-Oct-21
VITA-D-CHLOR SLO-TABS	35	Pounds(LB)	20-Oct-21
VITA-D-CHLOR SLO-TABS	35	Pounds(LB)	20-Oct-21
SHAW 1200	4	Gallon(GAL)	20-Oct-21
HNO3 Preservation for 500 ml Container	100	Milliliter(ML)	20-Oct-21
HNO3 Preservation for 500 ml Container	100	Milliliter(ML)	20-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HNO3 Preservation for 500 ml Container	100	Milliliter(ML)	20-Oct-21
HNO3 Preservation for 500 ml Container	100	Milliliter(ML)	20-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	20-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	20-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	20-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	20-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	20-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	20-Oct-21
HNO3 PRESERVATION KIT FOR 1000 ML CONTAINER	100	Milliliter(ML)	20-Oct-21
SODIUM PERIODATE	500	Milliliter(ML)	20-Oct-21
IRON REAGENT	500	Milliliter(ML)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
MANGANESE POWDER	500	Milliliter(ML)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
ARGON GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	20-Oct-21
Compressed Air	220	Cubic Feet(CF)	20-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	20-Oct-21
PURELL INSTANT HAND SANITIZER	16	Ounces(OZ)	20-Oct-21
PURELL INSTANT HAND SANITIZER	16	Ounces(OZ)	20-Oct-21
PURELL INSTANT HAND SANITIZER	64	Ounces(OZ)	20-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	20-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	20-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	20-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	20-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	20-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PROPANE	11	Gallon(GAL)	20-Oct-21
CHLORODIFLUOROMETHANE R-22	30	Pounds(LB)	20-Oct-21
CHLORODIFLUOROMETHANE R-22	30	Pounds(LB)	20-Oct-21
CHLORODIFLUOROMETHANE R-22	30	Pounds(LB)	20-Oct-21
CHLORODIFLUOROMETHANE R-22	30	Pounds(LB)	20-Oct-21
CHLORODIFLUOROMETHANE R-22	30	Pounds(LB)	20-Oct-21
CHLORODIFLUOROMETHANE R-22	30	Pounds(LB)	20-Oct-21
CHLORODIFLUOROMETHANE R-22	30	Pounds(LB)	20-Oct-21
CHLORODIFLUOROMETHANE R-22	30	Pounds(LB)	20-Oct-21
CHLORODIFLUOROMETHANE R-22	30	Pounds(LB)	20-Oct-21
CHLORODIFLUOROMETHANE R-22	30	Pounds(LB)	20-Oct-21
CHLORODIFLUOROMETHANE R-22	30	Pounds(LB)	20-Oct-21
PROPANE	11	Gallon(GAL)	20-Oct-21
PROPANE	11	Gallon(GAL)	20-Oct-21
PROPANE	11	Gallon(GAL)	20-Oct-21
PROPANE	11	Gallon(GAL)	20-Oct-21
PROPANE	11	Gallon(GAL)	20-Oct-21
PROPANE	11	Gallon(GAL)	20-Oct-21
HIGH VACUUM GREASE	2	Ounces(OZ)	20-Oct-21
NITROGEN GAS	100	Liters(L)	20-Oct-21
NITROGEN GAS	100	Liters(L)	20-Oct-21
PURELL Advanced Instant Hand Sanitizer	8	Ounces(OZ)	20-Oct-21
HELIUM GAS	100	Liters(L)	20-Oct-21
HELIUM GAS	100	Liters(L)	20-Oct-21
HELIUM GAS	100	Liters(L)	20-Oct-21
HELIUM GAS	100	Liters(L)	20-Oct-21
PURELL Advanced Instant Hand Sanitizer	8	Ounces(OZ)	20-Oct-21
PURELL Advanced Instant Hand Sanitizer	8	Ounces(OZ)	20-Oct-21
PURELL Advanced Instant Hand Sanitizer	8	Ounces(OZ)	20-Oct-21
PURELL Advanced Instant Hand Sanitizer	8	Ounces(OZ)	20-Oct-21
PURELL Advanced Instant Hand Sanitizer	8	Ounces(OZ)	20-Oct-21
PURELL Advanced Instant Hand Sanitizer	8	Ounces(OZ)	20-Oct-21
PURELL Advanced Instant Hand Sanitizer	8	Ounces(OZ)	20-Oct-21
PURELL Advanced Instant Hand Sanitizer	8	Ounces(OZ)	20-Oct-21
PURELL Advanced Instant Hand Sanitizer	8	Ounces(OZ)	20-Oct-21
PURELL Advanced Instant Hand Sanitizer	8	Ounces(OZ)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FS-One Max	300	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
FIRESTOP PUTTY	295	Milliliter(ML)	20-Oct-21
CHLORODIFLUOROMETHANE R-22	30	Pounds(LB)	21-Oct-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	21-Oct-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	21-Oct-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	21-Oct-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	21-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
N-HEXANE NORMAL	11	Ounces(OZ)	21-Oct-21
Sikasil 728 SL	29	Ounces(OZ)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
NITRAVER 5 NITRATE REAGENT	250	Milliliter(ML)	21-Oct-21
HNO3 Preservation for 500 ml Container	100	Milliliter(ML)	21-Oct-21
HNO3 Preservation for 500 ml Container	100	Milliliter(ML)	21-Oct-21
HNO3 Preservation for 500 ml Container	100	Milliliter(ML)	21-Oct-21
ARMSTRONG COMMERCIAL VINYL SHEET ADHESIVE S-599	4	Gallon(GAL)	21-Oct-21
HNO3 PRESERVATION KIT FOR 1000 ML CONTAINER	100	Milliliter(ML)	21-Oct-21
HNO3 PRESERVATION KIT FOR 1000 ML CONTAINER	100	Milliliter(ML)	21-Oct-21
HNO3 PRESERVATION KIT FOR 1000 ML CONTAINER	100	Milliliter(ML)	21-Oct-21
HNO3 PRESERVATION KIT FOR 1000 ML CONTAINER	100	Milliliter(ML)	21-Oct-21
H2SO4 PRESERVATION KIT FOR 250 ML CONTAINER	100	Milliliter(ML)	21-Oct-21
H2SO4 PRESERVATION KIT FOR 250 ML CONTAINER	100	Milliliter(ML)	21-Oct-21
H2SO4 PRESERVATION KIT FOR 250 ML CONTAINER	100	Milliliter(ML)	21-Oct-21
H2SO4 PRESERVATION KIT FOR 250 ML CONTAINER	100	Milliliter(ML)	21-Oct-21
H2SO4 PRESERVATION KIT FOR 250 ML CONTAINER	100	Milliliter(ML)	21-Oct-21
Ardex P 51	4	Gallon(GAL)	21-Oct-21
BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	21-Oct-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	21-Oct-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	21-Oct-21
GACO SF2000 SEAM SEALER	5	Gallon(GAL)	21-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	21-Oct-21
BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	21-Oct-21
BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	21-Oct-21
BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	21-Oct-21
BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	21-Oct-21
PRS Asphalt Roof Primer	4.75	Gallon(GAL)	21-Oct-21
GACO E5320 EPOXY PRIMER PART A	5	Gallon(GAL)	21-Oct-21
BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	21-Oct-21
Sikalastic FTP Primer Part A	1	Gallon(GAL)	21-Oct-21
Sikalastic FTP Primer Part B	5	Gallon(GAL)	21-Oct-21
BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	21-Oct-21
BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	21-Oct-21
BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	21-Oct-21
BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	21-Oct-21
BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	21-Oct-21
Sikalastic FTP Primer Part B	5	Gallon(GAL)	21-Oct-21
MOBIL SHC 629	5	Gallon(GAL)	21-Oct-21
TURBIDITY STANDARD	1	Gallon(GAL)	21-Oct-21
PLAZA PLUS Sealer/Finish	5	Gallon(GAL)	21-Oct-21
TURBIDITY STANDARD	1	Gallon(GAL)	21-Oct-21
PLAZA PLUS Sealer/Finish	5	Gallon(GAL)	21-Oct-21
PLAZA PLUS Sealer/Finish	5	Gallon(GAL)	21-Oct-21
PLAZA PLUS Sealer/Finish	5	Gallon(GAL)	21-Oct-21
PLAZA PLUS Sealer/Finish	5	Gallon(GAL)	21-Oct-21
CONDUCTIVITY STANDARD 1000 MICRO OHMS	1	Pint(PT)	21-Oct-21
BLACK JACK ROOF GARD 700	5	Gallon(GAL)	21-Oct-21
Sikalastic FTP Primer Part A	1	Gallon(GAL)	21-Oct-21
DERBIGUM MS Primer Componet A and Component B	5	Gallon(GAL)	21-Oct-21
SODIUM HYDROXIDE	10	Gallon(GAL)	25-Oct-21
SODIUM HYDROXIDE	10	Gallon(GAL)	25-Oct-21
SODIUM HYDROXIDE	10	Gallon(GAL)	25-Oct-21
SODIUM HYDROXIDE	10	Gallon(GAL)	25-Oct-21
SODIUM HYDROXIDE	10	Gallon(GAL)	25-Oct-21
SODIUM HYDROXIDE	10	Gallon(GAL)	25-Oct-21
SODIUM HYDROXIDE	10	Gallon(GAL)	25-Oct-21
SODIUM HYDROXIDE	10	Gallon(GAL)	25-Oct-21
SODIUM HYDROXIDE	10	Gallon(GAL)	25-Oct-21
1000 ug/mL Lanthanum	125	Milliliter(ML)	25-Oct-21
1000 µg/mL Lead	125	Milliliter(ML)	25-Oct-21
1000 ug/mL Neodymium	125	Milliliter(ML)	25-Oct-21
1000 ug/mL Osmium	125	Milliliter(ML)	25-Oct-21
1000 ug/mL Praseodymium	125	Milliliter(ML)	25-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
1000 ug/mL Rhenium	125	Milliliter(ML)	25-Oct-21
1000 ug/mL Silicon	125	Milliliter(ML)	25-Oct-21
1000 ug/mL Titanium	125	Milliliter(ML)	25-Oct-21
1000 ug/mL Zinc	125	Milliliter(ML)	25-Oct-21
ANTHRACENE	25	Gram(GM)	25-Oct-21
NAPTHALENE	25	Gram(GM)	25-Oct-21
18-CROWN-6	25	Gram(GM)	25-Oct-21
18-CROWN-6	25	Gram(GM)	25-Oct-21
ANILINE 99.5+% ACS	100	Milliliter(ML)	25-Oct-21
HEXAFLUOROBENZENE	25	Gram(GM)	25-Oct-21
HEXAFLUOROBENZENE	25	Gram(GM)	25-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	25-Oct-21
Fluorobenzene 99%	100	Gram(GM)	25-Oct-21
Fluorobenzene 99%	100	Gram(GM)	25-Oct-21
Fluorobenzene 99%	100	Gram(GM)	25-Oct-21
Fluorobenzene 99%	100	Gram(GM)	25-Oct-21
Fluorobenzene 99%	100	Gram(GM)	25-Oct-21
1 2-DIFLUOROBENZENE	50	Gram(GM)	25-Oct-21
1 2-DIFLUOROBENZENE	50	Gram(GM)	25-Oct-21
1 2-DIFLUOROBENZENE	50	Gram(GM)	25-Oct-21
1 2-DIFLUOROBENZENE	50	Gram(GM)	25-Oct-21
2 6-Di(1-pyrazolyl)pyridine	5	Gram(GM)	25-Oct-21
ZIRCONIUM (IV) IODIDE	25	Gram(GM)	25-Oct-21
ZIRCONIUM (IV) BROMIDE	10	Gram(GM)	25-Oct-21
Vanadium (III) fluoride	2	Gram(GM)	25-Oct-21
Dupont 4987 Epoxy Thinner Composition	500	Gram(GM)	25-Oct-21
OCTAFLUORONAPHTHALENE	1	Gram(GM)	25-Oct-21
OCTAFLUORONAPHTHALENE	1	Gram(GM)	25-Oct-21
OCTAFLUORONAPHTHALENE	1	Gram(GM)	25-Oct-21
OCTAFLUORONAPHTHALENE	1	Gram(GM)	25-Oct-21
DICHLOROMETHANE	4	Liters(L)	25-Oct-21
DICHLOROMETHANE	4	Liters(L)	25-Oct-21
DICHLOROMETHANE	4	Liters(L)	25-Oct-21
DICHLOROMETHANE	4	Liters(L)	25-Oct-21
POLWAYTER FST-MINI-6BG	1.7	Ounces(OZ)	26-Oct-21
PSX 700 Black Resin	0.8	Gallon(GAL)	26-Oct-21
PSX 700 Black Resin	0.8	Gallon(GAL)	26-Oct-21
PSX 700 Black Resin	0.8	Gallon(GAL)	26-Oct-21
PSX 700 Black Resin	0.8	Gallon(GAL)	26-Oct-21
FOAM SEALANT	250	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
VULKEM 116 WHITE	300	Milliliter(ML)	26-Oct-21
Henry 430 ClearPro Clear VCT Floor Adhesive	4	Gallon(GAL)	26-Oct-21
Henry 430 ClearPro Clear VCT Floor Adhesive	4	Gallon(GAL)	26-Oct-21
Henry 430 ClearPro Clear VCT Floor Adhesive	4	Gallon(GAL)	26-Oct-21
Henry 430 ClearPro Clear VCT Floor Adhesive	4	Gallon(GAL)	26-Oct-21
ULTRA COOLANT	4	Liters(L)	26-Oct-21
ULTRA COOLANT	4	Liters(L)	26-Oct-21
ULTRA COOLANT	4	Liters(L)	26-Oct-21
ULTRA COOLANT	4	Liters(L)	26-Oct-21
DENATURED ALCOHOL	1	Gallon(GAL)	26-Oct-21
DENATURED ALCOHOL	1	Gallon(GAL)	26-Oct-21
DENATURED ALCOHOL	1	Gallon(GAL)	26-Oct-21
DENATURED ALCOHOL	1	Gallon(GAL)	26-Oct-21
DENATURED ALCOHOL	1	Gallon(GAL)	26-Oct-21
DENATURED ALCOHOL	1	Gallon(GAL)	26-Oct-21
DENATURED ALCOHOL	1	Gallon(GAL)	26-Oct-21
DENATURED ALCOHOL	1	Gallon(GAL)	26-Oct-21
DENATURED ALCOHOL	1	Gallon(GAL)	26-Oct-21
DENATURED ALCOHOL	1	Gallon(GAL)	26-Oct-21
DENATURED ALCOHOL	1	Gallon(GAL)	26-Oct-21
DENATURED ALCOHOL	1	Gallon(GAL)	26-Oct-21
PLAZA PLUS Sealer/Finish	5	Gallon(GAL)	26-Oct-21
PLAZA PLUS Sealer/Finish	5	Gallon(GAL)	26-Oct-21
GACO WASH	1	Gallon(GAL)	26-Oct-21
GACO WASH	1	Gallon(GAL)	26-Oct-21
GACO WASH	1	Gallon(GAL)	26-Oct-21
GACO WASH	1	Gallon(GAL)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
90 HIGH STRENGTH ADHESIVE	17.6	Ounces(OZ)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
R 410A	25	Pounds(LB)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
01657 RANDO OIL HD 32	5	Gallon(GAL)	26-Oct-21
01657 RANDO OIL HD 32	5	Gallon(GAL)	26-Oct-21
01657 RANDO OIL HD 32	5	Gallon(GAL)	26-Oct-21
01657 RANDO OIL HD 32	5	Gallon(GAL)	26-Oct-21
100% SILICONE SEALANT	10	Ounces(OZ)	26-Oct-21
100% SILICONE SEALANT	10	Ounces(OZ)	26-Oct-21
100% SILICONE SEALANT	10	Ounces(OZ)	26-Oct-21
100% SILICONE SEALANT	10	Ounces(OZ)	26-Oct-21
Dynaflex Ultra Advanced Exterior Sealant - All Colors	10.1	Ounces(OZ)	26-Oct-21
TRU-TEST HIGH HEAT WHITE PAINT	12	Ounces(OZ)	26-Oct-21
SUPER 77	13.57	Ounces(OZ)	26-Oct-21
Mule-Hide JTS 1	10	Ounces(OZ)	26-Oct-21
Mule-Hide JTS 1	10	Ounces(OZ)	26-Oct-21
Mule-Hide JTS 1	10	Ounces(OZ)	26-Oct-21
Mule-Hide JTS 1	10	Ounces(OZ)	26-Oct-21
Mule-Hide JTS 1	10	Ounces(OZ)	26-Oct-21
Mule-Hide JTS 1	10	Ounces(OZ)	26-Oct-21
Mule-Hide JTS 1	10	Ounces(OZ)	26-Oct-21
Mule-Hide JTS 1	10	Ounces(OZ)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	2	Liters(L)	26-Oct-21
HEXANE CERTIFIED ACS	4	Liters(L)	26-Oct-21
HEXANE CERTIFIED ACS	4	Liters(L)	26-Oct-21
HEXANE CERTIFIED ACS	4	Liters(L)	26-Oct-21
HEXANE CERTIFIED ACS	4	Liters(L)	26-Oct-21
HEXANE CERTIFIED ACS	4	Liters(L)	26-Oct-21
HEXANE CERTIFIED ACS	4	Liters(L)	26-Oct-21
HEXANE CERTIFIED ACS	4	Liters(L)	26-Oct-21
HEXANE CERTIFIED ACS	4	Liters(L)	26-Oct-21
SODIUM THIOSULFATE ANHYDROUS	500	Gram(GM)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
TRIS(2-CARBOXYETHYL)PHOSPHINE HYDROCHLORIDE	10	Gram(GM)	26-Oct-21
N-METHYL-N-(TRIMETHYLSILYL) TRIFLUOROACETAMIDE	1	Milliliter(ML)	26-Oct-21
Methylnitronitrosoguanidine	100	Milligram(MG)	26-Oct-21
Hydrochloric Acid Optima	500	Milliliter(ML)	26-Oct-21
Hydrochloric Acid Optima	500	Milliliter(ML)	26-Oct-21
Hydrochloric Acid Optima	500	Milliliter(ML)	26-Oct-21
Hydrochloric Acid Optima	500	Milliliter(ML)	26-Oct-21
Hydrochloric Acid Optima	500	Milliliter(ML)	26-Oct-21
Hydrochloric Acid Optima	500	Milliliter(ML)	26-Oct-21
Hydrochloric Acid Optima	500	Milliliter(ML)	26-Oct-21
Hydrochloric Acid Optima	500	Milliliter(ML)	26-Oct-21
Hydrochloric Acid Optima	500	Milliliter(ML)	26-Oct-21
Hydrochloric Acid Optima	500	Milliliter(ML)	26-Oct-21
Hydrochloric Acid Optima	1	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	1	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	1	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	1	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	1	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	1	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	1	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	1	Liters(L)	26-Oct-21
Hydrochloric Acid Optima	1	Liters(L)	26-Oct-21
ACETIC ACID GLACIAL	500	Milliliter(ML)	26-Oct-21
ACETIC ACID GLACIAL	500	Milliliter(ML)	26-Oct-21
ACETIC ACID GLACIAL	500	Milliliter(ML)	26-Oct-21
ACETIC ACID GLACIAL	500	Milliliter(ML)	26-Oct-21
ACETIC ACID GLACIAL	500	Milliliter(ML)	26-Oct-21
ACETIC ACID GLACIAL	500	Milliliter(ML)	26-Oct-21
Ammonium hydroxide reagent acs	500	Milliliter(ML)	26-Oct-21
Ammonium hydroxide reagent acs	500	Milliliter(ML)	26-Oct-21
Ammonium hydroxide reagent acs	500	Milliliter(ML)	26-Oct-21
Ammonium hydroxide reagent acs	500	Milliliter(ML)	26-Oct-21
Ammonium hydroxide reagent acs	500	Milliliter(ML)	26-Oct-21
Ammonium hydroxide reagent acs	500	Milliliter(ML)	26-Oct-21
Nitric acid (65 - 70%)	500	Milliliter(ML)	26-Oct-21
Nitric acid (65 - 70%)	500	Milliliter(ML)	26-Oct-21
Nitric acid (65 - 70%)	500	Milliliter(ML)	26-Oct-21
Nitric acid (65 - 70%)	500	Milliliter(ML)	26-Oct-21
Nitric acid (65 - 70%)	500	Milliliter(ML)	26-Oct-21
Nitric acid (65 - 70%)	500	Milliliter(ML)	26-Oct-21
Nitric acid (65 - 70%)	500	Milliliter(ML)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Nitric acid (65 - 70%)	500	Milliliter(ML)	26-Oct-21
Nitric acid (65 - 70%)	500	Milliliter(ML)	26-Oct-21
Nitric acid (65 - 70%)	500	Milliliter(ML)	26-Oct-21
VERSENE	100	Milliliter(ML)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
PROPANE	11	Gallon(GAL)	26-Oct-21
VERSENE	100	Milliliter(ML)	26-Oct-21
VERSENE	100	Milliliter(ML)	26-Oct-21
VERSENE	100	Milliliter(ML)	26-Oct-21
VERSENE	100	Milliliter(ML)	26-Oct-21
VERSENE	100	Milliliter(ML)	26-Oct-21
HEPES Free Acid Molecular Biology Grade	25	Gram(GM)	26-Oct-21
Ammonium nitrate for analysis EMSURE ACS	1	Kilograms(KG)	26-Oct-21
Vitronectin truncated recombinant human (VTN-N)	1	Milliliter(ML)	26-Oct-21
Vitronectin truncated recombinant human (VTN-N)	1	Milliliter(ML)	26-Oct-21
Vitronectin truncated recombinant human (VTN-N)	1	Milliliter(ML)	26-Oct-21
Vitronectin truncated recombinant human (VTN-N)	1	Milliliter(ML)	26-Oct-21
Vitronectin truncated recombinant human (VTN-N)	1	Milliliter(ML)	26-Oct-21
Vitronectin truncated recombinant human (VTN-N)	1	Milliliter(ML)	26-Oct-21
Vitronectin truncated recombinant human (VTN-N)	1	Milliliter(ML)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Vitronectin truncated recombinant human (VTN-N)	1	Milliliter(ML)	26-Oct-21
SODIUM THIOSULFATE	100	Gram(GM)	26-Oct-21
CALCIUM NITRATE TETRAHYDRATE	100	Gram(GM)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
Compressed Air	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NITROGEN GAS	220	Cubic Feet(CF)	26-Oct-21
NON-SHRINK GROUT	50	Pounds(LB)	26-Oct-21
NON-SHRINK GROUT	50	Pounds(LB)	26-Oct-21
NON-SHRINK GROUT	50	Pounds(LB)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	26-Oct-21
CARBON DIOXIDE	220	Cubic Feet(CF)	26-Oct-21
AMMONIUM ACETATE	500	Gram(GM)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
HELIUM GAS	220	Cubic Feet(CF)	26-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	26-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	26-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	26-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	26-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	26-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	26-Oct-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	26-Oct-21
ETHYL NITROACETATE	25	Gram(GM)	26-Oct-21
ETHYL NITROACETATE	25	Gram(GM)	26-Oct-21
ETHYL NITROACETATE	25	Gram(GM)	26-Oct-21
ETHYL NITROACETATE	25	Gram(GM)	26-Oct-21
NITRATE NITROGEN STANDARD	120	Milliliter(ML)	26-Oct-21
Organic Carbon Standard 1000 ppm C	120	Milliliter(ML)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ARDEX FEATHER FINISH	10	Pounds(LB)	26-Oct-21
ACETONE	600	Milliliter(ML)	26-Oct-21
ACETONE	600	Milliliter(ML)	26-Oct-21
ACETONE	600	Milliliter(ML)	26-Oct-21
ACETONE	600	Milliliter(ML)	26-Oct-21
ACETONE	600	Milliliter(ML)	26-Oct-21
ACETONE	600	Milliliter(ML)	26-Oct-21
ACETONE	600	Milliliter(ML)	26-Oct-21
ACETONE	600	Milliliter(ML)	26-Oct-21
ACETONE	600	Milliliter(ML)	26-Oct-21
ACETONE	600	Milliliter(ML)	26-Oct-21
ACETONE	600	Milliliter(ML)	26-Oct-21
TETRAETHYLAMMONIUM TETRAFLUOROBORATE	25	Gram(GM)	26-Oct-21
TETRAETHYLAMMONIUM TETRAFLUOROBORATE	25	Gram(GM)	26-Oct-21
TETRAETHYLAMMONIUM TETRAFLUOROBORATE	25	Gram(GM)	26-Oct-21
TETRAETHYLAMMONIUM TETRAFLUOROBORATE	25	Gram(GM)	26-Oct-21
TETRAETHYLAMMONIUM TETRAFLUOROBORATE	25	Gram(GM)	26-Oct-21
Roto-Xtend Duty Fluid	1	Gallon(GAL)	26-Oct-21
Roto-Xtend Duty Fluid	1	Gallon(GAL)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Roto-Xtend Duty Fluid	1	Gallon(GAL)	26-Oct-21
Roto-Xtend Duty Fluid	1	Gallon(GAL)	26-Oct-21
Roto-Xtend Duty Fluid	1	Gallon(GAL)	26-Oct-21
Roto-Xtend Duty Fluid	1	Gallon(GAL)	26-Oct-21
Roto-Xtend Duty Fluid	1	Gallon(GAL)	26-Oct-21
Roto-Xtend Duty Fluid	1	Gallon(GAL)	26-Oct-21
Roto-Xtend Duty Fluid	1	Gallon(GAL)	26-Oct-21
Roto-Xtend Duty Fluid	1	Gallon(GAL)	26-Oct-21
Dimethyl sulfoxide anhydrous 99.9%	1	Liters(L)	26-Oct-21
Dimethyl sulfoxide anhydrous 99.9%	1	Liters(L)	26-Oct-21
Dimethyl sulfoxide anhydrous 99.9%	1	Liters(L)	26-Oct-21
Dimethyl sulfoxide anhydrous 99.9%	1	Liters(L)	26-Oct-21
Dimethyl sulfoxide anhydrous 99.9%	1	Liters(L)	26-Oct-21
Dimethyl sulfoxide anhydrous 99.9%	1	Liters(L)	26-Oct-21
METHANOL (METHYL ALCOHOL)	4	Liters(L)	26-Oct-21
METHANOL (METHYL ALCOHOL)	4	Liters(L)	26-Oct-21
METHANOL (METHYL ALCOHOL)	4	Liters(L)	26-Oct-21
METHANOL (METHYL ALCOHOL)	4	Liters(L)	26-Oct-21
ETHYL ACETATE	4	Liters(L)	26-Oct-21
ETHYL ACETATE	4	Liters(L)	26-Oct-21
ETHYL ACETATE	4	Liters(L)	26-Oct-21
ETHYL ACETATE	4	Liters(L)	26-Oct-21
HEXANES	4	Liters(L)	26-Oct-21
HEXANES	4	Liters(L)	26-Oct-21
HEXANES	4	Liters(L)	26-Oct-21
HEXANES	4	Liters(L)	26-Oct-21
METHANOL	4	Liters(L)	26-Oct-21
METHANOL	4	Liters(L)	26-Oct-21
METHANOL	4	Liters(L)	26-Oct-21
METHANOL	4	Liters(L)	26-Oct-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	26-Oct-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	26-Oct-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	26-Oct-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	26-Oct-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	26-Oct-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	26-Oct-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	26-Oct-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	26-Oct-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	26-Oct-21
Sulfuric acid solution 0.02 N (N/50)	1	Liters(L)	26-Oct-21
HEXANE HPLC	4	Liters(L)	26-Oct-21
HEXANE HPLC	4	Liters(L)	26-Oct-21
METHYL ALCOHOL	1	Liters(L)	26-Oct-21
METHYL ALCOHOL	1	Liters(L)	26-Oct-21
METHYL ALCOHOL	1	Liters(L)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
METHYL ALCOHOL	1	Liters(L)	26-Oct-21
TOLUENE ANHYDROUS	1	Liters(L)	26-Oct-21
TOLUENE ANHYDROUS	1	Liters(L)	26-Oct-21
TOLUENE ANHYDROUS	1	Liters(L)	26-Oct-21
TOLUENE ANHYDROUS	1	Liters(L)	26-Oct-21
TOLUENE ANHYDROUS	1	Liters(L)	26-Oct-21
TOLUENE ANHYDROUS	1	Liters(L)	26-Oct-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	26-Oct-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	26-Oct-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	26-Oct-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	26-Oct-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	26-Oct-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	26-Oct-21
Pyridine anhydrous	1	Liters(L)	26-Oct-21
Pyridine anhydrous	1	Liters(L)	26-Oct-21
Pyridine anhydrous	1	Liters(L)	26-Oct-21
Pyridine anhydrous	1	Liters(L)	26-Oct-21
Pyridine anhydrous	1	Liters(L)	26-Oct-21
Pyridine anhydrous	1	Liters(L)	26-Oct-21
Pyridine anhydrous	1	Liters(L)	26-Oct-21
Pyridine anhydrous	1	Liters(L)	26-Oct-21
Pyridine anhydrous	1	Liters(L)	26-Oct-21
Pyridine anhydrous	1	Liters(L)	26-Oct-21
Pyridine anhydrous	1	Liters(L)	26-Oct-21
AG 50W-X4 50-100 100-200 200-400 sodium resin.	500	Gram(GM)	26-Oct-21
POLYETHYLENE GLYCOL 6000	1	Kilograms(KG)	26-Oct-21
BUEHLER METADI DIAMOND SUSPENSION	16	Ounces(OZ)	26-Oct-21
METADI 6 MICRON DIAMOND SUSPENSION	8	Ounces(OZ)	26-Oct-21
BUEHLER METADI DIAMOND SUSPENSION	8	Ounces(OZ)	26-Oct-21
Pentafluoroethylphosphonic acid	1	Gram(GM)	26-Oct-21
Pentafluoroethylphosphonic acid	1	Gram(GM)	26-Oct-21
GLYCEROL	100	Milliliter(ML)	26-Oct-21
GLYCEROL	100	Milliliter(ML)	26-Oct-21
CORONENE	100	Milligram(MG)	26-Oct-21
CORONENE	100	Milligram(MG)	26-Oct-21
(3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 10 11 11 12 1 2 12-Heneicosafluorododecyl)phosphonic acid	250	Milligram(MG)	26-Oct-21
RELEASE AGENT	4	Ounces(OZ)	26-Oct-21
Buehler Epoxicure 2 Resin	32	Ounces(OZ)	26-Oct-21
DU PONT CONDUCTOR COMPOSITION 4929N	100	Gram(GM)	26-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
DU PONT CONDUCTOR COMPOSITION 4929N	100	Gram(GM)	26-Oct-21
VACUUM PUMP OIL	1	Gallon(GAL)	27-Oct-21
VACUUM PUMP OIL	1	Gallon(GAL)	27-Oct-21
VACUUM PUMP OIL	1	Gallon(GAL)	27-Oct-21
VACUUM PUMP OIL	1	Gallon(GAL)	27-Oct-21
VACUUM PUMP OIL	1	Gallon(GAL)	27-Oct-21
VACUUM PUMP OIL	1	Gallon(GAL)	27-Oct-21
VACUUM PUMP OIL	1	Gallon(GAL)	27-Oct-21
VACUUM PUMP OIL	1	Gallon(GAL)	27-Oct-21
Polyvinyl alcohol hydrolyzed	250	Gram(GM)	27-Oct-21
MULTI ELEMENT QC-21 CHECK STANDARD SOLUTION	100	Milliliter(ML)	27-Oct-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	608	Ounces(OZ)	27-Oct-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	608	Ounces(OZ)	27-Oct-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	608	Ounces(OZ)	27-Oct-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	608	Ounces(OZ)	27-Oct-21
Avalon Premium 100% Acrylic Interior Eggshell W/B - DE-1631	608	Ounces(OZ)	27-Oct-21
Beta Y-Methyleneguanosine 5'-triphosphate sodium salt	25	Milligram(MG)	27-Oct-21
Fusidic acid sodium salt	1	Gram(GM)	27-Oct-21
Aluminum oxide fused insulating powder	1	Kilograms(KG)	27-Oct-21
ETHYL ACETATE	4	Liters(L)	27-Oct-21
ETHYL ACETATE	4	Liters(L)	27-Oct-21
DICHLOROMETHANE	4	Liters(L)	27-Oct-21
Gerfix TPS+	4	Gallon(GAL)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
Finium DTM-AT S/G Acrylic W/B	121.6	Gram(GM)	27-Oct-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	27-Oct-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	27-Oct-21
SOLVENT FREE TITEBOND ACOUSTICAL CEILING TILE ADHESIVE	28	Ounces(OZ)	27-Oct-21
SOLVENT FREE TITEBOND ACOUSTICAL CEILING TILE ADHESIVE	28	Ounces(OZ)	27-Oct-21
SOLVENT FREE TITEBOND ACOUSTICAL CEILING TILE ADHESIVE	28	Ounces(OZ)	27-Oct-21
SOLVENT FREE TITEBOND ACOUSTICAL CEILING TILE ADHESIVE	28	Ounces(OZ)	27-Oct-21
SOLVENT FREE TITEBOND ACOUSTICAL CEILING TILE ADHESIVE	28	Ounces(OZ)	27-Oct-21
SOLVENT FREE TITEBOND ACOUSTICAL CEILING TILE ADHESIVE	28	Ounces(OZ)	27-Oct-21
SOLVENT FREE TITEBOND ACOUSTICAL CEILING TILE ADHESIVE	28	Ounces(OZ)	27-Oct-21
SOLVENT FREE TITEBOND ACOUSTICAL CEILING TILE ADHESIVE	28	Ounces(OZ)	27-Oct-21
SOLVENT FREE TITEBOND ACOUSTICAL CEILING TILE ADHESIVE	28	Ounces(OZ)	27-Oct-21
SOLVENT FREE TITEBOND ACOUSTICAL CEILING TILE ADHESIVE	28	Ounces(OZ)	27-Oct-21
SOLVENT FREE TITEBOND ACOUSTICAL CEILING TILE ADHESIVE	28	Ounces(OZ)	27-Oct-21
Chip Quik Lead Free Solder Paste Series: SMD291SNL SMD4300SNL SMDLTLFP SMD4300LTLFP	1.036388	Ounces(OZ)	27-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Chip Quik Lead Free Solder Paste Series: SMD291SNL SMD4300SNL SMDLTLFP SMD4300LTLFP	1.036388	Ounces(OZ)	27-Oct-21
Chip Quik Lead Free Solder Paste Series: SMD291SNL SMD4300SNL SMDLTLFP SMD4300LTLFP	1.036388	Ounces(OZ)	27-Oct-21
Chip Quik Lead Free Solder Paste Series: SMD291SNL SMD4300SNL SMDLTLFP SMD4300LTLFP	1.036388	Ounces(OZ)	27-Oct-21
Chip Quik Lead Free Solder Paste Series: SMD291SNL SMD4300SNL SMDLTLFP SMD4300LTLFP	1.036388	Ounces(OZ)	27-Oct-21
Chip Quik Lead Free Solder Paste Series: SMD291SNL SMD4300SNL SMDLTLFP SMD4300LTLFP	1.036388	Ounces(OZ)	27-Oct-21
Chip Quik Leaded Solder Wire and Spheres	3.343972	Ounces(OZ)	27-Oct-21
CIRCUIT WORKS NO CLEAN FLUX PEN	0.32	Ounces(OZ)	27-Oct-21
CIRCUIT WORKS NO CLEAN FLUX PEN	0.32	Ounces(OZ)	27-Oct-21
CIRCUIT WORKS NO CLEAN FLUX PEN	0.32	Ounces(OZ)	27-Oct-21
CIRCUIT WORKS NO CLEAN FLUX PEN	0.32	Ounces(OZ)	27-Oct-21
CIRCUIT WORKS NO CLEAN FLUX PEN	0.32	Ounces(OZ)	27-Oct-21
CIRCUIT WORKS NO CLEAN FLUX PEN	0.32	Ounces(OZ)	27-Oct-21
CIRCUIT WORKS NO CLEAN FLUX PEN	0.32	Ounces(OZ)	27-Oct-21
CIRCUIT WORKS NO CLEAN FLUX PEN	0.32	Ounces(OZ)	27-Oct-21
CIRCUIT WORKS NO CLEAN FLUX PEN	0.32	Ounces(OZ)	27-Oct-21
CIRCUIT WORKS NO CLEAN FLUX PEN	0.32	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DUST OFF	10	Ounces(OZ)	27-Oct-21
DAP Alex Painters Acrylic Latex Caulk - All Colors	10.1	Ounces(OZ)	27-Oct-21
DAP Alex Painters Acrylic Latex Caulk - All Colors	10.1	Ounces(OZ)	27-Oct-21
Stihl HP 2-Cycle Engine Oil	2.6	Ounces(OZ)	27-Oct-21
Stihl HP 2-Cycle Engine Oil	2.6	Ounces(OZ)	27-Oct-21
Stihl HP 2-Cycle Engine Oil	2.6	Ounces(OZ)	27-Oct-21
Stihl HP 2-Cycle Engine Oil	2.6	Ounces(OZ)	27-Oct-21
Stihl HP 2-Cycle Engine Oil	2.6	Ounces(OZ)	27-Oct-21
Stihl HP 2-Cycle Engine Oil	2.6	Ounces(OZ)	27-Oct-21
Stihl HP 2-Cycle Engine Oil	2.6	Ounces(OZ)	27-Oct-21
Stihl HP 2-Cycle Engine Oil	2.6	Ounces(OZ)	27-Oct-21
Stihl HP 2-Cycle Engine Oil	2.6	Ounces(OZ)	27-Oct-21
Stihl HP 2-Cycle Engine Oil	2.6	Ounces(OZ)	27-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Stihl HP 2-Cycle Engine Oil	2.6	Ounces(OZ)	27-Oct-21
Stihl HP 2-Cycle Engine Oil	2.6	Ounces(OZ)	27-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	27-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	27-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	27-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	27-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	27-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	27-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	27-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	27-Oct-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
MasterSeal NP 1 Gray	10.1	Ounces(OZ)	27-Oct-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	27-Oct-21
ZIRCONIUM (IV) OXIDE	150	Milligram(MG)	28-Oct-21
MICROSET 101 FLUID REPLICATING COMPOUNDS	50	Milliliter(ML)	28-Oct-21
MICROSET 101 FLUID REPLICATING COMPOUNDS	50	Milliliter(ML)	28-Oct-21
MICROSET 101 FLUID REPLICATING COMPOUNDS	50	Milliliter(ML)	28-Oct-21
MICROSET 101 FLUID REPLICATING COMPOUNDS	50	Milliliter(ML)	28-Oct-21
MICROSET 101 FLUID REPLICATING COMPOUNDS	50	Milliliter(ML)	28-Oct-21
CONATHANE EN-7 PART B CURATIVE	2	Pint(PT)	28-Oct-21
CONATHANE EN-7 PART B CURATIVE	2	Pint(PT)	28-Oct-21
CONATHANE EN-4 PART A URETHANE PREPOLYMER	2	Gallon(GAL)	28-Oct-21
CONATHANE EN-4 PART A URETHANE PREPOLYMER	2	Gallon(GAL)	28-Oct-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	28-Oct-21
PREMIUM WOOD GLUE	16	Ounces(OZ)	28-Oct-21
DIVINYLBENZENE	100	Gram(GM)	28-Oct-21
INSTANT ADHESIVE	1	Ounces(OZ)	28-Oct-21
L ASCORBIC ACID	100	Gram(GM)	28-Oct-21
L ASCORBIC ACID	100	Gram(GM)	28-Oct-21
L ASCORBIC ACID	100	Gram(GM)	28-Oct-21
L ASCORBIC ACID	100	Gram(GM)	28-Oct-21
L ASCORBIC ACID	100	Gram(GM)	28-Oct-21
L ASCORBIC ACID	100	Gram(GM)	28-Oct-21
Hydrogen Peroxide 30% (w/w) ACS Reagent Grade	500	Milliliter(ML)	28-Oct-21
WOOD FILLER	12	Ounces(OZ)	28-Oct-21
L-ALANINE	100	Gram(GM)	28-Oct-21
L-ARGININE MONOHYDROCHLORIDE	10	Gram(GM)	28-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
L-CYSTEINE HYDROCHLORIDE MONOHYDRATE	100	Gram(GM)	28-Oct-21
L-LEUCINE	25	Gram(GM)	28-Oct-21
L-LYSINE MONOHYDROCHLORIDE	100	Gram(GM)	28-Oct-21
L-Methionine reagent grade 98% (HPLC)	5	Gram(GM)	28-Oct-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	28-Oct-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	28-Oct-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	28-Oct-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	28-Oct-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	28-Oct-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	28-Oct-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	28-Oct-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	28-Oct-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	28-Oct-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	28-Oct-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	28-Oct-21
SHEETROCK ACOUSTICAL SEALANT	29	Ounces(OZ)	28-Oct-21
FS-ONE	10.1	Ounces(OZ)	28-Oct-21
FS-ONE	10.1	Ounces(OZ)	28-Oct-21
FS-ONE	10.1	Ounces(OZ)	28-Oct-21
FS-ONE	10.1	Ounces(OZ)	28-Oct-21
POWER GRAB ADHESIVE	9	Ounces(OZ)	28-Oct-21
POWER GRAB ADHESIVE	9	Ounces(OZ)	28-Oct-21
POWER GRAB ADHESIVE	9	Ounces(OZ)	28-Oct-21
POWER GRAB ADHESIVE	9	Ounces(OZ)	28-Oct-21
POWER GRAB ADHESIVE	9	Ounces(OZ)	28-Oct-21
POWER GRAB ADHESIVE	9	Ounces(OZ)	28-Oct-21
POWER GRAB ADHESIVE	9	Ounces(OZ)	28-Oct-21
POWER GRAB ADHESIVE	9	Ounces(OZ)	28-Oct-21
POWER GRAB ADHESIVE	9	Ounces(OZ)	28-Oct-21
POWER GRAB ADHESIVE	9	Ounces(OZ)	28-Oct-21
Alex Plus Acrylic Latex Caulk Plus Silicone - All Colors	10.1	Ounces(OZ)	28-Oct-21
L-Phenylalanine reagent grade 98%	100	Gram(GM)	28-Oct-21
L-Threonine reagent grade 98% (HPLC)	10	Gram(GM)	28-Oct-21
L-Tryptophan reagent grade 98% (HPLC)	5	Gram(GM)	28-Oct-21
L-Valine reagent grade 98% (HPLC)	25	Gram(GM)	28-Oct-21
CHOLINE CHLORIDE	5	Gram(GM)	28-Oct-21
myo-Inositol 99%	50	Gram(GM)	28-Oct-21
BLOCKER CASEIN IN PBS	1	Liters(L)	28-Oct-21
RIBOFLAVIN	25	Gram(GM)	28-Oct-21
THIAMINE HYDROCHLORIDE	5	Gram(GM)	28-Oct-21
VITAMIN B12	1	Gram(GM)	28-Oct-21
2-Aminomethyl-15-crown-5	1	Gram(GM)	28-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
2-Aminomethyl-15-crown-5	1	Gram(GM)	28-Oct-21
Toluene anhydrous 99.9% (Assay)	1	Liters(L)	28-Oct-21
Toluene Reagent A.C.S.	1	Liters(L)	28-Oct-21
ETHYL ALCOHOL-200 PROOF	2.5	Liters(L)	28-Oct-21
GALLIUM INDIUM EUTECTIC	5	Gram(GM)	28-Oct-21
OXALIC ACID DIHYDRATE	250	Gram(GM)	28-Oct-21
HYDRAZINE SULFATE	1	Gram(GM)	28-Oct-21
KRYPTOFIX 222	5	Gram(GM)	28-Oct-21
Toluene-2 4-diisocyanate 80% remainder 2 6-diisocyanate	250	Gram(GM)	28-Oct-21
4 4-Dihydroxyazobenzene	5	Gram(GM)	28-Oct-21
4 4-Dihydroxyazobenzene	5	Gram(GM)	28-Oct-21
Koolance 702 Liquid Coolant High-Performance UV Blue	700	Milliliter(ML)	28-Oct-21
Koolance 702 Liquid Coolant High-Performance UV Blue	700	Milliliter(ML)	28-Oct-21
Koolance 702 Liquid Coolant High-Performance UV Blue	700	Milliliter(ML)	28-Oct-21
Koolance 702 Liquid Coolant High-Performance UV Blue	700	Milliliter(ML)	28-Oct-21
Koolance 702 Liquid Coolant High-Performance UV Blue	700	Milliliter(ML)	28-Oct-21
ETHYL ACETATE	4	Liters(L)	28-Oct-21
ETHYL ACETATE	4	Liters(L)	28-Oct-21
1 3-Cyclooctadiene	10	Milliliter(ML)	29-Oct-21
Cobalt(II) bromide	50	Gram(GM)	29-Oct-21
FERROCENIUM TETRAFLUOROBORATE	5	Gram(GM)	29-Oct-21
FERROCENIUM TETRAFLUOROBORATE	5	Gram(GM)	29-Oct-21
1 4-DIFLUOROBENZENE	25	Gram(GM)	29-Oct-21
CHLOROPENTAFLUOROBENZENE	25	Gram(GM)	29-Oct-21
IODOPENTAFLUOROBENZENE	25	Gram(GM)	29-Oct-21
BROMOPENTAFLUOROBENZENE	50	Gram(GM)	29-Oct-21
1-CHLORO-4-FLUOROBENZENE	25	Gram(GM)	29-Oct-21
2-HYDROXYETHYL ETHER	2.5	Liters(L)	29-Oct-21
TRIETHYLENE GLYCOL	2.5	Liters(L)	29-Oct-21
N-HEXANE	25	Liters(L)	29-Oct-21
DIETHYL ETHER	25	Liters(L)	29-Oct-21
ISOPHORONE DIISOCYANATE	250	Milliliter(ML)	29-Oct-21
SILVERED COBALT (II III) OXIDE	25	Gram(GM)	29-Oct-21
SILVERED COBALT (II III) OXIDE	25	Gram(GM)	29-Oct-21
SILVERED COBALT (II III) OXIDE	25	Gram(GM)	29-Oct-21
SILVERED COBALT (II III) OXIDE	25	Gram(GM)	29-Oct-21
SILVERED COBALT (II III) OXIDE	25	Gram(GM)	29-Oct-21
SILVERED COBALT (II III) OXIDE	25	Gram(GM)	29-Oct-21
CHROMIUM OXIDE	50	Gram(GM)	29-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CHROMIUM OXIDE	50	Gram(GM)	29-Oct-21
CHROMIUM OXIDE	50	Gram(GM)	29-Oct-21
CHROMIUM OXIDE	50	Gram(GM)	29-Oct-21
CHROMIUM OXIDE	50	Gram(GM)	29-Oct-21
CHROMIUM OXIDE	50	Gram(GM)	29-Oct-21
1 6-Diisocyanatohexane	100	Gram(GM)	29-Oct-21
4 4'-Methylenebis(cyclohexyl isocyanate)	100	Milliliter(ML)	29-Oct-21
ZIRCONIUM(IV) CHLORIDE	100	Gram(GM)	29-Oct-21
KRYPTOFIX 222	1	Gram(GM)	29-Oct-21
PENTAFLUOROPHENOL	10	Gram(GM)	29-Oct-21
ACETONE ACS	4	Liters(L)	29-Oct-21
ACETONE ACS	4	Liters(L)	29-Oct-21
AMMONIUM CERIUM(IV) NITRATE	500	Gram(GM)	29-Oct-21
AMMONIUM CERIUM(IV) NITRATE	500	Gram(GM)	29-Oct-21
AMMONIUM CERIUM(IV) NITRATE	500	Gram(GM)	29-Oct-21
DIETHYL ETHER	2.5	Liters(L)	29-Oct-21
CHROMIUM(III) CHLORIDE HEXAHYDRATE	100	Gram(GM)	29-Oct-21
PINACOL	500	Gram(GM)	29-Oct-21
DPD COMPOUND FOR FREE AND TOTAL CHLORINE ANALYZERS	25	Gram(GM)	29-Oct-21
DPD COMPOUND FOR FREE AND TOTAL CHLORINE ANALYZERS	25	Gram(GM)	29-Oct-21
DPD COMPOUND FOR FREE AND TOTAL CHLORINE ANALYZERS	25	Gram(GM)	29-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	29-Oct-21
Fluorobenzene in Nitrogen	125	Cubic Feet(CF)	29-Oct-21
Fluorobenzene in Nitrogen	125	Cubic Feet(CF)	29-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	29-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	29-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	29-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	29-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	29-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	29-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	29-Oct-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	29-Oct-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	29-Oct-21
HELIUM GAS	100	Liters(L)	29-Oct-21
HELIUM GAS	100	Liters(L)	29-Oct-21
LPS TAPMATIC TRIPLE E CUTTING FLUID	16	Ounces(OZ)	29-Oct-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Oct-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Oct-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Oct-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Oct-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Oct-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Oct-21
3M Super 77 Multipurpose Adhesive (Aerosol)	13.44	Ounces(OZ)	29-Oct-21
3M Super 77 Multipurpose Adhesive (Aerosol)	13.44	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
MasterSeal NP 1 Gray	27.8	Ounces(OZ)	29-Oct-21
Part A: PC-3 Series Part B: PC-B - KIT	1.25	Pounds(LB)	29-Oct-21
Kay Block Whitener	1	Gallon(GAL)	29-Oct-21
Kay Block Whitener	1	Gallon(GAL)	29-Oct-21
Kay Block Whitener	1	Gallon(GAL)	29-Oct-21
Kay Block Whitener	1	Gallon(GAL)	29-Oct-21
33 GLAZING	32	Ounces(OZ)	29-Oct-21
33 GLAZING	32	Ounces(OZ)	29-Oct-21
ELMER'S PROBOND CONCRETE BONDER	1	Gallon(GAL)	29-Oct-21
ELASTOPOR P1001U ISOCYANATE	1	Gallon(GAL)	29-Oct-21
MOBIL SHC GEAR 460	35	Pounds(LB)	01-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
MOBIL SHC GEAR 460	35	Pounds(LB)	01-Nov-21
Lead-Free Solder	1	Pounds(LB)	01-Nov-21
Lead-Free Solder	1	Pounds(LB)	01-Nov-21
Lead-Free Solder	1	Pounds(LB)	01-Nov-21
Lead-Free Solder	1	Pounds(LB)	01-Nov-21
Lead-Free Solder	1	Pounds(LB)	01-Nov-21
Lead-Free Solder	1	Pounds(LB)	01-Nov-21
Lead-Free Solder	1	Pounds(LB)	01-Nov-21
Lead-Free Solder	1	Pounds(LB)	01-Nov-21
Lead-Free Solder	1	Pounds(LB)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
JB Fast Vac Base	1	Quarts(QT)	01-Nov-21
Megaloc	8	Ounces(OZ)	01-Nov-21
V-82 Commercial Adhesive	4	Gallon(GAL)	01-Nov-21
V-82 Commercial Adhesive	4	Gallon(GAL)	01-Nov-21
V-82 Commercial Adhesive	4	Gallon(GAL)	01-Nov-21
FORMULA 314-T	5	Gallon(GAL)	01-Nov-21
FORMULA 314-T	5	Gallon(GAL)	01-Nov-21
FORMULA 314-T	5	Gallon(GAL)	01-Nov-21
FORMULA 314-T	5	Gallon(GAL)	01-Nov-21
FORMULA 314-T	5	Gallon(GAL)	01-Nov-21
FORMULA 314-T	5	Gallon(GAL)	01-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
RUSTOLEUM GLOSS ENAMEL (7747 SUNBURST ENAMEL)	12	Ounces(OZ)	01-Nov-21
RUSTOLEUM GLOSS ENAMEL (7747 SUNBURST ENAMEL)	12	Ounces(OZ)	01-Nov-21
RUSTOLEUM GLOSS ENAMEL (7747 SUNBURST ENAMEL)	12	Ounces(OZ)	01-Nov-21
RUSTOLEUM GLOSS ENAMEL (7747 SUNBURST ENAMEL)	12	Ounces(OZ)	01-Nov-21
RUSTOLEUM GLOSS ENAMEL (7747 SUNBURST ENAMEL)	12	Ounces(OZ)	01-Nov-21
RUSTOLEUM GLOSS ENAMEL (7747 SUNBURST ENAMEL)	12	Ounces(OZ)	01-Nov-21
RUSTOLEUM GLOSS ENAMEL (7747 SUNBURST ENAMEL)	12	Ounces(OZ)	01-Nov-21
RUSTOLEUM GLOSS ENAMEL (7747 SUNBURST ENAMEL)	12	Ounces(OZ)	01-Nov-21
RUSTOLEUM GLOSS ENAMEL (7747 SUNBURST ENAMEL)	12	Ounces(OZ)	01-Nov-21
RUSTOLEUM GLOSS ENAMEL (7747 SUNBURST ENAMEL)	12	Ounces(OZ)	01-Nov-21
RUSTOLEUM GLOSS ENAMEL (7747 SUNBURST ENAMEL)	12	Ounces(OZ)	01-Nov-21
FORMULA 325	5	Gallon(GAL)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	01-Nov-21
FORMULA 325	5	Gallon(GAL)	01-Nov-21
Cytotoxicity Detection Kit (LDH)	46	Milliliter(ML)	01-Nov-21
Tetrahydrofuran contains 250 ppm BHT as inhibitor ACS reagent 99%	2.5	Liters(L)	01-Nov-21
SODIUM OILED STICKS	100	Gram(GM)	01-Nov-21
Methanol (HPLC)	4	Liters(L)	01-Nov-21
Methanol (HPLC)	4	Liters(L)	01-Nov-21
Methanol (HPLC)	4	Liters(L)	01-Nov-21
Methanol (HPLC)	4	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	01-Nov-21
Blue Monster PTFE Pipe Thread Sealant	16	Ounces(OZ)	01-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Blue Monster PTFE Pipe Thread Sealant	16	Ounces(OZ)	01-Nov-21
TM-15	5	Gallon(GAL)	01-Nov-21
TM-15	5	Gallon(GAL)	01-Nov-21
TM-15	5	Gallon(GAL)	01-Nov-21
TM-15	5	Gallon(GAL)	01-Nov-21
TM-15	5	Gallon(GAL)	01-Nov-21
STIHL MOTOMIX HIgh Performance Patented Fuel	1	Gallon(GAL)	01-Nov-21
STIHL MOTOMIX HIgh Performance Patented Fuel	1	Gallon(GAL)	01-Nov-21
STIHL MOTOMIX HIgh Performance Patented Fuel	1	Gallon(GAL)	01-Nov-21
STIHL MOTOMIX HIgh Performance Patented Fuel	1	Gallon(GAL)	01-Nov-21
STIHL MOTOMIX HIgh Performance Patented Fuel	1	Gallon(GAL)	01-Nov-21
STIHL MOTOMIX HIgh Performance Patented Fuel	1	Gallon(GAL)	01-Nov-21
STIHL MOTOMIX HIgh Performance Patented Fuel	1	Gallon(GAL)	01-Nov-21
STIHL MOTOMIX HIgh Performance Patented Fuel	1	Gallon(GAL)	01-Nov-21
HERCULES CRYOTEK	5	Gallon(GAL)	01-Nov-21
HERCULES CRYOTEK	5	Gallon(GAL)	01-Nov-21
HERCULES CRYOTEK	5	Gallon(GAL)	01-Nov-21
HERCULES CRYOTEK	5	Gallon(GAL)	01-Nov-21
Spears Primer-70 Low VOC Primer for PVC and CPVC Plastic Pipe	16	Ounces(OZ)	01-Nov-21
Spears Primer-70 Low VOC Primer for PVC and CPVC Plastic Pipe	16	Ounces(OZ)	01-Nov-21
Spears Primer-70 Low VOC Primer for PVC and CPVC Plastic Pipe	16	Ounces(OZ)	01-Nov-21
Spears Primer-70 Low VOC Primer for PVC and CPVC Plastic Pipe	16	Ounces(OZ)	01-Nov-21
LOW VOC PRIMER	1	Quarts(QT)	01-Nov-21
LOW VOC PRIMER	1	Quarts(QT)	01-Nov-21
RectorSeal Tru-Blu	1	Pint(PT)	01-Nov-21
RectorSeal Tru-Blu	1	Pint(PT)	01-Nov-21
VICTAULIC LUBRICANT	1	Quarts(QT)	01-Nov-21
VICTAULIC LUBRICANT	1	Quarts(QT)	01-Nov-21
RectorSeal Tru-Blu	16	Ounces(OZ)	01-Nov-21
RectorSeal Tru-Blu	16	Ounces(OZ)	01-Nov-21
RectorSeal Tru-Blu	16	Ounces(OZ)	01-Nov-21
RectorSeal Tru-Blu	16	Ounces(OZ)	01-Nov-21
Oatey Purple Primer	1	Quarts(QT)	01-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Oatey Purple Primer	1	Quarts(QT)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
INVERTED MARKING PAINT ORANGE	17	Ounces(OZ)	01-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
PREMIUM WATERPROOF SILICONE METALLIC	10.1	Ounces(OZ)	02-Nov-21
HANDY FLUX	1	Pounds(LB)	02-Nov-21
HANDY FLUX	1	Pounds(LB)	02-Nov-21
HANDY FLUX	1	Pounds(LB)	02-Nov-21
HANDY FLUX	1	Pounds(LB)	02-Nov-21
LOCTITE 242 THREADLOCKER	50	Milliliter(ML)	02-Nov-21
LOCTITE 242 THREADLOCKER	50	Milliliter(ML)	02-Nov-21
mobile 600 w	5	Gallon(GAL)	02-Nov-21
Mobilgear 600 XP 220	5	Gallon(GAL)	02-Nov-21
CARBON MONOXIDE 50PPM/ BAL. AIR	3.64	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
ARGON GAS	220	Cubic Feet(CF)	02-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	02-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	02-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	02-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	02-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	02-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	02-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	02-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	02-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	02-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
Compressed Air	220	Cubic Feet(CF)	02-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	02-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	02-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	02-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	02-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	02-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	02-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	02-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CARBON DIOXIDE	50	Cubic Feet(CF)	02-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	02-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	02-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	02-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	02-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	02-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	02-Nov-21
HYDROGEN 4% BAL HELIUM	220	Cubic Feet(CF)	02-Nov-21
HYDROGEN 4% BAL HELIUM	220	Cubic Feet(CF)	02-Nov-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	02-Nov-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	02-Nov-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	02-Nov-21
75% ARGON/25% CARBON DIOXIDE	220	Cubic Feet(CF)	02-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
75% ARGON/25% CARBON DIOXIDE	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	02-Nov-21
Oxygen Nitrogen	125	Cubic Feet(CF)	02-Nov-21
Ammonia 500 ppm/Bal. Nitrogen	125	Cubic Feet(CF)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
PROPANE	11	Gallon(GAL)	02-Nov-21
JB Fast Vac Base	1	Gallon(GAL)	02-Nov-21
JB Fast Vac Base	1	Gallon(GAL)	02-Nov-21
MAGNAFLUX SPOTCHECK SKC-S	10.5	Ounces(OZ)	02-Nov-21
MAGNAFLUX SPOTCHECK SKC-S	10.5	Ounces(OZ)	02-Nov-21
MAGNAFLUX SPOTCHECK SKC-S	10.5	Ounces(OZ)	02-Nov-21
MAGNAFLUX SPOTCHECK SKC-S	10.5	Ounces(OZ)	02-Nov-21
MAGNAFLUX SPOTCHECK SKC-S	10.5	Ounces(OZ)	02-Nov-21
MAGNAFLUX SPOTCHECK SKC-S	10.5	Ounces(OZ)	02-Nov-21
MAGNAFLUX SPOTCHECK SKC-S	10.5	Ounces(OZ)	02-Nov-21
MAGNAFLUX SPOTCHECK SKC-S	10.5	Ounces(OZ)	02-Nov-21
MAGNAFLUX SPOTCHECK SKC-S	10.5	Ounces(OZ)	02-Nov-21
MAGNAFLUX SPOTCHECK SKC-S	10.5	Ounces(OZ)	02-Nov-21
MAGNAFLUX SPOTCHECK SKC-S	10.5	Ounces(OZ)	02-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	02-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	02-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	02-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	02-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	02-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	02-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	02-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	02-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	02-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Nashua 398 Spray Adhesive	12	Ounces(OZ)	02-Nov-21
ELASTOPOR P 52442R RESIN	1	Gallon(GAL)	02-Nov-21
Titebond GREENchoice Fast Grab FRP Adhesive	4	Gallon(GAL)	02-Nov-21
NON-SHRINK GROUT	50	Pounds(LB)	02-Nov-21
NON-SHRINK GROUT	50	Pounds(LB)	02-Nov-21
NON-SHRINK GROUT	50	Pounds(LB)	02-Nov-21
NON-SHRINK GROUT	50	Pounds(LB)	02-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
DOW CORNING(R) HIGH VACUUM GREASE	5.3	Ounces(OZ)	03-Nov-21
Spears Primer-68 Low VOC Primer for PVC and CPVC Plastic Pipe	8	Ounces(OZ)	03-Nov-21
Spears Primer-68 Low VOC Primer for PVC and CPVC Plastic Pipe	8	Ounces(OZ)	03-Nov-21
Spears Primer-68 Low VOC Primer for PVC and CPVC Plastic Pipe	8	Ounces(OZ)	03-Nov-21
Spears Primer-68 Low VOC Primer for PVC and CPVC Plastic Pipe	8	Ounces(OZ)	03-Nov-21
Spears LW-5 One-Step Low VOC Cement for LabWaste CPVC Systems	1	Quarts(QT)	03-Nov-21
Spears LW-5 One-Step Low VOC Cement for LabWaste CPVC Systems	1	Quarts(QT)	03-Nov-21
Spears LW-5 One-Step Low VOC Cement for LabWaste CPVC Systems	1	Quarts(QT)	03-Nov-21
Spears LW-5 One-Step Low VOC Cement for LabWaste CPVC Systems	1	Quarts(QT)	03-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Spears LW-5 One-Step Low VOC Cement for LabWaste CPVC Systems	1	Quarts(QT)	03-Nov-21
Megaloc	8	Ounces(OZ)	03-Nov-21
Ag/AgCl filling solution	2	NMOL	03-Nov-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	03-Nov-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	03-Nov-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	03-Nov-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	03-Nov-21
Bridgit Lead Free Solder	0	Ounces(OZ)	03-Nov-21
Bridgit Lead Free Solder	0	Ounces(OZ)	03-Nov-21
A A A-TRIFLUOROTOLUENE	100	Milliliter(ML)	03-Nov-21
COOLANT	1	Liters(L)	03-Nov-21
A A A-TRIFLUOROTOLUENE	100	Milliliter(ML)	03-Nov-21
A A A-TRIFLUOROTOLUENE	100	Milliliter(ML)	03-Nov-21
A A A-TRIFLUOROTOLUENE	100	Milliliter(ML)	03-Nov-21
A A A-TRIFLUOROTOLUENE	100	Milliliter(ML)	03-Nov-21
SODIUM BICARBONATE	3	Kilograms(KG)	03-Nov-21
SODIUM BICARBONATE	3	Kilograms(KG)	03-Nov-21
SODIUM BICARBONATE	3	Kilograms(KG)	03-Nov-21
SODIUM BICARBONATE	3	Kilograms(KG)	03-Nov-21
SODIUM BICARBONATE	3	Kilograms(KG)	03-Nov-21
SODIUM BICARBONATE	3	Kilograms(KG)	03-Nov-21
SODIUM BICARBONATE	3	Kilograms(KG)	03-Nov-21
SODIUM BICARBONATE	3	Kilograms(KG)	03-Nov-21
CALCIUM CHLORIDE DIHYDRATE	3	Kilograms(KG)	03-Nov-21
CALCIUM CHLORIDE DIHYDRATE	3	Kilograms(KG)	03-Nov-21
CALCIUM CHLORIDE DIHYDRATE	3	Kilograms(KG)	03-Nov-21
CALCIUM CHLORIDE DIHYDRATE	3	Kilograms(KG)	03-Nov-21
Celite 545 Filter Aid (Powder)	500	Gram(GM)	03-Nov-21
Celite 545 Filter Aid (Powder)	500	Gram(GM)	03-Nov-21
Celite 545 Filter Aid (Powder)	500	Gram(GM)	03-Nov-21
Celite 545 Filter Aid (Powder)	500	Gram(GM)	03-Nov-21
Celite 545 Filter Aid (Powder)	500	Gram(GM)	03-Nov-21
Celite 545 Filter Aid (Powder)	500	Gram(GM)	03-Nov-21
Celite 545 Filter Aid (Powder)	500	Gram(GM)	03-Nov-21
Celite 545 Filter Aid (Powder)	500	Gram(GM)	03-Nov-21
Celite 545 Filter Aid (Powder)	500	Gram(GM)	03-Nov-21
Celite 545 Filter Aid (Powder)	500	Gram(GM)	03-Nov-21
Celite 545 Filter Aid (Powder)	500	Gram(GM)	03-Nov-21
Celite 545 Filter Aid (Powder)	500	Gram(GM)	03-Nov-21
DICHLOROMETHANE REAGENT ACS	20	Liters(L)	03-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
POTASSIUM CARBONATE ANHYDROUS	500	Gram(GM)	03-Nov-21
POTASSIUM CARBONATE ANHYDROUS	500	Gram(GM)	03-Nov-21
POTASSIUM CARBONATE ANHYDROUS	500	Gram(GM)	03-Nov-21
POTASSIUM CARBONATE ANHYDROUS	500	Gram(GM)	03-Nov-21
BUFFER PH 1.68	500	Milliliter(ML)	03-Nov-21
NORLAND OPTICAL ADHESIVE 68	10	Gram(GM)	03-Nov-21
NORLAND OPTICAL ADHESIVE 68	10	Gram(GM)	03-Nov-21
NORLAND OPTICAL ADHESIVE 68	10	Gram(GM)	03-Nov-21
CHOLINE CHLORIDE	100	Gram(GM)	03-Nov-21
CHOLINE CHLORIDE	100	Gram(GM)	03-Nov-21
Megaloc	0.5	Pint(PT)	03-Nov-21
VICTAULIC LUBRICANT	1	Quarts(QT)	03-Nov-21
FORMULA 316	1.2	Ounces(OZ)	03-Nov-21
FORMULA 316	1.2	Ounces(OZ)	03-Nov-21
FORMULA 316	1.2	Ounces(OZ)	03-Nov-21
FORMULA 316	1.2	Ounces(OZ)	03-Nov-21
FORMULA 316	1.2	Ounces(OZ)	03-Nov-21
3-Ethyl-2 4-dimethylpyrrole	25	Gram(GM)	03-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	03-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	03-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	03-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	03-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	03-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	03-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	03-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	03-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	03-Nov-21
Nashua 398 Spray Adhesive	12	Ounces(OZ)	03-Nov-21
Pyrrole-3-carboxylic acid	250	Milligram(MG)	03-Nov-21
ZINC NITRATE HEXAHYDRATE	500	Gram(GM)	03-Nov-21
BENZENE D6	50	Gram(GM)	03-Nov-21
BENZENE D6	50	Gram(GM)	03-Nov-21
Spears Primer-68 Low VOC Primer for PVC and CPVC Plastic Pipe	1	Quarts(QT)	03-Nov-21
EUROPIUM(III) NITRATE PENTAHYDRATE	1	Gram(GM)	03-Nov-21
EUROPIUM(III) NITRATE PENTAHYDRATE	1	Gram(GM)	03-Nov-21
Silanization solution I	1	Liters(L)	03-Nov-21
FERROUS CHLORIDE TETRAHYDRATE	250	Gram(GM)	03-Nov-21
SODIUM CHLORIDE 99.5%	500	Gram(GM)	03-Nov-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	03-Nov-21
HYDROCHLORIC ACID 35-37%	100	Milliliter(ML)	03-Nov-21
HYDROCHLORIC ACID 35-37%	100	Milliliter(ML)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
Ammonia TNTplus HR	25	Milligram(MG)	03-Nov-21
SILVER CHLORIDE FILLING SOLUTION	60	Milliliter(ML)	03-Nov-21
SILVER CHLORIDE FILLING SOLUTION	60	Milliliter(ML)	03-Nov-21
SILVER CHLORIDE FILLING SOLUTION	60	Milliliter(ML)	03-Nov-21
ETHYL ACETATE	12.3	Milliliter(ML)	03-Nov-21
ETHYL ACETATE	12.3	Milliliter(ML)	03-Nov-21
ETHYL ACETATE	12.3	Milliliter(ML)	03-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	04-Nov-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	04-Nov-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	04-Nov-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	04-Nov-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	04-Nov-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	04-Nov-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	04-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	04-Nov-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	04-Nov-21
Parts Plus Conventional Green 50/50 Prediluted Antifreeze Coolant	1	Gallon(GAL)	04-Nov-21
SULLAIR SULLUBE	5	Gallon(GAL)	04-Nov-21
SULLAIR SULLUBE	5	Gallon(GAL)	04-Nov-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	04-Nov-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	04-Nov-21
BROMOCRESOL GREEN INDICATOR SOLUTION	500	Milliliter(ML)	04-Nov-21
BROMOCRESOL GREEN INDICATOR SOLUTION	500	Milliliter(ML)	04-Nov-21
BROMOCRESOL GREEN INDICATOR SOLUTION	500	Milliliter(ML)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	04-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	04-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	04-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	04-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	04-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	04-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	04-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	04-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	04-Nov-21
Sewer Tracing Dye	1	Gallon(GAL)	04-Nov-21
SPARKLEEN 2	3	Pounds(LB)	04-Nov-21
SPARKLEEN 2	3	Pounds(LB)	04-Nov-21
SPARKLEEN 2	3	Pounds(LB)	04-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SPARKLEEN 2	3	Pounds(LB)	04-Nov-21
STANDARD SOLUTION AMTAX	237	Milliliter(ML)	04-Nov-21
STANDARD SOLUTION AMTAX	237	Milliliter(ML)	04-Nov-21
STANDARD SOLUTION AMTAX	237	Milliliter(ML)	04-Nov-21
STANDARD SOLUTION AMTAX	237	Milliliter(ML)	04-Nov-21
STANDARD SOLUTION AMTAX	237	Milliliter(ML)	04-Nov-21
NITROGEN AMMONIA STANDARD SOLUTION 100mg/L	100	Milligram(MG)	04-Nov-21
NITROGEN AMMONIA STANDARD SOLUTION 100mg/L	100	Milligram(MG)	04-Nov-21
NITROGEN AMMONIA STANDARD SOLUTION 100mg/L	100	Milligram(MG)	04-Nov-21
NITROGEN AMMONIA STANDARD SOLUTION 100mg/L	100	Milligram(MG)	04-Nov-21
NITROGEN AMMONIA STANDARD SOLUTION 100mg/L	100	Milligram(MG)	04-Nov-21
EXPULSION SOLUTION AMTAX	237	Milliliter(ML)	04-Nov-21
EXPULSION SOLUTION AMTAX	237	Milliliter(ML)	04-Nov-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	04-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	04-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PLAZA PLUS Sealer/Finish	5	Gallon(GAL)	04-Nov-21
Henry 430 ClearPro Clear VCT Floor Adhesive	4	Gallon(GAL)	04-Nov-21
Henry 430 ClearPro Clear VCT Floor Adhesive	4	Gallon(GAL)	04-Nov-21
EXPULSION SOLUTION AMTAX	237	Milliliter(ML)	04-Nov-21
EXPULSION SOLUTION AMTAX	237	Milliliter(ML)	04-Nov-21
EXPULSION SOLUTION AMTAX	237	Milliliter(ML)	04-Nov-21
AMTEX EXPULSION SOLUTION #28254-31	237	Milliliter(ML)	04-Nov-21
AMTEX EXPULSION SOLUTION #28254-31	237	Milliliter(ML)	04-Nov-21
AMTEX EXPULSION SOLUTION #28254-31	237	Milliliter(ML)	04-Nov-21
AMTEX EXPULSION SOLUTION #28254-31	237	Milliliter(ML)	04-Nov-21
AMMONIA PH-ADJUSTING ISA	475	Milliliter(ML)	04-Nov-21
AMMONIA PH-ADJUSTING ISA	475	Milliliter(ML)	04-Nov-21
AMMONIA PH-ADJUSTING ISA	475	Milliliter(ML)	04-Nov-21
DPD COMPOUND	24	Gram(GM)	04-Nov-21
DPD COMPOUND	24	Gram(GM)	04-Nov-21
DPD COMPOUND	24	Gram(GM)	04-Nov-21
DPD COMPOUND	24	Gram(GM)	04-Nov-21
FREE CHLORINE INDICATOR SOLUTION FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE INDICATOR SOLUTION FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE INDICATOR SOLUTION FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE INDICATOR SOLUTION FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE INDICATOR SOLUTION FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE INDICATOR SOLUTION FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE INDICATOR SOLUTION FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
FREE CHLORINE BUFFER FOR CL-17 ANALYZER	473	Milliliter(ML)	04-Nov-21
Gerfix TPS+	4	Gallon(GAL)	04-Nov-21
Gerfix TPS+	4	Gallon(GAL)	04-Nov-21
Gerfix TPS+	4	Gallon(GAL)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	04-Nov-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	04-Nov-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	04-Nov-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	04-Nov-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	04-Nov-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	04-Nov-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	04-Nov-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	04-Nov-21
Smart Lube	2.5	Gallon(GAL)	04-Nov-21
Smart Lube	2.5	Gallon(GAL)	04-Nov-21
Smart Lube	2.5	Gallon(GAL)	04-Nov-21
Smart Lube	2.5	Gallon(GAL)	04-Nov-21
Gerfix TPS+	4	Gallon(GAL)	04-Nov-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	04-Nov-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	04-Nov-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	04-Nov-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	04-Nov-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	04-Nov-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	04-Nov-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	04-Nov-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	04-Nov-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	04-Nov-21
Titebond Professional Drywall Adhesive	28	Ounces(OZ)	04-Nov-21
Polywater J Winter Grade Lubricant	1	Quarts(QT)	04-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Polywater J Winter Grade Lubricant	1	Quarts(QT)	04-Nov-21
Polywater J Winter Grade Lubricant	1	Quarts(QT)	04-Nov-21
Polywater J Winter Grade Lubricant	1	Quarts(QT)	04-Nov-21
Parts Plus All Makes AllModels 50/50 Prediluted Antifreeze Coolant	1	Gallon(GAL)	08-Nov-21
Parts Plus All Makes AllModels 50/50 Prediluted Antifreeze Coolant	1	Gallon(GAL)	08-Nov-21
Parts Plus All Makes AllModels 50/50 Prediluted Antifreeze Coolant	1	Gallon(GAL)	08-Nov-21
LPS PRECISION CLEAN	28	Ounces(OZ)	08-Nov-21
ZEROSTART DIESEL STARTING	18	Ounces(OZ)	08-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
NITROGEN GAS	150	Cubic Feet(CF)	09-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
Sikaflex-1C SL	29	Ounces(OZ)	09-Nov-21
HELIUM GAS	150	Cubic Feet(CF)	09-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	09-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	09-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	09-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	09-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	09-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	09-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	09-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	09-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	09-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	09-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	09-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	09-Nov-21
ZERO AIR	34	Liters(L)	09-Nov-21
18% Oxygen/Balance Nitrogen	105	Liters(L)	09-Nov-21
Slugger Cutting Fluid	1	Gallon(GAL)	09-Nov-21
Slugger Cutting Fluid	1	Gallon(GAL)	09-Nov-21
Slugger Cutting Fluid	1	Gallon(GAL)	09-Nov-21
Slugger Cutting Fluid	1	Gallon(GAL)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	09-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	09-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	09-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	09-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	09-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	09-Nov-21
ZEREX DEX-COOL Antifreeze Coolant	1	Gallon(GAL)	09-Nov-21
Parts Plus 5W-20 Prem Semi Syn	1	Quarts(QT)	09-Nov-21
CRC BRAKLEEN BRAKE CLEANER	14	Ounces(OZ)	09-Nov-21
PSX 700 SAFETY YELLOW 1979 RESIN	0.8	Gallon(GAL)	09-Nov-21
PSX 700 SAFETY YELLOW 1979 RESIN	0.8	Gallon(GAL)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
SASHCO BIG STRETCH SEALER	10.5	Ounces(OZ)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
DIESEL EXHAUST FLUID	1	Gallon(GAL)	09-Nov-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	09-Nov-21
Parts Plus All Makes AllModels 50/50 Prediluted Antifreeze Coolant	1	Gallon(GAL)	09-Nov-21
Parts Plus All Makes AllModels 50/50 Prediluted Antifreeze Coolant	1	Gallon(GAL)	09-Nov-21
50/50 PREDILLUTED ANTI-FREEZE COOLANT	1	Gallon(GAL)	09-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	09-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
Premium Blue DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	09-Nov-21
ORP Standard 220 mV	1	Liters(L)	09-Nov-21
ORP Standard 220 mV	1	Liters(L)	09-Nov-21
ORP Standard 220 mV	1	Liters(L)	09-Nov-21
ORP Standard 220 mV	1	Liters(L)	09-Nov-21
ORP Standard 220 mV	1	Liters(L)	09-Nov-21
ORP Standard 220 mV	1	Liters(L)	09-Nov-21
ORP Standard 220 mV	1	Liters(L)	09-Nov-21
ORP Standard 220 mV	1	Liters(L)	09-Nov-21
BUFFER SOLUTION PH4	5	Gallon(GAL)	09-Nov-21
BUFFER SOLUTION PH 7.0	5	Gallon(GAL)	09-Nov-21
KAY SOLIDSENSE SANITIZER	2	Pounds(LB)	09-Nov-21
KAY SOLIDSENSE SANITIZER	2	Pounds(LB)	09-Nov-21
KAY SOLIDSENSE SANITIZER	2	Pounds(LB)	09-Nov-21
KAY SOLIDSENSE SANITIZER	2	Pounds(LB)	09-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	09-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	09-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	09-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	09-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	09-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	09-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	09-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	09-Nov-21
WATER (BUFFER SOLUTION PH10)	5	Gallon(GAL)	09-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
NON-SILVER CHLORIDE REFERENCE ELECTRODE FILLING SOLUTION	2	Ounces(OZ)	10-Nov-21
NON-SILVER CHLORIDE REFERENCE ELECTRODE FILLING SOLUTION	2	Ounces(OZ)	10-Nov-21
NON-SILVER CHLORIDE REFERENCE ELECTRODE FILLING SOLUTION	2	Ounces(OZ)	10-Nov-21
NON-SILVER CHLORIDE REFERENCE ELECTRODE FILLING SOLUTION	2	Ounces(OZ)	10-Nov-21
NON-SILVER CHLORIDE REFERENCE ELECTRODE FILLING SOLUTION	2	Ounces(OZ)	10-Nov-21
NON-SILVER CHLORIDE REFERENCE ELECTRODE FILLING SOLUTION	2	Ounces(OZ)	10-Nov-21
NON-SILVER CHLORIDE REFERENCE ELECTRODE FILLING SOLUTION	2	Ounces(OZ)	10-Nov-21
O2 Probe solution KCl	5.25	Gram(GM)	10-Nov-21
O2 Probe solution KCl	5.25	Gram(GM)	10-Nov-21
O2 Probe solution KCl	5.25	Gram(GM)	10-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Heet Windshield De-Icer	11	Ounces(OZ)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
PSX 700 A CLEAR COAT CURE	0.17	Gallon(GAL)	10-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121.6	Ounces(OZ)	10-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121.6	Ounces(OZ)	10-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121.6	Ounces(OZ)	10-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121.6	Ounces(OZ)	10-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121.6	Ounces(OZ)	10-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121.6	Ounces(OZ)	10-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121.6	Ounces(OZ)	10-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121.6	Ounces(OZ)	10-Nov-21
Be Finder Detection Solution	1	Liters(L)	10-Nov-21
Be Finder Detection Solution	1	Liters(L)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	10-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	10-Nov-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	3	Pounds(LB)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
Motorcraft SAE 75W-85 Synthetic Hypoid Gear Lubricant	1	Quarts(QT)	10-Nov-21
Motorcraft SAE 75W-85 Synthetic Hypoid Gear Lubricant	1	Quarts(QT)	10-Nov-21
Ammonia 1%/Bal. Nitrogen	125	Cubic Feet(CF)	10-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	10-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	10-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	10-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	10-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	10-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	10-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	10-Nov-21
1500ppm Ammonia/Balance Nitrogen	125	Cubic Feet(CF)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	10-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	10-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	10-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	10-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	10-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	10-Nov-21
Compressed Air	220	Cubic Feet(CF)	10-Nov-21
Compressed Air	220	Cubic Feet(CF)	10-Nov-21
Compressed Air	220	Cubic Feet(CF)	10-Nov-21
HELIUM GAS	100	Liters(L)	10-Nov-21
HELIUM GAS	100	Liters(L)	10-Nov-21
HELIUM GAS	100	Liters(L)	10-Nov-21
HELIUM GAS	100	Liters(L)	10-Nov-21
MOBIL SHC GEAR 460	35	Pounds(LB)	10-Nov-21
MOBIL SHC GEAR 460	35	Pounds(LB)	10-Nov-21
MOBIL SHC GEAR 460	35	Pounds(LB)	10-Nov-21
ARGON GAS	220	Cubic Feet(CF)	10-Nov-21
Durcon Epoxy Cement (Alpine White White and Grey) Part A	1.25	Pounds(LB)	10-Nov-21
CARBON DIOXIDE	50	Pounds(LB)	10-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Brakleen Brake Parts Cleaner (aerosol)	14	Ounces(OZ)	10-Nov-21
CARBON DIOXIDE	50	Pounds(LB)	10-Nov-21
Brakleen Brake Parts Cleaner (aerosol)	14	Ounces(OZ)	10-Nov-21
Brakleen Brake Parts Cleaner (aerosol)	14	Ounces(OZ)	10-Nov-21
CRC QD ELECTRONIC CLEANER	11	Ounces(OZ)	10-Nov-21
White Lithium Grease (aerosol)	10	Ounces(OZ)	10-Nov-21
White Lithium Grease (aerosol)	10	Ounces(OZ)	10-Nov-21
White Lithium Grease (aerosol)	10	Ounces(OZ)	10-Nov-21
White Lithium Grease (aerosol)	10	Ounces(OZ)	10-Nov-21
White Lithium Grease (aerosol)	10	Ounces(OZ)	10-Nov-21
White Lithium Grease (aerosol)	10	Ounces(OZ)	10-Nov-21
STA-BIL FUEL STABILIZER	8	Ounces(OZ)	10-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	10-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	10-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	10-Nov-21
PERMATEX ULTRA BLACK	3.35	Ounces(OZ)	10-Nov-21
PERMATEX ULTRA BLACK	3.35	Ounces(OZ)	10-Nov-21
Parts Plus SAE 80W-90 GEAR OIL	1	Quarts(QT)	10-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	10-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	10-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	10-Nov-21
SULLAIR SULLUBE	2.5	Gallon(GAL)	10-Nov-21
SULLAIR SULLUBE	2.5	Gallon(GAL)	10-Nov-21
DriSteem Humidifier De-Scaling Solution	46	Pounds(LB)	10-Nov-21
DriSteem Humidifier De-Scaling Solution	46	Pounds(LB)	10-Nov-21
DriSteem Humidifier De-Scaling Solution	46	Pounds(LB)	10-Nov-21
DriSteem Humidifier De-Scaling Solution	46	Pounds(LB)	10-Nov-21
DriSteem Humidifier De-Scaling Solution	46	Pounds(LB)	10-Nov-21
BRAKE FLUID DOT 3	32	Ounces(OZ)	10-Nov-21
Valvoline Dexron-VI Full Synthetic ATF	1	Quarts(QT)	10-Nov-21
Valvoline Dexron-VI Full Synthetic ATF	1	Quarts(QT)	10-Nov-21
Valvoline Dexron-VI Full Synthetic ATF	1	Quarts(QT)	10-Nov-21
Valvoline Dexron-VI Full Synthetic ATF	1	Quarts(QT)	10-Nov-21
Valvoline Dexron-VI Full Synthetic ATF	1	Quarts(QT)	10-Nov-21
Valvoline Dexron-VI Full Synthetic ATF	1	Quarts(QT)	10-Nov-21
Zerex American Vehicle Antifreeze Coolant	1	Gallon(GAL)	10-Nov-21
Zerex American Vehicle Antifreeze Coolant	1	Gallon(GAL)	10-Nov-21
Zerex American Vehicle Antifreeze Coolant	1	Gallon(GAL)	10-Nov-21
COOLANT	1	Gallon(GAL)	10-Nov-21
ALUMINUM POLISH	1	Pounds(LB)	10-Nov-21
10:1 BLEACH	1	Gallon(GAL)	12-Nov-21
10:1 BLEACH	1	Gallon(GAL)	12-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
POTASSIUM PYROPHOSPHATE ANHYDROUS	55	Pounds(LB)	12-Nov-21
POTASSIUM PYROPHOSPHATE ANHYDROUS	55	Pounds(LB)	12-Nov-21
POTASSIUM PYROPHOSPHATE ANHYDROUS	55	Pounds(LB)	12-Nov-21
SEC-BUTYLLITHIUM	100	Milliliter(ML)	12-Nov-21
(2-nitro-1 3-phenylene)dimethanol	100	Gram(GM)	12-Nov-21
1-FLUORONAPHTHALENE	5	Gram(GM)	12-Nov-21
SPARKLEEN 2	1.5	Kilograms(KG)	12-Nov-21
SPARKLEEN 2	1.5	Kilograms(KG)	12-Nov-21
SPARKLEEN 2	1.5	Kilograms(KG)	12-Nov-21
SPARKLEEN 2	1.5	Kilograms(KG)	12-Nov-21
SPARKLEEN 2	1.5	Kilograms(KG)	12-Nov-21
SPARKLEEN 2	1.5	Kilograms(KG)	12-Nov-21
SPARKLEEN 2	1.5	Kilograms(KG)	12-Nov-21
SPARKLEEN 2	1.5	Kilograms(KG)	12-Nov-21
WEST R-705 ANTIFOAM AGENT	9	Pounds(LB)	12-Nov-21
SPARKLEEN 2	1.5	Kilograms(KG)	12-Nov-21
WEST R-705 ANTIFOAM AGENT	9	Pounds(LB)	12-Nov-21
WEST R-705 ANTIFOAM AGENT	9	Pounds(LB)	12-Nov-21
WEST R-705 ANTIFOAM AGENT	9	Pounds(LB)	12-Nov-21
WEST R-705 ANTIFOAM AGENT	9	Pounds(LB)	12-Nov-21
WEST R-705 ANTIFOAM AGENT	9	Pounds(LB)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
WEST R-705 ANTIFOAM AGENT	9	Pounds(LB)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	12-Nov-21
ISOFLEX NBU 15	400	Gram(GM)	12-Nov-21
ISOFLEX NBU 15	400	Gram(GM)	12-Nov-21
BORON NITRIDE	10	Gram(GM)	12-Nov-21
Hydrochloric Acid Optima	1	Liters(L)	12-Nov-21
Hydrochloric Acid Optima	1	Liters(L)	12-Nov-21
Hydrochloric Acid Optima	1	Liters(L)	12-Nov-21
Hydrochloric Acid Optima	1	Liters(L)	12-Nov-21
Hydrochloric Acid Optima	1	Liters(L)	12-Nov-21
Hydrochloric Acid Optima	1	Liters(L)	12-Nov-21
Didodecyldimethylammonium Chloride > 98%	5	Gram(GM)	12-Nov-21
CESIUM 99.98% (METAL BASIS)	25	Gram(GM)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	12-Nov-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	12-Nov-21
KRYLON COLORmaxx Gloss Black	12	Ounces(OZ)	12-Nov-21
KRYLON Fusion Gloss Black	12	Ounces(OZ)	12-Nov-21
KRYLON Fusion Gloss Black	12	Ounces(OZ)	12-Nov-21
KRYLON Fusion Gloss Black	12	Ounces(OZ)	12-Nov-21
THERMALLY CONDUCTIVE EPOXY ADHESIVE	0.5	Pint(PT)	12-Nov-21
2-METHYLIMIDAZOLE	500	Gram(GM)	12-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	12-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	12-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	12-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	12-Nov-21
a-bungarotoxin Alexa Fluor 647 conjugate	500	MicroGram(UGM)	12-Nov-21
Goat anti-Rabbit IgG (H+L) Secondary Antibody Alexa Fluor 555 conjugate	500	Microliter	12-Nov-21
(METHYL SULFOXIDE)-D6 99.5 + ATOM % D	1	Kilograms(KG)	12-Nov-21
(METHYL SULFOXIDE)-D6 99.5 + ATOM % D	1	Kilograms(KG)	12-Nov-21
CHLOROFORM-D 99.8+ ATOM% D	500	Milliliter(ML)	12-Nov-21
CHLOROFORM-D 99.8+ ATOM% D	500	Milliliter(ML)	12-Nov-21
Valvoline Automatic Transmission Fluid	1	Quarts(QT)	12-Nov-21
PB PENETRATING CATALYST	11	Ounces(OZ)	12-Nov-21
PB PENETRATING CATALYST	11	Ounces(OZ)	12-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
DUPLI-COLOR Acrylic Enamel Aerosol Paint Flat Black	12	Ounces(OZ)	12-Nov-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	12-Nov-21
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	12-Nov-21
ELY/A Electrolyte solution	0.14	Pounds(LB)	12-Nov-21
ELY/A Electrolyte solution	0.14	Pounds(LB)	12-Nov-21
ELY/A Electrolyte solution	0.14	Pounds(LB)	12-Nov-21
ELY/A Electrolyte solution	0.14	Pounds(LB)	12-Nov-21
DICHLOROMETHANE-D2	10	Gram(GM)	12-Nov-21
DICHLOROMETHANE-D2	10	Gram(GM)	12-Nov-21
DICHLOROMETHANE-D2	10	Gram(GM)	12-Nov-21
DICHLOROMETHANE-D2	10	Gram(GM)	12-Nov-21
DICHLOROMETHANE-D2	10	Gram(GM)	12-Nov-21
Valvoline EUROPEAN VEHICLE FULL SYNTHETIC SAE 0W-40 Synthetic Motor Oil	1	Quarts(QT)	12-Nov-21
Valvoline EUROPEAN VEHICLE FULL SYNTHETIC SAE 0W-40 Synthetic Motor Oil	1	Quarts(QT)	12-Nov-21
Valvoline EUROPEAN VEHICLE FULL SYNTHETIC SAE 0W-40 Synthetic Motor Oil	1	Quarts(QT)	12-Nov-21
Valvoline EUROPEAN VEHICLE FULL SYNTHETIC SAE 0W-40 Synthetic Motor Oil	1	Quarts(QT)	12-Nov-21
Valvoline EUROPEAN VEHICLE FULL SYNTHETIC SAE 0W-40 Synthetic Motor Oil	1	Quarts(QT)	12-Nov-21
Valvoline EUROPEAN VEHICLE FULL SYNTHETIC SAE 0W-40 Synthetic Motor Oil	1	Quarts(QT)	12-Nov-21
Valvoline EUROPEAN VEHICLE FULL SYNTHETIC SAE 0W-40 Synthetic Motor Oil	1	Quarts(QT)	12-Nov-21
Valvoline EUROPEAN VEHICLE FULL SYNTHETIC SAE 0W-40 Synthetic Motor Oil	1	Quarts(QT)	12-Nov-21
TOLUENE-D8 (D 99.5%)	10	Milliliter(ML)	12-Nov-21
TOLUENE-D8 (D 99.5%)	10	Milliliter(ML)	12-Nov-21
TOLUENE-D8 (D 99.5%)	10	Milliliter(ML)	12-Nov-21
TOLUENE-D8 (D 99.5%)	10	Milliliter(ML)	12-Nov-21
TOLUENE-D8 (D 99.5%)	10	Milliliter(ML)	12-Nov-21
Aluminum oxide activated neutral gamma Brockmann Grade I 58 angstroms	5	Kilograms(KG)	12-Nov-21
VEROWHITEPLUS RGD835	3.6	Kilograms(KG)	12-Nov-21
VEROWHITEPLUS RGD835	3.6	Kilograms(KG)	12-Nov-21
TMB/E Solution Single Reagent Blue color Horseradish Peroxidase Substrate (soluble) for ELISA	100	Milliliter(ML)	12-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
TMB/E Solution Single Reagent Blue color Horseradish Peroxidase Substrate (soluble) for ELISA	100	Milliliter(ML)	12-Nov-21
PELCO CONDUCTIVE GRAPHITE	20	Gram(GM)	12-Nov-21
PELCO CONDUCTIVE GRAPHITE	20	Gram(GM)	12-Nov-21
POTASSIUM HYDROGENSULFATE	1	Kilograms(KG)	12-Nov-21
CHLOROTRIMETHYLSILANE (TRIMETHYLCHLOROSILANE)	100	Milliliter(ML)	12-Nov-21
2-HYDROXYETHYL ACRYLATE	250	Milliliter(ML)	12-Nov-21
IMIDAZOLE 99%	100	Gram(GM)	12-Nov-21
TETRAHYDROFURAN ANHYDROUS 99.9%	1	Liters(L)	12-Nov-21
DEVCON 5 MINUTE EPOXY AMBER	25	Milliliter(ML)	12-Nov-21
DEVCON 5 MINUTE EPOXY AMBER	25	Milliliter(ML)	12-Nov-21
DEVCON 5 MINUTE EPOXY AMBER	25	Milliliter(ML)	12-Nov-21
DEVCON 5 MINUTE EPOXY AMBER	25	Milliliter(ML)	12-Nov-21
DEVCON 5 MINUTE EPOXY AMBER	25	Milliliter(ML)	12-Nov-21
DEVCON 5 MINUTE EPOXY AMBER	25	Milliliter(ML)	12-Nov-21
DIGLYCOLIC ANHYDRIDE	50	Gram(GM)	12-Nov-21
Methyl 2-Undecynoate	25	Milliliter(ML)	12-Nov-21
AMMONIUM IODIDE	125	Gram(GM)	12-Nov-21
AMMONIUM IODIDE	125	Gram(GM)	12-Nov-21
SODIUM CHLORIDE	2.5	Kilograms(KG)	12-Nov-21
POLYDIMETHYLSILOXANE SILANOL TERMINATED	1	Kilograms(KG)	12-Nov-21
POLYDIMETHYLSILOXANE SILANOL TERMINATED	1	Kilograms(KG)	12-Nov-21
POLYDIMETHYLSILOXANE SILANOL TERMINATED	1	Kilograms(KG)	12-Nov-21
Aluminum powder -100+325 mesh 99.97% (metals basis)	5	Gram(GM)	12-Nov-21
Tantalum Powder -325 mesh	2.5	Gallon(GAL)	12-Nov-21
POTASSIUM CHLORIDE	250	Gram(GM)	12-Nov-21
CERIUM(III) CHLORIDE HEPTAHYDRATE	25	Gram(GM)	12-Nov-21
Diamond Powder	1	Kilograms(KG)	12-Nov-21
Diamond Powder	1	Kilograms(KG)	12-Nov-21
Diamond Powder	1	Kilograms(KG)	12-Nov-21
Diamond Powder	1	Kilograms(KG)	12-Nov-21
M-BOND 200 CATALYST	30	Milliliter(ML)	12-Nov-21
M-BOND 200 CATALYST	30	Milliliter(ML)	12-Nov-21
M-BOND 200 CATALYST	30	Milliliter(ML)	12-Nov-21
M-BOND 200 CATALYST	30	Milliliter(ML)	12-Nov-21
M-COAT A	16	Ounces(OZ)	12-Nov-21
MCA-1 M-PREP CONDITIONER A	2	Ounces(OZ)	12-Nov-21
MCA-1 M-PREP CONDITIONER A	2	Ounces(OZ)	12-Nov-21
MCA-1 M-PREP CONDITIONER A	2	Ounces(OZ)	12-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
MCA-1 M-PREP CONDITIONER A	2	Ounces(OZ)	12-Nov-21
MCA-1 M-PREP CONDITIONER A	2	Ounces(OZ)	12-Nov-21
MCA-1 M-PREP CONDITIONER A	2	Ounces(OZ)	12-Nov-21
MCA-1 M-PREP CONDITIONER A	2	Ounces(OZ)	12-Nov-21
MN5A-1 M-Preneutralizer 5A	2	Ounces(OZ)	12-Nov-21
MN5A-1 M-Preneutralizer 5A	2	Ounces(OZ)	12-Nov-21
MN5A-1 M-Preneutralizer 5A	2	Ounces(OZ)	12-Nov-21
MN5A-1 M-Preneutralizer 5A	2	Ounces(OZ)	12-Nov-21
MN5A-1 M-Preneutralizer 5A	2	Ounces(OZ)	12-Nov-21
ZINC NITRATE HEXAHYDRATE	500	Gram(GM)	12-Nov-21
SYLGARD 184	16	Ounces(OZ)	12-Nov-21
DOW CORNING HIGH VACUUM GREASE	5.3	Ounces(OZ)	12-Nov-21
DOW CORNING HIGH VACUUM GREASE	5.3	Ounces(OZ)	12-Nov-21
ALCONOX DETERGENT	1	Gallon(GAL)	12-Nov-21
ALCONOX DETERGENT	1	Gallon(GAL)	12-Nov-21
INLAND 45	1	Liters(L)	12-Nov-21
INLAND 45	1	Liters(L)	12-Nov-21
INLAND 45	1	Liters(L)	12-Nov-21
INLAND 45	1	Liters(L)	12-Nov-21
INLAND 45	1	Liters(L)	12-Nov-21
4-AMINOBENZYL ALCOHOL	25	Gram(GM)	12-Nov-21
4-AMINOBENZYL ALCOHOL	25	Gram(GM)	12-Nov-21
4-AMINOBENZYL ALCOHOL	25	Gram(GM)	12-Nov-21
4-AMINOBENZYL ALCOHOL	25	Gram(GM)	12-Nov-21
Diamond Powder	8	Kilograms(KG)	12-Nov-21
Diamond Powder	8	Kilograms(KG)	12-Nov-21
Diamond Powder	8	Kilograms(KG)	12-Nov-21
Diamond Powder	8	Kilograms(KG)	12-Nov-21
Diamond Powder	8	Kilograms(KG)	12-Nov-21
Diamond Powder	8	Kilograms(KG)	12-Nov-21
SODIUM IODIDE	500	Gram(GM)	12-Nov-21
Ammonium perrhenate 99+%	25	Gram(GM)	12-Nov-21
Ammonium perrhenate 99+%	25	Gram(GM)	12-Nov-21
Ammonium perrhenate 99+%	25	Gram(GM)	12-Nov-21
Ammonium perrhenate 99+%	25	Gram(GM)	12-Nov-21
Ammonium perrhenate 99+%	25	Gram(GM)	12-Nov-21
DIETHOXYMETHYL ACETATE	100	Gram(GM)	12-Nov-21
Paramount Ext. 100% Acrylic Flat W/B	608	Ounces(OZ)	15-Nov-21
Paramount Ext. 100% Acrylic Flat W/B	608	Ounces(OZ)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	15-Nov-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	15-Nov-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	15-Nov-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	15-Nov-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	15-Nov-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	15-Nov-21
PSX 700A CLEAR COAT CURE	0.17	Gallon(GAL)	15-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	15-Nov-21
PSX 700A CLEAR COAT CURE	0.38	Gallon(GAL)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
SAE 15W-40 MOTOR OIL	1	Quarts(QT)	15-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	15-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	15-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	15-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	15-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	15-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	15-Nov-21
BIG BLUE MICRO LEAK DETEC	32	Ounces(OZ)	15-Nov-21
BIG BLUE MICRO LEAK DETEC	32	Ounces(OZ)	15-Nov-21
BIG BLUE MICRO LEAK DETEC	32	Ounces(OZ)	15-Nov-21
BIG BLUE MICRO LEAK DETEC	32	Ounces(OZ)	15-Nov-21
BIG BLUE MICRO LEAK DETEC	32	Ounces(OZ)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
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Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
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PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
Parts Plus SAE 5W-20 SYNTHETIC MOTOR OIL	1	Quarts(QT)	15-Nov-21
BLACK GOLD VACUUM PUMP OIL	1	Quarts(QT)	15-Nov-21
BLACK GOLD VACUUM PUMP OIL	1	Quarts(QT)	15-Nov-21
BLACK GOLD VACUUM PUMP OIL	1	Quarts(QT)	15-Nov-21
BLACK GOLD VACUUM PUMP OIL	1	Quarts(QT)	15-Nov-21
BLACK GOLD VACUUM PUMP OIL	1	Quarts(QT)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	15-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	15-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	15-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	15-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	15-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	15-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	15-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	15-Nov-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	15-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	15-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	15-Nov-21
STA-BIL FUEL STABILIZER	10	Ounces(OZ)	15-Nov-21
Spray On Dry Moly Lube	11	Ounces(OZ)	15-Nov-21
PERMATEX ULTRA BLACK	3.35	Ounces(OZ)	16-Nov-21
DOW CORNING HIGH VACUUM GREASE SILICONE LUBRICANT	5.3	Ounces(OZ)	16-Nov-21
ULTRA COPPER	3	Ounces(OZ)	16-Nov-21
E6000 - Clear	3.7	Ounces(OZ)	16-Nov-21
PURPLE PRIMER	4	Ounces(OZ)	16-Nov-21
P-4 REGULAR BODIED PVC CEMENT	4	Ounces(OZ)	16-Nov-21
Startex Green Lacquer Thinner	1	Gallon(GAL)	16-Nov-21
Startex Green Lacquer Thinner	1	Gallon(GAL)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	16-Nov-21
ENGINE ENAMEL	12	Ounces(OZ)	16-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	16-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	16-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	16-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	16-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	16-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	16-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	16-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	16-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	16-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	16-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	16-Nov-21
PSX 700 pearl gray resin	0.8	Gallon(GAL)	16-Nov-21
DENATURED ALCOHOL	1	Gallon(GAL)	16-Nov-21
DENATURED ALCOHOL	1	Gallon(GAL)	16-Nov-21
DENATURED ALCOHOL	1	Gallon(GAL)	16-Nov-21
DENATURED ALCOHOL	1	Gallon(GAL)	16-Nov-21
DENATURED ALCOHOL	1	Gallon(GAL)	16-Nov-21
DENATURED ALCOHOL	1	Gallon(GAL)	16-Nov-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	16-Nov-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	16-Nov-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	16-Nov-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	16-Nov-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	16-Nov-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	16-Nov-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	16-Nov-21
PSX 700 WHITE RESIN	0.8	Gallon(GAL)	16-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
COTE ALL WHITE BASE	123.9	Ounces(OZ)	16-Nov-21
COTE ALL WHITE BASE	123.9	Ounces(OZ)	16-Nov-21
PB PENETRATING CATALYST	11	Ounces(OZ)	16-Nov-21
MOBIL 1 5W-50	1	Quarts(QT)	16-Nov-21
FUEL INJECTOR CLEANER	9	Ounces(OZ)	16-Nov-21
COOLING SYSTEM TREATMENT	1	Pint(PT)	16-Nov-21
PAG 100 REFRIGERANT LUBRICANT	7	Ounces(OZ)	16-Nov-21
PARTS PLUS ANTIFREEZE & COOLANT	1	Gallon(GAL)	16-Nov-21
FANTASTIK ALL PURPOSE CLEANER	32	Ounces(OZ)	16-Nov-21
Castrol Go! 4T 10W-40	1	Quarts(QT)	16-Nov-21
SAE 75W-140 GEAR OIL	32	Ounces(OZ)	16-Nov-21
DEX-COOL EXTENDED-LIFE ANTIFREEZE/COOLANT	1	Gallon(GAL)	16-Nov-21
Engine Storage Oil	32	Ounces(OZ)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	16-Nov-21
HEAVY DUTY RUBBERIZED UNDERCOATING	16	Ounces(OZ)	16-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Mobil Delvac 1 ESP 5W-40	1	Gallon(GAL)	16-Nov-21
#77 spray adhesive	17	Ounces(OZ)	16-Nov-21
3M 77 SPRAY ADHESIVE	17	Ounces(OZ)	16-Nov-21
3M 77 SPRAY ADHESIVE	17	Ounces(OZ)	16-Nov-21
3M 77 SPRAY ADHESIVE	17	Ounces(OZ)	16-Nov-21
Coolube 2210	8	Ounces(OZ)	16-Nov-21
Instant Power Professional Holding Tank Cleaner/Treatment	1	Gallon(GAL)	16-Nov-21
3M 77 SPRAY ADHESIVE	17	Ounces(OZ)	16-Nov-21
Coolube 2210	8	Ounces(OZ)	16-Nov-21
3M 77 SPRAY ADHESIVE	17	Ounces(OZ)	16-Nov-21
3M SUPER 77 SPRAY ADHESIVE	17	Ounces(OZ)	16-Nov-21
3M SUPER 77 SPRAY ADHESIVE	17	Ounces(OZ)	16-Nov-21
3M 77 SPRAY ADHESIVE	17	Ounces(OZ)	16-Nov-21
GORILLA GLUE	14	Ounces(OZ)	16-Nov-21
GORILLA GLUE	14	Ounces(OZ)	16-Nov-21
GORILLA GLUE	14	Ounces(OZ)	16-Nov-21
GORILLA GLUE	14	Ounces(OZ)	16-Nov-21
GORILLA GLUE	14	Ounces(OZ)	16-Nov-21
GORILLA GLUE	14	Ounces(OZ)	16-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	16-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	16-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	16-Nov-21
TRI FLOW SUPERIOR LUBRICANT	12	Ounces(OZ)	16-Nov-21
DUPLI-COLOR Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	16-Nov-21
DUPLI-COLOR Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	16-Nov-21
DUPLI-COLOR Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	16-Nov-21
DUPLI-COLOR Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	16-Nov-21
DUPLI-COLOR Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	16-Nov-21
DUPLI-COLOR Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	16-Nov-21
DUPLI-COLOR Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	16-Nov-21
DUPLI-COLOR Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	16-Nov-21
DUPLI-COLOR Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	16-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
DUPLI-COLOR Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	16-Nov-21
DUPLI-COLOR Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	16-Nov-21
DUPLI-COLOR Acrylic Lacquer Aerosol Paint Gloss Black	12	Ounces(OZ)	16-Nov-21
TRI FLOW SUPERIOR LUBRICANT	12	Ounces(OZ)	16-Nov-21
TRI FLOW SUPERIOR LUBRICANT	12	Ounces(OZ)	16-Nov-21
TRI FLOW SUPERIOR LUBRICANT	12	Ounces(OZ)	16-Nov-21
TRI FLOW SUPERIOR LUBRICANT	12	Ounces(OZ)	16-Nov-21
TRI FLOW SUPERIOR LUBRICANT	12	Ounces(OZ)	16-Nov-21
PB PENETRATING CATALYST	11	Ounces(OZ)	16-Nov-21
LOCTITE 242 THREADLOCKER	0.34	Ounces(OZ)	16-Nov-21
PB PENETRATING CATALYST	11	Ounces(OZ)	16-Nov-21
PB PENETRATING CATALYST	11	Ounces(OZ)	16-Nov-21
LOCTITE 242 THREADLOCKER	0.34	Ounces(OZ)	16-Nov-21
LOCTITE 242 THREADLOCKER	0.34	Ounces(OZ)	16-Nov-21
LOCTITE 7471 PRIMER	4.5	Ounces(OZ)	16-Nov-21
LOCTITE 7471 PRIMER	4.5	Ounces(OZ)	16-Nov-21
LOCTITE 554 THREAD SEALAN	8.45	Ounces(OZ)	16-Nov-21
LOCTITE 290 THREADLOCKER	0.34	Ounces(OZ)	16-Nov-21
LOCTITE 243 THREADLOCKER	0.34	Ounces(OZ)	16-Nov-21
ULTRA COPPER	3	Ounces(OZ)	16-Nov-21
Glance RTU Glass & Multi-Surface Cleaner	32	Ounces(OZ)	16-Nov-21
Parts Plus Type F ATF	1	Quarts(QT)	16-Nov-21
H2SO4 500ML PRESERVATION VIALS	100	Milliliter(ML)	16-Nov-21
HNO3 Preservation for 500 ml Container	100	Milliliter(ML)	16-Nov-21
HNO3 Preservation for 500 ml Container	100	Milliliter(ML)	16-Nov-21
HNO3 Preservation for 500 ml Container	100	Milliliter(ML)	16-Nov-21
NaOH Preservation for 250 ml Container	4	Milliliter(ML)	16-Nov-21
TURBIDITY STANDARD	1	Gallon(GAL)	16-Nov-21
1413 CONDUCTIVITY/TDS STANDARD	5	Gallon(GAL)	16-Nov-21
HNO3 PRESERVATION FOR 250 ML	100	Milliliter(ML)	16-Nov-21
HNO3 PRESERVATION FOR 250 ML	100	Milliliter(ML)	16-Nov-21
AMMONIUM IODIDE	125	Gram(GM)	17-Nov-21
AMMONIUM IODIDE	125	Gram(GM)	17-Nov-21
Hydrochloric Acid Optima	2	Liters(L)	17-Nov-21
CESIUM 99.98% (METAL BASIS)	5	Gram(GM)	17-Nov-21
CESIUM 99.98% (METAL BASIS)	5	Gram(GM)	17-Nov-21
RUBIDIUM	5	Gram(GM)	17-Nov-21
RUBIDIUM	5	Gram(GM)	17-Nov-21
AMMONIUM ACETATE CRYSTAL	500	Gram(GM)	17-Nov-21
AMMONIUM ACETATE CRYSTAL	500	Gram(GM)	17-Nov-21
AMMONIUM ACETATE CRYSTAL	500	Gram(GM)	17-Nov-21
AMMONIUM ACETATE CRYSTAL	500	Gram(GM)	17-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
AMMONIUM ACETATE CRYSTAL	500	Gram(GM)	17-Nov-21
AMMONIUM ACETATE CRYSTAL	500	Gram(GM)	17-Nov-21
Dow Corning High Vacuum Grease MSDS	150	Gram(GM)	17-Nov-21
BIO KLEEN DIESEL FUEL BIOCIDE	80	Ounces(OZ)	17-Nov-21
BIO KLEEN DIESEL FUEL BIOCIDE	80	Ounces(OZ)	17-Nov-21
LITHIUM CHLORIDE	500	Gram(GM)	17-Nov-21
LITHIUM CHLORIDE	500	Gram(GM)	17-Nov-21
CITRIC AICD	500	Gram(GM)	17-Nov-21
Trihexyltetradecylphosphonium chloride	50	Gram(GM)	17-Nov-21
Methyl acrylate	250	Milliliter(ML)	17-Nov-21
P-TOLUENESULFONIC ACID MONOHYDRATE	100	Gram(GM)	17-Nov-21
Molecular sieves 3A 8 to 12 mesh	1	Kilograms(KG)	17-Nov-21
ISOPROPYL ALCOHOL	8	Kilograms(KG)	17-Nov-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	17-Nov-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	17-Nov-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	17-Nov-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	17-Nov-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	17-Nov-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	17-Nov-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	17-Nov-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	17-Nov-21
MAGNESIUM CHLORIDE	3	Kilograms(KG)	17-Nov-21
ARGON GAS	220	Cubic Feet(CF)	17-Nov-21
ARGON GAS	220	Cubic Feet(CF)	17-Nov-21
ARGON GAS	220	Cubic Feet(CF)	17-Nov-21
ARGON GAS	220	Cubic Feet(CF)	17-Nov-21
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ARGON GAS	220	Cubic Feet(CF)	17-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	17-Nov-21
ARGON GAS	220	Cubic Feet(CF)	17-Nov-21
ARGON GAS	220	Cubic Feet(CF)	17-Nov-21
ARGON GAS	220	Cubic Feet(CF)	17-Nov-21
50PPM CARBON MONOXIDE/BAL	103	Liters(L)	17-Nov-21
50PPM CARBON MONOXIDE/BAL	103	Liters(L)	17-Nov-21
DIETHANOLAMINE (305)	2	Liters(L)	17-Nov-21
DIETHANOLAMINE (305)	2	Liters(L)	17-Nov-21
HYDRAULIC OIL	5	Gallon(GAL)	17-Nov-21
HELIUM GAS	100	Liters(L)	17-Nov-21
HELIUM GAS	100	Liters(L)	17-Nov-21
HELIUM GAS	100	Liters(L)	17-Nov-21
HELIUM GAS	100	Liters(L)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
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NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	17-Nov-21
94% NITROGEN/6% HYDROGEN	220	Cubic Feet(CF)	17-Nov-21
94% NITROGEN/6% HYDROGEN	220	Cubic Feet(CF)	17-Nov-21
94% NITROGEN/6% HYDROGEN	220	Cubic Feet(CF)	17-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	17-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	17-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	17-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	17-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	17-Nov-21
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HELIUM GAS	220	Cubic Feet(CF)	17-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	17-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	17-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	17-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	17-Nov-21
ACETYLENE STABILIZED	230	Cubic Feet(CF)	17-Nov-21
PROPANE	11	Gallon(GAL)	17-Nov-21
PROPANE	11	Gallon(GAL)	17-Nov-21
PROPANE	11	Gallon(GAL)	17-Nov-21
PROPANE	11	Gallon(GAL)	17-Nov-21
PROPANE	11	Gallon(GAL)	17-Nov-21
hydrogen 500ppm/Bal. air	0.6	Cubic Feet(CF)	17-Nov-21
Nitrogen/Methane	1.2	Cubic Feet(CF)	17-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	17-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	17-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	17-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	17-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	17-Nov-21
HENRY 440 Cove Base Adhesive	1	Gallon(GAL)	17-Nov-21
Excelsior ASD-800	1	Gallon(GAL)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
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Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
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BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
Ardex P 51	1	Gallon(GAL)	17-Nov-21
Ardex P 51	1	Gallon(GAL)	17-Nov-21
Ardex P 51	1	Gallon(GAL)	17-Nov-21
Ardex P 51	1	Gallon(GAL)	17-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
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BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
BIG STRETCH CAULK	10.5	Ounces(OZ)	17-Nov-21
Avalon Premium 100% Acrylic Interior Flat W/B	121.6	Ounces(OZ)	17-Nov-21
Avalon Premium 100% Acrylic Interior Flat W/B	121.6	Ounces(OZ)	17-Nov-21
Avalon Premium 100% Acrylic Interior Flat W/B	121.6	Ounces(OZ)	17-Nov-21
Valvoline HIGH PERFORMANCE SAE 75W-90 GEAR OIL	1	Quarts(QT)	17-Nov-21
Valvoline HIGH PERFORMANCE SAE 75W-90 GEAR OIL	1	Quarts(QT)	17-Nov-21
BRITE TOUCH General Purpose Paint Flat Black BT43	10	Ounces(OZ)	17-Nov-21
DI-ELECTRIC GREASE	10	Ounces(OZ)	17-Nov-21
K & N Power Kleen	12	Ounces(OZ)	17-Nov-21
K & N AIR FILTER OIL	6.5	Ounces(OZ)	17-Nov-21
TETRAHYDROFURAN	1	Liters(L)	17-Nov-21
FUEL STABILIZER	32	Ounces(OZ)	18-Nov-21
FUEL STABILIZER	32	Ounces(OZ)	18-Nov-21
FUEL STABILIZER	32	Ounces(OZ)	18-Nov-21
DUPLI-COLOR Acrylic Enamel Aerosol Paint Gloss White (OSHA White)	12	Ounces(OZ)	18-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
DUPLI-COLOR 2-in-1 Filler & Sandable Primer	12	Ounces(OZ)	18-Nov-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	18-Nov-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	18-Nov-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	18-Nov-21
888-0836 COLORTREND ORGANIC RED R	1	Liters(L)	18-Nov-21
888-0836 COLORTREND ORGANIC RED R	1	Liters(L)	18-Nov-21
888-0836 COLORTREND ORGANIC RED R	1	Liters(L)	18-Nov-21
888-0836 COLORTREND ORGANIC RED R	1	Liters(L)	18-Nov-21
808-0422 COLORTREND V MAGENTA	32	Ounces(OZ)	18-Nov-21
808-0422 COLORTREND V MAGENTA	32	Ounces(OZ)	18-Nov-21
808-0422 COLORTREND V MAGENTA	32	Ounces(OZ)	18-Nov-21
808-0422 COLORTREND V MAGENTA	32	Ounces(OZ)	18-Nov-21
MOBIL 1 5W-50	1	Quarts(QT)	18-Nov-21
MOBIL 1 5W-50	1	Quarts(QT)	18-Nov-21
MOBIL 1 5W-50	1	Quarts(QT)	18-Nov-21
MOBIL 1 5W-50	1	Quarts(QT)	18-Nov-21
MOBIL 1 5W-50	1	Quarts(QT)	18-Nov-21
MOBIL 1 5W-50	1	Quarts(QT)	18-Nov-21
MOBIL 1 5W-50	1	Quarts(QT)	18-Nov-21
MOBIL 1 5W-50	1	Quarts(QT)	18-Nov-21
MOBIL 1 5W-50	1	Quarts(QT)	18-Nov-21
MOBIL 1 5W-50	1	Quarts(QT)	18-Nov-21
ATF	1	Quarts(QT)	18-Nov-21
ATF	1	Quarts(QT)	18-Nov-21
ATF	1	Quarts(QT)	18-Nov-21
ATF	1	Quarts(QT)	18-Nov-21
ATF	1	Quarts(QT)	18-Nov-21
ATF	1	Quarts(QT)	18-Nov-21
ATF	1	Quarts(QT)	18-Nov-21
ATF	1	Quarts(QT)	18-Nov-21
ATF	1	Quarts(QT)	18-Nov-21
ATF	1	Quarts(QT)	18-Nov-21
ATF	1	Quarts(QT)	18-Nov-21
ATF	1	Quarts(QT)	18-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	18-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	18-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	18-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	18-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	18-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	18-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	18-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	18-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	18-Nov-21
DUPLI-COLOR Acrylic Enamel Aerosol Paint Gloss Black	12	Ounces(OZ)	18-Nov-21
DUPLI-COLOR Acrylic Enamel Aerosol Paint Gloss Black	12	Ounces(OZ)	18-Nov-21
DUPLI-COLOR Acrylic Enamel Aerosol Paint Gloss Black	12	Ounces(OZ)	18-Nov-21
DUPLI-COLOR Acrylic Enamel Aerosol Paint Gloss Black	12	Ounces(OZ)	18-Nov-21
DUPLI-COLOR Acrylic Enamel Aerosol Paint Gloss Black	12	Ounces(OZ)	18-Nov-21
DUPLI-COLOR Acrylic Enamel Aerosol Paint Gloss Black	12	Ounces(OZ)	18-Nov-21
Thrombin from human plasma	35	MicroGram(UGM)	18-Nov-21
808-7055 COLORTREND EXE PHTHALO BLUE	32	Ounces(OZ)	18-Nov-21
808-7055 COLORTREND EXE PHTHALO BLUE	32	Ounces(OZ)	18-Nov-21
808-7055 COLORTREND EXE PHTHALO BLUE	32	Ounces(OZ)	18-Nov-21
808-7055 COLORTREND EXE PHTHALO BLUE	32	Ounces(OZ)	18-Nov-21
808-7055 COLORTREND EXE PHTHALO BLUE	32	Ounces(OZ)	18-Nov-21
808-7055 COLORTREND EXE PHTHALO BLUE	32	Ounces(OZ)	18-Nov-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	18-Nov-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	18-Nov-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	18-Nov-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	18-Nov-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	18-Nov-21
808-0020 TITANIUM WHITE	32	Ounces(OZ)	18-Nov-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	18-Nov-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	18-Nov-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	18-Nov-21
808-2009 COLORTREND L RAW UMBER	32	Ounces(OZ)	18-Nov-21
Sulfuric Acid	1	Liters(L)	18-Nov-21
Sulfuric Acid	1	Liters(L)	18-Nov-21
Sulfuric Acid	1	Liters(L)	18-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Sulfuric Acid	1	Liters(L)	18-Nov-21
Sulfuric Acid	1	Liters(L)	18-Nov-21
Sulfuric Acid	1	Liters(L)	18-Nov-21
888-2551 COLORTREND ORGANIC YELLOW AXX	1	Liters(L)	18-Nov-21
888-2551 COLORTREND ORGANIC YELLOW AXX	1	Liters(L)	18-Nov-21
888-2551 COLORTREND ORGANIC YELLOW AXX	1	Liters(L)	18-Nov-21
888-2551 COLORTREND ORGANIC YELLOW AXX	1	Liters(L)	18-Nov-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	18-Nov-21
SODIUM CHLORIDE SOLUTION 0.9%	20	Milliliter(ML)	18-Nov-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	18-Nov-21
SODIUM CHLORIDE SOLUTION 0.9%	20	Milliliter(ML)	18-Nov-21
SODIUM CHLORIDE SOLUTION 0.9%	20	Milliliter(ML)	18-Nov-21
SODIUM CHLORIDE SOLUTION 0.9%	20	Milliliter(ML)	18-Nov-21
SODIUM CHLORIDE SOLUTION 0.9%	20	Milliliter(ML)	18-Nov-21
SODIUM CHLORIDE SOLUTION 0.9%	20	Milliliter(ML)	18-Nov-21
3M Scotchcast Electrical Resin 226 Part (A & B)	6	Gallon(GAL)	18-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	18-Nov-21
3M Scotchcast Electrical Resin 226 Part (A & B)	6	Gallon(GAL)	18-Nov-21
3M Scotchcast Electrical Resin 226 Part (A & B)	6	Gallon(GAL)	18-Nov-21
3M Scotchcast Electrical Resin 226 Part (A & B)	6	Gallon(GAL)	18-Nov-21
3M Scotchcast Electrical Resin 226 Part (A & B)	6	Gallon(GAL)	18-Nov-21
3M Scotchcast Electrical Resin 226 Part (A & B)	6	Gallon(GAL)	18-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	18-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	18-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	18-Nov-21
PSX 700A Clear Coat Resin	0.17	Gallon(GAL)	18-Nov-21
PSX 700A Clear Coat Resin	0.17	Gallon(GAL)	18-Nov-21
PSX 700A Clear Coat Resin	0.17	Gallon(GAL)	18-Nov-21
PSX 700A Clear Coat Resin	0.17	Gallon(GAL)	18-Nov-21
PSX 700A Clear Coat Resin	0.17	Gallon(GAL)	18-Nov-21
PSX 700A Clear Coat Resin	0.17	Gallon(GAL)	18-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PSX 700A Clear Coat Resin	0.17	Gallon(GAL)	18-Nov-21
PSX 700A Clear Coat Resin	0.17	Gallon(GAL)	18-Nov-21
POURABLE SEALER	0.5	Gallon(GAL)	18-Nov-21
POURABLE SEALER	0.5	Gallon(GAL)	18-Nov-21
POURABLE SEALER	0.5	Gallon(GAL)	18-Nov-21
POURABLE SEALER	0.5	Gallon(GAL)	18-Nov-21
POURABLE SEALER	0.5	Gallon(GAL)	18-Nov-21
POURABLE SEALER	0.5	Gallon(GAL)	18-Nov-21
POURABLE SEALER	0.5	Gallon(GAL)	18-Nov-21
POURABLE SEALER	0.5	Gallon(GAL)	18-Nov-21
POURABLE SEALER	2	Gallon(GAL)	18-Nov-21
POURABLE SEALER	2	Gallon(GAL)	18-Nov-21
Acetone-D6 deuteration degree min. 99.9% for NMR spectroscopy MagniSolv	100	Milliliter(ML)	18-Nov-21
HAT-CN	1	Gram(GM)	18-Nov-21
HAT-CN	1	Gram(GM)	18-Nov-21
HAT-CN	1	Gram(GM)	18-Nov-21
2 2' 7 7'-Tetrakis[N-naphthalenyl (phenyl)-amino]-9 9-spirobifluorene	1	Gram(GM)	18-Nov-21
2 2' 7 7'-Tetrakis[N-naphthalenyl (phenyl)-amino]-9 9-spirobifluorene	1	Gram(GM)	18-Nov-21
2 2' 7 7'-Tetrakis[N-naphthalenyl (phenyl)-amino]-9 9-spirobifluorene	1	Gram(GM)	18-Nov-21
MOLECULAR SIEVE TYPE 4A	1.5	Kilograms(KG)	18-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	18-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	18-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	18-Nov-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	18-Nov-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	18-Nov-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	18-Nov-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	18-Nov-21
Poly(styrene-co-acrylonitrile)	100	Gram(GM)	18-Nov-21
HYDROBROMIC ACID	100	Milliliter(ML)	18-Nov-21
VULCAN XC-72R	200	Gram(GM)	18-Nov-21
VULCAN XC-72R	200	Gram(GM)	18-Nov-21
VULCAN XC-72R	200	Gram(GM)	18-Nov-21
VULCAN XC-72R	200	Gram(GM)	18-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	18-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	18-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	18-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	18-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	18-Nov-21
KETJENBLACK EC-300J	100	Gram(GM)	18-Nov-21
KETJENBLACK EC-300J	100	Gram(GM)	18-Nov-21
HYDROBROMIC ACID	100	Milliliter(ML)	18-Nov-21
HYDROGEN HEXACHLOROPLATINATE(IV) HYDRATE (CHLOROPLATINIC ACID)	5	Gram(GM)	18-Nov-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	18-Nov-21
ammonium hydroxide	2.5	Liters(L)	18-Nov-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	18-Nov-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	18-Nov-21
POTASSIUM CHLORIDE ULTRADRY	10	Gram(GM)	18-Nov-21
myo-Inositol	25	Gram(GM)	18-Nov-21
HYDROBROMIC ACID	100	Milliliter(ML)	18-Nov-21
HYDROBROMIC ACID 48%	100	Milliliter(ML)	18-Nov-21
HYDROBROMIC ACID	100	Milliliter(ML)	18-Nov-21
HYDROBROMIC ACID	100	Milliliter(ML)	18-Nov-21
HYDROBROMIC ACID	100	Milliliter(ML)	18-Nov-21
HYDROBROMIC ACID	100	Milliliter(ML)	18-Nov-21
HYDROBROMIC ACID	100	Milliliter(ML)	18-Nov-21
Gold (10 000 ug/mL in 10% HCl)	100	Milliliter(ML)	18-Nov-21
1000 ug/mL Titanium	30	Milliliter(ML)	18-Nov-21
MULTI-ELEMENT SOLUTION 2	125	Milliliter(ML)	18-Nov-21
ACETONE FOR HPLC	4	Liters(L)	18-Nov-21
ETHYL ALCOHOL-200 PROOF	4	Liters(L)	18-Nov-21
Taq 2X Master Mix	50	Microliter	18-Nov-21
NICKEL CHLORIDE 6-HYDRATE	2.5	Kilograms(KG)	18-Nov-21
NICKEL CHLORIDE 6-HYDRATE	2.5	Kilograms(KG)	18-Nov-21
NICKEL CHLORIDE 6-HYDRATE	2.5	Kilograms(KG)	18-Nov-21
NICKEL CHLORIDE 6-HYDRATE	2.5	Kilograms(KG)	18-Nov-21
NICKEL CHLORIDE 6-HYDRATE	2.5	Kilograms(KG)	18-Nov-21
NICKEL CHLORIDE 6-HYDRATE	2.5	Kilograms(KG)	18-Nov-21
1 2-DICHLOROBENZENE	2500	Gram(GM)	18-Nov-21
1 2-DICHLOROBENZENE	500	Gram(GM)	18-Nov-21
1 2-DICHLOROBENZENE	500	Gram(GM)	18-Nov-21
1 2-DICHLOROBENZENE	500	Gram(GM)	18-Nov-21
1 2-DICHLOROBENZENE	500	Gram(GM)	18-Nov-21
Melanin	100	Milligram(MG)	18-Nov-21
SULFANILIC ACID	25	Gram(GM)	18-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
1 2-DIPHENYLHYDRAZINE	25	Gram(GM)	18-Nov-21
Terbium(III) nitrate hexahydrate	2	Gram(GM)	18-Nov-21
2-ISOPROPANOL	4	Liters(L)	19-Nov-21
2-ISOPROPANOL	4	Liters(L)	19-Nov-21
2-ISOPROPANOL	4	Liters(L)	19-Nov-21
2-ISOPROPANOL	4	Liters(L)	19-Nov-21
Chemsafe Clear	5	Gallon(GAL)	22-Nov-21
Chemsafe Clear	5	Gallon(GAL)	22-Nov-21
Chemsafe Clear	5	Gallon(GAL)	22-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	22-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	22-Nov-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
Excelsior ASD-800 Excelsior Acrylic Wet Set ESD Adhesive	4.5	Gallon(GAL)	22-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	22-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	22-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	22-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	22-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	22-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	22-Nov-21
PSX 700 CURE	0.2	Gallon(GAL)	22-Nov-21
SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	22-Nov-21
SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	22-Nov-21
SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	22-Nov-21
SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	22-Nov-21
SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	22-Nov-21
SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	22-Nov-21
SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	22-Nov-21
SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	22-Nov-21
SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	22-Nov-21
SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	22-Nov-21
SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	22-Nov-21
SKID-TEX ST30 ANTI SLIP	1	Pounds(LB)	22-Nov-21
PSX 700A CLEAR COAT CURE	0.83	Gallon(GAL)	22-Nov-21
PSX 700A CLEAR COAT CURE	0.83	Gallon(GAL)	22-Nov-21
PSX 700A CLEAR COAT CURE	0.83	Gallon(GAL)	22-Nov-21
PSX 700A CLEAR COAT CURE	0.83	Gallon(GAL)	22-Nov-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	22-Nov-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	22-Nov-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	22-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	22-Nov-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	22-Nov-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
877-5513 COLORTREND PHTHALO GREEN	32	Ounces(OZ)	22-Nov-21
877-5513 COLORTREND PHTHALO GREEN	32	Ounces(OZ)	22-Nov-21
877-5513 COLORTREND PHTHALO GREEN	32	Ounces(OZ)	22-Nov-21
877-5513 COLORTREND PHTHALO GREEN	32	Ounces(OZ)	22-Nov-21
888-1572 COLORTREND BROWN OXIDE	32	Ounces(OZ)	22-Nov-21
888-1572 COLORTREND BROWN OXIDE	32	Ounces(OZ)	22-Nov-21
888-1572 COLORTREND BROWN OXIDE	32	Ounces(OZ)	22-Nov-21
888-1572 COLORTREND BROWN OXIDE	32	Ounces(OZ)	22-Nov-21
DUPLI-COLOR Acrylic Enamel Aerosol Paint Flat Black	12	Ounces(OZ)	22-Nov-21
COLORTREND LAMP BLACK (888-9907)	32	Ounces(OZ)	22-Nov-21
COLORTREND LAMP BLACK (888-9907)	32	Ounces(OZ)	22-Nov-21
COLORTREND LAMP BLACK (888-9907)	32	Ounces(OZ)	22-Nov-21
COLORTREND LAMP BLACK (888-9907)	32	Ounces(OZ)	22-Nov-21
COLORTREND LAMP BLACK (888-9907)	32	Ounces(OZ)	22-Nov-21
COLORTREND LAMP BLACK (888-9907)	32	Ounces(OZ)	22-Nov-21
PAINT THINNER	1	Gallon(GAL)	22-Nov-21
PAINT THINNER	1	Gallon(GAL)	22-Nov-21
PAINT THINNER	1	Gallon(GAL)	22-Nov-21
PAINT THINNER	1	Gallon(GAL)	22-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PAINT THINNER	1	Gallon(GAL)	22-Nov-21
PAINT THINNER	1	Gallon(GAL)	22-Nov-21
PAINT THINNER	1	Gallon(GAL)	22-Nov-21
PAINT THINNER	1	Gallon(GAL)	22-Nov-21
PAINT THINNER	1	Gallon(GAL)	22-Nov-21
PAINT THINNER	1	Gallon(GAL)	22-Nov-21
PAINT THINNER	1	Gallon(GAL)	22-Nov-21
PAINT THINNER	1	Gallon(GAL)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	121	Ounces(OZ)	22-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	22-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	22-Nov-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	22-Nov-21
Excelsior AW-510	4	Gallon(GAL)	22-Nov-21
Excelsior AW-510	4	Gallon(GAL)	22-Nov-21
Excelsior AW-510	4	Gallon(GAL)	22-Nov-21
Excelsior AW-510	4	Gallon(GAL)	22-Nov-21
Latex Window Glazing	10.1	Ounces(OZ)	22-Nov-21
Latex Window Glazing	10.1	Ounces(OZ)	22-Nov-21
Latex Window Glazing	10.1	Ounces(OZ)	22-Nov-21
Latex Window Glazing	10.1	Ounces(OZ)	22-Nov-21
FORMULA 1015-L	5	Gallon(GAL)	22-Nov-21
SYLGARD 186 SILICONE ELASTOMER BASE	7.94	Pounds(LB)	22-Nov-21
SYLGARD 186 SILICONE ELASTOMER BASE	7.94	Pounds(LB)	22-Nov-21
SYLGARD 186 SILICONE ELASTOMER BASE	7.94	Pounds(LB)	22-Nov-21
SYLGARD 186 SILICONE ELASTOMER BASE	39.9	Pounds(LB)	22-Nov-21
SYLGARD 186 SILICONE ELASTOMER CURING AGENT	0.81	Pounds(LB)	22-Nov-21
SYLGARD 186 SILICONE ELASTOMER CURING AGENT	0.81	Pounds(LB)	22-Nov-21
SYLGARD 186 SILICONE ELASTOMER CURING AGENT	3.97	Pounds(LB)	22-Nov-21
SYLGARD 527 SILICONE DIELECTRIC GEL [PART A]	1	Pounds(LB)	22-Nov-21
SYLGARD 527 SILICONE DIELECTRIC GEL [PART A]	1	Pounds(LB)	22-Nov-21
SYLGARD 527 SILICONE DIELECTRIC GEL [PART B]	1	Pounds(LB)	22-Nov-21
SYLGARD 527 SILICONE DIELECTRIC GEL [PART B]	1	Pounds(LB)	22-Nov-21
SYLGARD 184 SILICONE ELASTOMER BASE	7.94	Pounds(LB)	22-Nov-21
SYLGARD 184 SILICONE ELASTOMER BASE	7.94	Pounds(LB)	22-Nov-21
SYLGARD 184 SILICONE ELASTOMER BASE	7.94	Pounds(LB)	22-Nov-21
SYLGARD 184 SILICONE ELASTOMER BASE	7.94	Pounds(LB)	22-Nov-21
SYLGARD 184 SILICONE ELASTOMER BASE	7.94	Pounds(LB)	22-Nov-21
SYLGARD 184 SILICONE ELASTOMER BASE	7.94	Pounds(LB)	22-Nov-21
SYLGARD 184 SILICONE ELASTOMER BASE	7.94	Pounds(LB)	22-Nov-21
SYLGARD 184 SILICONE ELASTOMER CURING AGENTBASE	0.81	Pounds(LB)	22-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SYLGARD 184 SILICONE ELASTOMER CURING AGENTBASE	0.81	Pounds(LB)	22-Nov-21
SYLGARD 184 SILICONE ELASTOMER CURING AGENTBASE	0.81	Pounds(LB)	22-Nov-21
SYLGARD 184 SILICONE ELASTOMER CURING AGENTBASE	0.81	Pounds(LB)	22-Nov-21
Purolite NRW3240	1	Cubic Feet(CF)	22-Nov-21
Purolite NRW3240	1	Cubic Feet(CF)	22-Nov-21
Purolite NRW3240	1	Cubic Feet(CF)	22-Nov-21
Purolite NRW3240	1	Cubic Feet(CF)	22-Nov-21
Purolite NRW3240	1	Cubic Feet(CF)	22-Nov-21
Purolite NRW3240	1	Cubic Feet(CF)	22-Nov-21
Purolite NRW3240	1	Cubic Feet(CF)	22-Nov-21
IRON(III) ACETYLACETONATE	100	Gram(GM)	22-Nov-21
NIOBIUM (V) CHLORIDE	10	Gram(GM)	22-Nov-21
Chlorine Free Indicator Solution 473 mL	473	Milliliter(ML)	22-Nov-21
ENAMEL SPRAY PAINT	12	Ounces(OZ)	22-Nov-21
ENAMEL SPRAY PAINT	12	Ounces(OZ)	22-Nov-21
ENAMEL SPRAY PAINT	12	Ounces(OZ)	22-Nov-21
LIQUID WRENCH	10.25	Ounces(OZ)	22-Nov-21
WHITE LITHIUM GREASE AEROSOL	11	Ounces(OZ)	22-Nov-21
TFE DRY LUBE	9.3	Ounces(OZ)	22-Nov-21
SPRAYON DRY GRAPHITE LUBE	10	Ounces(OZ)	22-Nov-21
CREAM HARDENER	0.75	Ounces(OZ)	22-Nov-21
Ditch Witch Orange Aerosol	10	Ounces(OZ)	22-Nov-21
E6000 medium clear	3.7	Ounces(OZ)	23-Nov-21
Battery Cleaner with Acid Indicator	11	Ounces(OZ)	23-Nov-21
MARVEL AIR TOOL OIL #085	32	Ounces(OZ)	23-Nov-21
2-PROPANOL	4	Liters(L)	23-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	23-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	23-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	23-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	23-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	23-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	23-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	23-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	23-Nov-21
Valvoline¿ HD 15W40	1	Gallon(GAL)	23-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline¿ HD 15W40	1	Gallon(GAL)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
NITRIC ACID CERTIFIED ACS	500	Milliliter(ML)	23-Nov-21
PARTS PLUS ANTIFREEZE & COOLANT	1	Gallon(GAL)	23-Nov-21
PARTS PLUS ANTIFREEZE & COOLANT	1	Gallon(GAL)	23-Nov-21
ISOPROPYL ALCOHOL	4	Liters(L)	23-Nov-21
PARTS PLUS ANTIFREEZE & COOLANT	1	Gallon(GAL)	23-Nov-21
ISOPROPYL ALCOHOL	4	Liters(L)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	23-Nov-21
RED INSULATING VARNISH	2	Ounces(OZ)	23-Nov-21
PUMP OIL INDUSTRIAL SERIES 100	1	Pint(PT)	23-Nov-21
DISC BRAKE BEARING GREASE	14	Ounces(OZ)	23-Nov-21
HYDREX XV ALL SEASON	54.2	Gallon(GAL)	23-Nov-21
HYDREX XV ALL SEASON	54.2	Gallon(GAL)	23-Nov-21
LUBRIPLATE CHAIN AND CABLE FLUID	11	Ounces(OZ)	23-Nov-21
FMOC-L-PRO-OH	100	Gram(GM)	23-Nov-21
BRAKE FLUID DOT 3	1	Quarts(QT)	23-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	23-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	23-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	23-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	23-Nov-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
LPS 1 GREASELESS LUBRICANT	379	Milliliter(ML)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
Boc-L-Proline	100	Gram(GM)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
ZINSSER COVER STAIN PRIMER	13	Ounces(OZ)	23-Nov-21
p-Methoxy-L-phenylalanine	25	Gram(GM)	23-Nov-21
(R)-1-(4-Methoxyphenyl)ethylamine	25	Gram(GM)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
16% Formaldehyde Solution	1	Milliliter(ML)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
10W-30 SAE MOTOR OIL	1	Gallon(GAL)	23-Nov-21
POTASSIUM CARBONATE	500	Gram(GM)	23-Nov-21
CITRIC AICD	100	Gram(GM)	23-Nov-21
Polaris PS-4	1	Quarts(QT)	23-Nov-21
Polaris PS-4	1	Quarts(QT)	23-Nov-21
Polaris PS-4	1	Quarts(QT)	23-Nov-21
Polaris PS-4	1	Quarts(QT)	23-Nov-21
Polaris PS-4	1	Quarts(QT)	23-Nov-21
Polaris PS-4	1	Quarts(QT)	23-Nov-21
Polaris PS-4	1	Quarts(QT)	23-Nov-21
Polaris PS-4	1	Quarts(QT)	23-Nov-21
Polaris PS-4	1	Quarts(QT)	23-Nov-21
Polaris PS-4	1	Quarts(QT)	23-Nov-21
Polaris PS-4	1	Quarts(QT)	23-Nov-21
SULLAIR SULLUBE	5	Gallon(GAL)	23-Nov-21
Hydrochloric acid Trace Metal Grade	500	Milliliter(ML)	23-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Hydrochloric acid Trace Metal Grade	500	Milliliter(ML)	23-Nov-21
Hydrochloric acid Trace Metal Grade	500	Milliliter(ML)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
ARDEX FEATHER FINISH	10	Pounds(LB)	23-Nov-21
Copper Reagent Set Porphyrin	10	Milliliter(ML)	23-Nov-21
Copper Reagent Set Porphyrin	10	Milliliter(ML)	23-Nov-21
Copper Reagent Set Porphyrin	10	Milliliter(ML)	23-Nov-21
3-(2-Carboxyphenyl)propionic acid	1	Gram(GM)	23-Nov-21
3-(2-Carboxyphenyl)propionic acid	1	Gram(GM)	23-Nov-21
Ammonium perrhenate 99+%	25	Gram(GM)	23-Nov-21
Ammonium perrhenate 99+%	25	Gram(GM)	23-Nov-21
COBALT (II) SULFATE HEPTAHYDRATE	250	Gram(GM)	23-Nov-21
COBALT (II) SULFATE HEPTAHYDRATE	250	Gram(GM)	23-Nov-21
PARAFORMALDEHYDE	100	Gram(GM)	23-Nov-21
WHITE MINERAL OIL	1	Liters(L)	23-Nov-21
Ammonium iron(III) citrate brown	250	Gram(GM)	23-Nov-21
L-CYSTEINE	25	Gram(GM)	23-Nov-21
HYDROCHLORIC ACID (HCL HYDROGEN CHLORIDE) 1N	1	Liters(L)	23-Nov-21
3M Solvent No. 2 Clear	1	Gallon(GAL)	23-Nov-21
TOLUENE ANHYDROUS	1	Liters(L)	23-Nov-21
TBE 10X	500	Milliliter(ML)	23-Nov-21
TBE 10X	500	Milliliter(ML)	23-Nov-21
TBE 10X	500	Milliliter(ML)	23-Nov-21
TBE 10X	500	Milliliter(ML)	23-Nov-21
L-(-)-MALIC ACID	10	Gram(GM)	23-Nov-21
L-ASPARTIC ACID	1	Gram(GM)	23-Nov-21
Oxaloacetic acid	5	Gram(GM)	23-Nov-21
AIR DUSTER	10	Ounces(OZ)	23-Nov-21
AIR DUSTER	10	Ounces(OZ)	23-Nov-21
AIR DUSTER	10	Ounces(OZ)	23-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
AIR DUSTER	10	Ounces(OZ)	23-Nov-21
AIR DUSTER	10	Ounces(OZ)	23-Nov-21
AIR DUSTER	10	Ounces(OZ)	23-Nov-21
AIR DUSTER	10	Ounces(OZ)	23-Nov-21
AIR DUSTER	10	Ounces(OZ)	23-Nov-21
AIR DUSTER	10	Ounces(OZ)	23-Nov-21
AIR DUSTER	10	Ounces(OZ)	23-Nov-21
AIR DUSTER	10	Ounces(OZ)	23-Nov-21
AIR DUSTER	10	Ounces(OZ)	23-Nov-21
Sulfuric Acid 0.100 Normal (N/10)	4	Liters(L)	24-Nov-21
DIMETHYL SULFOXIDE D6	100	Milliliter(ML)	24-Nov-21
DIETHYLAMINE	500	Milliliter(ML)	24-Nov-21
1 2-DICHLOROBENZENE	2500	Gram(GM)	24-Nov-21
1 2-DICHLOROBENZENE	2500	Gram(GM)	24-Nov-21
1 2-DICHLOROBENZENE	10000	Gram(GM)	24-Nov-21
EPON 828	5	Gallon(GAL)	24-Nov-21
EPON 828	5	Gallon(GAL)	24-Nov-21
Aluminum oxide activated neutral gamma	5	Kilograms(KG)	24-Nov-21
TAE Buffer 50X ULTRA PURE	4	Liters(L)	24-Nov-21
TAE Buffer 50X ULTRA PURE	4	Liters(L)	24-Nov-21
HYDROGEN GAS	40	Cubic Feet(CF)	24-Nov-21
75% ARGON/25% CARBON DIOXIDE	220	Cubic Feet(CF)	24-Nov-21
75% ARGON/25% CARBON DIOXIDE	220	Cubic Feet(CF)	24-Nov-21
Buffer Reference Standard pH 10.00 ± 0.01 at 25°C (Color Coded Blue)	500	Milliliter(ML)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
ARGON GAS	220	Cubic Feet(CF)	24-Nov-21
DIETHYL AZODICARBOXYLATE	100	Gram(GM)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
NITROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
DOW CORNING SYLGARD 184 SILICON ELASTOMER KIT	3.9	Kilograms(KG)	24-Nov-21
Compressed Air	220	Cubic Feet(CF)	24-Nov-21
Compressed Air	220	Cubic Feet(CF)	24-Nov-21
Compressed Air	220	Cubic Feet(CF)	24-Nov-21
Compressed Air	220	Cubic Feet(CF)	24-Nov-21
Compressed Air	220	Cubic Feet(CF)	24-Nov-21
Compressed Air	220	Cubic Feet(CF)	24-Nov-21
POTASSIUM SOLID	5	Gram(GM)	24-Nov-21
POTASSIUM SOLID	5	Gram(GM)	24-Nov-21
POTASSIUM SOLID	5	Gram(GM)	24-Nov-21
POTASSIUM SOLID	5	Gram(GM)	24-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Nov-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	24-Nov-21
ZINC OXIDE POWDER	50	Gram(GM)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	220	Cubic Feet(CF)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CARBON DIOXIDE	220	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
CARBON DIOXIDE	50	Cubic Feet(CF)	24-Nov-21
Phosphoric acid 85% aqueous solution	500	Milliliter(ML)	24-Nov-21
Phosphoric acid 85% aqueous solution	500	Milliliter(ML)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
SOUDAL Soudacryl Paint	10.1	Ounces(OZ)	24-Nov-21
ACETONE FOR HPLC	4	Liters(L)	24-Nov-21
SOUDAL Soudacryl Paint	10.1	Ounces(OZ

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SOUDAL Soudacryl Paint	10.1	Ounces(OZ)	24-Nov-21
SOUDAL Soudacryl Paint	10.1	Ounces(OZ)	24-Nov-21
SOUDAL Soudacryl Paint	10.1	Ounces(OZ)	24-Nov-21
SOUDAL Soudacryl Paint	10.1	Ounces(OZ)	24-Nov-21
SOUDAL Soudacryl Paint	10.1	Ounces(OZ)	24-Nov-21
SOUDAL Soudacryl Paint	10.1	Ounces(OZ)	24-Nov-21
SOUDAL Soudacryl Paint	10.1	Ounces(OZ)	24-Nov-21
SOUDAL Soudacryl Paint	10.1	Ounces(OZ)	24-Nov-21
ACETONE FOR HPLC	4	Liters(L)	24-Nov-21
ACETONE FOR HPLC	4	Liters(L)	24-Nov-21
ACETONE FOR HPLC	4	Liters(L)	24-Nov-21
ACETONE FOR HPLC	4	Liters(L)	24-Nov-21
ACETONE FOR HPLC	4	Liters(L)	24-Nov-21
ACETONE FOR HPLC	4	Liters(L)	24-Nov-21
ACETONE FOR HPLC	4	Liters(L)	24-Nov-21
HYDROGEN GAS	180	Cubic Feet(CF)	24-Nov-21
HYDROGEN GAS	180	Cubic Feet(CF)	24-Nov-21
HYDROGEN GAS	180	Cubic Feet(CF)	24-Nov-21
HYDROGEN GAS	180	Cubic Feet(CF)	24-Nov-21
TOLUENE-D8	50	Gram(GM)	24-Nov-21
Sodium Polyacrylate Crosslinked (Rock Miracle Rock Hard)	5	Gallon(GAL)	24-Nov-21
HYDROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
HYDROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
HYDROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
HYDROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
HYDROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
HYDROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
HYDROGEN GAS	220	Cubic Feet(CF)	24-Nov-21
2 4-DI-TERT-BUTYLPHENOL	100	Gram(GM)	24-Nov-21
3M RESIN FK-800	1	Kilograms(KG)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
3M RESIN FK-800	1	Kilograms(KG)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
3M RESIN FK-800	1	Kilograms(KG)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
HELIUM GAS	220	Cubic Feet(CF)	24-Nov-21
Ethyl trimethylacetate	100	Gram(GM)	24-Nov-21
4-Methoxyphenethylamine	100	Gram(GM)	24-Nov-21
NICKEL(II) CHLORIDE HEXAHYDRATE	100	Gram(GM)	24-Nov-21
NICKEL(II) CHLORIDE HEXAHYDRATE	100	Gram(GM)	24-Nov-21
NICKEL(II) CHLORIDE HEXAHYDRATE	100	Gram(GM)	24-Nov-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	24-Nov-21
Frosted Glass Specialty Coating	12	Ounces(OZ)	24-Nov-21
Frosted Glass Specialty Coating	12	Ounces(OZ)	24-Nov-21
Frosted Glass Specialty Coating	12	Ounces(OZ)	24-Nov-21
ISOPROPYL ALCOHOL AND WATER	1	Liters(L)	24-Nov-21
ABS M30 Ivory	1475	Cubic Centimeter (CC)	24-Nov-21
ABS M30 Ivory	1475	Cubic Centimeter (CC)	24-Nov-21
3-nitropropan-1-ol	10	Gram(GM)	24-Nov-21
3-nitropropan-1-ol	10	Gram(GM)	24-Nov-21
SODIUM ETHOXIDE	200	Gram(GM)	24-Nov-21
TOLUENE	20	Liters(L)	24-Nov-21
2-PHENYLETHYLAMINE	100	Milliliter(ML)	24-Nov-21
POLY(ETHYLENE OXIDE)	250	Gram(GM)	24-Nov-21
TOLUENE ANHYDROUS	1	Liters(L)	24-Nov-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	24-Nov-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	24-Nov-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	24-Nov-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	24-Nov-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	24-Nov-21
Acetonitrile anhydrous 99.8%	100	Milliliter(ML)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
TETRAHYDROFURAN ANHYDROUS	100	Milliliter(ML)	24-Nov-21
TETRAHYDROFURAN ANHYDROUS	100	Milliliter(ML)	24-Nov-21
TETRAHYDROFURAN ANHYDROUS	100	Milliliter(ML)	24-Nov-21
TETRAHYDROFURAN ANHYDROUS	100	Milliliter(ML)	24-Nov-21
TETRAHYDROFURAN ANHYDROUS	100	Milliliter(ML)	24-Nov-21
TETRAHYDROFURAN ANHYDROUS	100	Milliliter(ML)	24-Nov-21
Strontium carbonate 99.99% (metals basis)	100	Gram(GM)	24-Nov-21
MOBIL VACUOLINE 1405	5	Gallon(GAL)	24-Nov-21
MOBIL VACUOLINE 1405	5	Gallon(GAL)	24-Nov-21
MOBIL VACUOLINE 1405	5	Gallon(GAL)	24-Nov-21
MOBIL VACUOLINE 1405	5	Gallon(GAL)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
FS-One Max	10	Ounces(OZ)	24-Nov-21
NIOBIUM(V) OXIDE	10	Gram(GM)	24-Nov-21
CALCIUM CARBONATE POWDER	100	Gram(GM)	24-Nov-21
ETHYL FORMATE	500	Milliliter(ML)	24-Nov-21
MAGNESIUM	250	Gram(GM)	24-Nov-21
1 3 5-Trioxane	25	Gram(GM)	24-Nov-21
1 3 5-Trioxane	25	Gram(GM)	24-Nov-21
1 3 5-Trioxane	25	Gram(GM)	24-Nov-21
1 3 5-Trioxane	25	Gram(GM)	24-Nov-21
GRUBBS CATALYST 2ND GENERATION	2	Gram(GM)	24-Nov-21
Ethylene Glycol	1	Liters(L)	24-Nov-21
COPPER(I) CHLORIDE	25	Gram(GM)	24-Nov-21
AMPURE XP	5	Milliliter(ML)	24-Nov-21
Ammonium perrhenate 99+%	5	Gram(GM)	24-Nov-21
4-BROMO-1-BUTENE	50	Gram(GM)	24-Nov-21
4-BROMO-1-BUTENE	50	Gram(GM)	24-Nov-21
POLYETHYLENE GLYCOL 2000	1	Kilograms(KG)	24-Nov-21
COPPER(II) TRIFLUOROMETHANESULFONATE	25	Gram(GM)	24-Nov-21
METHANOL 99%	1000	Milliliter(ML)	24-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
METHANOL 99%	1000	Milliliter(ML)	24-Nov-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	24-Nov-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	24-Nov-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	24-Nov-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	24-Nov-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	24-Nov-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	24-Nov-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	24-Nov-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	24-Nov-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	24-Nov-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	24-Nov-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	24-Nov-21
AIRIT SUPER FRIENDLY DUSTER	11	Ounces(OZ)	24-Nov-21
L-GLUTAMIC ACID	100	Gram(GM)	24-Nov-21
D-[+]-GLUCOSE	1	Kilograms(KG)	24-Nov-21
NICKEL(II) CHLORIDE HEXAHYDRATE	25	Gram(GM)	24-Nov-21
CERIUM(III) NITRATE HEXAHYDRATE	100	Gram(GM)	24-Nov-21
2-PROPANOL OPTIMA	4	Liters(L)	24-Nov-21
2-PROPANOL OPTIMA	4	Liters(L)	24-Nov-21
POTASSIUM BIS(TRIMETHYLSILYL)AMIDE	25	Gram(GM)	24-Nov-21
ETHYL NITROACETATE	25	Gram(GM)	24-Nov-21
2 2-Dimethyl-3 5-hexanedione	1	Gram(GM)	24-Nov-21
2 2-Dimethyl-3 5-hexanedione	1	Gram(GM)	24-Nov-21
STARTING FLUID	10.7	Ounces(OZ)	29-Nov-21
STARTING FLUID	10.7	Ounces(OZ)	29-Nov-21
STARTING FLUID	10.7	Ounces(OZ)	29-Nov-21
STARTING FLUID	10.7	Ounces(OZ)	29-Nov-21
STARTING FLUID	10.7	Ounces(OZ)	29-Nov-21
STARTING FLUID	10.7	Ounces(OZ)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Zerex HD Extended Life 50/50 Antifreeze Coolant	1	Gallon(GAL)	29-Nov-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	29-Nov-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	29-Nov-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	29-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	29-Nov-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	29-Nov-21
Valvoline MOTOR OIL SAE 15W-40 MOTOR OIL	1	Gallon(GAL)	29-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 15W-40 Motor Oil	1	Quarts(QT)	29-Nov-21
AW 32 HYDRAULIC FLUID	5	Gallon(GAL)	29-Nov-21
AW 32 HYDRAULIC FLUID	5	Gallon(GAL)	29-Nov-21
Brakleen Brake Parts Cleaner	14	Ounces(OZ)	29-Nov-21
Brakleen Brake Parts Cleaner	14	Ounces(OZ)	29-Nov-21
Brakleen Brake Parts Cleaner	14	Ounces(OZ)	29-Nov-21
Brakleen Brake Parts Cleaner	14	Ounces(OZ)	29-Nov-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	29-Nov-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	29-Nov-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	29-Nov-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	29-Nov-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	29-Nov-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	29-Nov-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	29-Nov-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	29-Nov-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	29-Nov-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	29-Nov-21
CHAIN & CABLE LUBRICANT	11	Ounces(OZ)	29-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	29-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	29-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SODA ASH	50	Pounds(LB)	29-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
SODA ASH	50	Pounds(LB)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
LIQUID NAILS HEAVY DUTY	10	Ounces(OZ)	29-Nov-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	29-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	29-Nov-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	29-Nov-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	29-Nov-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	29-Nov-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	29-Nov-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	29-Nov-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	29-Nov-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	29-Nov-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	29-Nov-21
'Sta-Plex Extreme Pressure Premium Red Grease	14.1	Ounces(OZ)	29-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	29-Nov-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	29-Nov-21
TUNGSTEN OXIDE	50	Gram(GM)	29-Nov-21
2-AMINOPHENOL	100	Gram(GM)	29-Nov-21
POLY(ETHYLENE OXIDE)	500	Gram(GM)	29-Nov-21
POLY(ETHYLENE OXIDE)	500	Gram(GM)	29-Nov-21
ETHYLENE GLYCOL (ETHYLENE GLYCOL ANHYDROUS)	10	Milliliter(ML)	29-Nov-21
ETHYLENE GLYCOL (ETHYLENE GLYCOL ANHYDROUS)	10	Milliliter(ML)	29-Nov-21
ETHYLENE GLYCOL (ETHYLENE GLYCOL ANHYDROUS)	10	Milliliter(ML)	29-Nov-21
ETHYLENE GLYCOL (ETHYLENE GLYCOL ANHYDROUS)	10	Milliliter(ML)	29-Nov-21
ETHYLENE GLYCOL (ETHYLENE GLYCOL ANHYDROUS)	10	Milliliter(ML)	29-Nov-21
ETHYLENE GLYCOL (ETHYLENE GLYCOL ANHYDROUS)	10	Milliliter(ML)	29-Nov-21
ETHYLENE GLYCOL (ETHYLENE GLYCOL ANHYDROUS)	10	Milliliter(ML)	29-Nov-21
ETHYLENE GLYCOL (ETHYLENE GLYCOL ANHYDROUS)	10	Milliliter(ML)	29-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ETHYLENE GLYCOL (ETHYLENE GLYCOL ANHYDROUS)	10	Milliliter(ML)	29-Nov-21
ETHYLENE GLYCOL (ETHYLENE GLYCOL ANHYDROUS)	10	Milliliter(ML)	29-Nov-21
C-425 Cooling Water Treatment	1	Liters(L)	29-Nov-21
2-PROPANOL OPTIMA	2.5	Liters(L)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
EnduraZinc 703 Brite Cold Galvanizing Primer Finish	1	Gallon(GAL)	29-Nov-21
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	29-Nov-21
Parts Plus SAE 5W-30 SYNTHETIC MOTOR OIL P3501	1	Quarts(QT)	29-Nov-21
Lucas Fuel Treatment	1	Gallon(GAL)	29-Nov-21
Lucas Fuel Treatment	1	Gallon(GAL)	29-Nov-21
PARTS PLUS ANTIFREEZE & COOLANT	1	Gallon(GAL)	29-Nov-21
PARTS PLUS ANTIFREEZE & COOLANT	1	Gallon(GAL)	29-Nov-21
SULLAIR SRF 1/4000	5	Gallon(GAL)	29-Nov-21
Cote All N/B	116	Ounces(OZ)	29-Nov-21
Cote All N/B	116	Ounces(OZ)	29-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	29-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	29-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	29-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	29-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	29-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	29-Nov-21
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	29-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 10W-30 SYNTHETIC MOTOR OIL	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
MOBIL 1 HIGH MILEAGE 0W-20	1	Quarts(QT)	29-Nov-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	29-Nov-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	29-Nov-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	29-Nov-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	29-Nov-21
888-2040 COLORTREND MEDIUM YELLOW T	32	Ounces(OZ)	29-Nov-21
888-2040 COLORTREND MEDIUM YELLOW T	32	Ounces(OZ)	29-Nov-21
888-2040 COLORTREND MEDIUM YELLOW T	32	Ounces(OZ)	29-Nov-21
888-2040 COLORTREND MEDIUM YELLOW T	32	Ounces(OZ)	29-Nov-21
SHEETROCK Brand PLUS 3 Lightweight All Purpose Joint Compound Ready-Mixed	4.5	Gallon(GAL)	29-Nov-21
MOBIL 600W CYLINDER OIL	55	Gallon(GAL)	29-Nov-21
Nano ProMT Dry Lubricant	11	Ounces(OZ)	30-Nov-21
1-DODECANOL	100	Gram(GM)	30-Nov-21
1-DODECANOL	100	Gram(GM)	30-Nov-21
STEARIC ACID	100	Gram(GM)	30-Nov-21
STEARIC ACID	100	Gram(GM)	30-Nov-21
Furfuryl alcohol 98+%	50	Gram(GM)	30-Nov-21
Furfuryl alcohol 98+%	50	Gram(GM)	30-Nov-21
Sodium ferrocyanide decahydrate >= 98.0%	500	Gram(GM)	30-Nov-21
Sodium ferrocyanide decahydrate >= 98.0%	500	Gram(GM)	30-Nov-21
cis-2-Butene-1 4-diol 97%	25	Gram(GM)	30-Nov-21
AngstromBond 9110LV	2.5	Gram(GM)	30-Nov-21
AngstromBond 9110LV	2.5	Gram(GM)	30-Nov-21
AngstromBond 9110LV	2.5	Gram(GM)	30-Nov-21
AngstromBond 9110LV	2.5	Gram(GM)	30-Nov-21
AngstromBond 9110LV	2.5	Gram(GM)	30-Nov-21
AngstromBond 9110LV	2.5	Gram(GM)	30-Nov-21
AngstromBond 9110LV	2.5	Gram(GM)	30-Nov-21
AngstromBond 9110LV	2.5	Gram(GM)	30-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
AngstromBond 9110LV	2.5	Gram(GM)	30-Nov-21
AngstromBond 9110LV	2.5	Gram(GM)	30-Nov-21
TUFF BOND HANGER ADHESIVE	1	Gallon(GAL)	30-Nov-21
TUFF BOND HANGER ADHESIVE	1	Gallon(GAL)	30-Nov-21
TUFF BOND HANGER ADHESIVE	1	Gallon(GAL)	30-Nov-21
TUFF BOND HANGER ADHESIVE	1	Gallon(GAL)	30-Nov-21
TUFF BOND HANGER ADHESIVE	1	Gallon(GAL)	30-Nov-21
TUFF BOND HANGER ADHESIVE	1	Gallon(GAL)	30-Nov-21
TUFF BOND HANGER ADHESIVE	1	Gallon(GAL)	30-Nov-21
TUFF BOND HANGER ADHESIVE	1	Gallon(GAL)	30-Nov-21
TUFF BOND HANGER ADHESIVE	1	Gallon(GAL)	30-Nov-21
TUFF BOND HANGER ADHESIVE	1	Gallon(GAL)	30-Nov-21
TUFF BOND HANGER ADHESIVE	1	Gallon(GAL)	30-Nov-21
CHILDERS CP-11 VI-CRYL	2	Gallon(GAL)	30-Nov-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	30-Nov-21
Steel Reinforced Epoxy Resin	25	Milliliter(ML)	30-Nov-21
Steel Reinforced Epoxy Resin	25	Milliliter(ML)	30-Nov-21
Steel Reinforced Epoxy Resin	25	Milliliter(ML)	30-Nov-21
Steel Reinforced Epoxy Resin	25	Milliliter(ML)	30-Nov-21
Steel Reinforced Epoxy Resin	25	Milliliter(ML)	30-Nov-21
ETHYL ALCOHOL	1	Gallon(GAL)	30-Nov-21
POTASSIUM CHLORIDE 3M	250	Milliliter(ML)	30-Nov-21
Elastopor P 15950R Resin	5	Gallon(GAL)	30-Nov-21
ELASTOPOR P1001U ISOCYANATE	1	Gallon(GAL)	30-Nov-21
ELASTOPOR P1001U ISOCYANATE	1	Gallon(GAL)	30-Nov-21
SULLAIR SULLUBE	5	Gallon(GAL)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
PARTS PLUS SAE 5W-30 PREMIUM MOTOR OIL	1	Quarts(QT)	30-Nov-21
Sn63Pb37 RA Solder Wire	1	Pounds(LB)	01-Dec-21
ENMAR RED PAINT	15	Ounces(OZ)	01-Dec-21
ENMAR RED PAINT	15	Ounces(OZ)	01-Dec-21
ENMAR RED PAINT	15	Ounces(OZ)	01-Dec-21
ENMAR RED PAINT	15	Ounces(OZ)	01-Dec-21
ENMAR RED PAINT	15	Ounces(OZ)	01-Dec-21
ENMAR RED PAINT	15	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
FS-ONE HIGH PERFORMANCE INTUMESCENT FIRE STOP SEALANT	10.1	Ounces(OZ)	01-Dec-21
ETHYL PYRUVATE	100	Gram(GM)	01-Dec-21
p-Toluenesulfinic acid sodium salt 97%. Anhydrous	100	Gram(GM)	01-Dec-21
3 5-Di-tert-butyl-2-hydroxybenzaldehyde	25	Gram(GM)	01-Dec-21
TAP MAGIC PROTAP CUTTING FLUID	16	Ounces(OZ)	01-Dec-21
TAP MAGIC PROTAP CUTTING FLUID	16	Ounces(OZ)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	01-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	01-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	01-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	01-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	01-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	01-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	01-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	01-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	01-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	01-Dec-21
PARTS PLUS ANTIFREEZE & COOLANT	1	Gallon(GAL)	01-Dec-21
PARTS PLUS ANTIFREEZE & COOLANT	1	Gallon(GAL)	01-Dec-21
GROUT	20	Pounds(LB)	02-Dec-21
GROUT	20	Pounds(LB)	02-Dec-21
GROUT	20	Pounds(LB)	02-Dec-21
GROUT	20	Pounds(LB)	02-Dec-21
GROUT	20	Pounds(LB)	02-Dec-21
GROUT	20	Pounds(LB)	02-Dec-21
GROUT	20	Pounds(LB)	02-Dec-21
GROUT	20	Pounds(LB)	02-Dec-21
POLYAMIDE RESIN (#140)	6	Pint(PT)	02-Dec-21
POLYAMIDE RESIN (#140)	6	Pint(PT)	02-Dec-21
POLYAMIDE RESIN (#140)	6	Pint(PT)	02-Dec-21
POLYAMIDE RESIN (#140)	6	Pint(PT)	02-Dec-21
POLYAMIDE RESIN (#140)	6	Pint(PT)	02-Dec-21
POLYAMIDE RESIN (#140)	6	Pint(PT)	02-Dec-21
Aerocoat Aerocel Coating	1	Gallon(GAL)	02-Dec-21
Aerocoat Aerocel Coating	1	Gallon(GAL)	02-Dec-21
Aerocoat Aerocel Coating	1	Gallon(GAL)	02-Dec-21
Aerocoat Aerocel Coating	1	Gallon(GAL)	02-Dec-21
Aerocoat Aerocel Coating	1	Gallon(GAL)	02-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Aerocoat Aerocel Coating	1	Gallon(GAL)	02-Dec-21
Aerocoat Aerocel Coating	1	Gallon(GAL)	02-Dec-21
Aerocoat Aerocel Coating	1	Gallon(GAL)	02-Dec-21
Aeroflex Aeroseal Contact Adhesive	1	Gallon(GAL)	02-Dec-21
Aeroflex Aeroseal Contact Adhesive	1	Gallon(GAL)	02-Dec-21
Aeroflex Aeroseal Contact Adhesive	1	Gallon(GAL)	02-Dec-21
Aeroflex Aeroseal Contact Adhesive	1	Gallon(GAL)	02-Dec-21
BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	02-Dec-21
BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	02-Dec-21
BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	02-Dec-21
BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	02-Dec-21
BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	02-Dec-21
BUFFER PH 4 (RED BUFFER)	500	Milliliter(ML)	02-Dec-21
BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	02-Dec-21
BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	02-Dec-21
BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	02-Dec-21
BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	02-Dec-21
BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	02-Dec-21
BUFFER PH 10 (BLUE BUFFER)	500	Milliliter(ML)	02-Dec-21
1-BUTANOL	2.5	Liters(L)	02-Dec-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	02-Dec-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	02-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
CP 672 Hilti Firestop Joint Spray CFS-SP WB	5	Gallon(GAL)	03-Dec-21
Synergy 735	55	Gallon(GAL)	03-Dec-21
Synergy 735	55	Gallon(GAL)	03-Dec-21
LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	03-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
LOCTITE 242 THREADLOCKER	10	Milliliter(ML)	03-Dec-21
ANTI FOAM	5	Gallon(GAL)	06-Dec-21
BLASOCUT 2000 Universal	5	Gallon(GAL)	06-Dec-21
BLASOCUT 2000 Universal	5	Gallon(GAL)	06-Dec-21
BLASOCUT 2000 Universal	5	Gallon(GAL)	06-Dec-21
BLASOCUT 2000 Universal	5	Gallon(GAL)	06-Dec-21
BLASOCUT 2000 Universal	5	Gallon(GAL)	06-Dec-21
2-AMINO-4-TERT-BUTYLPHENOL	10	Gram(GM)	06-Dec-21
3 5-Di-tert-butylsalicylic acid 97%	5	Gram(GM)	06-Dec-21
Zirconium(IV) trifluoroacetylacetonate	1	Gram(GM)	06-Dec-21
Zirconium(IV) trifluoroacetylacetonate	1	Gram(GM)	06-Dec-21
Zirconium(IV) chloride tetrahydrofuran complex (1:2)	5	Gram(GM)	06-Dec-21
Zirconium(IV) chloride tetrahydrofuran complex (1:2)	5	Gram(GM)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CHOLINE CHLORIDE	10	Milligram(MG)	06-Dec-21
POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	06-Dec-21
WATER BASED POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	06-Dec-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	06-Dec-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	06-Dec-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	06-Dec-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	06-Dec-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	06-Dec-21
DIETHYL ETHER ANHYDROUS	1	Liters(L)	06-Dec-21
DIETHYL ETHER ANHYDROUS	1	Liters(L)	06-Dec-21
DIETHYL ETHER ANHYDROUS	1	Liters(L)	06-Dec-21
DIETHYL ETHER ANHYDROUS	1	Liters(L)	06-Dec-21
WATER BASED POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	07-Dec-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	07-Dec-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	07-Dec-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	07-Dec-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	07-Dec-21
Diamond Suspension-Water (All Microns)	16	Ounces(OZ)	07-Dec-21
WATER BASED POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	07-Dec-21
WATER BASED POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
POLYCRYSTALLINE DIAMOND SUSPENSION	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Diamond Suspension Glycol Based All Microns	16	Ounces(OZ)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Hydrogen UHP	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	07-Dec-21
PENICILLIN STREPTOMYCIN SOL	100	Milliliter(ML)	07-Dec-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	07-Dec-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	07-Dec-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	07-Dec-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	07-Dec-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	07-Dec-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	07-Dec-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	07-Dec-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	07-Dec-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	07-Dec-21
21% OXYGEN/BAL. HELIUM	220	Cubic Feet(CF)	07-Dec-21
CARBON DIOXIDE	220	Cubic Feet(CF)	07-Dec-21
CARBON DIOXIDE	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
ARGON GAS	220	Cubic Feet(CF)	07-Dec-21
HYDROGEN 10% IN ARGON	300	Cubic Feet(CF)	07-Dec-21
HYDROGEN 10% IN ARGON	300	Cubic Feet(CF)	07-Dec-21
HYDROGEN 10% IN ARGON	300	Cubic Feet(CF)	07-Dec-21
Phenol BioUltra for molecular biology	250	Milliliter(ML)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Compressed Air	220	Cubic Feet(CF)	07-Dec-21
Boric Acid ACS	100	Gram(GM)	07-Dec-21
CARBON DIOXIDE	100	Liters(L)	07-Dec-21
CARBON DIOXIDE	100	Liters(L)	07-Dec-21
CARBON DIOXIDE	100	Liters(L)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
PROPANE	11	Gallon(GAL)	07-Dec-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	07-Dec-21
SNOOP LIQUID LEAK DETECTOR	8	Ounces(OZ)	07-Dec-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	100	Liters(L)	07-Dec-21
OBJET VEROBLUE RGD840	1	Kilograms(KG)	07-Dec-21
OBJET VEROBLUE RGD840	1	Kilograms(KG)	07-Dec-21
OBJET VEROBLUE RGD840	1	Kilograms(KG)	07-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
OBJET VEROBLUE RGD840	1	Kilograms(KG)	07-Dec-21
Support SUP706 B	1	Kilograms(KG)	07-Dec-21
Support SUP706 B	1	Kilograms(KG)	07-Dec-21
GREENLUBE DIAMOND EXTENDER	3.8	Liters(L)	07-Dec-21
GREENLUBE POLISHING LUBRICANT	16	Ounces(OZ)	07-Dec-21
MN5A-2 M-PREP NEUTRALIZER	16	Ounces(OZ)	07-Dec-21
MN5A-2 M-PREP NEUTRALIZER	16	Ounces(OZ)	07-Dec-21
MN5A-2 M-PREP NEUTRALIZER	16	Ounces(OZ)	07-Dec-21
MN5A-2 M-PREP NEUTRALIZER	16	Ounces(OZ)	07-Dec-21
MN5A-2 M-PREP NEUTRALIZER	16	Ounces(OZ)	07-Dec-21
Support SUP706 B	1	Kilograms(KG)	07-Dec-21
ALUMINUM NITRATE NONAHYDRATE	500	Gram(GM)	07-Dec-21
ALUMINUM NITRATE NONAHYDRATE	500	Gram(GM)	07-Dec-21
ALUMINUM NITRATE NONAHYDRATE	500	Gram(GM)	07-Dec-21
ALUMINUM NITRATE NONAHYDRATE	500	Gram(GM)	07-Dec-21
ALUMINUM NITRATE NONAHYDRATE	500	Gram(GM)	07-Dec-21
ALUMINUM NITRATE NONAHYDRATE	500	Gram(GM)	07-Dec-21
Support SUP706 B	1	Kilograms(KG)	07-Dec-21
Octavinyloctasilasesquioxane	5	Gram(GM)	07-Dec-21
Octavinyloctasilasesquioxane	5	Gram(GM)	07-Dec-21
SYLGARD 184 SILICONE ELASTOMER	16	Ounces(OZ)	07-Dec-21
DI-I-PROPYLPHOSPHINE	5	Gram(GM)	07-Dec-21
Tris(trimethylsilyl)phosphine min. 98%	5	Gram(GM)	07-Dec-21
1 4 8 11-TETRAAZACYCLOTETRADECANE	5	Gram(GM)	07-Dec-21
Ethanol Anhydrous (Histological)	4	Liters(L)	07-Dec-21
Ethanol Anhydrous (Histological)	4	Liters(L)	07-Dec-21
BORON NITRIDE	1	Pounds(LB)	07-Dec-21
BORON NITRIDE	1	Pounds(LB)	07-Dec-21
Indium ingot 99.99%	50	Gram(GM)	07-Dec-21
Indium ingot 99.99%	50	Gram(GM)	07-Dec-21
Indium ingot 99.99%	50	Gram(GM)	07-Dec-21
Indium ingot 99.99%	50	Gram(GM)	07-Dec-21
LAURIC ACID	100	Gram(GM)	07-Dec-21
EPO-TEK 301-2FL Part A	1	Pounds(LB)	07-Dec-21
1H-pyrazole-3-carbonitrile	5	Gram(GM)	07-Dec-21
1H-pyrazole-3-carbonitrile	5	Gram(GM)	07-Dec-21
1H-pyrazole-3-carbonitrile	5	Gram(GM)	07-Dec-21
1H-pyrazole-3-carbonitrile	5	Gram(GM)	07-Dec-21
TETRAETHYL ORTHOSILICATE	100	Milliliter(ML)	07-Dec-21
TETRAETHYL ORTHOSILICATE	100	Milliliter(ML)	07-Dec-21
TETRAETHYL ORTHOSILICATE	100	Milliliter(ML)	07-Dec-21
DOWEX AG 1-X8 RESIN 200-400 MESH CHLORIDE FORM	500	Gram(GM)	07-Dec-21
Acetonitrile-d3 99% atom D	250	Milliliter(ML)	07-Dec-21
METHYL-D3 ALCOHOL-D	50	Milliliter(ML)	07-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
METHYL-D3 ALCOHOL-D	50	Milliliter(ML)	07-Dec-21
DICHLOROMETHANE	4	Liters(L)	07-Dec-21
DICHLOROMETHANE	4	Liters(L)	07-Dec-21
DICHLOROMETHANE	4	Liters(L)	07-Dec-21
DICHLOROMETHANE	4	Liters(L)	07-Dec-21
HEXANE HPLC	4	Liters(L)	07-Dec-21
HEXANE HPLC	4	Liters(L)	07-Dec-21
HEXANE HPLC	4	Liters(L)	07-Dec-21
HEXANE HPLC	4	Liters(L)	07-Dec-21
DPD COMPOUND FOR FREE AND TOTAL CHLORINE ANALYZERS	25	Gram(GM)	07-Dec-21
DPD COMPOUND FOR FREE AND TOTAL CHLORINE ANALYZERS	25	Gram(GM)	07-Dec-21
DPD COMPOUND FOR FREE AND TOTAL CHLORINE ANALYZERS	25	Gram(GM)	07-Dec-21
DPD COMPOUND FOR FREE AND TOTAL CHLORINE ANALYZERS	25	Gram(GM)	07-Dec-21
DPD COMPOUND FOR FREE AND TOTAL CHLORINE ANALYZERS	25	Gram(GM)	07-Dec-21
DPD COMPOUND FOR FREE AND TOTAL CHLORINE ANALYZERS	25	Gram(GM)	07-Dec-21
DPD COMPOUND FOR FREE AND TOTAL CHLORINE ANALYZERS	25	Gram(GM)	07-Dec-21
DPD COMPOUND FOR FREE AND TOTAL CHLORINE ANALYZERS	25	Gram(GM)	07-Dec-21
DPD COMPOUND FOR FREE AND TOTAL CHLORINE ANALYZERS	25	Gram(GM)	07-Dec-21
NITROGEN AMMONIA STANDARD SOLUTION 100mg/L	100	Milligram(MG)	07-Dec-21
STANDARD SOLUTION AMTAX	237	Milliliter(ML)	07-Dec-21
STANDARD SOLUTION AMTAX	237	Milliliter(ML)	07-Dec-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	07-Dec-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	07-Dec-21
TOTAL CHLORINE INDICATOR SOLUTION# 22634-11	473	Milliliter(ML)	07-Dec-21
NitraVer X Test N Tube Reagent	500	Milliliter(ML)	07-Dec-21
NitraVer X Test N Tube Reagent	500	Milliliter(ML)	07-Dec-21
NitraVer X Test N Tube Reagent	500	Milliliter(ML)	07-Dec-21
NitraVer X Test N Tube Reagent	500	Milliliter(ML)	07-Dec-21
NitraVer X Test N Tube Reagent	500	Milliliter(ML)	07-Dec-21
NitraVer X Test N Tube Reagent	500	Milliliter(ML)	07-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NitraVer X Test N Tube Reagent	500	Milliliter(ML)	07-Dec-21
NitraVer X Test N Tube Reagent	500	Milliliter(ML)	07-Dec-21
NitraVer X Test N Tube Reagent	500	Milliliter(ML)	07-Dec-21
NitraVer X Test N Tube Reagent	500	Milliliter(ML)	07-Dec-21
Hydrochloric Acid Optima	500	Milliliter(ML)	07-Dec-21
Hydrochloric Acid Optima	500	Milliliter(ML)	07-Dec-21
Hydrochloric Acid Optima	500	Milliliter(ML)	07-Dec-21
Hydrochloric Acid Optima	500	Milliliter(ML)	07-Dec-21
Hydrochloric Acid Optima	500	Milliliter(ML)	07-Dec-21
Hydrochloric Acid Optima	500	Milliliter(ML)	07-Dec-21
TETRAHYDROFURAN HPLC GRADE	500	Milliliter(ML)	07-Dec-21
Isopropyl Alcohol Biotechnology Grade	4	Liters(L)	07-Dec-21
Isopropyl Alcohol Biotechnology Grade	4	Liters(L)	07-Dec-21
Isopropyl Alcohol Biotechnology Grade	4	Liters(L)	07-Dec-21
Isopropyl Alcohol Biotechnology Grade	4	Liters(L)	07-Dec-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	07-Dec-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	07-Dec-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	07-Dec-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	07-Dec-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	07-Dec-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	07-Dec-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	07-Dec-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	07-Dec-21
FS-ONE MAX Hilti Firestop Filler Mastic CFS-FIL	10.1	Ounces(OZ)	07-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	07-Dec-21
31972ppm Hydrogen/ Balance Nitrogen	150	Cubic Feet(CF)	07-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Oxygen Nitrogen	34	Liters(L)	07-Dec-21
Oxygen Nitrogen	34	Liters(L)	07-Dec-21
Oxygen Nitrogen	34	Liters(L)	07-Dec-21
Oxygen Nitrogen	34	Liters(L)	07-Dec-21
Oxygen Nitrogen	34	Liters(L)	07-Dec-21
Oxygen Nitrogen	34	Liters(L)	07-Dec-21
3-AMINOPROPYLTRIMETHOXYSILANE	100	Milliliter(ML)	07-Dec-21
PARAFORMALDEHYDE	25	Gram(GM)	07-Dec-21
PARAFORMALDEHYDE	25	Gram(GM)	07-Dec-21
4-HYDROXYBENZYL ALCOHOL	25	Gram(GM)	07-Dec-21
SODIUM HYDROSULFITE	25	Gram(GM)	07-Dec-21
SODIUM HYDROSULFITE	25	Gram(GM)	07-Dec-21
SODIUM HYDROSULFITE	25	Gram(GM)	07-Dec-21
SODIUM HYDROSULFITE	25	Gram(GM)	07-Dec-21
OBJET VEROCLEAR RGD810	3.6	Kilograms(KG)	07-Dec-21
OBJET VEROBLACKPLUS RGD875	3.6	Kilograms(KG)	07-Dec-21
FULLCURE 705	3.6	Kilograms(KG)	07-Dec-21
PLURONIC F-127	1	Gram(GM)	07-Dec-21
NBS CONDUCTIVITY STDS	473	Milliliter(ML)	07-Dec-21
NBS CONDUCTIVITY STDS	473	Milliliter(ML)	07-Dec-21
NBS CONDUCTIVITY STDS	473	Milliliter(ML)	07-Dec-21
NBS CONDUCTIVITY STDS	473	Milliliter(ML)	07-Dec-21
NBS CONDUCTIVITY STDS	473	Milliliter(ML)	07-Dec-21
NBS CONDUCTIVITY STDS	473	Milliliter(ML)	07-Dec-21
NBS CONDUCTIVITY STDS	473	Milliliter(ML)	07-Dec-21
NBS CONDUCTIVITY STDS	473	Milliliter(ML)	07-Dec-21
NBS CONDUCTIVITY STDS	473	Milliliter(ML)	07-Dec-21
NBS CONDUCTIVITY STDS	473	Milliliter(ML)	07-Dec-21
NBS CONDUCTIVITY STDS	473	Milliliter(ML)	07-Dec-21
NBS CONDUCTIVITY STDS	473	Milliliter(ML)	07-Dec-21
FERRIC SULFATE 50%	55	Gallon(GAL)	07-Dec-21
FERRIC SULFATE 50%	55	Gallon(GAL)	07-Dec-21
AEROKROIL LUBRICANT SPRAY	10	Ounces(OZ)	08-Dec-21
EXXON MOBIL DTE HYDRAULIC OIL	5	Gallon(GAL)	08-Dec-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	08-Dec-21
Ammonia TNTplus Vial Test LR	25	Milligram(MG)	08-Dec-21
Lucas White Lithium Grease NLGI #2	8	Ounces(OZ)	08-Dec-21
Isopropyl alcohol 70% solution in water	32	Ounces(OZ)	08-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Quikrete Commercial Grade Blacktop Patch	50	Pounds(LB)	09-Dec-21
Shell Diala S2 ZX-A	55	Gallon(GAL)	09-Dec-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	09-Dec-21
Signature Series 5080 Pressure Sensitive Adhesive	4	Gallon(GAL)	09-Dec-21
Gerfix TPS+	4	Gallon(GAL)	09-Dec-21
Gerfix TPS+	4	Gallon(GAL)	09-Dec-21
Gerfix TPS+	4	Gallon(GAL)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ARDEX FEATHER FINISH	10	Pounds(LB)	09-Dec-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
ALL-PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
Vers-Acryl 222 S/G Finish Neutral Base	113.9	Ounces(OZ)	09-Dec-21
Vers-Acryl 222 S/G Finish Neutral Base	113.9	Ounces(OZ)	09-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Vers-Acryl 222 S/G Finish Neutral Base	113.9	Ounces(OZ)	09-Dec-21
Vers-Acryl 222 S/G Finish Neutral Base	113.9	Ounces(OZ)	09-Dec-21
Vers-Acryl 222 S/G Finish Neutral Base	113.9	Ounces(OZ)	09-Dec-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	09-Dec-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
BROMICIDE TABLETS	50	Pounds(LB)	09-Dec-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	09-Dec-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	09-Dec-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	09-Dec-21
PARTS PLUS HD SAE 30 PREMIUM MOTOR OIL PP3371	1	Quarts(QT)	09-Dec-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	09-Dec-21
PB PENETRATING CATALYST	11	Ounces(OZ)	09-Dec-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	09-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	09-Dec-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	09-Dec-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	09-Dec-21
PB PENETRATING CATALYST	11	Ounces(OZ)	09-Dec-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	09-Dec-21
FerroVer Iron Reagent	90	Gram(GM)	09-Dec-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	09-Dec-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	09-Dec-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	09-Dec-21
Cote All 340 J.D. (Safety) Yellow	128	Ounces(OZ)	09-Dec-21
COTE ALL WHITE BASE	123	Ounces(OZ)	09-Dec-21
COTE ALL WHITE BASE	123	Ounces(OZ)	09-Dec-21
COTE ALL WHITE BASE	123	Ounces(OZ)	09-Dec-21
COTE ALL WHITE BASE	123	Ounces(OZ)	09-Dec-21
Permaflex Elastomeric W/B	608	Ounces(OZ)	09-Dec-21
Permaflex Elastomeric W/B	608	Ounces(OZ)	09-Dec-21
Permaflex Elastomeric W/B	608	Ounces(OZ)	09-Dec-21
Permaflex Elastomeric W/B	608	Ounces(OZ)	09-Dec-21
FIRESTOP SEALANT	295	Milliliter(ML)	09-Dec-21
FIRESTOP SEALANT	295	Milliliter(ML)	09-Dec-21
FIRESTOP SEALANT	295	Milliliter(ML)	09-Dec-21
FIRESTOP SEALANT	295	Milliliter(ML)	09-Dec-21
FIRESTOP SEALANT	295	Milliliter(ML)	09-Dec-21
FIRESTOP SEALANT	295	Milliliter(ML)	09-Dec-21
FIRESTOP SEALANT	295	Milliliter(ML)	09-Dec-21
FIRESTOP SEALANT	295	Milliliter(ML)	09-Dec-21
FIRESTOP SEALANT	295	Milliliter(ML)	09-Dec-21
FIRESTOP SEALANT	295	Milliliter(ML)	09-Dec-21
FIRESTOP SEALANT	295	Milliliter(ML)	09-Dec-21
TRU-BLU	1.75	Ounces(OZ)	09-Dec-21
TRU-BLU	1.75	Ounces(OZ)	09-Dec-21
TRU-BLU	1.75	Ounces(OZ)	09-Dec-21
TRU-BLU	1.75	Ounces(OZ)	09-Dec-21
TRU-BLU	1.75	Ounces(OZ)	09-Dec-21
TRU-BLU	1.75	Ounces(OZ)	09-Dec-21
TRU-BLU	1.75	Ounces(OZ)	09-Dec-21
TRU-BLU	1.75	Ounces(OZ)	09-Dec-21
TRU-BLU	1.75	Ounces(OZ)	09-Dec-21
TRU-BLU	1.75	Ounces(OZ)	09-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
DPD Total Chlorine Reagent for 25ml sample	90	Gram(GM)	09-Dec-21
DPD Total Chlorine Reagent for 25ml sample	90	Gram(GM)	09-Dec-21
PHOSVER 3 PHOSPHATE REAGENT	90	Gram(GM)	09-Dec-21
PHOSVER 3 PHOSPHATE REAGENT	90	Gram(GM)	09-Dec-21
PHOSVER 3 PHOSPHATE REAGENT	90	Gram(GM)	09-Dec-21
PHOSVER 3 PHOSPHATE REAGENT	90	Gram(GM)	09-Dec-21
VERSACHEM SUPER CLEAR SILICONE	10.3	Ounces(OZ)	09-Dec-21
VERSACHEM SUPER CLEAR SILICONE	10.3	Ounces(OZ)	09-Dec-21
VERSACHEM SUPER CLEAR SILICONE	10.3	Ounces(OZ)	09-Dec-21
VERSACHEM SUPER CLEAR SILICONE	10.3	Ounces(OZ)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
SHEETROCK LIGHTWEIGHT ALL PURPOSE JOINT COMPOUND	4.5	Gallon(GAL)	09-Dec-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	09-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	09-Dec-21
Avalon Premium 100% Acrylic Interior Satin W/B	608	Ounces(OZ)	09-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	09-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	09-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	09-Dec-21
CRYSTAL WINDSHIELD WASHER -25	1	Gallon(GAL)	09-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	09-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	09-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	09-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	09-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	09-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	09-Dec-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	09-Dec-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	32	Ounces(OZ)	10-Dec-21
ARGON GAS	100	Liters(L)	10-Dec-21
ARGON GAS	100	Liters(L)	10-Dec-21
ARGON GAS	220	Cubic Feet(CF)	10-Dec-21
ARGON GAS	220	Cubic Feet(CF)	10-Dec-21
ARGON GAS	220	Cubic Feet(CF)	10-Dec-21
ARGON GAS	220	Cubic Feet(CF)	10-Dec-21
ARGON GAS	220	Cubic Feet(CF)	10-Dec-21
ARGON GAS	220	Cubic Feet(CF)	10-Dec-21
ARGON GAS	220	Cubic Feet(CF)	10-Dec-21
ARGON GAS	220	Cubic Feet(CF)	10-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	10-Dec-21
ARGON GAS	220	Cubic Feet(CF)	10-Dec-21
ARGON GAS	220	Cubic Feet(CF)	10-Dec-21
ARGON GAS	20	Cubic Feet(CF)	10-Dec-21
ARGON GAS	20	Cubic Feet(CF)	10-Dec-21
ARGON GAS	40	Cubic Feet(CF)	10-Dec-21
ARGON GAS	40	Cubic Feet(CF)	10-Dec-21
ARGON GAS	40	Cubic Feet(CF)	10-Dec-21
ARGON GAS	40	Cubic Feet(CF)	10-Dec-21
ARGON GAS	40	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	10-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	10-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
HELIUM GAS	220	Cubic Feet(CF)	10-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	10-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	10-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	10-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	10-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	10-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	10-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	10-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	10-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	10-Dec-21
HELIUM GAS	40	Cubic Feet(CF)	10-Dec-21
HELIUM GAS	20	Cubic Feet(CF)	10-Dec-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	10-Dec-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	10-Dec-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	10-Dec-21
95% NITROGEN/5% HYDROGEN	220	Cubic Feet(CF)	10-Dec-21
CARBON DIOXIDE	220	Cubic Feet(CF)	10-Dec-21
CARBON DIOXIDE	220	Cubic Feet(CF)	10-Dec-21
CARBON DIOXIDE	220	Cubic Feet(CF)	10-Dec-21
ACETYLENE STABILIZED	230	Cubic Feet(CF)	10-Dec-21
ACETYLENE STABILIZED	230	Cubic Feet(CF)	10-Dec-21
ACETYLENE STABILIZED	230	Cubic Feet(CF)	10-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ACETYLENE STABILIZED	120	Cubic Feet(CF)	10-Dec-21
ACETYLENE STABILIZED	120	Cubic Feet(CF)	10-Dec-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Dec-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Dec-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Dec-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Dec-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Dec-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Dec-21
ACETYLENE STABILIZED	40	Cubic Feet(CF)	10-Dec-21
PROPANE	11	Gallon(GAL)	10-Dec-21
PROPANE	11	Gallon(GAL)	10-Dec-21
OXYGEN COMPRESSED GAS	40	Cubic Feet(CF)	10-Dec-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	10-Dec-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	10-Dec-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	10-Dec-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	10-Dec-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	10-Dec-21
OXYGEN COMPRESSED GAS	20	Cubic Feet(CF)	10-Dec-21
OXYGEN COMPRESSED GAS	40	Cubic Feet(CF)	10-Dec-21
Carbon Dioxide Air	220	Cubic Feet(CF)	10-Dec-21
Carbon Dioxide Air	220	Cubic Feet(CF)	10-Dec-21
HYDROGEN 1% IN ARGON	250	Cubic Feet(CF)	10-Dec-21
CARBON MONOXIDE/METHANE IN AIR	120	Cubic Feet(CF)	10-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Oxygen Nitrogen	120	Cubic Feet(CF)	10-Dec-21
Oxygen Nitrogen	120	Cubic Feet(CF)	10-Dec-21
HELIUM REFRIGERATED LIQUID (CRYOGENIC LIQUID)	100	Liters(L)	10-Dec-21
AMMONIA ANHYDROUS	40	Cubic Feet(CF)	10-Dec-21
ZERO AIR	103	Liters(L)	10-Dec-21
ZERO AIR	103	Liters(L)	10-Dec-21
CARBON DIOXIDE	50	Cubic Feet(CF)	10-Dec-21
Nochar N960 Acid Bond	5	Gallon(GAL)	10-Dec-21
Nochar N960 Acid Bond	5	Gallon(GAL)	10-Dec-21
Nochar N960 Acid Bond	5	Gallon(GAL)	10-Dec-21
Nochar N960 Acid Bond	5	Gallon(GAL)	10-Dec-21
Chemsafe Clear	5	Gallon(GAL)	13-Dec-21
Chemsafe Clear	5	Gallon(GAL)	13-Dec-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	13-Dec-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	13-Dec-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	13-Dec-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	13-Dec-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	13-Dec-21
808-1810 COLORTREND C YELLOW OXIDE	32	Ounces(OZ)	13-Dec-21
Cote All N/B	116	Ounces(OZ)	13-Dec-21
Cote All N/B	116	Ounces(OZ)	13-Dec-21
Cote All N/B	116	Ounces(OZ)	13-Dec-21
Cote All N/B	116	Ounces(OZ)	13-Dec-21
Cote All N/B	116	Ounces(OZ)	13-Dec-21
Cote All N/B	116	Ounces(OZ)	13-Dec-21
Cote All N/B	116	Ounces(OZ)	13-Dec-21
Cote All N/B	116	Ounces(OZ)	13-Dec-21
Cote All N/B	116	Ounces(OZ)	13-Dec-21
Cote All N/B	116	Ounces(OZ)	13-Dec-21
Cote All N/B	116	Ounces(OZ)	13-Dec-21
Ardex P 51	1	Gallon(GAL)	13-Dec-21
Ardex P 51	1	Gallon(GAL)	13-Dec-21
Ardex P 51	1	Gallon(GAL)	13-Dec-21
Ardex P 51	1	Gallon(GAL)	13-Dec-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	13-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	13-Dec-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	13-Dec-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	13-Dec-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	13-Dec-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	13-Dec-21
SC JOHNSON PROFESSIONAL FANTASTIK MULTISURFACE DEGREASER-DISINFECTANT-SANITIZER	1	Gallon(GAL)	13-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	13-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	13-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	13-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	13-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	13-Dec-21
SHEETROCK EASY SAND Lightweight Setting Type Joint Compound 5 20 45 90 210	18	Pounds(LB)	13-Dec-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	13-Dec-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	13-Dec-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	13-Dec-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	13-Dec-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	13-Dec-21
808-9907 COLORTREND B LAMP BLACK	32	Ounces(OZ)	13-Dec-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	13-Dec-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	13-Dec-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	13-Dec-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	13-Dec-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	13-Dec-21
808-1045 COLORTREND F RED OXIDE	32	Ounces(OZ)	13-Dec-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	13-Dec-21
CHAIN AND CABLE FLUID	11	Ounces(OZ)	13-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BRITE TOUCH General Purpose Spray Paint Gloss Black	10	Ounces(OZ)	13-Dec-21
Techspray 152a Duster	15	Ounces(OZ)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
WEST C-358	55	Gallon(GAL)	13-Dec-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	13-Dec-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	13-Dec-21
Brakleen Brake Parts Cleaner - Non-chlorinated (aerosol)	13	Ounces(OZ)	13-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Aeroflex Aeroseal Contact Adhesive	1	Gallon(GAL)	13-Dec-21
Aeroflex Aeroseal Contact Adhesive	1	Gallon(GAL)	13-Dec-21
Aeroflex Aeroseal Contact Adhesive	1	Gallon(GAL)	13-Dec-21
Aeroflex Aeroseal Contact Adhesive	1	Gallon(GAL)	13-Dec-21
Aeroflex Aeroseal Contact Adhesive	1	Gallon(GAL)	13-Dec-21
Aeroflex Aeroseal Contact Adhesive	1	Gallon(GAL)	13-Dec-21
Aeroflex Aeroseal Contact Adhesive	1	Gallon(GAL)	13-Dec-21
Aeroflex Aeroseal Contact Adhesive	1	Gallon(GAL)	13-Dec-21
520 ADHESIVE	1	Pint(PT)	13-Dec-21
520 ADHESIVE	1	Pint(PT)	13-Dec-21
100% SILICONE SEALANT	10	Ounces(OZ)	13-Dec-21
100% SILICONE SEALANT	10	Ounces(OZ)	13-Dec-21
100% SILICONE SEALANT	10	Ounces(OZ)	13-Dec-21
100% SILICONE SEALANT	10	Ounces(OZ)	13-Dec-21
100% SILICONE SEALANT	10	Ounces(OZ)	13-Dec-21
100% SILICONE SEALANT	10	Ounces(OZ)	13-Dec-21
100% SILICONE SEALANT	10	Ounces(OZ)	13-Dec-21
100% SILICONE SEALANT	10	Ounces(OZ)	13-Dec-21
100% SILICONE SEALANT	10	Ounces(OZ)	13-Dec-21
LACQUER THINNER	1	Gallon(GAL)	13-Dec-21
LACQUER THINNER	1	Gallon(GAL)	13-Dec-21
LACQUER THINNER	1	Gallon(GAL)	13-Dec-21
DENATURED ALCOHOL	1	Gallon(GAL)	13-Dec-21
DENATURED ALCOHOL	1	Gallon(GAL)	13-Dec-21
DENATURED ALCOHOL	1	Gallon(GAL)	13-Dec-21
Permacryl Int Latex Flat W/B	608	Ounces(OZ)	13-Dec-21
Isobutane 1%/Bal. Argon	103	Liters(L)	13-Dec-21
Permacryl Int Latex Flat W/B	608	Ounces(OZ)	13-Dec-21
Permacryl Int Latex Flat W/B	608	Ounces(OZ)	13-Dec-21
Isobutane 1%/Bal. Argon	103	Liters(L)	13-Dec-21
AEON 9000 SP	5	Gallon(GAL)	13-Dec-21
AEON 9000 SP	5	Gallon(GAL)	13-Dec-21
O'Reilly Multi-Grade Motor Oil - All Grades	1	Quarts(QT)	13-Dec-21
O'Reilly Multi-Grade Motor Oil - All Grades	1	Quarts(QT)	13-Dec-21
O'Reilly Multi-Grade Motor Oil - All Grades	1	Quarts(QT)	13-Dec-21
O'Reilly Multi-Grade Motor Oil - All Grades	1	Quarts(QT)	13-Dec-21
MOBIL 1 5W-50	1	Quarts(QT)	13-Dec-21
MOBIL 1 5W-50	1	Quarts(QT)	13-Dec-21
MOBIL 1 5W-50	1	Quarts(QT)	13-Dec-21
MOBIL 1 5W-50	1	Quarts(QT)	13-Dec-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	13-Dec-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	13-Dec-21
COTE ALL WHITE BASE	1	Gallon(GAL)	13-Dec-21
INSULATING FOAM SEALANT	250	Milliliter(ML)	13-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Avalon Premium 100% Acrylic Interior Satin D/B	1	Gallon(GAL)	13-Dec-21
Avalon Premium 100% Acrylic Interior Satin D/B	1	Gallon(GAL)	13-Dec-21
Avalon Premium 100% Acrylic Interior Satin D/B	1	Gallon(GAL)	13-Dec-21
INSULATING FOAM SEALANT	250	Milliliter(ML)	13-Dec-21
INSULATING FOAM SEALANT	250	Milliliter(ML)	13-Dec-21
INSULATING FOAM SEALANT	250	Milliliter(ML)	13-Dec-21
INSULATING FOAM SEALANT	250	Milliliter(ML)	13-Dec-21
INSULATING FOAM SEALANT	250	Milliliter(ML)	13-Dec-21
INSULATING FOAM SEALANT	250	Milliliter(ML)	13-Dec-21
INSULATING FOAM SEALANT	250	Milliliter(ML)	13-Dec-21
INSULATING FOAM SEALANT	250	Milliliter(ML)	13-Dec-21
INSULATING FOAM SEALANT	250	Milliliter(ML)	13-Dec-21
INSULATING FOAM SEALANT	250	Milliliter(ML)	13-Dec-21
INSULATING FOAM SEALANT	250	Milliliter(ML)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
DIESEL EXHAUST FLUID	2.5	Gallon(GAL)	13-Dec-21
Cote All D/B	118	Ounces(OZ)	14-Dec-21
Cote All D/B	118	Ounces(OZ)	14-Dec-21
Cote All D/B	118	Ounces(OZ)	14-Dec-21
Cote All D/B	118	Ounces(OZ)	14-Dec-21
Cote All D/B	118	Ounces(OZ)	14-Dec-21
Cote All D/B	118	Ounces(OZ)	14-Dec-21
Cote All D/B	118	Ounces(OZ)	14-Dec-21
CITRIC ACID POWDER PILLOW	90	Gram(GM)	14-Dec-21
ACID REAGENT POWDER PILLOWS	90	Gram(GM)	14-Dec-21
Decon's Ethanol 200 Proof	1	Gallon(GAL)	14-Dec-21
Decon's Ethanol 200 Proof	1	Gallon(GAL)	14-Dec-21
Decon's Ethanol 200 Proof	1	Gallon(GAL)	14-Dec-21
Decon's Ethanol 200 Proof	1	Gallon(GAL)	14-Dec-21
15 MICRON PREMIUM POLY DI	25	Milliliter(ML)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
NITROGEN COMPRESSED GAS	220	Cubic Feet(CF)	14-Dec-21
SODIUM METABISULFITE	10000	Gram(GM)	15-Dec-21
SODIUM METABISULFITE	10000	Gram(GM)	15-Dec-21
SODIUM METABISULFITE	10000	Gram(GM)	15-Dec-21
SODIUM METABISULFITE	10000	Gram(GM)	15-Dec-21
PYRROLE 98%	500	Milliliter(ML)	15-Dec-21
Hoagland's No. 2 Basal Salt Mixture	1	Liters(L)	15-Dec-21
1 12-DIAMINODODECANE	25	Gram(GM)	15-Dec-21
Pyridine-4-d1	1	Gram(GM)	15-Dec-21
Pyridine-4-d1	1	Gram(GM)	15-Dec-21
Pyridine-4-d1	1	Gram(GM)	15-Dec-21
MURASHIGE AND SKOOG BASAL SALT MIXTURE	1	Liters(L)	15-Dec-21
DIETHYLENETRIAMINEPENTAACETIC ACID	100	Gram(GM)	15-Dec-21
Potassium Chloride ACS reagent 99.0-100.5%	25	Gram(GM)	15-Dec-21
Sodium hydroxide 50 wt% solution in water	500	Milliliter(ML)	15-Dec-21
Sodium hydroxide 50 wt% solution in water	500	Milliliter(ML)	15-Dec-21
Sodium hydroxide 50 wt% solution in water	500	Milliliter(ML)	15-Dec-21
Sodium hydroxide 50 wt% solution in water	500	Milliliter(ML)	15-Dec-21
Sodium hydroxide 50 wt% solution in water	500	Milliliter(ML)	15-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SsoAdvanced Universal SYBR Green Supermix	5	Milliliter(ML)	15-Dec-21
ISOPHORONE DIISOCYANATE	500	Gram(GM)	15-Dec-21
Homoveratrylamine	25	Gram(GM)	15-Dec-21
LAWESSON REAGENT	25	Gram(GM)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
LIQUID ADHESIVE	2	Liters(L)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
'M-1 Structural Sealant	10.1	Ounces(OZ)	15-Dec-21
FS-One Max	10.1	Ounces(OZ)	15-Dec-21
FS-One Max	10.1	Ounces(OZ)	15-Dec-21
FS-One Max	10.1	Ounces(OZ)	15-Dec-21
FS-One Max	10.1	Ounces(OZ)	15-Dec-21
2-Propanol ACS Reagent 99.5%	4	Liters(L)	15-Dec-21
2-Propanol ACS Reagent 99.5%	4	Liters(L)	15-Dec-21
2-Propanol ACS Reagent 99.5%	4	Liters(L)	15-Dec-21
ISOBUTANE	5	Pounds(LB)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
OXYGEN COMPRESSED GAS	220	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	300	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	300	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	300	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	300	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	300	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	300	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	300	Cubic Feet(CF)	15-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	300	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	300	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	300	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	300	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	300	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	15-Dec-21
HELIUM GAS	100	Liters(L)	15-Dec-21
HELIUM GAS	100	Liters(L)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
94% ARGON/6% HYDROGEN	220	Cubic Feet(CF)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
PROPANE	11	Gallon(GAL)	15-Dec-21
Compressed Air	220	Cubic Feet(CF)	15-Dec-21
Compressed Air	220	Cubic Feet(CF)	15-Dec-21
Compressed Air	220	Cubic Feet(CF)	15-Dec-21
CARBON DIOXIDE	50	Pounds(LB)	15-Dec-21
HELIUM GAS	300	Cubic Feet(CF)	15-Dec-21
HELIUM GAS	300	Cubic Feet(CF)	15-Dec-21
HELIUM GAS	300	Cubic Feet(CF)	15-Dec-21
HELIUM GAS	300	Cubic Feet(CF)	15-Dec-21
ACETYLENE STABILIZED	240	Cubic Feet(CF)	15-Dec-21
ACETYLENE STABILIZED	240	Cubic Feet(CF)	15-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ACETYLENE STABILIZED	240	Cubic Feet(CF)	15-Dec-21
Cargille Gem Refractometer Liquid	0.25	Ounces(OZ)	15-Dec-21
FORANE 410A	25	Pounds(LB)	15-Dec-21
FORANE 410A	25	Pounds(LB)	15-Dec-21
FORANE 410A	25	Pounds(LB)	15-Dec-21
FORANE 410A	25	Pounds(LB)	15-Dec-21
FORANE 410A	25	Pounds(LB)	15-Dec-21
FORANE 410A	25	Pounds(LB)	15-Dec-21
Yellow Concentrated Antifreeze/Coolant	1	Gallon(GAL)	15-Dec-21
Yellow Concentrated Antifreeze/Coolant	1	Gallon(GAL)	15-Dec-21
Yellow Concentrated Antifreeze/Coolant	1	Gallon(GAL)	15-Dec-21
Silica dioxide-electrospun milled nanofibers	10	Gram(GM)	16-Dec-21
Startex Green Lacquer Thinner	1	Gallon(GAL)	16-Dec-21
Startex Green Lacquer Thinner	1	Gallon(GAL)	16-Dec-21
PSX 700 CURE	0.2	Gallon(GAL)	16-Dec-21
PSX 700 CURE	0.2	Gallon(GAL)	16-Dec-21
PSX 700 CURE	0.2	Gallon(GAL)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SODA ASH	50	Pounds(LB)	16-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
SODA ASH	50	Pounds(LB)	16-Dec-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	16-Dec-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	16-Dec-21
PSX 700A Clear Coat Resin	0.83	Gallon(GAL)	16-Dec-21
ANTIFREEZE	5	Gallon(GAL)	16-Dec-21
ANTIFREEZE	5	Gallon(GAL)	16-Dec-21
ANTIFREEZE	5	Gallon(GAL)	16-Dec-21
ANTIFREEZE	5	Gallon(GAL)	16-Dec-21
Permabond ES578	320	Milliliter(ML)	16-Dec-21
AERO KROIL	16.5	Ounces(OZ)	16-Dec-21
AERO KROIL	16.5	Ounces(OZ)	16-Dec-21
TRI-FLOW INDUSTRIAL LUBRICANT WITH TEFLON	12	Ounces(OZ)	16-Dec-21
#5 yellow pipe thread sealant	8	Ounces(OZ)	16-Dec-21
12.9 MS/CM 7230 PPM AS NACL CONDUCTIVITY STANDARD	2	Ounces(OZ)	16-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
1413 CONDUCTIVITY/TDS STANDARD	2	Ounces(OZ)	16-Dec-21
100PPM ISOBUTYLENE IN AIR	5	Pounds(LB)	16-Dec-21
100PPM ISOBUTYLENE IN AIR	5	Pounds(LB)	16-Dec-21
MAGNESIUM STANDARD SOLUTION	125	Milliliter(ML)	17-Dec-21
ALUMINUM STANDARD	125	Milliliter(ML)	17-Dec-21
STRONTIUM STANDARD SOLUTION	125	Milliliter(ML)	17-Dec-21
MANGANESE STANDARD	125	Milliliter(ML)	17-Dec-21
TITANIUM STANDARD	125	Milliliter(ML)	17-Dec-21
BARIUM STANDARD SOLUTION	125	Milliliter(ML)	17-Dec-21
CHROMIUM STANDARD	125	Milliliter(ML)	17-Dec-21
CALCIUM STANDARD SOLUTION	125	Milliliter(ML)	17-Dec-21
ZINC STANDARD	125	Milliliter(ML)	17-Dec-21
FLUORIDE STANDARD SOLUTION	125	Milliliter(ML)	17-Dec-21
IC INSTRUMENT CHECK STANDARD 1	125	Milliliter(ML)	17-Dec-21
CHLORATE STANDARD SOLUTION	125	Milliliter(ML)	17-Dec-21
ION CHROMATOGRAPHY NITRITE STANDARD	125	Milliliter(ML)	17-Dec-21
ION CHROMATOGRAPHY SULFATE STANDARD	125	Milliliter(ML)	17-Dec-21
ION CHROMATOGRAPHY PHOSPHATE STANDARD	125	Milliliter(ML)	17-Dec-21
Hybrid HY-200	11	Ounces(OZ)	17-Dec-21
Hybrid HY-200	11	Ounces(OZ)	17-Dec-21
HIT-RE500	11.1	Ounces(OZ)	17-Dec-21
Synergy 735	55	Gallon(GAL)	17-Dec-21
Victor Premium Hand Torch Fuel	14.1	Ounces(OZ)	17-Dec-21
Victor Premium Hand Torch Fuel	14.1	Ounces(OZ)	17-Dec-21
VICTAULIC LUBRICANT	32	Ounces(OZ)	17-Dec-21
VICTAULIC LUBRICANT	32	Ounces(OZ)	20-Dec-21
Megaloc	8	Ounces(OZ)	20-Dec-21
PELCO SILVER PASTE	50	Gram(GM)	20-Dec-21
O-PHOSPORIC ACID	500	Milliliter(ML)	20-Dec-21
NITRIC ACID SOLUTIONS	500	Milliliter(ML)	20-Dec-21
GLASS CLEANER	1	Gallon(GAL)	20-Dec-21
GLASS CLEANER	1	Gallon(GAL)	20-Dec-21
GLASS CLEANER	1	Gallon(GAL)	20-Dec-21
GLASS CLEANER	1	Gallon(GAL)	20-Dec-21
HYDROCHLORIC ACID 6N	1	Liters(L)	20-Dec-21
ANILINE 99.5+% ACS	500	Milliliter(ML)	20-Dec-21
2-Methyl-1 3-butadiene (stabilised) for synthesis	1	Liters(L)	20-Dec-21
WELD-ON 705 FOR PVC	16	Ounces(OZ)	20-Dec-21
CONCENTRATED GERMICIDAL DETERGENT	1	Gallon(GAL)	21-Dec-21
BIG BLUE MICRO LEAK DETECTOR SOLUTION	32	Ounces(OZ)	21-Dec-21
BIG BLUE MICRO LEAK DETECTOR SOLUTION	32	Ounces(OZ)	21-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
BIG BLUE MICRO LEAK DETECTOR SOLUTION	32	Ounces(OZ)	21-Dec-21
BIG BLUE MICRO LEAK DETECTOR SOLUTION	32	Ounces(OZ)	21-Dec-21
BIG BLUE MICRO LEAK DETECTOR SOLUTION	32	Ounces(OZ)	21-Dec-21
BIG BLUE MICRO LEAK DETECTOR SOLUTION	32	Ounces(OZ)	21-Dec-21
BIG BLUE MICRO LEAK DETECTOR SOLUTION	32	Ounces(OZ)	21-Dec-21
BIG BLUE MICRO LEAK DETECTOR SOLUTION	32	Ounces(OZ)	21-Dec-21
BIG BLUE MICRO LEAK DETECTOR SOLUTION	32	Ounces(OZ)	21-Dec-21
DENATURED ALCOHOL	1	Gallon(GAL)	21-Dec-21
VACUUM PUMP OIL	1	Quarts(QT)	21-Dec-21
NOKORODE AQUA FLUX	16	Ounces(OZ)	21-Dec-21
Big Blu Leak Detector Solution	32	Ounces(OZ)	21-Dec-21
NU-CLEAR THREAD CUTTING OIL	1	Gallon(GAL)	21-Dec-21
NU-CLEAR THREAD CUTTING OIL	1	Gallon(GAL)	21-Dec-21
NU-CLEAR THREAD CUTTING OIL	1	Gallon(GAL)	21-Dec-21
NU-CLEAR THREAD CUTTING OIL	1	Gallon(GAL)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
RELTON RAPID TAP CUTTING FLUID	4	Ounces(OZ)	21-Dec-21
STINGER RTU CITRUS CLEANER / DEGREASER	1	Gallon(GAL)	21-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	21-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	21-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	21-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	21-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	21-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	21-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	21-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	21-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	21-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	21-Dec-21
KRYLON PROFESSIONAL Water-Based Marking Paint Fluorescent Orange	15	Ounces(OZ)	21-Dec-21
Oatey Purple Primer	32	Ounces(OZ)	21-Dec-21
Oatey Purple Primer	32	Ounces(OZ)	21-Dec-21
PURPLE PRIMER	16	Ounces(OZ)	21-Dec-21
Blue Monster Copper Anti-Seize Lubricant and Thread Sealant	4	Ounces(OZ)	21-Dec-21
Blue Monster Copper Anti-Seize Lubricant and Thread Sealant	4	Ounces(OZ)	21-Dec-21
Blue Monster Copper Anti-Seize Lubricant and Thread Sealant	4	Ounces(OZ)	21-Dec-21
Blue Monster Copper Anti-Seize Lubricant and Thread Sealant	4	Ounces(OZ)	21-Dec-21
Blue Monster Copper Anti-Seize Lubricant and Thread Sealant	4	Ounces(OZ)	21-Dec-21
Blue Monster Copper Anti-Seize Lubricant and Thread Sealant	4	Ounces(OZ)	21-Dec-21
Blue Monster Copper Anti-Seize Lubricant and Thread Sealant	4	Ounces(OZ)	21-Dec-21
Blue Monster Copper Anti-Seize Lubricant and Thread Sealant	4	Ounces(OZ)	21-Dec-21
Blue Monster Copper Anti-Seize Lubricant and Thread Sealant	4	Ounces(OZ)	21-Dec-21
POLWAYTER FST-MINI-6BG	1.7	Ounces(OZ)	21-Dec-21
POLWAYTER FST-MINI-6BG	1.7	Ounces(OZ)	21-Dec-21
POLWAYTER FST-MINI-6BG	1.7	Ounces(OZ)	21-Dec-21
POURABLE SEALER	0.5	Gallon(GAL)	21-Dec-21
POURABLE SEALER	0.5	Gallon(GAL)	21-Dec-21
POURABLE SEALER	0.5	Gallon(GAL)	21-Dec-21
POURABLE SEALER	0.5	Gallon(GAL)	21-Dec-21
POURABLE SEALER	0.5	Gallon(GAL)	21-Dec-21
POURABLE SEALER	0.5	Gallon(GAL)	21-Dec-21
POURABLE SEALER	0.5	Gallon(GAL)	21-Dec-21
POURABLE SEALER	0.5	Gallon(GAL)	21-Dec-21
Hand Cleaner	5.3	Ounces(OZ)	21-Dec-21
DOW CORNING HIGH VACUUM G	5.3	Ounces(OZ)	21-Dec-21
DOW CORNING HIGH VACUUM G	5.3	Ounces(OZ)	21-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
PRECISION-LINE INVERTED MARKING PAINT - WHITE	17	Ounces(OZ)	21-Dec-21
POLWAYTER FST-MINI-6BG	1.7	Ounces(OZ)	21-Dec-21
POLWAYTER FST-MINI-6BG	1.7	Ounces(OZ)	21-Dec-21
POLWAYTER FST-MINI-6BG	1.7	Ounces(OZ)	21-Dec-21
C-FLUX	12	Ounces(OZ)	21-Dec-21
Diamond Spray Paint Gloss Black	12	Ounces(OZ)	21-Dec-21
KLEEN GREEN	16	Ounces(OZ)	21-Dec-21
PRIMER-70 PURPLE PRIMER	1	Quarts(QT)	21-Dec-21
PRIMER-70 PURPLE PRIMER	1	Quarts(QT)	21-Dec-21
SOLVENT CEMENT	32	Ounces(OZ)	21-Dec-21
DENATURED ALCOHOL	1	Gallon(GAL)	21-Dec-21
DENATURED ALCOHOL	1	Gallon(GAL)	21-Dec-21
DENATURED ALCOHOL	1	Gallon(GAL)	21-Dec-21
DENATURED ALCOHOL	1	Gallon(GAL)	21-Dec-21
PURPLE PRIMER	1	Quarts(QT)	21-Dec-21
Hand Cleaner	5.3	Ounces(OZ)	21-Dec-21
Low Conductivity Antifreeze/Coolant	1	Gallon(GAL)	21-Dec-21
DENATURED ALCOHOL	1	Gallon(GAL)	21-Dec-21
DP 2502 WATER BASED DUCT LINER ADHESIVE	5	Gallon(GAL)	21-Dec-21
Coolube 2210	8	Ounces(OZ)	21-Dec-21
KEY TITE WATERPROOF PIPE JOINT COMPOUND	1	Pint(PT)	21-Dec-21
DOW CORNING HIGH VACUUM G	5.3	Ounces(OZ)	21-Dec-21
T PLUS 2	1	Pint(PT)	21-Dec-21
DOW CORNING HIGH VACUUM G	5.3	Ounces(OZ)	21-Dec-21
PURPLE PRIMER	8	Ounces(OZ)	21-Dec-21
CHEMTROL NON-AMMONIATED GLASS CLEANER	32	Ounces(OZ)	21-Dec-21
Coolube 2210	2	Ounces(OZ)	21-Dec-21
SULLAIR SRF 1/4000	5	Gallon(GAL)	21-Dec-21
SULLAIR SRF 1/4000	5	Gallon(GAL)	21-Dec-21
SULLAIR SRF 1/4000	5	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
CONCRETE BONDING ADHESIVE	1	Gallon(GAL)	21-Dec-21
GLASS CLEANER	1	Gallon(GAL)	21-Dec-21
GLASS CLEANER	1	Gallon(GAL)	21-Dec-21
GLASS CLEANER	1	Gallon(GAL)	21-Dec-21
GLASS CLEANER	1	Gallon(GAL)	21-Dec-21
GLASS CLEANER	1	Gallon(GAL)	21-Dec-21
GLASS CLEANER	1	Gallon(GAL)	21-Dec-21
GLASS CLEANER	1	Gallon(GAL)	21-Dec-21
GLASS CLEANER	1	Gallon(GAL)	21-Dec-21
GLASS CLEANER	1	Gallon(GAL)	21-Dec-21
GLASS CLEANER	1	Gallon(GAL)	21-Dec-21
GLASS CLEANER	1	Gallon(GAL)	21-Dec-21
PIPE THREAD SEALANT 5	1	Pint(PT)	21-Dec-21
PIPE THREAD SEALANT 5	1	Pint(PT)	21-Dec-21
PIPE THREAD SEALANT 5	1	Pint(PT)	21-Dec-21
PIPE THREAD SEALANT 5	1	Pint(PT)	21-Dec-21
PIPE THREAD SEALANT 5	1	Pint(PT)	21-Dec-21
ORP TEST SOLUTION	250	Milliliter(ML)	21-Dec-21
THREAD CUTTING OIL	1	Gallon(GAL)	21-Dec-21
THREAD CUTTING OIL	1	Gallon(GAL)	21-Dec-21
THREAD CUTTING OIL	1	Gallon(GAL)	21-Dec-21
THREAD CUTTING OIL	1	Gallon(GAL)	21-Dec-21
Decon's Ethanol 200 Proof	1	Gallon(GAL)	21-Dec-21
Decon's Ethanol 200 Proof	1	Gallon(GAL)	21-Dec-21
Decon's Ethanol 200 Proof	1	Gallon(GAL)	21-Dec-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	21-Dec-21
HYDROXYLAMMONIUM NITRATE SOLUTION 24%	2	Liters(L)	21-Dec-21
Hydrochloric Acid 10% (v/v)	500	Milliliter(ML)	22-Dec-21
Hydrochloric Acid 10% (v/v)	500	Milliliter(ML)	22-Dec-21
Vanadium(V) Oxide Nanopowder	1	Gram(GM)	22-Dec-21
Vanadium(IV) Oxide Micropowder	1	Gram(GM)	22-Dec-21
Hexakis[ì-(2-amino-1 4-benzenedicarboxylato)][tetra-ì-hydroxyocta-ì-oxooctatitanium]	1	Gram(GM)	22-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Silica dioxide- vs nanofiber	10	Gram(GM)	22-Dec-21
Silica dioxide- vs nanofiber	10	Gram(GM)	22-Dec-21
Silica dioxide- vs nanofiber	10	Gram(GM)	22-Dec-21
CALCIUM OXIDE 99.995%	5	Gram(GM)	22-Dec-21
CALCIUM OXIDE 99.995%	5	Gram(GM)	22-Dec-21
Dimethyl sulfoxide anhydrous 99.9%	100	Milliliter(ML)	22-Dec-21
Dimethyl sulfoxide anhydrous 99.9%	100	Milliliter(ML)	22-Dec-21
Dimethyl sulfoxide anhydrous 99.9%	100	Milliliter(ML)	22-Dec-21
Dimethyl sulfoxide anhydrous 99.9%	100	Milliliter(ML)	22-Dec-21
Dimethyl sulfoxide anhydrous 99.9%	100	Milliliter(ML)	22-Dec-21
Dimethyl sulfoxide anhydrous 99.9%	100	Milliliter(ML)	22-Dec-21
Dimethyl sulfoxide anhydrous 99.9%	100	Milliliter(ML)	22-Dec-21
Dimethyl sulfoxide anhydrous 99.9%	100	Milliliter(ML)	22-Dec-21
Dimethyl sulfoxide anhydrous 99.9%	100	Milliliter(ML)	22-Dec-21
Dimethyl sulfoxide anhydrous 99.9%	100	Milliliter(ML)	22-Dec-21
ZIRCONIUM CARBIDE	250	Gram(GM)	22-Dec-21
PETROLEUM ETHER ANHYDROUS	1	Liters(L)	22-Dec-21
Ethyl Acetate Reagent ACS	1	Liters(L)	22-Dec-21
P-TOLUENESULFONYL CHLORIDE	100	Gram(GM)	22-Dec-21
Nitric acid (65 - 70%)	2.5	Liters(L)	22-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	22-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	22-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	22-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	22-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	22-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	22-Dec-21
HELIUM GAS	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
P-10 (90% ARGON 10% METHANE)	220	Cubic Feet(CF)	22-Dec-21
PROPANE	11	Gallon(GAL)	22-Dec-21
PROPANE	11	Gallon(GAL)	22-Dec-21
PROPANE	11	Gallon(GAL)	22-Dec-21
PROPANE	11	Gallon(GAL)	22-Dec-21
Helium Carbon Dioxide	5	Pounds(LB)	22-Dec-21
10ppm Nitrogen Dioxide/Balance Air	34	Liters(L)	22-Dec-21
10ppm Nitrogen Dioxide/Balance Air	34	Liters(L)	22-Dec-21
NOKORODE REGULAR PASTE FLUX	16	Ounces(OZ)	22-Dec-21
BIS-(2 2-DINITROPROPYL) ACETAL/FORMAL	460.2	Gram(GM)	22-Dec-21
NO. 95 LEAD-FREE TINNING FLUX	8	Ounces(OZ)	22-Dec-21
MOBIL GLYGOYLE 460	1	Quarts(QT)	22-Dec-21
MOBIL GLYGOYLE 460	1	Quarts(QT)	22-Dec-21
5% CARBON DIOXIDE BAL AIR	220	Cubic Feet(CF)	22-Dec-21
5% CARBON DIOXIDE BAL AIR	220	Cubic Feet(CF)	22-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
5% CARBON DIOXIDE BAL AIR	220	Cubic Feet(CF)	22-Dec-21
5% CARBON DIOXIDE BAL AIR	220	Cubic Feet(CF)	22-Dec-21
5% CARBON DIOXIDE BAL AIR	220	Cubic Feet(CF)	22-Dec-21
5% CARBON DIOXIDE BAL AIR	220	Cubic Feet(CF)	22-Dec-21
5% CARBON DIOXIDE BAL AIR	220	Cubic Feet(CF)	22-Dec-21
5% CARBON DIOXIDE BAL AIR	220	Cubic Feet(CF)	22-Dec-21
5% CARBON DIOXIDE BAL AIR	220	Cubic Feet(CF)	22-Dec-21
ACETONE ACS	4	Liters(L)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ACETONE ACS	4	Liters(L)	22-Dec-21
ACETONE ACS	4	Liters(L)	22-Dec-21
ACETONE ACS	4	Liters(L)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
ARGON GAS	220	Cubic Feet(CF)	22-Dec-21
METHYL TERT-BUTYL ETHER	4	Liters(L)	22-Dec-21
O'Reilly Multi-Grade Motor Oil - All Grades	5	Quarts(QT)	22-Dec-21
O'Reilly Multi-Grade Motor Oil - All Grades	5	Quarts(QT)	22-Dec-21
O'Reilly Multi-Grade Motor Oil - All Grades	5	Quarts(QT)	22-Dec-21
METHYL TERT-BUTYL ETHER	4	Liters(L)	22-Dec-21
METHYL TERT-BUTYL ETHER	4	Liters(L)	22-Dec-21
METHYL TERT-BUTYL ETHER	4	Liters(L)	22-Dec-21
CARBON DIOXIDE	50	Pounds(LB)	22-Dec-21
PYROIL BRAKE PARTS CLEANE	13	Ounces(OZ)	22-Dec-21
CARBON DIOXIDE	50	Pounds(LB)	22-Dec-21
CARBON DIOXIDE	50	Pounds(LB)	22-Dec-21
CARBON DIOXIDE	50	Pounds(LB)	22-Dec-21
CARBON DIOXIDE	50	Pounds(LB)	22-Dec-21
MOLECULAR BIOLOGY GRADE ETHANOL	1	Pint(PT)	22-Dec-21
MOLECULAR BIOLOGY GRADE ETHANOL	1	Pint(PT)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
NITROGEN GAS	220	Cubic Feet(CF)	22-Dec-21
Compressed Air	220	Cubic Feet(CF)	22-Dec-21
Compressed Air	220	Cubic Feet(CF)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
ETHYL ALCOHOL-200 PROOF	1	Gallon(GAL)	22-Dec-21
Boron Nitride 98%	250	Gram(GM)	22-Dec-21
Y-27632 dihydrochloride	10	Milligram(MG)	22-Dec-21
6-AMINOCAPROIC ACID 99+%	25	Gram(GM)	23-Dec-21
COPPER(II) TETRAFLUOROBORATE HYDRATE	50	Gram(GM)	23-Dec-21
4-CHLOROTOLUENE	100	Gram(GM)	23-Dec-21
2 5-Diphenyl-1 3 4-oxadiazole	5	Gram(GM)	23-Dec-21
2 5-Diphenyl-1 3 4-oxadiazole	5	Gram(GM)	23-Dec-21
Homoveratrylamine	25	Gram(GM)	23-Dec-21
TETRAHYDROFURAN-D8	25	Milliliter(ML)	23-Dec-21
1 2-dimyristoyl-sn-glycero-3-phospho-(1¿-rac-glycerol)(sodium salt)	25	Milligram(MG)	23-Dec-21
Diethyl ether HPLC Grade	1	Liters(L)	23-Dec-21
1 2-dioleoyl-sn-glycero-3-phospho-(1'-rac-glycerol) (sodium salt)	25	Milligram(MG)	23-Dec-21
1 2-dioleoyl-sn-glycero-3-phospho-L-serine (sodium salt)	25	Milligram(MG)	23-Dec-21
THIONYL CHLORIDE 99+%	500	Gram(GM)	23-Dec-21
Dichlorodiisopropylsilane	5	Milliliter(ML)	23-Dec-21
Dichlorodiisopropylsilane	5	Milliliter(ML)	23-Dec-21
METHYL TRIFLUOROMETHANESULFONATE	10	Gram(GM)	23-Dec-21
2-(3 4-Dimethoxyphenyl)ethanol	50	Gram(GM)	23-Dec-21
TRIMETHYLSILYL BROMOACETATE	25	Gram(GM)	23-Dec-21
(2-Bromoethoxy)-tert-butyldimethylsilane	10	Gram(GM)	23-Dec-21
(2-Bromoethoxy)-tert-butyldimethylsilane	10	Gram(GM)	23-Dec-21
GADOLINIUM(III) CHLORIDE HEXAHYDRATE	25	Gram(GM)	23-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
CERIUM(III) CHLORIDE HYDROUS	50	Gram(GM)	23-Dec-21
Zirconium (IV) oxide 99.7% (metals basis excluding Hf) Hf <75ppm	1	Kilograms(KG)	23-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	23-Dec-21
Valvoline GM MULTIPURPOSE GREASE VV61510	14.1	Ounces(OZ)	23-Dec-21
Big Blu Leak Detector Solution	32	Ounces(OZ)	23-Dec-21
Accutase	100	Milliliter(ML)	23-Dec-21
TRIETHYLAMINE	500	Milliliter(ML)	23-Dec-21
TETRAHYDROFURAN-D8	10	Gram(GM)	23-Dec-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	23-Dec-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	23-Dec-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	23-Dec-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	23-Dec-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	23-Dec-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	23-Dec-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	23-Dec-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	23-Dec-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	23-Dec-21
AMERLOCK SEALER CLEAR BASE	1	Gallon(GAL)	23-Dec-21
ZINC NITRATE HYDRATE	25	Gram(GM)	23-Dec-21
(3 3 4 4 5 5 6 6 7 7 8 8 9 9 10 10 11 11 12 1 2 12-Heneicosafluorododecyl)phosphonic acid	250	Milligram(MG)	23-Dec-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	23-Dec-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	23-Dec-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	23-Dec-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	23-Dec-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	23-Dec-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	23-Dec-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	23-Dec-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	23-Dec-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	23-Dec-21
Cote All 340 J.D. (Safety) Yellow	1	Gallon(GAL)	23-Dec-21
SPERMIDINE	5	Gram(GM)	23-Dec-21
Cote All Gloss Jet Black	1	Gallon(GAL)	23-Dec-21
Cote All Gloss Jet Black	1	Gallon(GAL)	23-Dec-21
Cote All Gloss Jet Black	1	Gallon(GAL)	23-Dec-21
Cote All Gloss Jet Black	1	Gallon(GAL)	23-Dec-21
Cote All Gloss Jet Black	1	Gallon(GAL)	23-Dec-21
COTE ALL WHITE BASE	123.9	Ounces(OZ)	23-Dec-21
COTE ALL WHITE BASE	123.9	Ounces(OZ)	23-Dec-21
COTE ALL WHITE BASE	123.9	Ounces(OZ)	23-Dec-21
COTE ALL WHITE BASE	123.9	Ounces(OZ)	23-Dec-21
COTE ALL WHITE BASE	123.9	Ounces(OZ)	23-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Ribonucleic acid transfer phenylalanine specific from brewer's yeast	5	Gram(GM)	23-Dec-21
1-palmitoyl-2-oleoyl-sn-glycero-3-phospho-(1'-racglycerol) (sodium salt)	25	Milligram(MG)	23-Dec-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	23-Dec-21
Permacryl Int Latex Satin W/B	608	Ounces(OZ)	23-Dec-21
MOBIL SHC GEAR 460	35	Pounds(LB)	23-Dec-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	608	Ounces(OZ)	23-Dec-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	608	Ounces(OZ)	23-Dec-21
Avalon Premium 100% Acrylic Interior Semi-Gloss W/B	608	Ounces(OZ)	23-Dec-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	23-Dec-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	23-Dec-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	23-Dec-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	23-Dec-21
Zinsser BULLS EYE 1-2-3	5	Gallon(GAL)	23-Dec-21
HELIUM GAS	300	Cubic Feet(CF)	23-Dec-21
HELIUM GAS	300	Cubic Feet(CF)	23-Dec-21
MAP GAS	14.1	Ounces(OZ)	23-Dec-21
MAP GAS	14.1	Ounces(OZ)	23-Dec-21
MAP GAS	14.1	Ounces(OZ)	23-Dec-21
MAP GAS	14.1	Ounces(OZ)	23-Dec-21
MAP GAS	14.1	Ounces(OZ)	23-Dec-21
MAP GAS	14.1	Ounces(OZ)	23-Dec-21
MAP GAS	14.1	Ounces(OZ)	23-Dec-21
MAP GAS	14.1	Ounces(OZ)	23-Dec-21
COBALT(II) ACETATE	50	Gram(GM)	23-Dec-21
PYRAZINE	25	Gram(GM)	23-Dec-21
Ammonium perrhenate 99+%	25	Gram(GM)	23-Dec-21
Ammonium perrhenate 99+%	25	Gram(GM)	23-Dec-21
Ammonium perrhenate 99+%	25	Gram(GM)	23-Dec-21
5-Amino-1-naphthol	25	Gram(GM)	23-Dec-21
2-NAPHTHOL	100	Gram(GM)	23-Dec-21
4-PHENYLPHENOL	100	Gram(GM)	23-Dec-21
POTASSIUM TETRAFLUOROBORATE	500	Gram(GM)	23-Dec-21
Tetrahydrofuran-d8 (D 99.5%)	1	Gram(GM)	23-Dec-21
Tetrahydrofuran-d8 (D 99.5%)	1	Gram(GM)	23-Dec-21
Tetrahydrofuran-d8 (D 99.5%)	1	Gram(GM)	23-Dec-21
Tetrahydrofuran-d8 (D 99.5%)	1	Gram(GM)	23-Dec-21
Tetrahydrofuran-d8 (D 99.5%)	1	Gram(GM)	23-Dec-21
Tetrahydrofuran-d8 (D 99.5%)	1	Gram(GM)	23-Dec-21

Chemical Usage July - December 2021

Chemical Name	Container Size	Unit of Measure	Date
Tetrahydrofuran-d8 (D 99.5%)	1	Gram(GM)	23-Dec-21
Tetrahydrofuran-d8 (D 99.5%)	1	Gram(GM)	23-Dec-21
Tetrahydrofuran-d8 (D 99.5%)	1	Gram(GM)	23-Dec-21
Tetrahydrofuran-d8 (D 99.5%)	1	Gram(GM)	23-Dec-21
HEPTANE (HEPTANE ANHYDROUS)	1	Liters(L)	23-Dec-21
HEPTANE (HEPTANE ANHYDROUS)	1	Liters(L)	23-Dec-21

ATTACHMENT A907.B.a.

Chemical Usage

RLUOB-CHEM Chemical Purchases from ChemDB

RLUOB-CHEM Chemical Purchases July - December 2021

Barcode	CAS #	Chemical Name	Container Size	Unit of Measure	Date
0001453552	-	Buehler Epoxicure 2 Resin	64	Ounces(OZ)	20-Jul-21
0001453553	-	BUEHLER EPOXICURE HARDENER	0.47	Liters(L)	20-Jul-21
0001040691	7440-61-1	URANIUM	0.7	Gram(GM)	08-Sep-21
0001040682	7440-61-1	URANIUM	0.7	Gram(GM)	08-Sep-21
0001700927	7697-37-2	Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	23-Sep-21
0001700925	7697-37-2	Nitric acid 67-69% Optima for Ultra traces analysis	1	Liters(L)	23-Sep-21
0001453555	-	15 MICRON PREMIUM POLY DI	25	Milliliter(ML)	14-Dec-21

ATTACHMENT A907.B.b.

Chemical Usage

RLUOB-CHEM Chemical Quantity Total

2021 CMRR-RLUOB HAPs Monthly Emission Rates (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	1.09	0	0	0	0	0	0	0	0	0	0	0
7647-01-0	Hydrochloric Acid	0	0	0	0	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
Chromium	Chromium Compounds	0	0	0	0	0	0	0	0	0	0	0	0
HAPs Monthly Total		1.09	0	0	0	0	0	0	0	0	0	0	0

2021 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	2.46	2.46	2.46	2.46	2.46	2.46	0.00	0.00	0.00	0.00	0.00	0.00
110-54-3	Hexane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7664-39-3	Hydrogen Fluoride	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
7647-01-0	Hydrochloric Acid	6.94	6.94	6.94	6.94	6.94	6.94	2.31	0.00	0.00	0.00	0.00	0.00
67-56-1	Methyl Alcohol	33.18	33.18	33.18	33.18	33.18	33.18	0.00	0.00	0.00	0.00	0.00	0.00
75-09-2	Methylene Chloride	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100-42-5	Styrene	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
108-88-3	Toluene	1.91	1.91	1.91	1.91	1.91	1.91	0.00	0.00	0.00	0.00	0.00	0.00
Nickel	Nickel Compounds	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chromium	Chromium Compounds	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TAPs 12 Month Rolling Total		45.58	45.58	45.58	45.58	45.58	45.58	3.4	1.09	1.09	1.09	1.09	1.09

2021 CMRR-RLUOB TAPs Monthly Emission Rates (lb)

	January	February	March	April	May	June	July	August	September	October	November	December
Total TAPs	0.00	0.00	6.96	0.00	0.00	0.00	0.00	0.00	6.67	0.00	0.00	0.00
TAPs 12 Month Rolling Total	33.89	33.89	40.83	40.83	40.83	19.97	18.87	15.56	20.30	20.30	20.30	13.63

2021 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	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC 12 Month Rolling Total	38.76	38.76	38.88	38.88	38.88	38.88	2.05	2.05	0.12	0.12	0.12	0.12

ATTACHMENT A1007.A.a.

Degreaser

Degreaser Solvent Usage from Tracking Database

Degreaser Solvent Usage
July – December 2021

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-29-2021	4.50	0.00	0.00	0.00	0.00
Aug-31-2021	3.50	0.00	0.00	0.00	0.00
Sept-27-2021	2.50	0.00	0.00	0.00	0.00
Oct-25-2021	1.50	0.00	0.00	0.00	0.00
Nov-30-2021	0.00	0.00	0.00	0.00	0.00
Dec-22-2021	0.00	11.80	6.00	0.00	0.00

Reviewed by: Katelyn Mahoney, 1/5/2022

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: July 30, 2021	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?	Y	
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?	Y	
4. Does the operator maintain work practice checklists?	Y	
5. Does the operator maintain records in accordance with Section B109, General Recordkeeping Requirements?	Y	
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?	Y	
2. Does the operator maintain a freeboard ratio of 0.75 or greater?	Y	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?	Y	
4. Does the operator ensure that flushing is performed only within the freeboard area only?	Y	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)?	Y	
6. Does the operator ensure that the solvent level does not exceed the fill line on the solvent level?	Y	
7. Does the operator ensure that all spills are wiped up immediately?	Y	
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)?	Y	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?	Y	

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]	Jake Montoya	334755	July

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: August 28, 2021	**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?		
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?	Y	
4. Does the operator maintain work practice checklists?	Y	
5. Does the operator maintain records in accordance with Section B109, General Recordkeeping Requirements?	Y	
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?	Y	
2. Does the operator maintain a freeboard ratio of 0.75 or greater?	Y	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?	Y	
4. Does the operator ensure that flushing is performed only within the freeboard area only?	Y	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)?	Y	
6. Does the operator ensure that the solvent level does not exceed the fill line on the solvent level?	Y	
7. Does the operator ensure that all spills are wiped up immediately?	Y	
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)?	Y	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?	Y	

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]	Jake MacAya	334755	August

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: 9-30-21	**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?	Y	
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?	Y	
4. Does the operator maintain work practice checklists?	Y	
5. Does the operator maintain records in accordance with Section B109, General Recordkeeping Requirements?	Y	
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?	Y	
2. Does the operator maintain a freeboard ratio of 0.75 or greater?	Y	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?	Y	
4. Does the operator ensure that flushing is performed only within the freeboard area only?	Y	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)?	Y	
6. Does the operator ensure that the solvent level does not exceed the fill line on the solvent level?	Y	
7. Does the operator ensure that all spills are wiped up immediately?	Y	
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)?	Y	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?	Y	

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
	Jake Montoya	334755	4-30-21

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: 10-28-21	**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?	Y	
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?	Y	
4. Does the operator maintain work practice checklists?	Y	
5. Does the operator maintain records in accordance with Section B109, General Recordkeeping Requirements?	Y	
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?	Y	
2. Does the operator maintain a freeboard ratio of 0.75 or greater?	Y	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?	Y	
4. Does the operator ensure that flushing is performed only within the freeboard area only?	Y	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)?	Y	
6. Does the operator ensure that the solvent level does not exceed the fill line on the solvent level?	Y	
7. Does the operator ensure that all spills are wiped up immediately?	Y	
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)?	Y	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?	Y	

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]	Jake Montoya	234755	10-28-21

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: 11-23-2021 (16 1-4-2022)	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?	Y	
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?	✓	
4. Does the operator maintain work practice checklists?	Y	
5. Does the operator maintain records in accordance with Section B109, General Recordkeeping Requirements?	Y	
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?	Y	
2. Does the operator maintain a freeboard ratio of 0.75 or greater?	Y	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?	Y	
4. Does the operator ensure that flushing is performed only within the freeboard area only?	Y	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)?	Y	
6. Does the operator ensure that the solvent level does not exceed the fill line on the solvent level?	Y	
7. Does the operator ensure that all spills are wiped up immediately?	Y	
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)?	Y	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?	Y	

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
	Sakc Montoya	334755	11-23-20

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: 12-22-21	**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?		
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?	Y	
4. Does the operator maintain work practice checklists?	Y	
5. Does the operator maintain records in accordance with Section B109, General Recordkeeping Requirements?	Y	
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?	Y	
2. Does the operator maintain a freeboard ratio of 0.75 or greater?	Y	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?	Y	
4. Does the operator ensure that flushing is performed only within the freeboard area only?	Y	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)?	Y	
6. Does the operator ensure that the solvent level does not exceed the fill line on the solvent level?	Y	
7. Does the operator ensure that all spills are wiped up immediately?	Y	
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)?	Y	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?	Y	

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
	Jake Montoya	374755	12-22-21

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.

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			
9/19/2018	11:00	15:00	700.6	704.6	4.0	Maintenance	Randy Griego
9/20/2018	11:00	17:25	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
2/7/2019	9:10	9:35	712.4	712.9	0.5	Maintenance	Randy Griego
3/17/2019	18:30	7:30 on 3/23/2019	712.9	845.3	132.4	Emergency Use, Power outage at TA-3-1698	Garry Schramm
5/29/2019	9:00	9:20	845.3	845.7	0.4	Maintenance	Randy Griego
12/17/2019	14:00	14:36	845.7	846.3	0.6	Maintenance	Ron Suazo
7/1/2020	11:00	11:00 on 7/14/2020	846.3	1148.0	301.7	Emergency Use, Power outage at TA-33 SCIF	Randy Griego
9/21/2020	9:00	10:35	1148.0	1149.6	1.6	Maintenance	Ron Vigil
1/28/2021	11:30	11:45	1149.6	1149.9	0.3	Maintenance	Brian Trujillo
5/12/2021	9:00	11:00	1149.9	1151.0	2	Test	Randy Griego
5/13/2021	11:30	14:30	1151.0	1154.0	3	Test	Randy Griego
5/14/2021	10:30	14:30	1154.0	1158.0	4	Test	Randy Griego
5/17/2021	7:30	14:30	1158.0	1165.0	7	Test	Randy Griego
5/19/2021	8:30	11:30	1165.0	1168.2	3	Test	Randy Griego
7/16/2021	9:20	9:37	1168.2	1168.5	0.3	PM Test	Randy Griego
7/16/2021	14:46	15:00	1168.5	1168.7	0.2	PM Test	Ronald Vigil

Version June 2021 | Air Quality Permit P100-R2M4, Section A1104

Asked operators to note time of operation.

ATTACHMENT A1104.B.

Internal Combustion

Permitted Generator Hours

YEAR **2021**

Permitted Generators

										First Half			Second Half			Annual
Permit ID	*Location*	*ID #*	*Engine Make*	*Engine Model*	*Engine Serial #*	*Generator Rating kWe*	*Engine Rating kWm*	*Reading 2nd half of previous year*		*6 Month Reading Date*	*Reading*	*Hours Run*	*12 Month Reading Date*	*Reading*	*Hours Run*	*Hours Run*
TA-33-G-1P	TA-33-Port	G-0053	Cummins	QST30-G5	37199764	1000	1111.5	Dec-20	1149.6	Jun-21	1168.2	18.6	Dec-21	1168.7	0.5	19.1
TA-33-G-2	TA-33-209	G-0008	Kohler/Yanmar	4TNE84T	52993	20	25	Dec-20	479.4	Jun-21	479.4	0.0	Dec-21	479.4	0.0	0.0
TA-33-G-3	TA-33-280	G-0010	Kohler/Yanmar	4TNE84T	52992	20	25	Dec-20	233.9	Jun-21	233.9	0.0	Dec-21	233.9	0.0	0.0
TA-33-G-4	TA-33-151	G-0007	Caterpillar	3306	8JJ00615	225	281.25	Dec-20	3977.0	Jun-21	3985.0	8.0	Dec-21	3988.0	3.0	11.0
RLUOB-GEN-1	TA-55-585	G-0058	Cummins	KTA50G9	25314401	1500	1656.1	Dec-20	222.2	Jun-21	222.2	0.0	Dec-21	222.2	0.0	0.0
RLUOB-GEN-2	TA-55-584	G-0059	Cummins	KTA50G9	25314399	1500	1656.1	Dec-20	297.3	Jun-21	328.5	31.2	Dec-21	348.5	20.0	51.2
RLUOB-GEN-3	TA-55-583	G-0060	Cummins	KTA50G9	33185566	1500	1656.1	Dec-20	246.1	Jun-21	273.5	27.4	Dec-21	289.3	15.8	43.2
TA-48-GEN-1	TA-48-1	G-0067	Cummins	QSB7-G3 NR3	73176927	150	186	Dec-20	0.0	Jun-21	0.0	0.0	Dec-21	0.0	0.0	0.0
TA-55-GEN-1	TA-55-PF10	G-0065	Isuzu	BZ-4LE2T	4LE2-298868	30	40.2	Dec-20	15.0	Jun-21	16.4	1.4	Dec-21	17.1	0.7	2.1
TA-55-GEN-2	TA-55-PF11	G-0066	Isuzu	BZ-4LE2T	4LE2-299432	30	40.2	Dec-20	29.1	Jun-21	29.8	0.7	Dec-21	30.6	0.8	1.5
TA-55-GEN-3	TA-55-371	G-0064	Caterpillar	C32	SYCO5263	900	1335	Dec-20	137.7	Jun-21	142.4	4.7	Dec-21	148.6	6.2	10.9

Notes: TA-48-GEN-1 has not started up as of December 2021.

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.

Reviewed by / Date: Katelyn Mahoney 1/5/2022

ATTACHMENT A1106.A.

Internal Combustion

Method 9 Opacity Reports

Opacity measurements were not required or conducted on any permitted stand-by generators during this monitoring period.

ATTACHMENT A1107.A.

Internal Combustion

Operating Records for RLUOB Generators

MISTRY &
ALLURGY
EARCH
REPLACEMENT

Los Alamos
NATIONAL LABORATORY

CMRR/RLUOB Emergency Generator Operation Log

Manufacturer Cummings **Model** DFLE 5754172

Serial/Unit No. 10609766 10 South (A)

Name	Date	Start Time	End Time	Run Time	Reason*	Notes
Brian Trujillo	1-29-21	—	—	—	Monthly Run 222.2	
Brian Trujillo	2-23-21				Monthly Run 222.2	
Brian Trujillo	3-17-21				Monthly Run 222.2	
Brian Trujillo	4-20-21				Monthly Run 222.2	
Brian Trujillo	6/22/21				Monthly Run 222.2	
Ricardo Salazar	7-20-21				Monthly 222.2	
Brian Trujillo	08/12/21				Monthly Run 222.2	GENERATOR IS OUT-OF-SERVICE
Ricardo Salazar	9-3-21	—	—	—	Monthly 222.2	
Brian Trujillo	11-16-21				Monthly Run 222.2	Generator is out of Service
Brian Trujillo	12-15-21				Monthly Run 222.2	Generator is out-of-Service

*Reason for operation: Emergency Use, Maintenance, Repairs, Testing, etc.

Cummins Generator	Cummins Serial # 1060976811 Gen B					Model DFLE 5754172
Authorized Worker	Date	Start Time	End Time	Run Time	Run Time Accumulative	Reason/Notes
Stephen Mykael	7/09/21	1503	1550	0.75	329.3	ATS-FP
Brandon Salazar	7-20-21	9:08	1055	1.8	331.1	monthly PM
Brian Trujillo	08/12/21	0837 1239	0902 1408	~~1hr 5 min~~	334.2 ~~334.5~~ 08/12/21	Monthly Run
Brandon Salazar	8-26-21	10:39	12:10	2.1	336.6	Annual PM
Miguel Rizo	8/27/21	1920	1935	0.25	336.8	Power Bump
Brandon Salazar	9-8-21	10:27	11:22	2	338.8	Monthly
Brian Trujillo	11-16-21	0917 1004	0942 1140	.25 1.56	342.1 /344.1	monthly Run
Brian Trujillo	12-15/12-16-21	0917	1910	4.4hrs	348.5	monthly 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
Eric Quintana	01/06/21	1134	1154	0.2	246.3	ATS Trip During Fire Protection PM
Brian Trujillo	01/29/21	1340	1751	4.1	249.7	Monthly Run
Brian Trujillo	02/23/21	0917/0924	1137	2.0	251.7	Monthly Run
Brian Trujillo	03/17/21	1022	1155	1.5	255.0	monthly Run
Brian Trujillo	03/26/21	0719	1523	2.7 BT	2.56.4 257.7	5yr Run
Brian Trujillo	3/27/21	0831	1513	2.7	260.4	5yr Run
Brian Trujillo	3/28/21	0821	0942	1.3	261.7	5yr Run
BT-Brian Trujillo	3/29/21	1255	1416	1.4	263.1	5yr Run.
Brian Trujillo	3/30/21	1527	1659	1.3	264.6	5yr Run
Brian Trujillo	3/31/21	1046	1216	1.6	266.1	5yr Run
Brian Trujillo	4/20/21	0910	0922	12 min	266.3	Fire pump ATS monthly.
Brian Trujillo	4/20/21	1011	1141	1hr. 42min	267.8	Monthly Run
Brian Trujillo	06/22/21	0854	1107	1hr 33min	273.5	monthly Run
Stephen McNeel	07/09/21	1503	1516	0.25	273.7	ATS-FP
Brandon Salazar	7-20-21	9:00	2:10	3	276.7	Monthly
Brian Trujillo	08-12-21	0827 0917	0859 1051	1hr 34min	278.5	Monthly Run
Miguel Rizo	08/27/21	1920	1935	0.25	278.7 278.9	Power Outage
Brandon Salazar	9-8-21	10:27	2105	1.2	280.4 281.9	monthly scheduled maint (pm
Brian Trujillo	11-16-2021	0917	0929	1.3	283.7/285.9	BT Monthly Run
"	"	1804 1256	1148 1428		285.5/287.0	" "
Brian Trujillo	12-15-2021	0917	1418	2.6	289.3	Monthly Run.

ATTACHMENT A1107.B.

Internal Combustion

Operating Records for Permitted Emergency Generators

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

2021 TA-52 Data Disintegrator (EQPT 89)

Month	Data Entry Boxes[c] Shredded	Month	Data Entry Boxes[c] Shredded
January	769	July	560
February	761	August	706
March	1519	September	633
April	1143	October	481
May	679	November	606
June	616	December	488
6 month Total	5,487	6 month Total	3,474

Annual Boxes: [g]	8,961

Reviewed By / Date: V. Carretti, 1/10/2022 (July-Dec)

TA-52 Data Disintegrator Destruction Log

July 2021

This log is for materials shredded in the Data Disintegrator described in section A1207 of the LANL Title -V Operating Permit. Record any maintenance performed

Date	Number of Boxes Destroyed				Comments
	CUI Paper	Classified Paper	CUI Media	Classified Media	
1-Jul-21	0	45	0	0	SSO Classified Shred - Evan Wells & Crew came to shred
2-Jul-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
3-Jul-21	0	0	0	0	Saturday
4-Jul-21	0	0	0	0	Sunday
5-Jul-21	0	0	0	0	Holiday-Independence Day Observed
6-Jul-21	0	55	0	0	1 Pick-Up
7-Jul-21	42	11	0	0	3 Pick-Ups
8-Jul-21	12	25	4	0	SSO Classified Shred Morning/ 2 pick-ups at 35-0213
9-Jul-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
10-Jul-21	0	0	0	0	Saturday
11-Jul-21	0	0	0	0	Sunday
12-Jul-21	0	42	0	0	1 Pick-Up
13-Jul-21	22	0	0	0	1 Pick-Up/Media boxes separated at TA-60
14-Jul-21	17	0	0	0	Electricians disconnected old media shredder/Media boxes separated at TA-60
15-Jul-21	0	35	0	0	SSO Classified Shred - Evan Wells & Crew came to shred
16-Jul-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
17-Jul-21	0	0	0	0	Saturday
18-Jul-21	0	0	0	0	Sunday
19-Jul-21	53	0	0	0	Paper Boxes Located at TA-60
20-Jul-21	50	0	2	0	Picked up 57; Shredded 50 - Picked up 11; Sorted 2
21-Jul-21	23	0	9	0	Picked up 16; Shredded additional 7; Sorted 9 from 7/20/21 Pick-up
22-Jul-21	0	0	26	0	2 Pick-Ups
23-Jul-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
24-Jul-21	0	0	0	0	Saturday
25-Jul-21	0	0	0	0	Sunday
26-Jul-21	43	0	0	0	1 Pick-Up
27-Jul-21	12	0	0	0	Picked up 27; Shredded 12
28-Jul-21	15	0	0	0	Shredded the other 15; No Pick-Ups
29-Jul-21	17	0	0	0	2 Pick-Ups/Picked up 7 media; will sort on 8/2/21
30-Jul-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
31-Jul-21	0	0	0	0	Saturday
Total	306	213	41	0	
Grand Total	560				

TA-52 Data Disintegrator Destruction Log

August 2021

This log is for materials shredded in the Data Disintegrator described in section A1207 of the LANL Title -V Operating Permit. Record any maintenance performed

Date	Number of Boxes Destroyed				Comments
	CUI Paper	Classified Paper	CUI Media	Classified Media	
1-Aug-21	0	0	0	0	Sunday
2-Aug-21	11	29	7	0	2 Pick-Ups
3-Aug-21	34	0	9	0	2 Pick-Ups 03-2322 & 03-0066
4-Aug-21	45	0	0	0	3 Pick-Ups 46-0024, 53-0031, & 03-1400
5-Aug-21	58	0	8	0	Seperated Media from 8/4/21 Pick-Up, 2Pick-Ups 55-0039 & 55-0114
6-Aug-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
7-Aug-21	0	0	0	0	Saturday
8-Aug-21	0	0	0	0	Sunday
9-Aug-21	32	0	0	0	Shredded 14 boxes from 8/5/21 Pick-Up/3 Pick-Ups
10-Aug-21	55	0	3	0	Seperated Media from 8/9/21 Pick-Up/3 Pick-Ups
11-Aug-21	0	40	1	0	1 Media Box Separated/1 Pick-Up
12-Aug-21	0	30	0	0	SSO Classified Shred - Evan Wells & Crew came to shred
13-Aug-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
14-Aug-21	0	0	0	0	Saturday
15-Aug-21	0	0	0	0	Sunday
16-Aug-21	54	0	0	0	3 Pick-Ups 03-1400, 55-0400, & 53-0044 (66 Paper, 1 Media)
17-Aug-21	31	0	0	3	Separated 1 Media box/Shredded 12 Boxes from 8/16/21, 1 Pick-Up @03-1400 (2M, 19 P)
18-Aug-21	24	0	6	0	2 Pick-Ups 03-0030 & 35-0002 (24 Paper, 6 Media)
19-Aug-21	58	0	0	0	2 Pick-Ups 03-0261 & 48-0242 (58 Paper)
20-Aug-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
21-Aug-21	0	0	0	0	Saturday
22-Aug-21	0	0	0	0	Sunday
23-Aug-21	0	0	0	0	No Pick-Ups
24-Aug-21	13	23	5	0	Shred, 4 Pick-Ups
25-Aug-21	22	0	39	0	Shred, 5 Pick-Ups
26-Aug-21	0	0	0	0	No Pick-Ups
27-Aug-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
28-Aug-21	0	0	0	0	Saturday
29-Aug-21	0	0	0	0	Sunday
30-Aug-21	15	0	0	0	1 Pick-Up (15 Paper)
31-Aug-21	49	0	2	0	3 Pick-Ups 03-1400 & 03-0513 (49 Paper, 2 Media)
Total	501	122	80	3	
Grand Total	706				

TA-52 Data Disintegrator Destruction Log

September 2021

This log is for materials shredded in the Data Disintegrator described in section A1207 of the LANL Title -V Operating Permit. Record any maintenance performed

Date	Number of Boxes Destroyed				Comments
	CUI Paper	Classified Paper	CUI Media	Classified Media	
1-Sep-21	19	0	0	0	6 Pick-Ups; Shredded one request except media
2-Sep-21	92	0	0	0	2 Pick-Ups; Shredded remainder requests from 9/1/21 except media (9/1 & 9/2)
3-Sep-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
4-Sep-21	0	0	0	0	Saturday
5-Sep-21	0	0	0	0	Sunday
6-Sep-21	0	0	0	0	
7-Sep-21	10	33	12	0	5 Pick-Ups; Shredded 3 requests; Media completed from 9/1 & 9/2
8-Sep-21	41	0	0	0	No Pick-Ups; Shredded remainder 2 requests
9-Sep-21	46	0	5	0	3 Pick-Ups
10-Sep-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
11-Sep-21	0	0	0	0	Saturday
12-Sep-21	0	0	0	0	Sunday
13-Sep-21	0	0	11	0	2 Pick-Ups
14-Sep-21	0	0	0	0	No Pick-Ups
15-Sep-21	20	0	1	0	3 Pick-Ups
16-Sep-21	42	0	2	0	3 Pick-Ups
17-Sep-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
18-Sep-21	0	0	0	0	Saturday
19-Sep-21	0	0	0	0	Sunday
20-Sep-21	29	0	0	0	2 Pick-Ups
21-Sep-21	17	0	6	0	3 Pick-Ups
22-Sep-21	15	48	0	0	2 Pick-Ups
23-Sep-21	18	0	0		1 Pick-Up
24-Sep-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
25-Sep-21	0	0	0	0	Saturday
26-Sep-21	0	0	0	0	Sunday
27-Sep-21	15	0	0	0	1 Pick-Up; Worked at Salvage in the AM
28-Sep-21	16	0	4	0	2 Pick-Ups
29-Sep-21	74	0	0	0	1 Pick-Up
30-Sep-21	53	0	4	0	3 Pick-Ups
Total	507	81	45	0	
Grand Total	633				

TA-52 Data Disintegrator Destruction Log

October 2021

This log is for materials shredded in the Data Disintegrator described in section A1207 of the LANL Title -V Operating Permit. Record any maintenance performed

Date	Number of Boxes Destroyed				Comments
	CUI Paper	Classified Paper	CUI Media	Classified Media	
1-Oct-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
2-Oct-21	0	0	0	0	Saturday
3-Oct-21	0	0	0	0	Sunday
4-Oct-21	25	0	11	0	3 Pick-Ups
5-Oct-21	15	0	4	0	3 Pick-Ups
6-Oct-21	0	19	0	0	2 Pick-Ups: Training for JV
7-Oct-21	0	0	0	0	No Operations; A.M. Stand down for Crane Operators
8-Oct-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
9-Oct-21	0	0	0	0	Saturday
10-Oct-21	0	0	0	0	Sunday
11-Oct-21	0	0	0	0	Monday - Holiday
12-Oct-21	60	0	1	0	2 Pick-Ups
13-Oct-21	0	0	0	0	No Operations: Assisted Salvaged with Operations
14-Oct-21	38	0	0	0	1 Pick-Up ot 69 Boxes; Shredded 38; Chaparral Installed New Blades
15-Oct-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
16-Oct-21	0	0	0	0	Saturday
17-Oct-21	0	0	0	0	Sunday
18-Oct-21	67	0	0	0	6 Pick-Ups; Continued Shred from Pick-Up from 10/14/21
19-Oct-21	19	0	20	0	Continued Shred from Pick-Upsfrom 10/18/21
20-Oct-21	62	0	1	0	3 Pick-Ups
21-Oct-21	5	48	10	0	3 Pick-Ups
22-Oct-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
23-Oct-21	0	0	0	0	Saturday
24-Oct-21	0	0	0	0	Sunday
25-Oct-21	24	0	0	0	2 Pick-Ups
26-Oct-21	22	0	1	0	3 Pick-ups; Two (2) Walk-Downs
27-Oct-21	29	0	0	0	Continued Shred from Pick-Ups from 10/26/21; Function at TA-60
28-Oct-21	0	0	0	0	No Operations
29-Oct-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
30-Oct-21	0	0	0	0	Saturday
31-Oct-21	0	0	0	0	Sunday
Total	366	67	48	0	
Grand Total	481				

TA-52 Data Disintegrator Destruction Log

November 2021

This log is for materials shredded in the Data Disintegrator described in section A1207 of the LANL Title -V Operating Permit. Record any maintenance

Date	Number of Boxes Destroyed				Comments
	CUI Paper	Classified Paper	CUI Media	Classified Media	
1-Nov-21	41	0	0	0	3 Pick-Ups
2-Nov-21	54	0	0	0	3 Pick-Ups
3-Nov-21	38	0	0	0	2 Pick-Ups
4-Nov-21	70	0	0	0	1 Pick-Up
5-Nov-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
6-Nov-21	0	0	0	0	Saturday
7-Nov-21	0	0	0	0	Sunday
8-Nov-21	13	0	35	0	6 Pick-Ups
9-Nov-21	71	0	0	0	Shred from 3 Pick-Ups from 11/8/21
10-Nov-21	52	0	16	0	7 Pick-Ups
11-Nov-21	0	0	0	0	Holiday- Veterans Day
12-Nov-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
13-Nov-21	0	0	0	0	Saturday
14-Nov-21	0	0	0	0	Sunday
15-Nov-21	57	0	1	0	3 Pick-Ups
16-Nov-21	0	0	0	0	No Pick-Ups
17-Nov-21	0	0	0	0	No Pick-Ups
18-Nov-21	13	0	2	0	2 Pick-Ups
19-Nov-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
20-Nov-21	0	0	0	0	Saturday
21-Nov-21	0	0	0	0	Sunday
22-Nov-21	41	0	1	0	2 Pick-Ups
23-Nov-21	34	0	0	0	2 pick-Ups
24-Nov-21	0	0	0	0	Regular Day off for Friday Holiday - Thanksgiving
25-Nov-21	0	0	0	0	Holiday-Thanksgiving
26-Nov-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10 & Holiday Thanksgiving
27-Nov-21	0	0	0	0	Saturday
28-Nov-21	0	0	0	0	Sunday
29-Nov-21	31	0	1	0	3 Pick-Ups
30-Nov-21	35	0	0	0	3 Pick-Ups
Total	550	0	56	0	
Grand Total	606				

TA-52 Data Disintegrator Destruction Log

December 2021

This log is for materials shredded in the Data Disintegrator described in section A1207 of the LANL Title -V Operating Permit. Record any maintenance

Date	Number of Boxes Destroyed				Comments
	CUI Paper	Classified Paper	CUI Media	Classified Media	
1-Dec-21	40	0	0	0	2 Pick-Ups
2-Dec-21	12	17	0	0	3 Pick-Ups
3-Dec-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
4-Dec-21	0	0	0	0	Saturday
5-Dec-21	0	0	0	0	Sunday
6-Dec-21	5	9	0	0	2 Pick-Ups
7-Dec-21	15	0	10	0	3 Pick-Ups
8-Dec-21	24	0	4	0	4 Pick-Ups
9-Dec-21	42	0	3	0	2 Pick-Ups
10-Dec-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
11-Dec-21	0	0	0	0	Saturday
12-Dec-21	0	0	0	0	Sunday
13-Dec-21	0	0	0	0	No Pick-Ups
14-Dec-21	0	0	0	0	No Pick-Ups
15-Dec-21	0	0	0	0	No Pick-Ups
16-Dec-21	90	0	0	0	4 Pick-Ups
17-Dec-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
18-Dec-21	0	0	0	0	Saturday
19-Dec-21	0	0	0	0	Sunday
20-Dec-21	70	0	0	0	1 Pick-Up of 169 boxes; Shred 70 boxes
21-Dec-21	99	0	0	0	Shred Remainder of 99
22-Dec-21	47	0	1	0	2 Pick-Ups
23-Dec-21	0	0	0	0	Regular Day off for Friday Holiday - Christmas
24-Dec-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10
25-Dec-21	0	0	0	0	Saturday
26-Dec-21	0	0	0	0	Sunday
27-Dec-21	0	0	0	0	Mandatory Vacation for Christmas Break
28-Dec-21	0	0	0	0	Mandatory Vacation for Christmas Break
29-Dec-21	0	0	0	0	Mandatory Vacation for Christmas Break
30-Dec-21	0	0	0	0	Regular Day Off - Schedule 4/10 & Extra Day off for Friday & Mandatory Vacation
31-Dec-21	0	0	0	0	Friday-Destruction Off- Schedule 4/10 & holiday = New Years Eve
Total	444	26	18	0	
Grand Total	488				

ATTACHMENT A1207.B.

Data Disintegrator

Maintenance Performed

GRAPES

Facility: F07 **Unit:** 520011 **Proj:**
Task Title: 520011 3M SHREDDER/SEPERATOR/SHAKER PM - CHAPARRAL
W/O Type: PM W/O Group: 3PM MOD Task Priority: 4
Planner: 107145 TAFOYA
W/O Title: 520011 3M DOCUMENT SHREDDER/ HARD DRIVE PM - CHAPARRAL
Written To: DOCUMENT SHREDDER/ HARD DRIVE SHREDDER
Task Dspln: XOSC Due Date: 10/31/2021
Job Type: PM D-B Determination:N
Hazard Level: MODERATE IWD Requirement:TASK SPECIFC
Material Required?:

0070124001

Los Alamos NATIONAL LABORATORY EST.1943

Work Order Task
00701240 01
MASTER

Date: 7/22/21

Work Order Task Written To

Facility: F07 **Unit:** 520011 **Op Sys:** BLDG
Room: **Area:** **Sys/Cls:** P
Equipment: **Component:**
DOCUMENT SHREDDER/ HARD DRIVE SHREDDER
Equipment Tag: Alternate Tag:
Work item: 520011SP Tech Surv Reqmt Rel: N
PEG Equip Group Type: PEG Equip Group ID:
Crit Safety Control: Property Group:
Maintenance Programs: 1: 2: 3: 4: 5:

Authorization

Start Permission	Carla Tafoya			Start Date	7/22/21		
Complete Notice	Graig			Complete Date	11/16/21		

NOTE:

*** Refer to attached Form 2101 - Non-Tenant Activity Form - or Form 2102 - Tenant Activity Form - for a description of site specific training or escort and access requirements.**

Work Order 00701240 **Task** 01

Work Order Task Instructions

PERFORM QUARTERLY PM - Outside Contractor Chaparral

.

52-0011 IS NOT A UI STANDARD INDUSTRIAL BUILDING, A 2101 IS REQUIRED.

.

1424 Disintegrator (paper)

1) Remove Dull Blades, Install sharp blades, sharpen dull blades (if possible), inspect conveyor belt adjust if necessary, grease all zerk.

2) Inspect Dust collector, Clear any clogs from underneath (not to include taking off side panel).

3) Replacement set of disintegrator blades (to keep stock of blades)

4) Remove side panel and inspect filter tubes replace filter tubes if necessary

5) Replacement filter tube set (as needed)

6) Installation of new conveyor belt (if needed)

2436 Disintegrator (Media)

1) Internal and external cleaning of disintegrator, inspection of disintegrator blades, Inspect fluid levels refill as needed, Grease zerks, inspect conveyor belt adjust if necessary.

2) Remove Dull Blades, Install sharp blades, Grease zerks, Inspect conveyor belt adjust if necessary.

3) Inspect filter tubes for tears and cracks replace as necessary, inspect HEPA filter replace as necessary.

4) Replacement disintegrator blades.

5) Replacement HEPA Filter (as needed)

6) Replacement filter tube set (as needed)

7) Installation of new conveyor belt (if needed)

.

CLEAN AREA AND DISPOSE OF DEBRIS

Rework Reason/Cause

		Y/N
CDSG	CUSTOMER DESIGN	☐
IMCW	IMPROPER CONSTRUCTION/WORKMANSHIP	☐
IMDN	IMPROPER DESIGN	☐
PDMS	PARTS/MATERIAL DID NOT MEET SPECIFICATIONS	☐
WR	WARRANTY REWORK/REPAIR	☐

Date: _____ Hours: _____ Crew: _____ Shift: _____

Comments: _____

Work Order 00701240 **Task** 01

Rework/Approval

Deficiency Tag No: Location: Tag Removed:

Rework Job: N Comments:

Trouble Found/Work Performed

Completion Comments Required: N

CHANGED BLADES

CHECK FILTER TUBES

Continue on additional sheets? _____

Calibrated Tools

Calibrated Tool Used? [N] Y/N

File ID	Date Used	File ID	Date Used

Work Delay Reason

A	ACCESS	[ ] Y/N
EQPT	EQUIPMENT	[ ] Y/N
IWD	IWD WORKABILITY	[ ] Y/N
LOTO	LOCK OUT/TAG OUT	[ ] Y/N
MAT	MATERIAL	[ ] Y/N
OPS	OPERATIONS	[ ] Y/N
RCT	RCT AVAILABILTY	[ ] Y/N
SP	SAFETY PAUSE	[ ] Y/N
TEL	TOOLS/EQUIP/LIFTS	[ ] Y/N
W	WEATHER	[ ] Y/N

Work Date: Hours: Crew: Shift:

Comments:

Work Order 00701240 Task 01

Major Failure/Action Taken

Major Failure:		
Major Action Taken:		
Deficiency Tag Removed:		Y/N
Deficiency Tag Location:		
Deficiency Tag ID:		
Limited Condition of Operation:		Y/N

Work Completion Signatures

Name	Function/Department	Date

Comments:
(Rework?)

Equipment List Exceptions

Equipment List	Revision	Equipment List Description
520011SP	000	520011SP

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F07	520011	BLDG	BLDG		P	ML4
	Equipment:		UNIT	SHD			

Name: HARD DRIVE SHREDDER
Location: 52-0011
Exception Reason: _____
Comments:
Equipment Tag:

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F07	520011	BLDG	BLDG		P	ML4
	Equipment:		UNIT	SHD	FILTER	FAB-001	

Name: HARD DRIVE SHREDDER - FILTER
Location: 52-0011
Exception Reason: _____
Comments:
Equipment Tag:

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F07	520011	BLDG	BLDG		P	ML4
	Equipment:		UNIT	SHD	FILTER	FAH-001	

Name: HARD DRIVE SHREDDER - FILTER, HEPA (1 EA)
Location: 52-0011
Exception Reason: _____
Comments:
Equipment Tag:

Work Order 00701240 Task 01

Equipment List Exceptions

Equipment List	Revision	Equipment List Description
520011SP	000	520011SP

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F07	520011	BLDG	BLDG		P	ML4
	Equipment:		UNIT	SP			

Name: SHREDDER-DOCMENT
Location: 52-0011 = INSIDE
Exception Reason: _____
Comments:
Equipment Tag:

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F07	520011	BLDG	BLDG		P	ML4
	Equipment:		UNIT	SPP			

Name: CYCLONE SHAKER (SEPARATOR PARTICULATE) INDOOR/OUTDOOR)
Location: 52-0011
Exception Reason: _____
Comments:
Equipment Tag:

Seq	Fac	Unit	Op Sys	Division	Area	System	Class
	F07	520011	BLDG	BLDG		P	ML4
	Equipment:		UNIT	SPP	FILTER	FAB-001	

Name: PAPER SHREDDER - FILTER, AIR BAG (25 EA)
Location: 52-0011
Exception Reason: _____
Comments:
Equipment Tag:

Accounting

Percentage	Cost Center	Activity	Account No	Sub Account No
100.00	8S010A	640CL000	WL2300	00000000

* * * **End of Report** * * *

70/240-01

Los Alamos NATIONAL LABORATORY

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. Basic worker engagement questions are provided below. Additional 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

Los Alamos NATIONAL LABORATORY

Form 2103

Integrated Work Document (IWD) Part 3, Validation and Work Release

IWD No: 701240-0 Revision No.:

By signing below, I verify that this activity is appropriate to be conducted in the facility and is within the scope of the facility safety basis; area/facility hazards have been identified and addressed; work meets applicable Laboratory environmental, safety, and security requirements, DOE Orders, and other applicable regulatory requirements; and that the appropriate Subject Matter Expert (SME) reviews have been completed.

FOD or FOD designee (e.g., Operations Manager)

Signature/Z-Number/Date **(If required by FOD)**: _____

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 review tasks and steps for workability and to ensure that the hazards and controls are described correctly and have not changed.
- The assigned workers are authorized and 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 Number/Date) **Required**: _____

Alternate PIC signature **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 and informing workers that they have a new PIC.)*

Alternate PIC (Signature/Z Number/Date) **Required**: _____

Alternate PIC (Signature/Z Number/Date) **Required**: _____

Pre-Job Brief Content

- Prerequisites, where applicable – things that must be staged, in place, or completed before the work starts
- Worker pause/stop work authority and obligation per P101-18, Procedure for Pause/Stop Work
- Scope of work and work activities including IWD/WCDs, procedures, work package documents, and drawings, as applicable
- Hazards and associated controls, including personal protective equipment, and the resolution of any related questions
- Critical steps* including where they are covered in the IWD/WCD and which HPI technique will be used for each critical step
- Permit and plan requirements and limitations (e.g., penetrations, spark flame) and how permit requirements will be met
- Applicable regulatory requirements [e.g., Technical Safety Requirements (TSR), Code of Federal Regulations (CFR)] including how these requirements can be inadvertently violated if the IWD/WCD is not followed
- Roles and responsibilities including person(s) responsible for making critical decisions (e.g., PIC)
- Handoffs and coordination requirements among workers and multiple PICs, if applicable
- Work site conditions including location of phone and emergency equipment (e.g., fire alarms, fire extinguisher, AED) and how to respond to alarms and emergencies
- Hold points and other notifications/signoffs (e.g., inspections, Industrial Hygiene, radiation protection)
- Applicable Lessons Learned (LL), especially from previous performance of the activity
- Any other information needed to perform this activity in a safe, secure, and environmentally responsible manner

Ask: Does everyone agree with the work tasks/steps and controls, and commit to follow them?

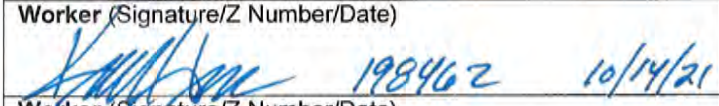
*Critical steps are when "a procedure step, series of steps, or action that, if performed improperly, will cause irreversible harm to equipment, people, or the environment" (DOE-HDBK-1028-2009, Volume 1).

IWD No:	Revision No.:

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 Number/Date)  198462 10/14/21	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)
Worker (Signature/Z Number/Date)	**Worker** (Signature/Z Number/Date)

701240-01

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Subcontract # 310447			Company Name:
Revision #: 00			Activity/Task Title: Standing IWD Chaparral PM work (Temporary IWD.)
Work Document #: (WO # / Task)			Subcontractor Planner (Name/ZH/Date) Kirk David Hess/ 198462/ 6-20-19
			LANL Planner/Preparer (Name/ZH/Date) Nicholas Nelson/ 253914/ 6-19-19
TA: 52	Building: 0011	Room:	Additional Location Description:

1. Scope of Work

1.1. TA-52-0011 Chaperiel Perform PMs on the Disintegrator (Paper shredder only.)

1424 DISINTEGRATOR (PAPER)

1.1.1. **REMOVE** Dull Blades, Install sharp blades, sharpen dull blades (if possible), inspect conveyor belt adjust if necessary, grease all zerk fittings Quarterly.
1.1.2. **INSPECT** Dust collector, Clear any clogs from underneath (not to include taking off side panel) Quarterly.
1.1.3. **REPLACEMENT** set of disintegrator blades (to keep stock of blades0.)
1.1.4. **REMOVE** side panel and inspect filter tubes replace filter tubes if necessary.
1.1.5. **REPLACEMENT** filter tube set (as needed).
1.1.6. **INSTALLATION** of new conveyor belt (if needed).

1.2. **THIS** IWD is temporary and will only be used for paper shredding! NO MEDIA SHREDDING REPAIRS ALLOWED!

Hazard Analysis (HA) Team: Nicholas Nelson, Kenny Chavez, Christopher Lockmer, Sunee Sandoval, Renee Pacheco. Date: 1-15-19

2. Precautions and Limitations

2.1. **IF** steps cannot be completed as described, or **IF** unforeseen situations occur, **THEN PAUSE WORK** and

[redacted]

STABILIZE the situation, **CONTACT** your supervisor, and **AWAIT** further instructions before proceeding.

2.1.1. **BARRICADE** the work execution area to keep un-authorized personnel out of the location. All entry personnel must have training and are required to wear the minimum PPE to enter the location.
2.1.2. **CLEAN** up areas using a wet-dry Hepa-Vac or using the wet method and cleaning towels.

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Subcontract # 310447			Company Name:
Revision #: 00			Activity/Task Title: Standing IWD Chaparral PM work (Temporary IWD)
Work Document #: (WO # / Task)			Subcontractor Planner (Name/Z#/Date) Kirk David Hess/ 198462/ 6-20-19
			LANL Planner/Preparer (Name/Z#/Date) Nicholas Nelson/ 253914/ 6-19-19
TA: 52	Building: 0011	Room:	Additional Location Description:

2.2. **Pest droppings**
2.2.1. **Pest Control** to support in cleaning of pest droppings. Avoid contact with any droppings found.

2.3. **Evacuation**
2.3.1. **During** the pre-job establish a muster zone and go over exit paths.

2.4. **Working from heights**
2.4.1. **WEAR** appropriate fall protection if working from a lift.

2.5. **Overhead work**
2.5.1. **BE** aware of overhead work, never work under another worker.

2.6. **Thermal stress**
2.6.1. **THERMAL** stress can be both hot and cold conditions.
2.6.2. **STAY** hydrated drink plenty of water.
2.6.3. **TAKE** breaks as needed to avoid becoming thermally stressed.

2.7. **THIS** IWD is temporary and will only be used for paper shredding! NO MEDIA SHREDDER REPAIRS ALLOWED!

Signatures, Initials and Place keeping blocks at the end of a step signifies the completion of that step or series of steps.

Action Steps from Section 6 on SHALL utilize Place Keeping and be signed/marked upon completion.

3. PREREQUISITES/INITIAL CONDITIONS

3.1. **NOTIFY** the OMC in advance of work execution.

3.2. **NOTIFY** local IH 48hr in advance before executing the PMs.

3.3. **IH** will attend the pre-job briefings and provide air monitoring during work execution.

3.4. **VERIFY** work is on the POD schedule and is not in conflict of other work activities.

3.5. **VERIFY** a daily pre-job is performed for all affected personnel.

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Subcontract # 310447			Company Name:
Revision #: 00			Activity/Task Title: Standing IWD Chaparral PM work (Temporary IWD.)
Work Document #: (WO # / Task)			Subcontractor Planner (Name/Z#/Date) Kirk David Hess/ 198462/ 6-20-19
			LANL Planner/Preparer (Name/Z#/Date) Nicholas Nelson/ 253914/ 6-19-19
TA: 52	Building: 0011	Room:	Additional Location Description:

3.6. **KNOW** where evacuation muster, shelter-in-place areas are located.

3.7. **IDENTIFY** individuals to Contact

3.7.1. **CONTACT** OMC prior to work beginning. **JOE ROMERO** @ 667-3662 or 699-6852. Contact Joe if a work change notice is needed or if details need clarification.

3.7.2. **CONTACT IH CHRIS LOCKMER** @ 412-0871 for any questions related to health or safety.

3.7.3. **CONTACT** Waste Management **SUNEE SANDOVAL** @ 667-2983 or 695-4345 for any questions with waste.

3.8. **VERIFY** that all tools and equipment are on location and in good condition.

3.8.1. **INSPECT** tools, equipment, and material prior to beginning work. Make sure all material is on site and in a safe location.

3.9. **CONDITIONS** are subject to change. Be sure and cover as much as you can during the pre-job.

3.10. **VERIFY** that support equipment (Arial lift) has been requested and available prior to beginning work (If required).

3.11. **AREA** should be placed in an un-cleared state before chaparral can enter location.

4. Special Training/Medical Requirements

4.1. CHAPARRAL TRAINING

4.1.1. REFERENCE LANL AP-MSS-004.2 SUBCONTRACTOR TRAINING MATRIX

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Subcontract # 310447			Company Name:
Revision #: 00			Activity/Task Title: Standing IWD Chaparral PM work (Temporary IWD.)
Work Document #: (WO # / Task)			Subcontractor Planner (Name/Z#/Date) Kirk David Hess/ 198462/ 6-20-19
			LANL Planner/Preparer (Name/Z#/Date) Nicholas Nelson/ 253914/ 6-19-19
TA: 52	Building: 0011	Room:	Additional Location Description:

5. SPECIAL TOOLS/EQUIPMENT

5.1. SPECIAL TOOLS

5.1.1. SCAFFOLD

5.1.2. HEPA-VAC

5.1.3. PERSONAL AIR MONITORING EQUIPMENT.

5.2. EQUIPMENT

5.2.1. STANDARD PPE TO BE USED WHEN WORKING OUTSIDE THE BUILDING.

5.2.1.1. Standard PPE per contract + Dust masks N-95. and (fall protection when working from lift.)

5.2.2. PPE TO BE WORN INSIDE THE BUILDING.

5.2.2.1. Standard PPE per contract + Dust masks N-95 and (Tyvek is optional.)

WORK INSTRUCTIONS

5.3. CHAPARRAL

5.3.1. **CONTACT** and verify OMC has sent notifications to affected personnel. ☐

HOLD POINT

Contact IH CHRIS LOCKMER @ 412-0811 to perform air monitoring and verify that monitors are in place prior to begining work

PIC signature _____ Z# _____ Date _____

5.3.2. **LO/TO** equipment to be worked on.

5.3.3. **VERIFY** the absence of hazardous energy.

5.3.4. **PERFORM** PM and Maintenance as per the contract and according to the temporary limitations set forth in this IWD.

5.3.5. **PERFORM** Minor repairs to paper shredder as needed following the Contract. If repairs are major note the deficiency's on the PM, and notify the STR & OMC, a new corrective WO may be needed.

5.3.6. **THOROUGHLY** clean the work execution area of all dust using a HEPA-Vac.

Los Alamos	Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)		
Subcontract # 310447			Company Name:
Revision #: 00			Activity/Task Title: Standing IWD Chaparral PM work (Temporary IWD.)
Work Document #: (WO # / Task)			Subcontractor Planner (Name/Z#/Date) Kirk David Hess/ 198462/ 6-20-19
			LANL Planner/Preparer (Name/Z#/Date) Nicholas Nelson/ 253914/ 6-19-19
TA: 52	Building: 0011	Room:	Additional Location Description:

5.3.7. **REMOVE** LO/TO from equipment and place the equipment into operational state.

6. Post Work Activities

6.1. **CONTACT** Local IH to collect monitoring equipment. ☐

7. Closeout

7.1. **TAKE** the package to the **OMC.** Inform them of work completion and get close out signatures. ☐

7.2. **RETURN** the package to **WORK CONTROL** for final close out. ☐

Los Alamos — **Facilities Maintenance IWD – (Facility Maintenance Activity Specific Information)**

Subcontract # 310447			Company Name:
Revision #: 00			Activity/Task Title: Standing IWD Chaparral PM work (Temporary IWD.)
Work Document #: (WO # / Task)			Subcontractor Planner (Name/Z#/Date) Kirk David Hess/ 198462/ 6-20-19
			LANL Planner/Preparer (Name/Z#/Date) Nicholas Nelson/ 253914/ 6-19-19
TA: 52	Building: 0011	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

IWD Type

- ☒ Moderate-Hazard
- ☐ High-Hazard /Complex
- ☐ Standing IWD

The Subcontractor line manager approves work based upon confidence that this IWD has been jointly prepared with the Contractor, the IWD clearly defines Subcontractor provided work tasks/steps linked to hazards and controls associated with the work to be performed, that the work will be performed within ES&H/S&S requirements and will be performed in accordance with this IWD.

Signature: _____ Z# 198462

Date: 7/17/2019

Subcontractor PIC Signature _____ Z# 198462

Document Preparer Signature Nicholas Nelson Z# 253914

STR or Designee Signature _____ Z# 100459

LANL ES&H Rep Signature _____ Z# 329907

FOD Rep Signature _____ Z# 210653

LANL ESO Signature (if required) NA Z# ____

Reviewed by SUBCONTRACTOR ES&H Representative

Signature _____

Z# 198462 Date 7/17/2019

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 #: ____

The 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 specific activity location.

FOD	TA	Bldg.	Room	Other Location
07	52	0011	ALL	N/A
FOD Designated Facility Point-of-Contact	Name: Alberto Hernandez	Phone: (505) 665-7001	Pager: N/A	Email: albertoh@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

Additional Comments

Instructions: In the block below, identify work-area hazards that could potentially affect the worker(s) or others. Avoid using the same Part 2, Form 2101 for multiple facilities. Ensure that work area hazards, specific to the facility or work location are identified and controlled. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the work area hazards, and also 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 5.1)
☐ **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			

7012-46-01

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, Integretaled 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	Noise Hazards: hearing protection required in posted areas. Read and follow requirements of entry postings, warning lights, alarms, labels, etc. Do not enter any area for which you are not trained.	P101-31 Noise and Temperature Stresses and 29CFR 1910.9 29CFR 1910.1200 Hazard Communication	Employees exposed to or above the action level shall complete the PS-13 training course, Hearing Conservation, intitially and annually courses 2430 and 12350
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			
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			
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	Contact POC prior entry the building.		
Other Hazards **Specify:** Snakes, insects and/or rodents	☒ 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** Alberto Hernandez - 347730 Digitally signed by Alberto Hernandez - 347730 Date: 2020.09.17 16:50:25 -06'00'

Date Approval Expires: 9/30/2021

Work Order/Task: 70124/0-01

Start Date:	Completion Date:

SUMMARIZE THE WORK PERFORMED

Summarize the Work Performed/Materials Used:

Date	
10/14	CHANGE BLADES
	CHECK FILTER TUBES

FOR CORRECTIVE WORK – WHAT FAILED AND WHAT WAS FIXED

	Failure Mode Root Cause Code (Circle Root Causes that Apply)	
Failure Mode	Circuit Breaker Tasks Digital Component Tasks Doors/Hatches Electrical Determinations Failed Surveillance Fastener Tasks FME Tasks I&C Calibration/Setpoints Mechanical Connections	System Restoration Issues Pump Related Tasks Procedure Use Rigging/Lifting Tasks Electrical Switches Troubleshooting Issues Valve Related Tasks Welding Work Instruction Issues
	Other (Specify Root Cause)	
Failure Mode Comments	(Add Details)	
	Rework Mode (Circle Rework Causes that Apply)	
Rework	Cause Indeterminate Design Deficiency Intentionally Abbreviated Maintenance Instructional Deficiency Knowledge Based Human Performance Error Deficiency Operational Deficiency	Life Cycle Management PM Deficiency Rule Base Human Performance Deficiency Skill Base Human Performance Deficiency Tools/Equipment/Lifts Vendor Deficiency Work Management Deficiency Weather
	Other (Specify Rework Mode)	
Comments		

N/A

N/A

FOR PMs – SUMMARIZE AS FOUND AND AS LEFT CONDITIONS BELOW		
	As Found Conditions (Circle Conditions that Apply)	
As found	Unanticipated Failure Failure Not Normal Wear Failure Normal Wear Outside of Tolerance Reliability Degraded	Within Tolerance Satisfactory Superior, Like New Not Applicable
	Other (Specify As Found Condition)	
Comments		
As left		
Parts/Repairs	SHARPENED BLADES INSTALLED	
Read/meas.		
Post test info.		
Problems Encountered (delays, safety, etc.):		
	Delay Codes (Circle Codes that Apply)	
Delay	Access Equipment IWD Workability Material	Operations RCT Availability Safety Pause Weather # of Hours_____ Date(s)_____
	Other (Specify Reason for Delay)	
Comments		
Lessons Learned/Recommendations:		
	N/A	
Name: KIRK HESS	**Z#** 198462	**Signature:**	**Date:** 10/14/21

PIC/SUPT

☑ PM has been completed in its entirety and ready for closure.

IF A PM COULD NOT BE COMPLETED:

☐ Percentage complete is _____%

☐ Sections that did not work and need to be rescheduled

_____

Reasons why:

MAINTENANCE COORDINATOR/AREA WORK COORDINATOR

Work Package is Complete and may be closed out: YES ☑ NO ☐

IF no: State Reason

GP 11/16/21

Additional Work Needed? ☐ YES ☑ NO

Document UP/WO/FSR Number:_____

ENGINEERING (FOR MD and CD Work Orders)

IF a configuration baseline has been changed, THEN indicate the changes are to be incorporated into the following documents and/or configuration baseline:

☐ Drawings ☐ FDD/SDD

☐ Procedures ☐ Master Equipment List

☐ Permits ☐ Checklists

SE Name: Signature: Date:

WORK CONTROL

Moderate/High Hazard – WMC/Planner reviewed for Lessons Learned/Feedback

☑ YES ☐ NO N/A ☐

☑ Review of the completed work package is complete per AP-WORK-005, and the work package is ready to be set to complete in CMMS. IWD NOT COMPLETED PART 2 #

Name: Carla Tafoya Z# 101145 **Signature:** C Tafoya **Date:** 10/26/21

Asset Suite / TIMM611 - WORK ORDER/TASK COST SUMMARY

Select to view audit detail. 'Recalculate' to recalculate percent complete.

Apply | Apply & Go Back | Apply & Clear | Go Back

Search | Options

W/O No. 00701240 Task
W/O Status AWAIT/C W/O Type PM
Desc 520011 3M DOCUMENT SHREDDER/ HARD DRIVE PM - CHAPARRAL
%Complete

Recalculate

Loaded Cost

Export

Previous Next

Component	Est Hrs	Est Cost	Act Hrs	Act Cost
Comp Lbr	18.00	$ 1,116.00		
Cont Lbr				
In Svcs				
Out Svcs				
Stocked				
Direct				
Equip/Veh				
Misc				
Sub Total		$ 1,116.00		
Salvage				
Total		$ 1,116.00		

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PROD_UI

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 during this reporting period. 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 Totals 2021 (tons)

Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals	Allowable Emissions[a]
All Three Boilers	NOx	1.703	0.856	1.166	0.878	0.478	0.319	0.252	0.333	0.162	0.647	0.981	1.155	**8.93**	**31.5**
	SOx	0.022	0.019	0.018	0.012	0.005	0.003	0.003	0.003	0.002	0.007	0.010	0.012	**0.12**	**4.9**
	TSP	0.224	0.115	0.155	0.116	0.063	0.042	0.033	0.044	0.021	0.085	0.129	0.151	**1.18**	**4.7**
	PM-10	0.224	0.114	0.154	0.116	0.063	0.042	0.033	0.044	0.021	0.085	0.129	0.151	**1.17**	**4.4**
	PM-2.5	0.224	0.113	0.153	0.115	0.063	0.042	0.033	0.044	0.021	0.085	0.129	0.151	**1.17**	**4.2**
	CO	1.174	0.589	0.803	0.605	0.330	0.220	0.174	0.229	0.112	0.446	0.676	0.797	**6.16**	**21.5**
	VOC	0.161	0.080	0.110	0.083	0.045	0.030	0.024	0.032	0.015	0.061	0.093	0.110	**0.84**	**2.8**

(a) Allowable Emissions are from table A1302A of Permit P100-R2M4.

12 Month Rolling Emissions 2021 (tons)

Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Allowable Emissions[b]
All Three Boilers	NOx	10.129	9.756	9.899	9.954	9.912	9.806	9.652	9.590	9.319	9.301	9.194	8.930	**31.5**
	SOx	0.109	0.115	0.123	0.127	0.126	0.125	0.123	0.123	0.120	0.120	0.119	0.116	**4.9**
	TSP	1.329	1.283	1.303	1.311	1.306	1.292	1.272	1.264	1.228	1.226	1.212	1.177	**4.7**
	PM-10	1.328	1.281	1.300	1.308	1.303	1.289	1.269	1.260	1.225	1.222	1.208	1.174	**4.4**
	PM-2.5	1.328	1.280	1.299	1.306	1.301	1.287	1.267	1.258	1.223	1.220	1.207	1.172	**4.2**
	CO	6.985	6.726	6.824	6.862	6.833	6.760	6.654	6.611	6.424	6.411	6.338	6.155	**21.5**
	VOC	0.960	0.924	0.937	0.942	0.938	0.928	0.913	0.907	0.882	0.880	0.870	0.845	**2.8**

(a) Meets permit condition A1307.A, Monitoring Condition 2 of Title V Permit P100-R2M4.
(b) Allowable Emissions are from table A1302A of Permit P100-R2M4.

Average Hourly Emissions Calculation (Natural Gas) 2021

Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Allowable Emissions[b]
Boiler 1 TA-3-22-1 (pph)	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	**10.2**
	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	**1.1**
	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	**1.3**
	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	**1.3**
	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	**1.3**
	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	**7.0**
	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	**1.0**
Boiler 2 TA-3-22-2 (pph)	NOx	0.00	1.45	2.93	2.46	0.00	0.00	1.19	1.10	1.19	1.84	0.00	2.26	**10.2**
	SOx	0.00	0.01	0.03	0.03	0.00	0.00	0.01	0.01	0.01	0.02	0.00	0.02	**1.1**
	PM	0.00	0.19	0.38	0.32	0.00	0.00	0.16	0.14	0.16	0.24	0.00	0.30	**1.3**
	PM-10	0.00	0.19	0.38	0.32	0.00	0.00	0.16	0.14	0.16	0.24	0.00	0.30	**1.3**
	PM-2.5	0.00	0.19	0.38	0.32	0.00	0.00	0.16	0.14	0.16	0.24	0.00	0.30	**1.3**
	CO	0.00	1.00	2.02	1.70	0.00	0.00	0.82	0.76	0.82	1.27	0.00	1.56	**7.0**
	VOC	0.00	0.14	0.28	0.23	0.00	0.00	0.11	0.10	0.11	0.17	0.00	0.21	**1.0**
Boiler 3 TA-3-22-3 (pph)	NOx	3.72	3.07	3.11	2.22	1.37	0.96	0.83	0.00	0.00	2.09	2.72	3.05	**10.2**
	SOx	0.04	0.03	0.03	0.02	0.01	0.01	0.01	0.00	0.00	0.02	0.03	0.03	**1.1**
	PM	0.49	0.40	0.41	0.29	0.18	0.13	0.11	0.00	0.00	0.27	0.36	0.40	**1.3**
	PM-10	0.49	0.40	0.41	0.29	0.18	0.13	0.11	0.00	0.00	0.27	0.36	0.40	**1.3**
	PM-2.5	0.49	0.40	0.41	0.29	0.18	0.13	0.11	0.00	0.00	0.27	0.36	0.40	**1.3**
	CO	2.56	2.11	2.14	1.53	0.95	0.66	0.57	0.00	0.00	1.44	1.88	2.10	**7.0**
	VOC	0.35	0.29	0.29	0.21	0.13	0.09	0.08	0.00	0.00	0.20	0.26	0.29	**1.0**

(a) Meets condition A1307.A, monitoring condition 1, of Title V Permit P100-R2M4

(b) Allowable Emissions are from table A1302A of Permit P100-R2M4.

(c) 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 58 lbs/MMscf, which is converted to lbs/MMBtu by dividing by the high heat value of natural gas (the number of Btu in a scf). As the HHV of natural gas ranges in value, the emission range was calculated using the low and high values at LANL between 2011 and 2021, the lowest was 939.97 btu/scf and the highest was 1079.3 btu/scf, therefore the NOx emission rate will range from 0.0537 to 0.0617 lbs/MMBtu. The average Btu value for natural gas is calculated annually and can be found in the GHG emission calculations in this spreadsheet.

Average Hourly Emissions Calculation (Fuel Oil) 2021

Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Allowable Emissions[b]
Boiler 1 TA-3-22-1 (pph)	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**
Boiler 2 TA-3-22-2 (pph)	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**
Boiler 3 TA-3-22-3 (pph)	NOx	10.23	10.23	10.23	10.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**11.3**
	SOx	8.74	8.74	8.74	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**9.6**
	PM	3.91	3.91	3.91	3.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**4.3**
	PM-10	2.72	2.72	2.72	2.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**3.0**
	PM-2.5	1.84	1.84	1.84	1.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**2.0**
	CO	5.92	5.92	5.92	5.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**6.5**
	VOC	0.24	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.3**

(a) Each boilers uses 1303 gallons per hour at 110% or 178 MMbtu input (provided by Paul Parker on 9-12-12). Hour calculation uses 1184 gph as 100%.

(b) Allowable Emissions are from table A1302A of Permit P100-R2M4.

(c) Meets condition A1307.A, monitoring condition 1, of Title V Permit P100-R2M4

Data Reviewed By: V. Carretti, 1/10/2022 (July-Dec)

Monthly Average Hourly Emissions Rate 2021 (pph)

Unit TA-3-22-CT-1

(Required by Condition A1307.A of Title V Permit P100-R2M4)

Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Totals
TA-3 Combustion Turbine	NOx	12.58	0.00	12.07	12.56	0.00	10.37	10.85	10.72	10.84	11.68	11.67	11.74	**23.8**
	SOx	0.87	0.00	0.84	0.87	0.00	0.72	0.75	0.74	0.75	0.81	0.81	0.81	**1.7**
	TSP	1.69	0.00	1.63	1.69	0.00	1.40	1.46	1.44	1.46	1.57	1.57	1.58	**1.9**
	PM-10	1.69	0.00	1.63	1.69	0.00	1.40	1.46	1.44	1.46	1.57	1.57	1.58	**1.9**
	PM-2.5	1.69	0.00	1.63	1.69	0.00	1.40	1.46	1.44	1.46	1.57	1.57	1.58	**1.9**
	CO	2.62	0.00	2.51	2.61	0.00	2.16	2.26	2.23	2.25	2.43	2.43	2.44	**29**
	VOC	0.55	0.00	0.53	0.55	0.00	0.45	0.47	0.47	0.47	0.51	0.51	0.51	**0.6**

(a) Meets permit condition A1307.A, Monitoring Condition 2 of Title V Permit P100-R2M4.

12-Month Rolling Emission Rate (tpy)

Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Allowable Emissions
TA-3 Combustion Turbine	NOx	8.841	8.841	10.127	10.472	10.472	10.560	14.016	17.331	20.363	22.981	23.824	23.409	**59.4**
	SOx	0.613	0.613	0.702	0.726	0.726	0.732	0.971	1.201	1.411	1.593	1.651	1.622	**4.2**
	TSP	1.190	1.190	1.364	1.410	1.410	1.422	1.887	2.334	2.742	3.095	3.208	3.152	**4.8**
	PM-10	1.190	1.190	1.364	1.410	1.410	1.422	1.887	2.334	2.742	3.095	3.208	3.152	**4.8**
	PM-2.5	1.190	1.190	1.364	1.410	1.410	1.422	1.887	2.334	2.742	3.095	3.208	3.152	**4.8**
	CO	1.838	1.838	2.106	2.177	2.177	2.196	2.914	3.603	4.234	4.778	4.953	4.867	**72.3**
	VOC	0.385	0.385	0.441	0.456	0.456	0.460	0.611	0.755	0.887	1.001	1.038	1.020	**1.5**

(a) Calculation uses rolling fuel use numbers.

AI 856 | Los Alamos National Laboratory

Operating Permit P100-R2M4

Monitoring Period July 1–December 31, 2021

ATTACHMENT A1307.B.

TA-03 Power Plant

Boiler Fuel Use and Hours of Operation

2021 TA-3 Power Plant Fuel Use Totals

Month	TA-3-22-1 Power Plant[b] Boiler # 1 (Edgemoor Iron Works, 210 mmBtu/hr)		TA-3-22-2 Power Plant[b] Boiler # 2 (Edgemoor Iron Works, 210 mmBtu/hr)		TA-3-22-3 Power Plant[b] Boiler # 3 (Union Iron Works, 210 mmBtu/hr)		Monthly Totals All Boilers	
	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	0	0	234	0	58,317	1,147	58.55	1147
February	0	0	5,404	0	23,708	2,814	29.11	2814
March	0	0	864	0	39,090	1,635	39.95	1635
April	0	0	2,160	0	27,989	855	30.15	855
May	0	0	0	0	16,490	0	16.49	0
June	0	0	0	0	11,014	0	11.01	0
July	0	0	891	0	7,789	0	8.68	0
August	0	0	11,471	0	0	0	11.47	0
September	0	0	5,579	0	0	0	5.58	0
October	0	0	11,874	0	10,427	0	22.30	0
November	0	0	5	0	33,814	0	33.82	0
December	0	0	764	0	39,077	0	39.84	0
Jan. - June	0	0	8,662	0	176,609	6,451	185	6,451
July - Dec.	0	0	30,584	0	91,107	0	122	0
Annual Totals:	0	0	39,246	0	267,716	6,451	307	6,451

TA-3 Power Plant Hours of Operation

Month	Hours Natural Gas			Hours Fuel Oil			12-Month Rolling Total Hours All Boilers
	Boiler 1	Boiler 2	Boiler 3	Boiler 1	Boiler 2	Boiler 3	
January	0.0	0.0	909.8	0.000	0.000	0.969	9296.5
February	0.0	216.9	448.5	0.000	0.000	2.377	8997.6
March	0.0	17.1	729.8	0.000	0.000	1.381	9002.0
April	0.0	50.9	730.4	0.000	0.000	0.722	9063.6
May	0.0	0.0	696.0	0.000	0.000	0.000	9015.8
June	0.0	0.0	667.0	0.000	0.000	0.000	8962.8
July	0.0	43.6	543.5	0.000	0.000	0.000	8806.5
August	0.0	602.5	0.0	0.000	0.000	0.000	8665.9
September	0.0	270.9	0.0	0.000	0.000	0.000	8217.0
October	0.0	373.8	288.9	0.000	0.000	0.000	8135.7
November	0.0	0.0	719.9	0.000	0.000	0.000	8132.5
December	0.0	19.6	743.0	0.000	0.000	0.000	8077.5

Data Reviewed By: V. Carretti, 1/10/2022 (July-Dec)

12 Month Rolling Fuel Totals For Each TA-3 Power Plant Boiler - 2021

Month	Boiler 1		Boiler 2		Boiler 3		All Boilers	
	Natural Gas (mmscf)	Fuel Oil (gal.)	Natural Gas (mmscf)	Fuel Oil (gal.)	Natural Gas (mmscf)	Fuel Oil (gal.)	Natural Gas (mmscf)	Fuel Oil (gal.)
January	0.00	0	55.56	0	293.55	1,147	349.11	1,147
February	0.00	0	55.05	0	280.76	3,961	335.81	3,961
March	0.00	0	55.91	0	284.59	5,596	340.50	5,596
April	0.00	0	56.34	0	285.93	6,451	342.28	6,451
May	0.00	0	49.64	0	291.20	6,451	340.84	6,451
June	0.00	0	49.64	0	287.53	6,451	337.17	6,451
July	0.00	0	49.29	0	282.59	6,451	331.88	6,451
August	0.00	0	47.14	0	282.59	6,451	329.73	6,451
September	0.00	0	37.80	0	282.59	6,451	320.39	6,451
October	0.00	0	45.31	0	274.44	6,451	319.75	6,451
November	0.00	0	40.85	0	275.22	6,451	316.07	6,451
December	0.00	0	39.25	0	267.72	6,451	306.96	6,451
						Permit Limits:	1000 MMscf	500,000 gal

AI 856 | Los Alamos National Laboratory

Operating Permit P100-R2M4

Monitoring Period July 1–December 31, 2021

ATTACHMENT A1307.C.

TA-03 Power Plant

Turbine Fuel Use and Hours of Operation

2021 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	0	0.0	739	2.0	5437	24.0	0	0.0	0	0.0	5342	24.0	4753	24.0	4961	24.0	5691.6	24.0	5529.5	22.0	5762.6	24.0
2	0	0.0	0	0.0	0	0.0	3256	11.0	0	0.0	0	0.0	5656	24.0	5092	24.0	4936	24.0	5554.3	23.0	279.49	1.0	5529.5	24.0
3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5336	24.0	5451	24.0	4727	24.0	0	0.0	0	0.0	5529.6	24.0
4	3846	17.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5149	24.0	5271	24.0	4653	24.0	0	0.0	0	1.0	5529.4	24.0
5	6007	24.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5298	24.0	5527	24.0	5083	24.0	0	0.0	3111.4	15.0	5529.5	24.0
6	6007	24.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5292	24.0	5002	24.0	5021	24.0	2315.6	11.0	5274.8	24.0	5529.5	24.0
7	3521	12	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5338	24.0	5056	24.0	4918	24.0	5412.5	24.0	5485.8	24.0	5529.6	24.0
8	5938	24.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4935	24.0	5076	24.0	4937	24.0	5273.4	24.0	5529.5	24.0	5529.5	24.0
9	6200	24.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4789	24.0	4654	24.0	4873	24.0	5301.6	24.0	5529.4	24.0	5529.5	24.0
10	6203	24.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5010	24.0	5215	24.0	5041	24.0	5732.2	24.0	5331.6	22.0	5323.5	22.0
11	5794	24.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5811	24.0	5197	24.0	4636	24.0	5471.4	24.0	5529.6	24.0	0	0.0
12	6250	24.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4943	24.0	5143	24.0	5057	24.0	5669.6	24.0	5529.5	24.0	0	0.0
13	6107	24.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5123	24.0	5219	24.0	0	0.0	5752.9	24.0	5529.4	24.0	0	0.0
14	5601	24.0	0	0.0	0	0.0	4	0.0	0	0.0	0	0.0	5262	24.0	4965	24.0	0	0.0	5332.6	22.0	5529.5	24.0	0	0.0
15	4852	18.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5199	24.0	5058	23.0	0	0.0	3120.5	13.0	5529.5	24.0	0	0.0
16	6178	24.0	0	0.0	0	0.0	88	0.0	0	0.0	0	0.0	5152	24.0	0	0.0	0	0.0	5593	24.0	5529.5	24.0	0	0.0
17	5948	24.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4991	24.0	0	0.0	1653	10.0	5499	24.0	5529.5	24.0	0	0.0
18	6116	23.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5070	22.0	0	0.0	5058	24.0	5333.5	24.0	5930.3	24.0	0	0.0
19	0	0.0	0	0.0	42	0.0	1833	8.0	0	0.0	0	0.0	3	0.0	236	3.7	4930	24.0	5482.3	24.0	5529.5	24.0	0	0.0
20	0	0.0	0	0.0	0	0.0	2862	12.0	0	0.0	0	0.0	0	0.0	1923	10.0	5239	24.0	5611.1	24.0	5529.5	24.0	0	0.0
21	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5280	24.0	5167	24.0	5544.8	24.0	5529.5	24.0	0	0.0
22	0	0.0	0	0.0	3236	14.0	95	0.0	0	0.0	0	0.0	39	0.0	5282	24.0	5572	24.0	4555.5	19.0	5529.5	24.0	0	0.0
23	3809	18.0	0	0.0	5214	22.0	0	0.0	0	0.0	0	0.0	3069	15.0	5066	24.0	5418	24.0	0	0.0	5529.5	24.0	0	0.0
24	5731	24.0	0	0.0	1800	7.0	0	0.0	0	0.0	0	0.0	4943	24.0	5211	24.0	5346	24.0	0	0.0	5529.5	24.0	0	0.0
25	6759	24.0	0	0.0	5785	24.0	0	0.0	0	0.0	0	0.0	5323	24.0	4882	24.0	4837	24.0	0	0.0	5617.1	24.0	0	0.0
26	6308	24.0	8	0.0	5623	24.0	0	0.0	0	0.0	0	0.0	5050	24.0	4328	19.0	5812	24.0	1659.5	8.0	5532.1	24.0	0	0.0
27	4234	19.0	4	0.0	5750	24.0	0	0.0	0	0.0	0	0.0	4920	24.0	2365	11.0	5676	24.0	5670.1	24.0	5529.6	24.0	0	0.0
28	5785	24.0	0	0.0	5609	24.0	0	0.0	0	0.0	35	0.0	5001	24.0	4915	24.0	4799	20.0	5610.6	24.0	5529.4	24.0	0	0.0
29	5470	24.0			5712	24.0	0	0.0	0	0.0	301	2.0	5260	24.0	5029	24.0	5912	24.0	5528.8	24.0	5529.5	24.0	0	0.0
30	5695	24.0			5549	24.0	101	0.0	0	0.0	3155	15.0	4840	24.0	5010	24.0	5760	24.0	5432.3	24.0	5529.5	24.0	0	0.0
31	2320	9.0			5848	24.0			0	0.0			4713	24.0	5080	24.0			5529.5	24.0			0	0.0
Sum	130679	524	12	0	50907	213	13676	55	0	0	3491	17	136857	637	131286	619	130022	606	127678	552	147153	637	55322	238
12 Mo. Rolling Averages Mscf	350,131		350,143		401,050		414,726		414,726		418,217		555,074		686,360		806,465		910,156		943,515		927,083	
12 Mo. Rolling Averages MMscf	**350.1**		**350.1**		**401.1**		**414.7**		**414.7**		**418.2**		**555.1**		**686.4**		**806.5**		**910.2**		**943.5**		**927.1**	
12 Mo. Rolling Averages Hours	1,445		1,445		1,658		1,713		1,713		1,730		2,367		2,986		3,548		3,981		4,139		4,098	

First Half Gas Use:	**199 MMscf**	**2020 High Heat Value (HHV) for natural gas[k] =**	**0.0010533 MMBtu/scf**
Second Half Gas Use:	**728 MMscf**	**Total Annual Hours:**	**4098.13 Hours**
Annual Gas Use:	**927 MMscf**	**Percent of Year Run:**	**47%**
Permit Limit (12 mo rolling):	**1400 MMscf**		

Reviewed by/date: V. Carretti, 1/10/2022 (July-Dec)

ATTACHMENT A1307.D.

TA-03 Power Plant

Turbine Operating Logs

1320

Utilities and Institutional Facilities

Date: JULY 01 2021

CGTG HOURLY READING LOG

MST / (MDT) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes: PSS UNAVAILABLE

	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	110	106	108	110	110	108	110	105	100	105	116	105	100	103	101	99	102	103	100	112	108	104	108	116
4	Instrument Temperature	TI-001	deg C		20	50	20	20	20	20	20	20	20	20	21	21	22	22	24	24	24	22	22	25	24	24	24	24	24	24
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	18	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	100	102	106	110	112	117	110	105	99	98	118	115	105	106	80	105	103	110	107	106	100	102	110
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	61	61	61	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	36	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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%	33	33	33	33	33	33	37	37	37	37	37	37	37	37	33	30	30	33	33	33	33	34	34	34
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	976	982	1006	998	1002	991	584	962	938	931	913	893	893	947	961	904	884	889	904	909	921	932	936	933
23	Mw Output		MW			27	23.3	23.3	23.5	23.5	23.3	23.6	23.4	23.0	22.9	22.2	21.7	21.2	21.2	22.1	22.9	21.5	21.0	21.6	21.7	21.7	22.1	22.3	22.3	22.3
24	80% Base Load Minimum		MW				19.0	19.0	19.0	19.1	19.1	19.1	19.0	18.7	18.4	18.3	18.0	17.8	17.8	17.8	18.8	18.0	17.7	18.1	18.1	18.1	18.2	18.5	18.5	18.5
25	Running Hours (unit overview)						6175	6176	6177	6178	6179	6180	6181	6182	6183	6184	6185	6186	6187	6187	6188	6189	6190	6191	6192	6193	6194	6195	6196	6197
26	Ambient Temperature	T1 inlet					59	59	58	58	57	57	58.3	62.4	66.2	67.5	71.4	74.8	74.6	69.0	61.0	71.8	75.0	72	70	69	67	66	66	65
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	60	60	60	60	61	61	60	59	57	59	59	59	58	58	59	61	61	60	60	60	60	59	59	59
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: JULY 01 2021 Signature:

63 1/1800

3474 13 2020

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	3	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	F	E	E	E	E	E	E	E	E	R	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	45	45	45	45	44	44	45	45	45	45	45	45	45	44	44	44	44	44	43	43	43	43	43	43
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	E	F	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	F	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	84	84	83	83	83	83	82	83	82	82	82	82	83	83	83	82	82	83	83	83	83	84
Stage Disch. Press	PI-2101	psig		238	285	251	251	250	250	250	250	250	250	250	251	251	252	252	252	251	253	253	253	253	253	253	253	253	252
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	248	247	247	247	246	246	247	248	247	248	248	248	248	249	249	249	250	250	249	248	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	564	564	564	563	564	564	564	564	563	563	563	564	564	563	563	564	564	564	565	564	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	561	560	560	559	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		60	60	60	59	59	59	59	59	59	59	59	59	59	57	59	59	59	59	59	60	60	60	60	60
Lube Oil Temp	TE-1584	deg		150	170	164	164	164	164	165	165	164	164	164	164	164	165	165	164	162	162	163	163	163	163	164	164	163	163
Final Discharge Temp	TE-2120	deg		110	150	97	96	96	96	95	95	95	100	103	105	106	112	112	111	97	107	113	112	110	108	106	104	104	104
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	228	228	228	227	227	227	227	231	231	233	235	235	234	228	232	233	237	241	231	230	230	228	228
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	228	227	227	227	225	225	225	226	230	233	236	240	240	240	228	235	240	240	235	235	233	233	231	231
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	227	226	226	226	226	225	225	228	229	231	232	237	237	226	229	231	231	228	229	228	228	226	226
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	228	228	228	226	227	226	225	227	231	234	236	240	240	240	226	235	240	240	236	236	234	234	232	231
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	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	05	.05	05	05	05	05	05	57	05	05	0	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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	JULY 01 2021
SIGNATURE	
Mid Shift	1237107
Days Shift	1234105 1234103
Notes	

Utilities and Institutional Facilities

Date: JULY 02 2021

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: PSS UNAVAILABLE

	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	110	108	106	112	110	108	114	106	112	112	106	112	108	110	112	110	110	108	110	111	109	107	110	108
4	Instrument Temperature	TI-001	deg C		20	50	22	22	22	22	21	21	22	22	24	24	26	26	26	24	24	29	30	30	30	27	25	23	22	22
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18.8	18.8	18.8	18.8	18.8	19	18.8	18.8	18.8	18.8	18.8	18.8	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	111	108	110	112	106	109	99	112	108	107	108	104	107	101	112	100	101	108	109	111	106	111	99	111
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	62	62	60	62	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	35	35	37	36	37	37	35	37	35	37	35	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	76	76	76	76	76	76	76	75	75	76	76	76	75	75	74	74	74	74
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	N	N	N	N	N	N	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	N	N	N	N	N	N
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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%	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	34	33	33	33	33	33	33	34	34
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				Y	Y	Y	Y	Y	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	953	967	964	966	964	967	950	946	930	917	908	889	917	933	897	860	843	875	901	921	953	965	973	976
23	Mw Output		MW			27	22.8	23.0	23.0	23.0	23.0	23.1	22.7	22.5	22.2	21.8	21.6	21.1	21.7	22.2	21.2	20.4	19.9	20.5	21.4	21.9	22.7	23.4	23.4	23.1
24	80% Base Load Minimum		MW				18.7	18.8	18.8	18.8	18.8	18.8	18.6	18.7	18.3	18.0	17.9	17.7	18.1	18.4	17.8	17.4	17.1	17.5	17.9	18.2	18.3	18.7	18.8	18.9
25	Running Hours (unit overview)						6198	6199	6200	6201	6202	6203	6204	6205	6206	6207	6208	6209	6210	6211	6212	6213	6214	6215	6216	6217	6218	6219	6220	6221
26	Ambient Temperature	T1 inlet					63	62	62	62	61	61	64	65	68	70	72	74	69	67	73	78	82	76	72	69	65	62	61	60
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	59	59	59	59	59	60	61	60	59	58	58	59	59	60	60	60	60	60	61	61	61	62	62	62
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: JULY 02 2021 Signature:

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-903	%		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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	30		FULL	43	43	43	43	43	43	42	42	42	42	42	42	42	41	41	41	41	41	41	41	41	41	41	41
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	83	84	84	83	83	83	83	83	83	83	83	93	83	93	82	87	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	252	252	252	252	252	252	252	253	253	253	252	252	254	254	254	254	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	249	248	249	248	248	249	248	248	248	249	249	249	249	248	250	256	251	250	249	249	249	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	564	565	564	564	564	564	564	564	564	564	564	564	564	563	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	559	560	560	560	560	559	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		60	60	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1884	deg		150	170	163	164	164	164	163	163	164	163	163	163	163	164	164	163	162	163	164	163	163	163	163	163	164	164
Final Discharge Temp	TE-2120	deg		110	150	102	100	100	99	99	99	101	104	107	110	112	112	109	107	112	115	114	118	110	104	103	101	101	99
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	227	227	228	228	228	228	229	230	232	233	233	234	231	229	234	236	236	236	234	231	230	229	229	229
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	230	230	228	228	228	228	229	234	238	237	239	239	236	232	239	242	240	240	239	235	231	230	231	229
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	225	228	228	228	226	226	226	227	229	228	230	231	229	227	231	233	233	233	231	228	226	226	225	225
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	231	230	230	230	229	229	230	233	235	237	240	240	237	233	239	242	240	240	239	233	231	230	230	229
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.03	.03	.04	.04	.04	.04	.04	.04	.04	.05	.05
Compresseor Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.03	.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.												$59																	
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8							555																	
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20							544																	

DATE JULY 02 2021

SIGNATURE

Mid Shift

Days Shift

Notes

Utilities and Institutional Facilities

Date: 7-3-2024

CGTG HOURLY READING LOG

MST / MDT (circle one)
Time Gas Introduced (Turbine Rolling):
Time of Turbine Online (Brkr Closed):
Time Turbine Offline (Brkr Open):
Time No Gas Flow:

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	106	110	107	109	108	109	106	110	108	108	110	106	106	110	108	112	112	110	108	110	106	111	107	110
4	Instrument Temperature	TI-001	deg C		20	50	22	22	22	22	22	22	22	22	23	24	26	28	29	30	28	27	29	28	28	27	26	26	24	23
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18.8	18.6	18.8	18.8	19	19	19	18.8	19	18.8	18.8	18.8	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	110	108	111	107	108	107	105	104	111	105	111	103	101	112	100	111	102	104	106	109	111	110	103	109
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL	5/8	5/8	5/8	5/8	5/8	FR	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	60	60	60	60	60	60	60	62	60	62	62	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	36	36	36	36	36	37	36	36	36	37	36	36	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	74	74	74	74	73	73	68	68	68	68	68	68	68	68	68	68	68	68	68	70	70	70	70	70
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	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	Y	Y	Y	Y	Y	Y	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%	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	33	33	33	33	33
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	972	963	970	972	971	971	962	950	933	926	898	875	864	874	875	912	861	892	887	904	909	912	933	951
23	Mw Output		MW			27	23.0	22.9	23.0	23.0	23.1	23.1	22.9	22.6	22.2	22.0	21.3	20.8	20.6	20.7	20.7	21.6	20.4	21.2	21.1	21.5	21.6	21.7	22.2	22.5
24	80% Base Load Minimum		MW				18.8	18.7	18.8	18.8	18.9	18.9	18.7	18.5	18.3	18.1	17.8	17.5	17.4	17.5	17.5	18.1	17.3	17.8	17.8	18.0	18.1	18.1	18.4	18.6
25	Running Hours (unit overview)						6222	6223	6224	6225	6226	6227	6228	6229	6230	6230	6232	6233	6233	6235	6236	6236	6237	5238	6239	6240	6241	6242	6243	6244
26	Ambient Temperature	T1 inlet					61	62	62	61	61	60	63	65	67	69	73	77	78	77	77	70	79	73	74	71	70	70	67	64
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	62	62	62	62	62	62	62	61	60	60	60	60	60	60	61	61	61	61	61	61	61	61	62	62
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-3-2024 Signature: mids Bob Ag

Dag shift — Josh Cruz

COTG 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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	41	41	41	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39	39
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	253	252	252	252	252	252	252	252	253	254	257	254	254	257	255	254	254	254	254	254	254	253
2nd Stage Inlet Press	PI-2200	psig		257	285	249	249	249	249	249	249	249	249	249	249	249	250	250	250	250	249	251	250	250	250	250	250	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	57	59	59	59	59	59	59	58	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	164	164	164	164	161	160	163	163	163	164	164	165	165	164	163	163	163	164	164	164	164	163	163
Final Discharge Temp	TE-2120	deg		110	150	99	99	99	99	99	99	100	104	106	109	113	116	117	118	116	108	118	118	117	110	109	106	104	102
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	229	228	228	229	229	227	229	230	232	234	235	237	236	235	232	234	234	233	231	231	231	230	229
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	228	228	229	228	228	228	228	227	239	236	240	243	245	246	243	236	241	240	246	236	235	232	231	231
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	225	225	225	224	224	225	225	227	227	229	231	232	233	233	232	230	236	238	233	229	228	227	227	226
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	229	229	229	229	229	229	229	232	234	237	240	243	245	246	243	237	243	240	240	238	236	235	233	232
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.03	.04	.04	.03	.03	.03	.03	.03	.04	.03	.03	.04	.04	.04	.04	.04	.04	.03	.03	.04	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.01	.01	.05	.05	.05	.01	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.04	.04	.01	.01	.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.												560								560									
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8							553								556									
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20							543								545									

DATE 7-3-2021

SIGNATURE

Mid Shift Bob Hay

Days Shift Josh Ann

Notes

Utilities and Institutional Facilities

Date: 7-4-2021

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	108	109	109	111	110	110	110	108	108	108	112	106	110	110	110	108	110	109	110	112	109	111	110
4	Instrument Temperature	TI-001	deg C		20	50	23	23	23	23	23	23	22	24	26	27	29	30	32	31	32	34	34	34	33	32	30	29	27	27
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18.8	18.8	18.8	19	19	19	19	19	19	19	18.8	18.8	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	111	108	107	104	107	110	111	112	100	111	109	102	102	101	104	104	104	104	104	102	101	106	109	112
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	62	60	60	62	62	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	35	36	36	36	37	36	36	37	39	39	37	36	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	68	68	68	68	68	68	68	68	68	70	70	70	70	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	33	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	33	33	33	36	39	38
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	954	924	946	948	959	967	939	920	899	882	870	851	836	859	831	819	824	822	842	862	870	880	887	901
23	Mw Output		MW			27	22.6	22.0	22.1	22.6	22.7	23.0	22.3	21.9	21.4	20.9	20.6	20.1	19.7	20.2	19.7	19.4	19.5	19.4	19.9	20.4	20.7	20.9	21.1	21.3
24	80% Base Load Minimum		MW				18.6	18.3	18.7	18.6	18.7	18.8	18.4	18.2	17.9	17.6	17.4	17.1	16.9	17.2	16.8	16.7	16.8	16.8	17.2	17.4	17.6	17.7	17.8	17.9
25	Running Hours (unit overview)						6245	6246	6247	6248	6249	6250	6251	5253	6253	6254	6255	6256	6257	6258	6259	6260	6261	6262	6263	6264	6265	6266	6267	6268
26	Ambient Temperature	T1 Inlet					64	68	67	64	63	61	66	69	72	75	78	81	84	80	85	86	85	85	81	78	76	74	74	72
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	62	62	62	62	62	62	61	61	60	59	59	60	60	60	60	60	60	60	60	60	60	61	61	62
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-4-2021 Signature: MIDS / Rob

Dog dump - Jack

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	39	39	39	39	39	39	39	39	38	38	38	38	38	38	37	37	39	37	37	37	36	36	36	36
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	254	253	253	253	253	253	253	253	257	254	254	254	255	254	255	255	254	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	249	249	249	249	249	249	250	251	251	250	251	251	251	251	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	563	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	58	58	59	58	58	58	58	58	58	58	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	164	164	164	164	164	163	163	163	163	164	165	166	166	166	166	166	166	165	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	102	104	103	102	102	102	105	107	110	113	116	120	123	119	126	125	125	125	123	119	116	115	113	112
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	229	230	230	229	229	228	227	230	232	234	236	238	239	239	238	239	239	238	237	235	234	234	233	233
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	231	233	232	231	231	231	230	234	237	240	244	246	250	244	250	251	250	251	248	244	241	240	238	238
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	228	227	226	226	226	225	227	229	231	233	235	236	232	235	236	235	232	231	231	231	231	230	230
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	232	234	233	232	232	232	231	235	238	240	244	246	250	244	251	251	250	249	249	245	243	241	240	239
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.03	.04	.03	.04	.04	.04	.04	.04	.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.													560								560								
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								556								556								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								544								546								

DATE 7-4-2021

SIGNATURE

Mid Shift

Days Shift

Notes

Date: 7-5-2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

UI-LOG-033-R4
October 1, 2020

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	110	108	111	112	108	106	110	108	108	108	106	108	106	112	110	112	112	110	110	109	108	111	106	110
4	Instrument Temperature	TI-001	deg C		20	50	27	23	23	25	24	23	22	24	25	26	27	29	31	31	30	30	30	29	29	24	24	24	24	24
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18.8	18.8	18.8	19	19	19	19	20	18.8	18.8	18.8	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	108	103	106	106	103	103	107	104	102	106	112	107	101	103	100	100	104	107	111	104	109	103	107
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	62	62	62	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	35	35	35	35	35	35	36	35	36	36	35	36	37	37	37	37	37	37	36	36	36	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	68	68	70	68	68	68	68	69	69	69	68	68	68	68	68	68	68	68	68
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	33	33	33	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	33	33	33	34	34
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	921	946	947	948	947	943	937	918	924	911	899	874	847	847	862	865	879	864	873	944	941	940	937	959
23	Mw Output		MW			27	21.9	22.4	22.5	22.6	22.5	22.4	22.3	21.8	21.9	21.6	21.2	20.7	20.0	20.1	20.3	20.4	20.7	20.5	20.7	22.4	22.3	22.3	22.2	22.6
24	80% Base Load Minimum		MW				18.2	18.5	18.6	18.6	18.6	18.6	18.4	18.1	18.1	17.9	17.7	17.4	17.0	17.1	17.3	17.4	17.6	17.6	17.6	18.5	18.6	18.5	18.4	18.7
25	Running Hours (unit overview)						6269	6270	6271	6272	6273	6274	6275	6276	6277	6278	6279	6280	6281	6282	6283	6284	6285	6286	6287	6288	6289	6290	6291	6292
26	Ambient Temperature	T1 inlet					69	65	64	64	64	64	66	69	70	72	74	78	82	81	79	78	76	76	76	65	65	65	66	63
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	62	62	62	63	63	63	63	63	61	61	61	61	61	62	62	63	63	63	63	63	64	64	64	64
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.6	6.0	6.0	6.0	6.6

Date: 7-5-2021

Signature: (MIDS) Bob Lang

Op Supv - John Acree

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	36	36	36	36	36	35	35	35	35	35	35	35	35	39	35	35	35	35	35	34	34	34	34	34
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	254	253	253	253	253	253	253	254	254	254	255	254	258	254	254	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	249	249	249	249	250	249	250	249	249	250	250	250	251	251	251	251	251	251	250	250	250	250	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	563	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	559	559	559	559	559	560	560	560	560	559	559	560	560	560	560	560	560	560	559	559	560	559	559
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	58	58	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	163	163	163	164	164	165	166	166	166	164	164	163	163	163	164	164	164	164
Final Discharge Temp	TE-2120	deg		110	150	112	109	105	104	104	103	103	106	108	110	114	116	119	120	119	117	116	116	116	105	105	103	102	102
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	233	228	227	227	224	228	238	230	231	233	235	236	238	238	236	236	235	235	234	229	228	227	226	226
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	238	231	231	230	230	231	237	235	235	239	241	244	246	246	246	244	243	243	243	232	232	231	230	229
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	230	226	226	226	225	226	226	227	227	230	232	233	235	235	233	233	233	233	233	227	227	226	226	225
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	239	232	232	233	232	232	232	235	235	239	241	244	246	246	246	244	243	243	243	233	233	231	231	230
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.03	.03	.04	.04	.04	.03	.03	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.01	.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.														559															
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8									555															
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20									554															

DATE 7-5-2024

SIGNATURE

Mid Shift Bob Stacy

Days Shift John Curtis

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 7-6-2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	108	110	109	110	111	111	110	110	106	108	114	110	110	108	108	112	112	110	111	109	109	110	108	111
4	Instrument Temperature	TI-001	deg C		20	50	24	24	24	24	24	24	20	22	25	26	28	30	31	32	31	30	29	28	26	24	23	23	23	23
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18.8	19	18.8	19	19	19	19	19	16.8	18.8	19.8	18.8	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	103	108	109	104	107	108	100	111	100	108	105	101	103	103	105	100	104	101	104	107	107	103	107	110
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL	5/8	5/8	5/8	5/8	5/8	4/6	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	60	60	60	62	62	60	60	62	62	62	60	60	60	60	60	60	61	61	61	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	25	35	35	35	35	36	36	35	36	36	37	37	37	37	37	36	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	69	68	68	69	68	69	70	70	68	68	68	68	68	68	68	68	68
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	33	34	34	34	34	34
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	6	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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	954	956	962	963	970	977	958	940	910	895	882	855	842	838	856	852	888	914	940	946	951	949	953	958
23	Mw Output		MW			27	22.7	22.7	22.9	22.9	23.0	23.2	22.8	22.3	21.6	21.3	20.9	20.2	19.9	19.8	20.4	20.2	21.1	21.8	22.4	22.5	22.6	22.5	22.7	22.6
24	80% Base Load Minimum		MW				18.7	18.7	18.8	18.8	18.9	19.0	18.7	18.5	18.0	17.8	17.6	17.2	17.0	16.9	17.3	17.3	17.8	18.2	18.5	18.4	18.6	18.6	18.6	18.7
25	Running Hours (unit overview)						6293	6294	6295	6296	6297	6298	6299	6300	6302	6302	6303	6304	6305	6306	6307	6308	6309	6310	6311	6312	6313	6314	6315	6316
26	Ambient Temperature	T1 inlet					63	63	62	62	61	59	62	65	70	73	76	80	83	83	79	79	73	69	65	64	64	64	64	63
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-220	%			70%	63	63	63	63	63	63	64	63	61	60	60	60	61	61	62	62	62	63	64	64	64	64	64	64
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-6-2021 Signature: MIDS Bob Fry

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	34	34	34	34	34	33	33	33	33	33	33	32	32	32	32	32	32	32	32	32	32	32	31	31
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	E	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	97	87	83	88	83	87	83	83	83	81	83	83	83	83	82	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	254	253	253	253	252	252	257	252	252	253	251	254	254	254	254	254	254	253	253	253	253	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	249	249	248	248	249	249	249	250	250	251	251	250	250	249	249	249	249	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	559	559	559	559	559	560	560	559	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	58	58	58	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	164	163	163	163	163	164	164	163	165	165	165	166	166	167	165	165	165	164	164	164	164	164	163
Final Discharge Temp	TE-2120	deg		110	150	102	102	102	102	102	100	100	104	110	111	114	116	120	124	120	120	116	114	108	103	103	105	103	102
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	226	227	226	226	225	225	225	226	229	231	233	235	237	239	235	236	233	231	226	226	227	227	227	226
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	229	229	229	229	228	227	226	228	234	239	241	243	247	251	247	246	241	240	227	230	231	231	230	229
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	225	225	225	225	224	224	223	224	227	229	230	232	234	235	232	233	231	229	224	224	225	225	225	224
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	230	230	230	230	229	228	227	229	234	239	240	243	246	250	247	246	241	239	228	229	231	231	231	230
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.03	.03	.03	.04	.04	.04	.04	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.01	.01	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.04	.01	.01	.01	.01	.01	.01
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				555					555															
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				546					544															

DATE 7-6-2021

SIGNATURE

Mid Shift Bob Lang

Days Shift John Arnett

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 7-7-2024

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	109	108	110	109	107	111	106	112	110	110	112	110	110	108	108	106	110	109	110	109	111	109	110	108
4	Instrument Temperature	TI-001	deg C		20	50	23	23	23	23	21	21	21	22	24	26	28	29	30	30	30	31	31	30	30	26	25	24	24	23
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18.6	18.8	18.8	19	19	19	19	19	18.8	18.8	18.8	18.8	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	108	110	104	107	109	108	99	112	111	104	103	100	100	109	101	101	100	104	107	108	107	111	109	111
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	62	62	62	60	60	62	62	61	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	37	35	36	35	36	36	36	38	37	38	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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%	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	33	33	33	33	33
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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	954	967	972	970	969	975	953	948	923	905	882	863	868	863	858	848	840	863	871	894	902	906	936	936
23	Mw Output		MW			27	22.7	23.0	23.1	23.0	23.0	23.1	22.7	22.5	22.0	21.5	21.0	20.5	20.6	20.5	20.4	20.2	20.1	20.2	20.7	21.3	21.5	21.7	22.1	22.3
24	80% Base Load Minimum		MW				18.6	18.2	18.8	18.9	18.9	18.9	18.6	18.5	18.2	17.9	17.6	17.4	17.4	17.3	17.3	17.2	17.1	17.3	17.6	17.9	18.0	18.1	18.4	18.5
25	Running Hours (unit overview)						6317	6318	6319	6320	6321	6322	6323	6324	6325	6326	6327	6328	6329	6330	6331	6332	6333	6334	6335	6336	6337	6338	6339	6340
26	Ambient Temperature	T1 inlet					63	61	60	60	60	60	63	65	68	72	75	79	78	76	79	81	81	76	76	73	71	69	66	66
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	64	64	64	64	64	64	64	63	62	62	62	63	62	63	63	63	64	64	64	65	61	64	64	64
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date:

Signature: MIPS Bot As day shift

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	A4H-803	%		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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	31	31	31	31	31	31	30	30	30	30	30	30	30	30	30	29	27	29	29	29	29	29	29	28
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	E	E	E	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	252	252	252	252	252	252	253	253	253	254	254	254	255	255	254	256	255	254	254	254	253
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	248	249	249	249	248	248	249	249	250	250	251	250	251	251	250	250	250	250	250	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	563	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	559	559	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	58	58	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	165	163	163	163	163	163	164	164	165	165	166	165	165	165	165	166	161	164	163	163	162
Final Discharge Temp	TE-2120	deg		110	150	102	102	102	101	100	100	102	103	107	110	113	117	118	121	121	122	121	120	121	115	111	107	106	104
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	226	226	225	225	225	225	226	227	228	231	234	235	235	235	237	236	237	236	236	232	229	229	229	228
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	229	229	229	226	226	226	229	228	232	235	239	244	246	246	247	247	248	249	249	244	237	235	232	232
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	224	224	223	223	223	223	224	224	225	228	231	232	233	237	234	234	234	234	234	231	227	227	226	226
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	230	230	229	229	228	228	229	229	232	235	239	244	246	246	247	247	248	247	247	244	237	235	233	232
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.04	.03	.04	.04	.03	.03	.04	.04	.04	.03	.03	.03	.04	.04	.04	.04	.04	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.01	.01	.05	.01	.01	.01	.03	.03	.04	.03	.04	.04	.03	.03	.03	.04	.04	.04	.04	.03	.03	.03	.03	.03
Take Once per Shift / at Full Load		psig		Max psid		.01	.01	.05	.01	.01	.01	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.04	.04	.05	.05	.05	.05
Natural Gas Comp.Discharge Press.						When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																								
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8					560									560										
Fuel Gas Supply Pressure	A63FTGST	50-42=psid			20					544									545										

DATE 1-7-2021

SIGNATURE

Mid Shift Bob Hoy

Days Shift Josh Arnold

Notes

178 60 1270971

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 7-8-2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	111	108	109	110	111	109	105	109	110	105	100	105	101	108	110	110	105	104	108	110	106	104	108	111
4	Instrument Temperature	TI-001	deg C		20	50	23	23	23	23	23	23	23	23	23	28	29	29	29	29	30	35	35	35	30	30	30	28	28	28
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	109	103	109	104	105	108	110	106	105	106	105	103	105	103	108	110	105	104	100	103	103	100	109	104
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	F	F	F	F	F	F
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	62	62	60	62	62	62	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	30	35	35	35	35	38	38	38	36	34	34	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	~	Y	Y	Y	Y	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%	33	34	34	34	34	34	34	34	34	34	30	33	30	30	30	33	33	33	33	33	33	33	33	33
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	938	949	950	592	953	960	928	927	901	898	697	831	833	803	789	794	820	843	856	854	856	894	888	896
23	Mw Output		MW			27	22.4	22.6	22.7	22.6	22.6	22.7	22.0	22.0	21.3	21.3	21.2	19.7	19.8	19.1	18.8	18.8	19.7	20.0	20.3	20.3	20.7	21	21.1	21.3
24	80% Base Load Minimum		MW				18.5	18.6	18.7	18.7	18.7	18.7	18.3	18.1	17.8	17.8	17.8	16.9	16.9	16.5	16.4	16.4	16.9	17.1	17.4	17.4	17.6	17.8	17.8	17.9
25	Running Hours (unit overview)						6341	6342	6343	6344	6345	6346	6347	6348	6349	6350	6351	6352	6353	6354	6355	6356	6357	6358	6359	6360	6361	6362	6363	6364
26	Ambient Temperature	T1 inlet					64	64	64	63	63	63	68.2	68.0	73.3	73.6	78.4	84.6	84.0	89.2	89.4	90.1	83.5	81.9	78.4	78.3	78.1	73.8	73	72.1
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	64	65	65	65	66	65	64	64	64	61	61	62	62	63	62	62	62	63	63	63	63	63	63	63
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-8-2021 Signature: BK

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	28	28	28	28	28	27	27	27	27	27	27	27	Full	Full	Full	Full	Full	Full	F	F	F	F	F	F
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	252	250	252	252	253	252	253	253	253	254	255	255	255	254	254	255	255	254	254	254	253
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	249	249	248	248	249	249	249	249	250	250	251	251	250	250	251	251	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	561	561	560	560	560	560	561	561	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	58	58	58	58	58	58	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	162	163	162	163	163	163	163	167	163	164	164	164	165	165	167	167	167	167	164	164	164	164	164	164
Final Discharge Temp	TE-2120	deg		110	150	104	104	103	103	108	103	106	106	110	113	113	117	122	122	127	127	127	127	118	118	117	115	111	110
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	228	226	228	226	228	227	227	230	231	231	231	235	236	240	240	241	241	233	232	232	230	230	230
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	232	232	232	230	230	230	238	236	234	237	237	237	248	246	251	251	251	251	242	241	240	238	236	236
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	226	224	226	224	224	224	227	227	224	228	226	235	238	237	237	237	237	231	230	230	228	227	227
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	232	232	231	230	230	230	230	236	234	237	234	237	248	246	251	251	251	251	243	241	240	238	237	236
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	.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	.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.										566																			
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8					555																			
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20					544																			

DATE	7-8-2021
SIGNATURE	
Mid Shift	Bob Ang
Days Shift	

Notes

1274111

1276862

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 7-9-21

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	109	107	113	110	107	109	110	105	104	100	103	104	109	100	105	105	100	113	108	112	114	108	112
4	Instrument Temperature	TI-001	deg C		20	50	28	24	24	22	22	20	24	24	29	29	32	32	35	35	39	39	32	31	30	30	28	28	28	28
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	18.8	18.8	18.8	18	18	18	18	18	18	19	19	19	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	101	112	108	104	100	105	105	104	100	106	105	100	111	106	112	104	102	108	100	104	100	106	110	104
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL	F	F	F	F	F	F	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	F	F	F	F	F	F
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	62	62	65	65	65	65	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	36	34	36	36	36	34	40	40	39	39	35	35	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
15	WELL Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	33	34	34	34	34	34	34	34	34	34	34	33	30	30	33	33	33	36	33	33	33	33	33	33
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	898	929	930	935	938	933	909	900	859	858	817	806	781	775	782	814	832	837	853	858	861	875	871	874
23	Mw Output		MW			27	21.3	22	22.1	22.2	22.3	22.2	21.8	21.5	20.5	20.4	19.5	19.2	18.6	18.4	18.5	19.3	19.8	19.9	20.3	20.5	20.6	21	20.9	21
24	80% Base Load Minimum		MW				17.9	18.3	18.4	18.4	18.5	18.4	18.1	18.0	17.4	17.4	16.7	16.5	16.3	16.1	16.2	16.7	17.0	17.1	17.4	17.5	17.5	17.7	17.7	17.7
25	Running Hours (unit overview)						6365	6366	6367	6368	6369	6370	6371	6372	6373	6374	6375	6376	6377	6378	6379	6380	6381	6382	6383	6384	6385	6386	6387	6388
26	Ambient Temperature	T1 inlet					71.9	67.5	66.7	66	65.5	66	69.8	71.8	78.8	78.4	86.5	88.9	91.2	92.5	91.9	87.3	82.4	81.9	78.8	77.4	76.6	74.1	74.8	74.5
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	63	63	63	63	63	63	62	62	61	60	61	61	61	60	61	62	63	63	63	63	63	64	64	65
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-9-21 Signature: A Wier

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	F	F	F	F	F	F	52	52	52	52	52	52	52	52	52	52	52	52	50	50	50	50	49	49
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	253	253	253	253	253	254	254	254	254	255	255	255	255	255	253	255	255	255	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	249	249	249	249	249	250	250	251	250	251	251	252	251	251	251	251	251	251	251	251	251
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	563	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	58	58	58	58	58	58	59	58	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	163	162	163	163	162	163	163	164	164	167	167	167	167	169	166	164	164	164	164	164	163	157	162
Final Discharge Temp	TE-2120	deg		110	150	110	108	108	105	104	103	109	110	117	117	124	124	130	130	130	126	122	122	117	117	117	113	112	112
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	227	226	226	226	226	228	229	233	238	237	238	241	241	242	239	237	230	234	234	233	232	232	232
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	234	233	233	230	230	229	232	233	239	239	247	248	252	253	253	251	247	246	242	242	242	239	238	237
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	225	225	224	224	224	225	227	230	230	234	235	237	238	240	236	234	234	232	231	230	230	230	230
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	236	233	232	231	230	228	226	234	240	240	247	248	253	253	253	251	247	246	242	242	241	239	238	237
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	.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	04	.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							556																	
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20							544																	

DATE 7-9-21

SIGNATURE

Mid Shift A yler

Days Shift Vijay

Notes

1278900

Utilities and Institutional Facilities

1280944

CGTG HOURLY READING LOG

Date: 7-10-21

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	113	110	107	114	104	117	100	105	100	101	107	100	110	105	100	110	105	101	108	108	107	109	113	110
4	Instrument Temperature	TI-001	deg C		20	50	27	27	27	26	24	24	25	24	24	30	32	35	38	38	38	38	37	37	36	34	31	30	28	28
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	19	19	19	19	19.8	18.8	18.8
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	112	108	103	100	108	100	108	107	101	108	110	103	108	100	109	105	103	108	110	101	107	104	110	107
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL	F	F	F	F	F	F	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	F	F	F	F	F	F
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	61	61	61	61	61	62	62	62	60	60	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	36	36	36	36	36	37	37	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	33	33	33	34
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	1	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			1427	882	887	913	917	928	927	886	856	850	832	882	797	782	780	799	822	825	832	836	855	875	888	900	906
23	Mw Output		MW			27	21.1	21.3	21.9	22	22.3	22.3	21.2	21.0	20.4	20.0	20.1	19.1	18.7	18.4	19.1	19.6	19.7	19.8	20	20.5	20.9	21.3	21.5	21.7
24	80% Base Load Minimum		MW				17.9	17.9	18.3	18.4	18.5	18.4	17.8	17.6	17.3	17.1	17.0	16.5	16.2	16.1	16.5	16.9	16.9	17.0	17.2	17.4	17.7	17.9	18	18.1
25	Running Hours (unit overview)						6389	6390	6391	6392	6393	6394	6395	6396	6397	6398	6399	6400	6401	6402	6403	6404	6405	6406	6407	6408	6409	6410	6411	6412
26	Ambient Temperature	T1 inlet					72.9	72.1	68.7	67.9	65.8	66.2	73.4	78.1	79.3	82.0	88.3	88.5	91.8	92.8	88.2	83.8	83.8	82.9	81	77.9	74.7	72.5	71.2	70
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	64	64	64	64	63	63	62	62	62	61	60	60	62	62	62	64	65	65	66	66	66	66	66	66
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-10-21 Signature: A Wise

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	49	49	49	49	49	49	49	49	49	49	49	49	48	48	48	46	48	46	47	47	47	47	47	47
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	E	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		B	B	B	B	B	B	B	B	B	D	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	253	253	253	253	254	254	254	254	255	254	255	255	255	254	255	256	256	255	255	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	251	251	249	249	249	249	250	250	250	250	251	251	254	254	252	252	251	251	251	251	251	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	570	563	564	564	564	564	569	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	58	58	58	58	58	58	58	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	162	163	162	163	163	163	163	163	163	168	168	169	168	168	168	165	165	167	163	161	161	169	162
Final Discharge Temp	TE-2120	deg		110	150	111	111	107	106	105	104	112	112	113	120	127	127	129	127	129	129	122	122	124	118	117	114	112	111
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	229	228	227	227	226	226	229	229	230	235	239	239	239	229	242	240	237	237	238	234	234	230	229	228
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	236	236	234	232	230	228	235	231	235	243	250	250	250	250	239	239	248	245	248	244	243	240	239	238
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	227	225	224	224	224	227	227	231	232	236	236	237	237	239	239	234	234	234	232	233	228	226	226
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	236	236	233	232	231	230	235	228	237	243	250	251	251	250	250	248	245	250	250	244	243	238	236	236
Motor Frame Vibration	VT-1015	IPS			0.15	-03	-03	-03	-05	-03	-03	03	01	03	03	03	03	01	03	01	01	03	01	-03	-03	-03	-03	-03	-03
Compresser Frame Vibration	VT-1512	IPS			0.35	-05	-05	-05	-05	-05	-05	05	07	08	08	05	04	01	06	07	01	05	01	-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										556														
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20										546														

DATE 7-10-21

SIGNATURE

Mid Shift A Wan

Days Shift

Notes

1283910

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 7-11-21

MST / MDT (circle one)

Time Gas introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	113	110	106	109	107	110	109	108	105	101	100	110	101	110	106	105	103	108	111	107	113	108	103	112
4	Instrument Temperature	TI-001	deg C		20	50	26	26	24	23	24	24	24	24	24	24	24	29	29	29	29	25	25	25	26	26	26	24	24	24
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		18.8	18.8	18.8	18.8	18.8	18.8	18	18	18	18	18	18	18	18	18	18	18	18	18.8	18.8	18.8	18.8	18.8	18.8
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	110	107	101	113	100	103	108	109	110	105	109	104	100	103	100	110	109	106	110	106	103	108	101	110
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL	F	F	F	F	F	F	F	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	F	F	F	F	F	F
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	35	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	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	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%	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	914	916	919	931	936	946	935	920	918	905	879	883	879	864	927	906	877	871	875	904	913	926	936	945
23	Mw Output		MW			27	21.9	22	22.1	22.2	22.4	22.6	22.4	22.0	21.7	21.9	21.1	21.1	21.0	20.9	22.1	21.7	21.3	21.5	21	21.7	21.9	22.2	22.4	22.7
24	80% Base Load Minimum		MW				18.2	18.3	18.3	18.4	18.5	18.6	18.5	18.2	18.1	18.1	17.1	17.7	17.6	17.6	18.3	18.1	18.0	17.7	17.7	18.1	18.2	18.4	18.5	18.6
25	Running Hours (unit overview)						6413	6414	6415	6416	6417	6418	6419	6420	6421	6422	6423	6424	6425	6426	6427	6428	6429	6430	6431	6432	6433	6434	6435	6436
26	Ambient Temperature	T3 Inlet					68.5	68	67.6	67	66	64	66	68.4	68.8	69.4	70.3	71.0	71.2	71.3	67.3	70.0	71.0	73.1	74.7	69.6	68.5	66.4	65.1	63.7
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	66	66	66	66	66	66	65	65	64	64	63	63	63	63	63	63	63	64	66	66	66	67	67	67
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-11-21 Signature: A Wan

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	46	46	46	46	46	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	F	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	F	E	E	E	E	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		B	B	B	B	B	B	B	D	D	B	B	B	B	D	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	83	83	83	83	83	83	83	83	83	83	83	82	82	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	252	254	253	253	253	253	253	253	253	253	253	254	254	253	252	251	253	253	253	253	253	252
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	249	249	249	249	249	249	249	249	249	250	250	250	250	250	250	250	250	249	249	248
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	161	160	160	162	163	163	162	163	163	163	163	163	164	163	162	162	161	162	163	163	163	162	160
Final Discharge Temp	TE-2120	deg		110	150	108	108	106	107	105	104	104	108	110	111	112	116	117	117	118	108	108	108	108	108	110	105	104	103
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	226	224	224	226	226	226	228	228	228	235	232	232	232	232	229	229	229	229	229	230	229	228	227
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	233	231	228	230	231	232	232	233	235	235	237	241	241	242	242	234	234	234	234	235	236	233	232	230
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	226	224	224	224	224	224	226	226	226	228	229	229	230	230	228	228	224	225	227	228	227	226	225
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	233	231	229	230	231	232	232	234	235	235	237	241	241	242	242	235	234	231	235	235	236	233	232	230
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.07	.06	.00	.03	.03	.07	.07	.07	.05	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.07	.06	.05	.08	.05	.08	.05	.06	.06	.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								556.0																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								594.8																

DATE	7-11-21
SIGNATURE	
Mid Shift	A Wolf
Days Shift	
Notes	

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 7-12-21

MST / MDT (circle one)

Time Gas introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	113	108	108	112	104	107	110	111	106	108	112	110	114	112	108	108	110	106	109	111	108	106	110	109
4	Instrument Temperature	TI-001	deg C		20	50	24	24	22	22	22	22	21	22	24	25	27	29	29	30	30	30	29	29	29	27	25	25	24	24
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	19	18.8	18.8	18.8	18.8	18.8	18.8	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	107	101	103	110	104	100	107	111	112	104	106	104	103	103	100	102	107	104	106	108	107	103	106	103
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL	F	F	F	F	F	F	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	60	60	60	60	60	60	62	62	60	60	60	62	60	60	60	61	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	35	36	36	36	36	36	36	36	35	36	36	35	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	68	68	68	68	68	68	68	68	68	68	68	68	68	68	66	68	68	68
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	√	√	√	√	√	√	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	√	√	√	√	√	√	Y	Y	Y	Y	Y	Y	Y	Y	Y	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%	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	33	34	34	34
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	944	948	952	964	968	971	951	950	927	918	898	888	880	887	871	863	854	855	866	881	897	912	919	931
23	Mw Output		MW			27	22.6	22.7	22.8	23.1	23.2	23.2	22.8	22.6	21.9	21.7	21.1	20.8	20.6	20.7	20.5	20.4	20.2	20.2	20.5	20.9	21.3	21.6	21.8	21.1
24	80% Base Load Minimum		MW				18.6	18.7	18.7	18.9	18.9	19	18.7	18.5	18.2	18.0	17.7	17.5	17.3	17.5	17.4	17.3	17.2	17.2	17.4	17.7	17.9	18.1	18.2	18.4
25	Running Hours (unit overview)						6437	6438	6439	6440	6441	6442	6443	6444	6445	6446	6447	6448	6449	6450	6451	6452	6453	6454	6455	6456	6457	6458	6459	6460
26	Ambient Temperature	T1 Inlet					64	63.1	62.6	60.6	59.5	59.4	62	64	68	71	75	77	78	76	78	79	80	80	80	75	72	70	69	67
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	66	66	66	66	66	66	66	65	65	64	64	64	65	65	66	67	67	67	67	68	68	68	68	68
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-12-21 Signature: A Wan dry slip - Josh Cates

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	43	43	43	43	43	43	43	43	43
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	252	252	251	252	252	253	253	253	253	254	254	254	254	254	254	254	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	248	248	247	248	248	249	249	249	249	250	250	250	251	251	251	251	251	251	251	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	58	58	59	59	59	59	59	59	59	58	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	164	164	164	163	163	164	164	165	165	165	164	164	164	164	164	164	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	104	104	102	102	101	99	101	103	108	110	112	114	118	117	116	108	118	117	117	114	112	106	106	105
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	226	224	225	224	223	223	224	225	228	229	231	234	236	235	234	235	234	234	234	234	233	231	230	230
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	229	228	228	228	226	225	227	229	233	234	237	241	245	244	244	DCS	244	242	244	241	239	237	234	233
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	223	223	223	222	220	222	222	223	225	227	228	232	233	232	232	233	233	233	231	231	231	230	229	226
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	230	230	229	228	227	226	227	229	234	235	237	241	245	245	245	244	244	244	241	240	239	237	234	234
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.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.													560																
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								555																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								544																

DATE 7-12-21

SIGNATURE

Mid Shift A. Wilson

Days Shift

Notes

1289721

Utilities and Institutional Facilities

Date: 7-13-2021

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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	111	109	107	110	109	107	112	112	106	114	108	106	114	114	110	110	110	107	111	109	112	110	106	111
4	Instrument Temperature	TI-001	deg C		20	50	24	23	22	22	22	22	22	23	25	27	28	30	31	30	30	30	30	30	30	27	27	26	25	25
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18.8	18.8	18.8	19	19	19	18.8	18.8	18.8	18.8	18.8	18.8	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	105	108	110	103	106	108	110	106	112	106	101	108	105	111	100	102	100	104	103	106	104	106	108	103
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	62	60	60	60	60	62	62	62	60	60	62	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	35	36	36	36	35	37	36	37	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	X	Y	Y	Y	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%	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	33	33	34	34	34
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 5T-01	psig	85	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	933	943	953	954	964	951	944	935	919	890	870	861	863	864	866	857	849	857	860	881	884	891	893	911
23	Mw Output		MW			27	22.2	21.0	22.7	22.7	22.9	22.6	22.4	22.2	21.8	21.6	20.6	20.3	20.4	20.5	20.4	20.2	20.1	20.4	20.4	20.9	21.0	21.1	21.2	21.7
24	80% Base Load Minimum		MW				18.5	18.6	18.7	18.7	18.8	18.8	18.5	18.4	18.1	17.7	17.4	17.2	17.3	17.4	17.4	17.2	17.2	17.4	17.4	17.7	17.8	17.9	17.9	18.2
25	Running Hours (unit overview)						6461	6462	6463	6464	6465	6466	6467	6467	6468	6470	6471	6472	6473	6474	6475	6475	6476	6477	6478	6479	6480	6481	6482	6483
26	Ambient Temperature	T1 Inlet					66	64	63	63	62	64	65	66	70	74	78	80	79	78	78	80	80	76	78	75	74	73	73	70
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	68	68	68	68	68	68	67	66	65	65	64	65	65	66	67	67	67	67	68	68	68	68	68	69
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-13-2021 Signature: MIOS Bob Young

day shift - Josh Cline

fin fans #1 in man and running 12:26

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	43	43	43	43	42	42	41	41	40	41	41	41	41	41	41	41	40	40	40	40	40	40	40	40
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	E	E	E	E	E	E	E	E	E	E	F	F	F	F	F	F
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	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	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	83	83	85	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	252	252	252	252	252	253	252	253	253	254	254	254	254	255	254	255	255	255	255	255	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	248	248	248	248	248	249	248	249	250	250	250	251	251	251	251	251	251	251	251	251	251	251	251
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	58	58	58	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	162	162	163	163	163	163	163	164	164	164	165	165	163	163	164	163	163	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	101	104	104	102	102	102	105	106	110	114	118	122	120	118	117	120	120	120	119	112	110	110	109	
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	230	226	224	223	223	223	225	227	230	231	233	237	236	234	234	236	236	236	236	233	233	232	232	231
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	233	230	228	228	227	227	229	230	235	235	242	248	246	243	243	245	245	247	245	239	240	237	236	234
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	225	223	222	222	222	223	224	227	229	230	234	233	231	232	233	233	233	233	231	231	230	230	229
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	234	232	230	228	227	227	230	23	236	238	242	248	246	243	243	246	246	246	246	240	240	239	238	236
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.03	.04	.04	.03	.03	.03	.04	.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.										560									560										
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8					555									556										
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20					544									545										

DATE 7-13-2024

SIGNATURE

Mid Shift Bob Long

Days Shift John Arnold

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 7-14-2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	110	108	111	109	109	110	106	110	108	106	110	106	110	108	106	108	110	108	109	111	109	108	106	110
4	Instrument Temperature	TI-001	deg C		20	50	25	22	22	22	22	22	22	22	24	26	28	29	30	31	31	30	26	26	24	24	23	23	23	23
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	18.8	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	105	107	104	108	107	109	106	108	110	106	103	111	109	109	101	110	111	102	109	110	106	104	110	107
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	62	62	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	35	35	36	36	36	36	36	37	37	37	37	37	36	36	36	36	36	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	88	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	34	34	34	34
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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	914	934	959	958	957	960	946	943	917	893	883	869	866	867	862	886	916	913	934	933	942	938	936	946
23	Mw Output		MW			27	21.7	22.2	22.8	22.8	22.7	22.8	22.5	22.4	21.8	21.2	20.9	20.6	20.5	20.4	20.4	20.9	21.7	21.5	22.2	22.1	22.3	22.3	22.3	22.5
24	80% Base Load Minimum		MW				18.2	18.6	18.8	18.8	18.7	18.8	18.6	18.5	18.2	17.8	17.6	17.4	17.3	17.3	17.4	17.7	18.2	18.1	18.5	18.4	18.5	18.5	18.5	18.6
25	Running Hours (unit overview)						6484	6486	6486	6487	6488	6489	6491	6491	6492	6493	6494	6495	6496	6497	6498	6499	6500	6501	6502	6503	6504	6505	6506	6507
26	Ambient Temperature	T1 Inlet					70	64	62	62	62	62	64	65	69	73	75	78	79	79	79	74	69	69	66	66	65	66	64	64
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	69	68	68	68	67	68	67	67	66	66	65	65	66	66	67	67	68	68	69	69	69	69	69	68
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-14-2021 Signature: MIDS Bob Day Shift - Josh Ames

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10			FULL	40	39	39	39	35	39	39	39	39	39	39	39	39	39	38	38	38	38	38	38	38	38	38	38
Lubricator Bulls eye		LEVEL	1/2	FULL			F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	82	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig			238	285	254	253	252	253	253	253	252	252	253	253	253	254	253	254	253	254	252	252	252	252	252	253	253	253
2nd Stage Inlet Press	PI-2200	psig			267	285	251	249	248	249	249	249	248	248	249	249	249	250	250	250	249	250	249	249	249	249	249	249	249	249
2nd Stage Disch. Press	PI-2201	psig			575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig			575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40		60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg			150	170	163	163	163	163	163	165	163	163	164	163	163	165	165	165	165	165	164	164	164	163	163	163	163	163
Final Discharge Temp	TE-2120	deg			110	150	109	105	102	101	101	101	102	103	109	112	114	115	118	119	117	114	108	107	106	105	104	104	104	104
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg			226	297	231	225	223	224	224	224	225	225	228	230	232	234	236	237	237	234	229	228	227	228	228	226	225	225
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg			258	283	235	229	227	227	227	227	228	227	233	237	239	241	243	244	244	240	237	230	233	232	231	230	229	228
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg			226	297	229	224	222	223	223	223	223	223	225	227	230	232	233	234	234	231	228	227	226	226	226	225	224	223
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg			258	283	236	230	228	228	226	228	228	228	234	238	239	242	244	245	244	241	234	234	231	232	231	230	229	228
Motor Frame Vibration	VT-1015	IPS				0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.03	.03	.01	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS				0.35	.05	.05	.01	.01	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.01	.01	.01	.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			576								560														
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20			555								556														
								544								545														

DATE 7-14-2021

SIGNATURE

Mid Shift Bob Long

Days Shift Josh Amos

Notes

Utilities and Institutional Facilities

Date: 7-15-2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	111	109	106	110	108	109	108	106	110	110	106	112	108	117	108	108	110	112	110	109	108	110	109	107
4	Instrument Temperature	TI-001	deg C		20	50	22	22	22	21	20	20	20	21	22	24	26	26	29	30	31	32	32	32	32	30	27	25	23	22
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18.8	18.8	18.8	18.8	18.8	19	19	19	18.8	18.8	18.8	18.8	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	108	107	103	107	109	102	102	104	107	111	102	100	101	102	103	105	105	102	108	109	108	106	110	108
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL	5/8	5/8	5/8	5/8	5/8	4/8	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	60	60	60	60	60	60	60	62	62	60	62	60	62	62	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	37	35	36	35	36	35	35	36	36	36	36	37	39	39	39	39	39	38	37	36	35	37	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	N	N	N	N	N	N	~	~	~	~	~	~	~	~	~	~	~	~	N	N	N	N	N	N
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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%	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	33	34	34	34
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	951	956	967	978	987	985	976	961	940	923	907	891	858	847	838	832	837	840	874	880	902	919	930	940
23	Mw Output		MW			27	22.7	22.7	23.0	23.3	23.5	23.5	23.2	22.9	22.4	21.9	21.5	21.1	20.3	20.0	19.8	19.6	19.8	19.9	20.7	20.9	21.5	21.9	22.1	22.3
24	80% Base Load Minimum		MW				18.7	18.7	18.8	19.0	19.1	19.1	18.9	18.8	18.5	18.2	18.0	17.8	17.3	17.2	17.1	17.0	17.1	17.2	17.4	17.7	18.1	18.3	18.4	18.5
25	Running Hours (unit overview)						6508	6509	6510	6511	6512	6513	6515	6515	6516	6517	6518	6519	6520	6521	6522	6523	6524	6525	6526	6527	6528	6529	6530	6531
26	Ambient Temperature	T1 inlet					63	63	61	59	58	57	59	61	65	68	71	73	79	81	81	82	81	80	77	74	70	68	66	65
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	68	68	68	68	68	68	69	68	67	67	67	68	68	68	68	68	68	68	69	69	69	69	69	69
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-15-2021 Signature: MIDS Bob Arey dry slide - Josh Arey

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	38	38	37	37	37	37	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35	35	35	35
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	252	253	252	252	251	251	251	252	252	252	253	253	250	254	254	254	254	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	248	248	248	247	247	248	248	249	249	250	249	250	250	251	251	251	250	250	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	563	562	562
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	58	58	58	58	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	164	164	164	164	164	164	163	165	165	165	166	165	165	165	162	162	163	163
Final Discharge Temp	TE-2120	deg		110	150	104	103	102	101	98	97	98	100	104	106	110	112	116	120	121	121	122	121	119	116	111	108	106	104
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	225	225	224	224	223	222	223	224	226	229	230	232	234	237	235	235	236	235	230	230	230	229	228	227
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	228	228	227	226	224	228	224	224	227	231	235	238	241	244	244	245	244	242	237	236	235	233	231	236
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	223	223	222	221	220	220	220	221	223	227	225	229	231	233	233	232	233	232	230	228	227	224	225	225
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	228	228	226	226	225	224	224	225	227	231	235	239	241	244	244	245	245	243	238	237	235	234	235	231
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.05	.03	.03	.03	.03	.03	.03	.03	.04	.04	.03	.04	.04	.04	.04	.01	.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.							560								560														
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8		555								555														
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20		544								545														

DATE 7-15-2021

SIGNATURE

Mid Shift Bob Hoag

Days Shift John Auer

Notes

Utilities and Institutional Facilities

Date: 7-16-2021

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: #1 Fan FAN in MANUAL Due To Belt Squeek
#2 in AUTO

		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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	108	111	109	109	108	103	105	104	110	105	104	105	112	106	108	110	103	109	110	111	108	110	107
4	Instrument Temperature	TI-001	deg C		20	50	22	22	22	22	22	22	22	23	23	27	30	30	25	24	26	27	28	31	29	27	27	25	23	22
5	**Fin Fan Cooler**		**Units**	**Low**	**Norm**	**Max**																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	106	103	109	103	109	107	108	110	106	106	101	104	110	106	110	102	107	100	104	103	104	110	108	109
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	63	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	35	35	35	37	37	35	38	35	35	35	35	35	35	35	35	35	35
11	**Control Room**		**Units**	**Low**	**Norm**	**Max**																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	69	69	69	69	69	69	69	69	69	69	69	69	68	68	68	68	68	68
15	**WECC Log**		**Operational?**																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	33	33	34	34
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	6	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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	937	940	941	941	940	951	933	912	882	881	845	882	884	878	852	835	842	852	862	881	904	922	915	912
23	Mw Output		MW			27	22.4	22.4	22.4	22.4	22.3	22.7	22.2	21.6	21.0	21.0	20.1	21.1	21.0	20.8	20.2	19.8	20.0	20.2	20.4	20.9	21.3	21.9	21.8	22.9
24	80% Base Load Minimum		MW				18.6	18.6	18.6	18.6	18.6	18.6	18.4	18.1	17.7	17.7	17.1	17.9	17.9	17.7	17.3	17.0	17.2	17.3	17.5	17.7	18.4	18.3	18.2	18.8
25	Running Hours (unit overview)						6532	6533	6534	6535	6536	6537	6539	6540	6541	6542	6543	6544	6545	6546	6547	6548	6549	6550	6551	6552	6553	6553	6554	6554
26	Ambient Temperature	T3 Inlet					65	65	64	64	64	62	66.2	70.7	24.3	74.8	82.0	82.0	72.7	74.8	79.5	83.1	81.6	80.1	77	74	70	68	69	62
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-130	%			70%	69	69	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	69	69	69	69	69	70
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-16-2021 Signature: Bob Ang

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%	B	B	B	B	B	B	B	B	D	B	B	B	B	B	B	B	B	D	B	B	B	B	B	B
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK		E	E	E	E	E	E	E	E	E	E	E	E	E	F	E	E	E	E	E	E	E	E	E	E
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY	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
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	35	35	35	34	34	34	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32	32	32
Oil Day Tank Level	LI-1562	GAL	10		FULL	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Lubricator Bulls eye		LEVEL	1/2	FULL		E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
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	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	E	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		B	B	B	B	B	B	B	B	B	D	B	D	B	D	B	B	B	D	B	B	B	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	253	253	252	252	253	253	253	252	252	254	254	254	254	254	254	254	254	254	253	252
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	249	249	249	249	249	249	249	249	249	250	250	251	251	251	251	251	250	250	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	58	18	58	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	164	164	163	163	164	167	165	166	166	164	164	164	164	164	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	104	104	103	102	101	101	105	105	111	111	118	118	118	114	114	123	120	120	118	115	110	106	103	99
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	227	227	224	225	225	226	227	227	232	232	234	233	233	231	231	236	234	234	232	230	229	228	227	224
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	230	230	229	229	228	228	229	229	236	236	242	241	241	237	237	247	244	246	238	236	234	233	230	225
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	225	224	224	224	224	224	225	225	229	229	232	230	230	229	229	232	231	230	229	229	227	225	224	222
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	231	229	229	229	229	229	230	230	236	236	242	241	239	237	237	248	244	239	240	237	235	233	230	226
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	03	03	03	03	03	01	01	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	07	05	07	05	05	01	01	05	05	05	05	07	.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.									560																				
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				555																				
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				544																				

DATE	7-16-2021
SIGNATURE	
Mid Shift	Bob Eby
Days Shift	
Notes	

Utilities and Institutional Facilities

Date: _____

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): _____ Time Turbine Offline (Brkr Open): _____

Time of Turbine Online (Brkr Closed): _____ Time No Gas Flow: _____

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	109	109	111	108	110	100	109	110	100	111	110	103	104	108	105	109	109	110	108	106	110	110	108
4	Instrument Temperature	TI-001	deg C		20	50	22	22	22	22	22	22	23	23	25	25	28	30	31	31	33	30	34	30	29	28	27	27	26	26
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	19	18	18	18	18	18	17	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	103	108	106	104	106	107	102	111	102	106	101	108	111	103	100	108	106	106	103	106	104	110	111	110
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	63	63	61	61	61	61	60	60	60	60	69	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	37	35	35	37	36	37	35	36	34	34	36	36	39	36	34	35	36	38	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	69	69	69	69	69	69	69	69	69	69	69	69	65	65	65	65	65	65
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	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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%	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	33	33	39	34	34	34	34	34	34
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			1427	956	951	937	948	961	952	940	906	894	891	852	885	851	856	893	858	864	862	867	910	913	915	912	911
23	Mw Output		MW			27	22.6	22.6	22.3	22.6	22.8	22.6	22.3	21.6	21.2	21.2	20.7	20.4	20.1	20.3	21.3	20.4	20.4	20.5	20.6	20.6	21.7	21.7	21.7	21.7
24	80% Base Load Minimum		MW				18.6	18.8	18.6	18.7	18.8	18.8	18.5	18.1	17.8	17.8	17.8	17.3	17.2	17.3	17.9	17.4	17.9	17.8	17.6	17.6	18.1	18.1	18.1	18.1
25	Running Hours (unit overview)						6556	6557	6558	6559	6560	6561	6562	6563	6564	6565	6566	6567	6568	6569	6570	6571	6572	6573	6574	6575	6576	6577	6578	6579
26	Ambient Temperature	T1 Inlet					62	63	64	63	61	62	65.5	70.7	72.4	73.6	77.6	78.8	80.2	79.3	73.0	78.3	77.9	77.2	76	74	72	70	69	69
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	71	71	71	71	71	71	71	70	70	70	70	70	70	70	69	69	69	69	69	69	69	69	69	69
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Date: 7-17-2021 Signature: Bob Hay (MMOS)

1317098

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	32	32	32	32	32	32	33	31	30	30	30	30	30	30	31	30	30	30	30	30	29	29	29	29
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	82	82	84	83	83	83	84	83
Stage Disch. Press	PI-2101	psig		238	285	252	253	253	253	253	253	253	253	253	253	253	253	254	254	254	255	255	255	255	254	254	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	249	249	248	249	249	249	250	251	250	251	250	251	250	250	252	251	251	251	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	58	58	58	58	59	59	59	59	60	60	59	59	60	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	165	163	161	163	164	164	165	165	166	165	164	164	164	164	164	163	163	163	163	162
Final Discharge Temp	TE-2120	deg		110	150	99	99	100	100	100	99	103	107	111	111	116	116	119	119	116	117	117	114	116	114	112	110	109	108
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	224	225	226	226	225	224	227	230	232	232	234	234	235	235	232	233	233	232	233	230	230	229	229	229
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	225	225	227	227	227	226	229	233	236	236	241	241	243	243	238	241	240	241	240	236	238	235	235	235
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	222	227	227	225	224	224	225	228	229	229	232	232	232	232	230	231	231	231	231	230	230	230	228	228
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	226	229	230	229	229	227	230	237	236	236	242	242	244	243	238	241	240	240	240	238	238	236	236	236
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.01	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	.01	.05	.01	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.									560										560										
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				555										554										
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				544										548										

DATE 2-17-2021

SIGNATURE

Mid Shift Bob Aug 1320391

Days Shift

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: JULY 18 2021

MST / (MDT) (circle one)

Time Gas introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

1322404

Notes: ~~PSS OUT OF SERVICE~~

	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	108	110	110	108	106	101	106	112	108	104	108	106	103	105	105	100	104	110	108	110	112		
4	Instrument Temperature	TI-001	deg C		20	50	25	24	24	22	22	22	22	24	24	25	25	28	30	30	26	30	30	30	29	28				
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	19	18	18	19	19	19	19		
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	111	102	105	101	110	106	105	109	110	100	100	99	107	109	103	111	102	102	101	104	102	101		
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	5/8		
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60		
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	35	35	35	35	35		
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	66	66	65	65	65	65	65	65	65	65	69	69	69	69	67	68	68	69	66	66	66	66		
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	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%	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	33	34	34	34	34	34	34		
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	6	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			1427	920	906	982	966	963	965	950	922	921	901	867	869	853	867	879	873	888	883	876	874	881	878		
23	Mw Output		MW			27	21.9	21.9	22.1	22.1	22.9	22.9	22.6	21.9	21.9	21.4	20.6	20.6	20.2	20.6	20.9	20.8	21.0	20.9	20.8	20.8	20.8	21.0		
24	80% Base Load Minimum		MW				18.3	18.3	18.5	18.3	18.8	18.8	18.6	18.1	18.0	17.8	17.4	17.4	17.2	17.4	17.6	17.6	17.8	17.3	17.6	17.6	17.6	17.8		
25	Running Hours (unit overview)						6581	6582	6583	6584	6585	6586	6587	6588	6589	6590	6591	6592	6593	6594	6595	6596	6597	6598	6598	6599	6600	6601		
26	Ambient Temperature	T1 Inlet					68	66	64	62	61	61	64.0	68.3	69.5	73.4	78.5	77.9	80.6	77.7	76.4	76.1	73.8	79.0	76	76	-			
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	70	70	70	70	70	70	71	70	70	70	70	70	68	69	70	70	71	71	72	72	72	72		
28	Total Fuel Flow		Mscf/h				6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		

Date: JULY 18 2021 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																													
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	E	F	F	F	F	F	E	E	E	E	E	F	E	E	E	E	E	E
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	29	29	29	29	29	29	29	29	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	83	83	84	83	85	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83		
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	254	253	253	253	253	253	253	253	254	254	254	254	254	254	255	255	253	254		
2nd Stage Inlet Press	PI-2200	psig		267	285	250	251	250	249	249	250	250	249	249	249	249	249	250	250	250	250	250	250	251	252	252	252		
2nd Stage Disch. Press	PI-2201	psig		575	600	564	565	565	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	565	565	565		
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560		
Lube Oil Pressure	PI-1572	psig	40	60		60	60	60	60	60	60	60	59	59	59	58	58	58	59	59	59	59	59	59	60	60	60		
Lube Oil Temp	TE-1584	deg		150	170	162	163	163	163	163	162	162	163	163	164	165	166	166	165	163	163	163	163	168	163	169	164		
Final Discharge Temp	TE-2120	deg		110	150	108	108	105	105	101	101	102	104	108	111	116	117	120	118	114	114	112	112	115	115	116	116		
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	229	229	228	228	227	227	227	228	230	231	233	234	235	234	233	233	231	230	233	233	233	233		
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	233	233	230	230	229	229	228	231	234	235	240	241	244	243	241	241	237	237	241	241	242	242		
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	227	226	226	224	224	224	226	228	228	230	231	232	231	230	230	229	229	230	230	230	232		
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	234	234	232	232	230	230	230	232	235	236	240	241	244	243	241	241	239	238	242	242	244	244		
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	.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		
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																	560							
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																	556							
																						545							

DATE	JULY 18 2021
SIGNATURE	
Mid Shift	1325461
Days Shift	

Notes

Utilities and Institutional Facilities

Date: 7-19-2021

MST / MDT (circle one)

Time Gas introduced (Turbine Rolling): 0847 (0935, 0908)

Time of Turbine Online (Brkr Closed):

CGTG HOURLY READING LOG

Time Turbine Offline (Brkr Open):

Time No Gas Flow: 0847 (0904) 0936

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																								
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		√																											
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427																								
23	Mw Output		MW			27																								
24	80% Base Load Minimum		MW																											
25	Running Hours (unit overview)															6601.69														
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: 7-19-2021 Signature: [signature]

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

Natural Gas Compressor	1336	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	0818																												
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 7-19-2021

SIGNATURE

Mid Shift

Days Shift Josh Anderson

Notes 0440 shutdown gas comp. per Joe B

Utilities and Institutional Facilities

Date: 7-23-21

MST / MDT (circle one)

Time Gas introduced (Turbine Rolling): 0859

Time of Turbine Online (Brkr Closed): 0955

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	113	108	112	111	110	113	110	112	110	109	111	111	109	110
4	Instrument Temperature	TI-001	deg C		20	50										30	30	30	30	30	30	30	30	30	30	27	23	23	22	21
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25											19.2	19.2	19.2	19	19	19	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120										105	105	106	108	105	106	108	110	112	110	104	109	110	103	103
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
9	Coolant Return Differential from GG	FI-001	In WC		60	80										61	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50										36	36	36	37	37	37	37	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85										70	70	70	70	70	70	70	70	70	70	70	70	68	68	68
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)										Yes	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)										Yes	Y	Y	Y	Y	Y	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%										35	35	35	35	35	35	35	35	35	35	35	35	36	36	36
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
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			1427										865	864	864	866	866	884	865	904	893	904	931	949	971	962	983
23	Mw Output		MW			27										20.4	20.4	20.4	20.5	20.4	20.9	20.4	21.4	21.1	21.4	22.0	22.5	23.0	22.8	22.2
24	80% Base Load Minimum		MW													17.6	17.4	17.4	17.4	17.4	17.7	17.4	18	17.9	18.6	18.4	18.5	18.8	18.7	19.0
25	Running Hours (unit overview)															6603	6604	6605	6606	6607	6608	6609	6610	6611	6612	6613	6614	6615	6616	6617
26	Ambient Temperature	T1 Inlet														76.5	78.1	78.8	78.1	78.6	74.5	77.9	71.1	72.7	71.3	66.7	64.0	61.0	62.4	59.5
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%										72	73	73	74	74	73	73	74	74	73	74	75	75	75	75
28	Total Fuel Flow		Mscf/h													6	209	6	211	205	206	208	216	213	216	215	218	220	223	226

MSCFH

Date: 7-23-21 Signature: A Wlas

C6T6 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	0847																												
Combustible Gas Detector	AAH-303	%		0%	20%										B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK											E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY										1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/3	1/2	1/2	1/2	1/2	1/2	1/2
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL										F	F	F	F	F	F	F	F	F	5/8	5/8	5/8	5/8	5/8	5/8
Oil Day Tank Level	LI-1562	GAL	10		FULL										F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Lubricator Bulls eye		LEVEL	1/2	FULL											E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
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
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY										B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK											83	82	84	83	83	83	83	83	83	83	83	83	83	83	83
1st Stage Inlet Press.	PI-2100	psig		88	140										251	251	251	252	252	252	252	252	252	253	252	252	252	251	251
Stage Disch. Press	PI-2101	psig		238	285										247	248	248	249	249	249	249	249	249	249	249	249	248	248	247
2nd Stage Inlet Press	PI-2200	psig		267	285										564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
2nd Stage Disch. Press	PI-2201	psig		575	600										560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Final Discharge Pressure	PI-2108	psig		575	600										59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Pressure	PI-1572	psig	40	60											163	163	164	164	164	164	164	163	163	163	160	161	161	161	162
Lube Oil Temp	TE-1584	deg		150	170										114	116	117	118	119	119	116	115	114	111	105	104	101	100	98
Final Discharge Temp	TE-2120	deg		110	150										241	242	244	242	238	237	237	232	232	233	231	230	230	229	228
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297										243	245	246	246	245	244	241	236	239	237	232	231	229	228	227
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283										238	239	240	238	236	235	234	230	230	230	229	228	226	225	225
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297										243	245	246	246	245	245	242	236	235	238	235	231	230	229	228
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283										.04	.03	.03	.03	.03	.03	.04	.04	.03	.03	.03	.03	.03	.03	.03
Motor Frame Vibration	VT-1015	IPS			0.15										.06	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
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.															560														
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8										556														
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20										545														

DATE	
SIGNATURE	
Mid Shift	
Days Shift	A Ware
Notes	

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 7-24-2021

MST / MDT (circle one)

Time Gas introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	110	110	109	109	108	110	112	107	107	110	113	107	110	113	113	111	108	110	110	109	110	110	108
4	Instrument Temperature	TI-001	deg C		20	50	21	20	20	20	20	19	20	20	22	22	24	24	24	25	25	25	25	26	25	25	24	24	22	22
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	110	104	101	107	108	101	104	104	108	105	107	104	106	107	103	100	104	106	109	106	108	105	110	106
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	69	69	69	69	69	69	69	69	69	69	69	69	68	68	68	66	66	66
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	35	36	36	36	35	35	35	35	35
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	985	937	995	991	990	987	956	947	909	807	800	839	847	928	870	846	912	900	914	920	937	959	956	955
23	Mw Output		MW			27	23.3	23.3	23.5	23.4	23.4	23.3	22.5	22.3	19.1	19	18.9	19.9	20	22	20.1	20	21.6	21.3	21.6	21.8	22.2	22.3	22.2	22.6
24	80% Base Load Minimum		MW				19.0	19.0	19.1	19.1	19.1	19.1	18.6	18.5	18.3	18.1	18.4	18.1	17.9	18.3	18.6	18.5	18.1	17.9	18.1	18.3	18.5	18.6	18.6	18.7
25	Running Hours (unit overview)						6618	6619	6620	6621	6622	6623	6624	6625	6626	6627	6628	6629	6630	6631	6632	6633	6634	6635	6636	6637	6638	6639	6640	6641
26	Ambient Temperature	T1 inlet					59.2	58.4	57.2	57.3	57.6	58.1	63.9	65.1	68.4	70.5	66.9	70.5	72	67	64.9	65.3	71.2	72.5	70	68	65	64	64	65
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	75	75	76	76	76	76	75	74	74	73	74	74	73	74	75	75	75	75	75	75	75	75	75	75
28	Total Fuel Flow		Mscf/h				227	227	228	229	230	230	220	217	199	196	194	207	212	220	221	209	224	215	215	215	215	220	222	223

Date:

Signature: Bob Lang (M105) A Mar

SGTG 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-309	%		0%	20%	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK		E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY	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
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	53	53	53	52	52	52	50	50	50	50	50	50	50	50	49	49	49	49	49	49	49	49	49	48
Oil Day Tank Level	LI-1562	GAL	10		FULL	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Lubricator Bulls eye		LEVEL	1/2	FULL		E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	83	83	83
1st Stage Inlet Press.	PI-2100	psig		88	140	251	251	250	251	251	251	251	251	252	252	253	253	252	252	251	252	253	253	253	254	253	252	252	252
Stage Disch. Press	PI-2101	psig		238	285	247	247	247	247	247	247	247	248	248	249	249	249	249	249	248	249	249	249	250	250	250	249	249	249
2nd Stage Inlet Press	PI-2200	psig		267	285	564	564	564	564	564	564	564	564	564	560	564	564	564	564	564	564	564	564	564	564	564	564	564	564
2nd Stage Disch. Press	PI-2201	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Final Discharge Pressure	PI-2108	psig		575	600	59	59	59	89	89	59	59	59	59	59	59	59	59	59	59	59	59	59	60	60	60	59	59	59
Lube Oil Pressure	PI-1572	psig	40	60		162	162	161	162	163	164	164	163	163	163	163	164	164	163	162	163	163	164	162	162	162	163	163	163
Lube Oil Temp	TE-1584	deg		150	170	98	98	97	97	97	96	102	105	108	106	106	107	110	108	105	105	105	107	109	109	105	102	102	102
Final Discharge Temp	TE-2120	deg		110	150	228	228	227	227	227	226	227	229	231	232	232	233	235	232	230	230	230	234	232	232	230	229	229	229
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	227	227	226	226	225	224	227	230	232	232	233	234	238	237	235	231	236	236	237	237	235	230	230	231
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	225	225	224	224	224	224	224	226	226	229	229	230	232	229	227	228	230	232	229	229	229	227	227	227
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	228	228	227	225	224	224	227	230	232	233	234	234	238	237	235	231	236	236	237	237	234	231	231	232
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.03	.03	.03	.03	.03	.03	.03	.03
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.05	.05	.05	.05	.01	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.06	.06	.05	.05	.05	.05
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.											560																		
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8						535																		
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20						543																		

DATE 7-24-2021

SIGNATURE 1333515

Mid Shift Bob Aug

Days Shift

Notes 1330264

Utilities and Institutional Facilities

Date: JULY 25 2021

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	108	106	104	110	108	106	112	107	109	104	108	110	113	109	√	108	112	110	106	108	110	108	106
4	Instrument Temperature	TI-001	deg C		20	50	21	21	20	20	20	20	20	22	23	24	26	26	26	26	26	26	28	28	23	23	22	23	22	22
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	19.2	19.2	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	104	108	111	103	108	111	104	106	110	110	107	105	110	108	106	104	102	100	103	110	106	108	111	110
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	61	61	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	36	36	36	36	36	36	36	36	37	37	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	76	76	76	76	76	76	69	69	69	69	69	69	69	69	69	69	69	69	68	68	68	68	68	68
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	Y	Y	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	X	Y	Y	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%	36	36	36	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35	36	36	36	36	36	36
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)	AB3GGD 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	√	√	√	√	√	√	√	√	√	√	√	√	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	965	961	968	971	969	969	820	827	816	821	821	823	846	849	917	889	863	874	956	941	940	937	944	942
23	Mw Output		MW			27	22.8	22.8	22.9	23.0	23.0	229	19.4	19.5	19.4	19.4	19.4	19.4	20.1	20.1	21.7	21	20.5	20.7	22.6	22.5	22.5	22.2	22.3	22.2
24	80% Base Load Minimum		MW				18.8	18.8	18.8	18.8	18.8	18.8	18.6	18.4	18.1	17.8	17.5	17.5	17.6	18	18.1	17.7	17.4	17.6	18.7	18.8	18.8	18.5	18.5	18.5
25	Running Hours (unit overview)						6643	6644	6645	6646	6647	6648	6649	6650	6651	6652	6653	6654	6655	6656	6657	6658	6659	6660	6661	6662	6663	6664	6665	6666
26	Ambient Temperature	T1 Inlet					62	62	61	61	61	61	64	66.2	69.6	73.4	78.1	77.4	75.9	70.7	69.8	74.3	77.9	75.9	63	65	65	65	65	65
	(27–28 found on Gas Fuel System page)																		73											
27	Waste Oil Tank	LI-120	%			70%	75	75	75	75	75	75	76	76	74	73	73	73	76	73	74	74	74	74	75	75	75	75	77	77
28	Total Fuel Flow		Mscf/h				225	225	225	225	225	225	200	202	199	199	201	204	218	216	225	224	208	206	222	222	222	222	222	222

Date: JULY 25 2021 Signature: MD

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	48	48	48	48	48	48	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	46	46	46
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	83	83	83	84	84	84	83	83	83	83	83	83	83	83	83	83	83	84	84	85	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	252	252	252	253	253	253	253	253	254	254	252	252	252	253	253	252	252	253	253	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	248	248	248	248	249	250	250	249	249	249	250	249	248	248	249	250	249	249	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	520	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	164	164	164	164	164	164	164	164	164	165	165	164	163	164	164	164	164	162	162	164	164	164	164
Final Discharge Temp	TE-2120	deg		110	150	100	102	100	100	100	101	101	104	104	109	110	112	117	110	109	108	115	116	103	103	105	105	104	104
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	228	227	227	227	227	229	230	232	234	235	237	236	232	231	230	234	235	228	228	230	230	230	230
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	228	228	227	227	227	227	228	230	231	236	238	240	244	236	235	234	241	242	230	230	230	230	230	230
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	226	225	225	225	225	228	228	229	234	232	234	234	230	229	228	232	234	226	226	228	228	228	228
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	229	230	227	227	227	227	229	228	230	234	238	240	244	236	235	234	241	242	231	231	230	230	230	230
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.03	.04	.04	.04	.04	.04	.04	.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.														560															
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8									556															
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20									547															

DATE	JULY 25 2021
SIGNATURE	
Mid Shift	
Days Shift	

1338838

Notes 1335538

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: JULY 26 2021

MST / (MDT) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	106	110	108	111	108	106	112	108	110	114	112	106	114	112	106	108	106	110	110	108	111	107	110	110
4	Instrument Temperature	TI-001	deg C		20	50	22	22	22	22	22	22	21	22	24	25	26	25	26	28	29	29	29	29	28	28	28	26	25	25
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	109	111	106	102	106	112	103	105	109	111	108	110	110	108	102	109	102	111	103	109	105	105	108	103
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	62	62	62	62	62	62	60	62	63	62	62	62	61	61	61	61	61	61
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	36	37	36	36	37	39	38	37	37	37	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	36	36	36	36	36	36	36	37	37	37	36	36	36	36	36	36	36	36	36	36	36	36	36	36
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	840	839	840	845	848	845	845	841	843	839	844	850	841	844	843	847	845	842	844	845	845	841	849	848
23	Mw Output		MW			27	19.9	19.9	19.9	19.9	20.0	20.0	20.1	19.9	20.0	19.9	20.0	20.1	20.0	20.1	20.0	20.0	20.0	20.0	20.6	20.1	20.0	19.9	20.0	20.0
24	80% Base Load Minimum		MW				18.7	18.7	18.7	18.7	18.7	18.7	18.6	18.6	18.2	18.1	18.0	18.2	17.9	17.6	17.6	17.4	17.3	17.9	18.1	18.3	18.4	18.3	18.3	18.3
25	Running Hours (unit overview)						6666	6667	6668	6669	6670	6671	6672	6673	6674	6675	6676	6677	6678	6679	6680	6681	6682	6683	6684	6685	6686	6687	6688	6689
26	Ambient Temperature	T1 inlet					63	63	63	62	63	63	61	64	64	70	71	71	73	75	76	78	80	82	76	68	67	67	67	67
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	75	75	75	75	75	75	75	75	73	73	73	73	73	74	74	74	74	74	75	75	76	76	75	75
28	Total Fuel Flow		Mscf/h				201	201	201	201	200	200	199	200	201	201	200	200	201	204	203	202	203	202	202	201	200	201	201	201

Date: JULY 26 2021 Signature: MD [signature] day shift - [signature]

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	46	46	46	46	46	46	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	83	83	84	83	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	254	254	253	253	253	252	252	252	252	253	253	252	253	253	253	253	253	253	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	250	250	250	248	248	248	249	249	249	249	249	250	250	250	250	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	565	564	564	565	565	567	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	164	164	164	163	163	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164
Final Discharge Temp	TE-2120	deg		110	150	102	102	102	102	102	102	101	103	107	109	110	109	112	115	117	117	120	119	118	108	107	106	105	105
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	228	228	228	227	228	226	227	230	230	232	231	234	236	236	235	236	236	236	231	230	229	229	229
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	229	229	229	229	229	230	226	227	230	233	237	234	239	242	243	243	247	247	246	233	253	232	232	231
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	226	226	226	226	227	224	225	227	228	230	229	231	233	233	233	233	233	232	228	228	227	227	227
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	230	230	230	230	229	230	227	228	231	233	237	235	238	241	244	243	247	247	247	232	232	232	232	232
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.03	.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	A63PGDT	49-48=psid			8									560															
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20									556															
														545															

DATE JULY 26 2021

SIGNATURE

Mid Shift

Days Shift

Notes 134 3888

Date: _____

MT / WDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

GTG HOURLY READING LOG

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	109	110	111	108	109	110	112	108	112	112	106	108	110	112	108	110	110	106	110	111	109	110	108	111
4	Instrument Temperature	TI-001	deg C		20	50	23	23	22	22	21	24	22	22	24	26	29	29	26	23	24	24	25	24	24	24	24	24	24	23
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	19	19	19.2	19.2	19.2	19	19	19	19	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	111	104	103	103	109	108	104	106	99	106	110	108	101	103	108	109	111	104	100	104	110	103	107	108
8	Sight glass Level Expansion Tank	LI-301	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	In WC		60	80	61	61	61	61	61	61	61	61	62	62	62	62	62	60	60	62	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	In WC		37	50	36	36	36	36	36	36	36	36	37	37	38	37	36	36	36	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
17	Operation of AVR Voltage Mode @ 15.6 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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-251	%			70%	36	36	36	36	36	36	36	36	37	37	36	36	36	37	37	37	37	37	37	37	37	37	37	37
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-250	%			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)	AEB/GEC ST-01	psig	85	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	22-24 found on Power Management page																													
22	Generator Current		Amps			1427	846	848	841	835	833	838	836	838	846	847	849	853	852	844	849	842	851	839	848	846	847	845	838	845
23	Mw Output		MW			27	20.0	20.0	19.9	20.0	20.1	19.9	19.9	20.0	20.1	20.1	19.9	20.0	20.0	20.0	20.1	20.0	20.1	19.9	20.1	20.0	20.1	20.3	20.0	20.1
24	80% Base Load Minimum		MW				18.6	18.6	18.6	18.8	18.8	18.8	18.6	18.4	18.0	17.8	17.5	17.7	18.2	18.4	18.1	18.1	17.8	17.9	18.0	18.3	18.4	18.4	18.5	18.6
25	Running Hours (unit overview)						6690	6691	6692	6693	6694	6695	6696	6697	6698	6699	6700	6701	6702	6703	6704	6705	6706	6707	6708	6709	6710	6711	6712	6713
26	Ambient Temperature	T2 Inlet					65	64	62	61	61	61	64	66	71	73	77	75	67	65	70	70	73	72	71	68	66	66	66	64
	GT-26 found on Gas Fuel System page																													
27	Waste Oil Tank	LI-252	%			70%	75	75	75	76	77	75	76	75	75	74	74	75	76	78	77	77	77	77	77	77	78	78	78	78
28	Total Fuel Flow		Mscf/h				200	201	201	202	201	201	199	200	200	201	202	204	202	203	202	203	201	201	202	201	202	200	200	202

Date: 7-27-2021 Signature: Bob Aney (mids) day shift Jake Ames

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-803	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	PSL-15011B	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-7711	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LG-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-1561	GAL	10		FULL	45	45	44	44	44	44	44	44	44	44	44	44	43	43	43	43	43	43	43	43	43	43	43	42
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7415	LIQID		EMPTY	ANY	E	E	E	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-7465	LIQID		EMPTY	ANY	E	E	E	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	PSL-15011A	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	85	85	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	253	252	252	252	252	252	252	253	253	251	253	253	253	254	257	257	255	255	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	249	248	248	248	248	248	249	249	250	247	249	247	248	250	247	249	249	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	563	563	563	563	563	564	564	564	564	564	563	564	564	563	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	559	560	560	559	559	560	560	560	560	560	559	560	560	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	58	58	60	60	58	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1594	deg		150	170	164	163	163	164	163	163	163	163	163	164	164	165	165	160	161	162	163	163	163	164	164	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	105	104	102	102	101	101	103	105	108	111	114	116	99	105	108	108	111	112	114	107	106	105	103	102
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	229	229	229	227	226	226	227	228	230	232	235	235	228	229	231	231	232	232	232	230	230	230	229	229
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	231	229	229	227	226	226	227	229	232	235	241	243	228	231	235	235	238	236	237	233	233	231	230	230
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	226	226	225	224	224	225	226	228	230	232	233	226	227	229	229	230	230	230	228	228	228	227	227
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	232	231	229	228	229	227	228	230	233	236	241	243	229	231	235	235	238	239	240	234	233	233	232	231
Motor Frame Vibration	VT-1515	IPS			0.15	.03	.01	.03	.01	.01	.03	.03	.03	.03	.03	.04	.04	.04	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.01	.01	.01	.01	.01	.01	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.01	.01	.01	.01	.01	.01
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								560										
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8						556								556										
Fuel Gas Suppply Pressure	A63FTGST	50-42=psid			20						545								546										

DATE 7-27-2021

SIGNATURE

Mid Shift: Bob Hoag

Days Shift:

Notes

CGTG HOURLY READING LOG

Date: _____

MST / MDT (circle one)

Time Gas introduced (Turbine Rolling): _____ Time Turbine Offline (Brkr Open): _____

Time of Turbine Online (Brkr Closed): _____ Time No Gas Flow: _____

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	111	109	110	111	108	112	110	108	110	114	106	110	112	110	106	108	104	110	109	100	112	110	109
4	Instrument Temperature	TI-001	deg C		20	50	23	23	24	22	22	22	22	22	24	26	28	29	30	31	31	26	27	26	26	26	24	23	23	22
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	19.2	19.2	19.2	19.2	19.2	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	107	103	109	105	106	104	104	106	109	107	100	107	100	102	101	107	102	104	103	107	109	103	106	102
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	61	62	62	62	62	62	64	62	62	62	62	62	62	62	61	61	61	61	61
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	37	37	37	37	37	37	38	38	36	37	37	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	69	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	37	37	37	37	37	37	37	38	38	38	37	37	37	37	37	37	38	38	38	38	38	38	38	38
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	846	838	840	842	844	836	847	841	843	847	846	845	839	842	842	901	876	874	866	880	908	911	919	929
23	Mw Output		MW			27	20.6	19.9	20.0	20.0	20.1	19.8	19.9	19.9	20.0	20.0	20.0	19.9	20.3	20.0	20.0	21.4	20.9	20.7	20.6	20.9	21.5	21.7	22.0	22.1
24	80% Base Load Minimum		MW				18.5	18.7	18.7	18.7	18.6	18.7	18.6	18.5	18.1	17.9	17.6	17.5	17.3	17.0	17.2	18.0	17.7	17.6	17.6	17.8	18.1	18.1	18.3	18.4
25	Running Hours (unit overview)						6714	6715	6716	6717	6718	6719	6720	6721	6722	6723	6724	6725	6726	6727	6728	6729	6730	6731	6732	6733	6734	6735	6736	6737
26	Ambient Temperature	T1 inlet					64	63	63	63	64	63	64	65	69	72	76	77	79	83	81	71	75	76	76	74	70	69	68	66
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	78	78	78	78	78		77	76	75	75	75	76	76	76	76	78	78	78	78	78	78	78	78	78
28	Total Fuel Flow		Mscf/h				201	201	200	202	202	202	201	198	199	202	205	204	204	205	207	215	212	210	208	217	220	221	222	

Date: 7-28-2021 Signature: Day Shift - Jordan Cannon

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	AEA-913	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-15715	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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	42	42	42	42	41	41	41	41	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7418	LIQID		EMPTY	ANY	E	E	E	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-7468	LIQID		EMPTY	ANY	E	E	E	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-15714	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		86	140	83	83	87	83	83	83	83	83	83	87	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	264	254	254	254	254	253	252	252	252	252	251	253	252	252	253	253	253	254	252	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	250	250	250	249	248	249	248	249	248	250	250	251	249	250	250	250	248	249	249	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	567	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2105	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	54	59	58	58	58	58	58	60	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1594	deg		150	170	163	165	163	163	163	163	164	163	163	164	164	165	165	166	166	166	161	160	160	161	163	162	162	162
Final Discharge Temp	TE-2120	deg		110	150	102	102	103	102	102	102	102	104	107	110	113	117	118	121	121	107	111	110	110	108	107	105	105	104
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	229	229	228	228	228	228	226	227	230	232	235	236	237	239	238	230	232	232	232	232	232	231	231	230
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	230	228	228	229	229	229	225	228	232	235	240	244	245	248	248	234	238	238	238	237	237	234	233	232
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	226	227	226	226	226	225	225	228	230	232	234	234	236	235	228	230	230	230	230	230	229	227	227
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	231	230	230	230	230	230	229	229	233	236	240	244	245	247	248	234	238	239	236	236	235	234	234	233
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.03	.03	.04	.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.									560									560											
Double Block and Bleed Pressure	A63PGDT	49-46=psid			6				556									556											
Fuel Gas Supply Pressure	A63PTGST	50-43=psid			20				546									546											

DATE 7-28-204

SIGNATURE

Mid Shift 1353809

Days Shift

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: _____

MST / MDT (circle one)

Time Gas introduced (Turbine Rolling): _____

Time of Turbine Online (Brkr Closed): _____

Time Turbine Offline (Brkr Open): _____

Time No Gas Flow: _____

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	109	111	110	107	109	110	110	112	106	108	112	114	112	108	108	110	112	110	109	111	109	110	111
4	Instrument Temperature	TI-001	deg C		20	50	22	22	22	21	21	21	21	22	24	26	28	29	29	30	29	30	30	30	29	28	25	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	19.2	19.2	19.2	19	19	19.2	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	108	104	109	110	103	109	104	106	108	109	102	102	99	100	100	101	100	107	103	103	104	106	106	108
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	61	61	61	61	61	61	61	61	60	62	61	61	62	60	60	60	63	62	62	61	61	61	61	61
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	35	36	37	37	38	38	37	38	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	10	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			1427	941	951	951	952	960	961	947	935	914	894	874	857	859	858	859	843	850	843	852	868	886	902	919	933
23	Mw Output		MW			27	22.3	22.6	22.7	22.8	22.9	22.9	22.6	22.2	21.7	21.2	20.8	20.4	20.4	20.4	20.4	20.8	21.2	20.8	20.3	20.7	21.2	21.5	21.9	22.3
24	80% Base Load Minimum		MW				18.5	18.6	18.7	18.7	18.8	18.8	18.6	18.4	18.1	17.8	17.6	17.3	17.3	17.3	17.4	17.1	17.3	17.2	17.3	17.6	17.9	18.0	18.3	18.4
25	Running Hours (unit overview)						6738	6739	6740	674	6742	6743	6744	6745	6746	6747	6748	6749	6749	6750	6752	6752	6753	6754	6755	6756	6757	6758	6759	6760
26	Ambient Temperature	T1 Inlet					66	64	63	62	61	61	63	66	70	73	76	79	79	79	78	81	79	80	79	76	73	71	68	66
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	78	78	78	78	78	78	79	78	77	77	77	77	77	77	77	77	78	78	78	78	79	79	79	79
28	Total Fuel Flow		Mscf/h				222	223	224	226	226	227	225	223	219	216	212	209	208	207	208	202	206	204	206	213	214	216	220	222

Date: 7-29-2021 Signature: Bob Shirey (on 105) Ivy Wolff - Utah Area

Natural Gas Compressor

GAS COMPRESSOR START TIME		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
Combustible Gas Detector	AAH-903	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-15016	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-7711	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LG-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 Dry Tank Level	LI-1562	GAL	10		FULL	40	40	40	40	39	39	39	39	39	39	39	38	38	38	38	37	37	37	37	37	37	37	36	36
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7415	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
2nd Sage 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	E	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-15014	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	253	253	253	252	252	253	253	253	254	254	254	254	254	254	254	254	254	254	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	249	249	246	249	248	249	249	249	250	250	250	250	250	251	251	251	250	250	250	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2105	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	58	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1594	deg		150	170	162	162	163	163	163	163	164	163	163	163	164	164	165	165	164	164	166	164	164	164	164	164	165	163
Final Discharge Temp	TE-1120	deg		110	150	104	104	104	104	104	104	101	105	108	112	115	118	119	121	118	121	119	118	117	115	112	109	107	106
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	230	230	229	227	227	227	227	229	231	233	235	236	237	237	235	236	235	235	235	233	231	230	229	228
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		256	283	252	231	229	228	228	228	228	233	236	239	242	244	246	247	244	247	245	244	241	240	237	234	233	
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	227	226	226	225	225	225	227	229	231	232	233	233	234	232	234	233	231	230	230	229	228	227	
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		256	283	235	232	230	229	229	229	229	233	236	239	242	245	246	247	244	247	245	244	242	240	237	235	234	
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.03	.04	.04	.04	.04	.04	.05	.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	.06	.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	AG3FGDT	49-48=psid			8				560								560												
Fuel Gas Supply Pressure	AG3FTGST	50-48=psid			20				555								556												
									544								546												

DATE 7-29-2021

SIGNATURE

Mid Shift Brad Young

Days Shift John Ames

1359069

Notes

Date: 7-30-21

PST / MST (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

GTG HOURLY READING LOG

	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	109	111	108	109	109	108	106	110	113	109	110	107	113	110	108	107	112	110	106	110	108	110	111	108
4	Instrument Temperature	TI-001	deg C		20	50	23	22	22	22	21	21	22	22	24	26	26	26	26	28	30	30	30	30	26	26	26	25	25	25
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	106	103	107	109	101	108	104	108	110	110	105	108	110	100	106	109	100	104	108	111	102	104	110	106
8	Sight glass Level Expansion Tank	LI-301	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	88	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
17	Operation of AVR Voltage Mode @ 15.6 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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-251	%			70%	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	37	37	37	37	37	37	37
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)	AGGGC ST-21	psig	95	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	√	√	√	√	√	√	√	√	√	√	√	√	✓	✓	✓	✓	✓	✓
	22-24 found on Power Management page																													
22	Generator Current		Amps			1427	931	950	955	956	959	952	946	929	912	797	796	797	801	796	800	802	801	800	800	806	804	808	801	808
23	Mw Output		MW			27	22.4	22.6	22.8	22.8	22.9	22.7	22.6	22.2	21.8	19	18.9	19	19	18.9	19	19	19	19	19.0	19.0	19.0	19.1	19.1	19.1
24	80% Base Load Minimum		MW				18.5	18.6	18.7	18.7	18.8	18.7	18.6	18.4	18.1	17.8	17.7	17.4	17.3	17.2	17.2	17.1	17.4	17.2	18.4	18.1	18.1	18.2	18.2	18.2
25	Running Hours (unit overview)						6761	6762	6763	6764	6765	6766	6767	6769	6770	6771	6772	6773	6774	6775	6776	6777	6778	6779	6780	6781	6782	6783	6784	6785
26	Ambient Temperature	TI-101					65	64	62	62	62	63	64.2	67.1	70	73	74.5	78.4	79.9	81.1	81.1	82.8	78.6	80.8	66	70	69	69	68	68
	27-28 found on Gas Fuel System page																													
27	Waste Oil Tank	LI-220	%			70%	79	78	78	79	79	79	78	78	77	77	77	77	77	77	77	77	77	78	79	79	79	79	79	79
28	Total Fuel Flow		Mscf/h				223	223	224	226	227	226	225	222	219	198	198	200	201	200	196	197	197	198	198	198	198	195	195	195

Date: 7-30-2021 Signature: Bob Mog

SOLAR TURBINES

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-573	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-15116	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-7761	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LG-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-1561	GAL	10		FULL	36	36	36	36	36	36	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7418	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	D	B
2nd Stage Scrubber Liquid Level	LI-7468	LIQID		EMPTY	ANY	E	E	E	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-15014	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	85	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	83	83	83	84	84
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	253	253	253	251	252	252	254	253	254	254	254	254	254	255	255	255	255	253	255	255	255
2nd Stage Inlet Press	PI-2203	psig		267	285	249	249	249	249	249	249	248	248	248	250	250	250	250	250	251	251	251	251	251	251	251	251	251	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	565	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	562	560	560	560	560	560	560	560	560	560	560	560	560	560	566
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	58	58	58	58	59	60	60	60	60	60	60
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	165	162	163	164	164	165	166	165	166	166	165	164	163	163	164	164	162	162	163
Final Discharge Temp	TE-1120	deg		110	150	106	105	104	104	103	103	103	105	108	110	114	116	118	121	122	122	119	118	107	107	107	106	106	107
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	227	227	227	227	227	227	229	231	232	235	236	237	239	239	240	237	236	233	233	233	230	230	230
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		256	283	233	229	228	228	228	228	228	231	234	237	241	242	245	247	248	248	245	244	234	234	234	233	233	233
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	226	225	225	225	225	225	226	228	230	233	234	234	236	236	238	234	234	231	231	232	230	230	228
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		256	283	233	231	229	229	229	229	228	232	235	238	241	242	245	247	248	248	245	245	234	234	234	233	233	233
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.02	.03	.03	.04	.03	.03	.03	.03	.04	.04	.04	.03	.03	.03	.03	.04	.04	.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.										560																			
Double Block and Bleed Pressure	A63PGDT	49-48=psid			8					555																			
Fuel Gas Supply Pressure	A63PTGST	50-43=psid			20					544																			

DATE 7-30-2021

SIGNATURE

Mid Shift Bob Long

Days Shift A Warr

Notes

1360714

Utilities and Institutional Facilities

Date: JULY 31 2021

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	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	110	106	108	110	106	108	110	113	107	104	110	111	112	110	114	112	110	110	108	110	106	108	110
4	Instrument Temperature	TI-001	deg C		20	50	24	24	24	22	22	22	22	22	24	26	28	28	30	30	28	24	24	24	24	24	24	24	22	20
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	19.2	19.2	19	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	108	110	104	112	102	106	105	103	109	110	112	104	102	98	95	108	102	100	104	112	108	104	112	116
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	61	61	61	61	61	61	62	61	61	61	61	61	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	36	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	38	38	38	38	38	38	38	38	38	38	38	38	38	38	37	38	38	38	38	38	38	38	38	38
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		V				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	806	808	804	805	809	807	801	809	803	807	803	800	799	808	801	801	802	806	805	808	801	804	806	805
23	Mw Output		MW			27	19.1	19.1	18.9	19.1	19.1	19.1	18.8	19	19.1	19.1	19	19	18.9	19	19	18.9	19	19	19.1	19.1	19.1	19.0	19.0	19.0
24	80% Base Load Minimum		MW				18.4	18.4	18.6	18.6	18.6	18.6	18.4	18.3	17.9	17.9	17.5	17.3	17.1	17.5	18.5	18.3	18.1	18.1	18.3	18.3	18.6	18.6	18.6	18.6
25	Running Hours (unit overview)						6786	6787	6788	6789	6790	6791	6792	6793	6794	6795	6796	6797	6798	6799	6800	6801	6802	6803	6804	6805	6806	6807	6808	6809
26	Ambient Temperature	T1 Inlet					66	66	64	64	64	64	66	67.8	72.7	72.1	76.6	79.5	83.4	77.2	65.1	68	69	69	68	68	66	66	64	64
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	78	78	78	78	78	78	78	78	76	76	76	76	77	77	78	79	79	79	79	79	78	78	78	78
28	Total Fuel Flow		Mscf/h				192	193	193	192	195	193	192	191	193	196	196	197	197	196	196	195	195	196	196	198	192	192	193	192

Date: JULY 31 2021 Signature: J. [illegible] A. Lidar

GSTS 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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	34	34	34	34	34	34	33	33	32	32	32	32	32	32	31	31	31	31	31	31	31	31	31	31
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	83	83	84	84	83	84	84	83	83	83	83	83	83	84	84	83	83	83	83	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	255	254	253	253	253	252	253	253	254	254	253	254	253	253	258	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	251	251	252	252	251	251	249	250	250	249	249	249	250	250	250	250	250	250	250	250	250	251	251	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		60	60	60	60	60	60	59	59	59	59	58	58	59	59	59	59	59	59	59	59	59	59	60	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	164	163	163	164	163	163	164	164	164	164	165	164	162	163	163	163	163	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	107	107	107	107	107	107	104	104	108	110	114	116	114	114	103	108	108	109	108	108	106	106	104	104
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	230	230	231	231	231	231	228	230	232	233	236	238	239	235	229	231	232	233	233	234	228	228	228	228
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	232	232	232	232	232	233	229	230	234	236	240	242	246	240	228	234	234	234	234	234	232	232	232	236
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	227	227	228	228	227	225	226	230	230	233	235	236	233	226	229	230	232	233	233	228	228	227	227
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	232	232	232	234	233	233	230	230	234	236	240	242	246	241	229	234	234	234	234	234	232	232	232	230
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.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	.06	.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.																							560						
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																		556						
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																		547						

DATE JULY 31 2021

SIGNATURE

Mid Shift

Days Shift

Notes 1365574

Date: AUGUST 01 2021

GSTG HOURLY READING LOG

(MST / MDT this one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes: 0700 Raised MW to 19.3 MW to meet 18.9 Base load Min.

							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	ID	Units	Low	Norm	Max																								
1	Blowdown Dry Receiver Tank Hourly	BLT-013	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BLT-007	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	108	112	110	106	108	116	114	108	112	105	110	106	107	113	110	104	108	112	110	110	106	108	110	111
4	Instrument Temperature	TI-001	deg C		20	50	22	22	22	22	22	22	20	20	20	22	24	24	26	26	28	28	28	28	26	26	24	24	24	24
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	104	102	103	111	108	103	101	103	105	108	108	104	107	110	108	105	100	104	102	100	104	111	108	105
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	61	61	61	61	61	61	61	61	61	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	36	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	88	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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-251	%			70%	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-250	%			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)	AESGCC ST-01	psig	95	20																									
21	Acknowledge Alarms Hourly		√				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	22-24 found on Power Management page																													
22	Generator Current		Amps			1427	802	801	803	808	806	801	804	806	809	808	806	810	810	812	815	815	811	817	808	811	804	808	807	809
23	Mw Output		MW			27	19.0	19.0	19.0	19.1	19.1	18.9	18.9	19.1	19.2	19.2	19.1	19.2	19.1	19.1	19.2	19.1	19.1	19.1	19.1	19.2	19.2	19.2	19.2	19.2
24	80% Base Load Minimum		MW				18.8	18.8	18.9	18.9	18.7	18.7	18.9	18.8	18.8	18.5	18.4	18.4	18.1	18.1	17.7	17.6	17.8	17.8	18.4	18.4	18.4	18.7	18.7	18.7
25	Running Hours (unit overview)						6810	6811	6812	6813	6814	6815	6816	6817	6818	6819	6820	6821	6822	6823	6824	6825	6826	6827	6828	6829	6830	6831	6832	6833
26	Ambient Temperature	TC Inlet					62	62	60	60	62	62	60	61	62	65	66	66	69	70	74	76	74.3	73	70	66	64	64	63	63
	27-28 found on Gas Fuel System page																													
27	Waste Oil Tank	LI-251	%			70%	78	78	78	78	78	78	78	78	78	77	77	77	77	77	77	77	77	77	78	78	78	78	78	78
28	Total Fuel Flow		Mscf/h				191	192	192	191	192	192	196	195	196	197	194	194	196	196	196	197	196	196	197	197	197	196	196	196

Date: AUGUST 01 2021 Signature: MID: J Hun

A Inlow

GSTG 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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	30	30	30	30	30	30	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	83	83	83	83	84	84	84	84	83	83	83	83	84	83	83	83	83	84	84	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	251	251	252	252	252	252	252	252	252	252	253	254	253	253	253	254	253	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	251	251	250	250	250	248	248	248	248	248	248	249	249	249	249	249	249	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	60	60	60	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	164	163	163	163	164	169	164	164	165	165	165	166	164	166	165	165	165	163	162	163	163	163	164
Final Discharge Temp	TE-2120	deg		110	150	101	101	102	102	101	101	99	101	102	104	104	105	107	109	110	113	114	114	110	108	105	103	103	103
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	226	226	226	227	227	226	225	226	226	228	227	227	230	231	232	233	234	235	230	230	229	229	229	229
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	226	226	226	227	227	226	224	225	226	228	229	229	232	234	234	237	238	239	235	235	236	230	230	230
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	224	224	225	225	225	224	223	223	224	226	225	226	228	229	232	232	234	235	228	228	227	227	227	228
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	226	226	226	226	226	226	224	225	226	228	229	230	232	234	235	237	238	240	235	235	231	231	231	236
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.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.													560																
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								556																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								546																

DATE	AUGUST 01 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

1370245

Utilities and Institutional Facilities

Date: AUGUST 02 2021

Unit: (1) (2) (Circle one)

GTG HOURLY READING LOG

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

	Instrument Air 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
1	Blowdown Dry Receiver Tank Hourly	BV-013	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BV-007	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	108	110	106	110	111	108	85	100	110	105	108	102	109	110	109	110	105	109	110	108	108	110	110	108
4	Instrument Temperature	TI-001	deg C		20	30	21	21	21	21	20	20	20	20	20	22	21	22	24	25	25	24	24	24	22	22	22	22	22	22
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	99	102	104	100	108	106	97	101	104	103	110	100	111	110	101	100	107	107	102	106	101	92	112	110
8	Sight glass Level Expansion Tank	LI-301	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	in WC		37	50	35	35	35	35	35	35	35	35	35	35	35	35	35	38	35	35	35	35	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	86	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
17	Operation of AVR Voltage Mode @ 15.6 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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%	38	38	38	38	38	38	38	39	39	37	36	35	37	38	38	38	38	38	40	40	40	40	40	40
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	0	0	0	0	0	0	0	1	2	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)	AESGCC ST-01	psig	95	20																									
21	Acknowledge Alarms Hourly		V				Y	Y	Y	Y	Y	Y	Y	✓	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	22-24 found on Power Management page																													
22	Generator Current		Amps			1427	805	807	809	808	813	817	846	971	959	963	928	930	906	907	924	925	951	923	952	951	953	957	956	958
23	MW Output		MW			27	19.2	19.2	19.2	19.2	19.3	19.2	20.1	22.9	22.7	22.8	22.0	22.2	21.4	21.3	21.8	22.5	22.3	21.8	21.8	22.6	22.6	22.6	22.6	22.6
24	80% Base Load Minimum		MW				18.9	18.9	18.9	19.1	19.1	19.1	19.0	18.5	18.4	18.7	18.2	18.3	17.9	17.7	18.2	18.4	18.4	18.5	18.2	18.6	18.6	18.7	18.7	18.7
25	Running Hours (unit overview)						6834	6835	6836	6837	6838	6839	6840	6841	6842	6843	6844	6845	6846	6847	6848	6849	6850	6851	6852	6853	6854	6855	6856	6857
26	Ambient Temperature	TC to list					60	59	59	59	58	58	58	60.7	63.9	63.8	69.4	67.5	72.5	72.6	68.2	64.9	66.2	68.9	66	64	64	64	63	63
	27-28 found on Gas Fuel System page																													
27	Waste Oil Tank	LI-232	%			70%	79	79	79	79	79	79	79	78	78	78	78	78	78	75	77	78	79	78	78	78	78	78	78	78
28	Total Fuel Flow		Mscf/h				197	196	196	196	196	197	209.7	222	224	222	217	222	213	213	216	221	220	220	223	223	225	223	223	220

Date: AUGUST 02 2021 Signature: MLD

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	29	29	29	29	29	29	26	26	26	26	26	26	26	26	26	25	25	25	25	25	25	25	25	25
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	83	83	83	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	83	83
Stage Disch. Press	PI-2101	psig		238	285	255	253	252	252	253	253	251	251	252	252	252	253	252	252	252	252	252	251	251	251	251	253	253	252
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	250	250	250	247	247	248	248	248	248	249	249	249	248	249	249	250	250	250	249	249	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	563	563	563	563	564	564	564	564	564	564	566	564	564	565	564	564	565	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	558	558	561	561	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	58	58	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	164	163	163	163	163	163	163	165	163	162	163	163	163	162	162	162	162	163	163
Final Discharge Temp	TE-2120	deg		110	150	102	102	98	98	99	99	98	98	103	103	108	108	111	110	108	107	107	108	108	107	107	105	105	101
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	227	227	227	227	227	227	225	225	226	226	230	230	232	232	227	227	227	227	227	227	227	226	226	226
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	228	228	228	227	228	227	226	226	229	229	234	234	237	237	233	232	232	232	232	232	228	228	228	228
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	225	225	225	225	224	224	223	223	223	223	227	227	229	229	228	228	228	228	230	230	230	226	228	228
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	228	228	228	227	227	227	226	226	230	230	234	234	237	237	234	234	234	234	230	230	230	229	229	230
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	07	05	07	07	07	07	07	07	07	07	07	08	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	05	05	04	04	05	04	05	05	05	05	05	06	.05	.05	.05	.05	.05	.05
Take Ones 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	AUGUST 02 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

Date: AUGUST 03 2021

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	106	110	108	110	106	110	105	105	110	105	101	103	106	104	109	103	101	106	108	106	110	106	108	110
4	Instrument Temperature	TI-001	deg C		20	50	22	22	22	22	22	22	22	21	22	22	22	23	23	23	23	23	23	23	22	22	22	22	22	21
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	108	101	104	111	106	109	104	107	104	109	105	101	107	100	110	108	105	109	112	104	102	108	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	35	36	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	40	40	40	40	40	40	40	40	40	40	40	40	40	40	46	42	40	40	40	40	40	40	40	40
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	976	973	977	986	988	984	979	972	946	932	912	920	895	875	873	859	862	884	958	960	970	962	960	963
23	Mw Output		MW			27	23.1	23.1	23.1	23.3	23.3	23.3	23.1	23.0	22.4	22.1	21.6	21.8	21.1	20.7	20.6	20.3	20.4	22.7	22.8	22.8	22.9	22.8	22.8	22.8
24	80% Base Load Minimum		MW				18.9	18.9	18.9	19.1	19.1	19.1	18.9	18.9	18.5	18.3	18.1	18.2	17.8	17.6	17.6	17.4	17.4	17.8	18.8	18.8	18.9	18.8	18.8	18.8
25	Running Hours (unit overview)						6858	6859	6860	6861	6862	6863	6864	6865	6866	6867	6868	6869	6870	6871	6872	6873	6874	6875	6876	6877	6878	6879	6880	6881
26	Ambient Temperature	T1 inlet					60	60	60	58	58	58	59.7	60.6	63.2	67.3	70.0	69.3	74.1	75.2	72.1	78.8	77.7	77.9	71	61	60	61	62	62
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	78	78	78	78	78	78	78	79	79	78	78	78	78	75	78	78	78	78	78	78	78	80	80	80
28	Total Fuel Flow		Mscf/h				225	225	225	227	227	227	229	229	229	221	217	217	214	211	211	207	209	205	205	209	221	222	222	222

Date: AUGUST 03 2021 Signature:

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-15016	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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	25	25	25	25	25	25	25	25	25	25	25	25	25	24	24	24	24	24	24	24	24	24	24	24
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	1/8	1/8	1/4	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	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	84	84	84	83	83	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	251	251	251	251	251	251	252	252	252	253	254	253	253	253	253	253	253	252	253	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	250	250	250	250	248	248	248	249	249	250	250	249	249	249	249	249	249	250	249	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	565	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	565	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	561	560	560	560	560	560	560	560	560	560	561	561	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	58	58	58	58	58	58	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	164	164	165	164	164	164	164	164	164	164	164	164	164	164	165	165	165	164	164	164	164	164	164
Final Discharge Temp	TE-2120	deg		110	150	98	98	98	98	98	98	98	98	103	106	109	109	113	114	115	117	118	116	124	113	114	100	100	102
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	224	224	224	225	225	225	225	226	229	230	231	233	233	233	235	234	239	239	239	239	239	225	225	225
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	226	226	226	225	226	225	225	226	230	233	235	235	241	241	241	241	241	241	241	241	240	227	227	227
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	222	222	222	223	223	223	223	224	224	227	229	229	231	231	233	232	232	232	232	232	232	223	223	223
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	226	226	226	227	227	227	227	227	230	234	235	235	241	241	241	243	242	242	242	242	242	227	227	227
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	0	03	03	03	03	03	04	04	04	04	04	04	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	0	05	05	08	05	04	05	05	05	05	04	04	.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.																			560										
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8														556										
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20														545										

DATE AUGUST 03 2021

SIGNATURE

Mid Shift

Days Shift

Notes

225 2/8/8
225

UI-LOG-033-R4
October 1, 2020

Utilities and Institutional Facilities

Date: AUGUST 04 2021

CGTG HOURLY READING LOG

MST / (MDT) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	U	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	106	108	110	110	106	110	105	99	163	108	110	S	105	101	109	106	109	102	104	110	106	105	110
4	Instrument Temperature	TI-001	deg C		20	50	20	20	20	20	20	20	20	20	20	25	25	27	4	28	27	27	27	27	24	24	24	22	22	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	W	19	19	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	100	106	102	105	100	101	100	103	104	101	104	110	I	100	101	109	108	113	102	106	110	111	102	106
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	T	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	60	60	60	60	60	60	60	60	60	H	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	35	35	35	35	35		35	35	35	35	35	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max													H											
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	Y	69	69	69	69	69	69	69	69	69	69	69
15	WECC Log		Operational?																D											
16	Operation of PSS/ on at 6.3MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	R	Y	Y	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	Y	Y	Y	B	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max													B											
	(18–20 found on Air Diagram page)																		I											
18	2000 gal Oil Water Tank Level	LI-231	%			70%	40	40	40	40	40	40	40	40	40	40	40	40	T	40	40	40	40	40	40	40	40	40	40	40
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	L	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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	986	983	985	984	981	986	969	964	948	909	901	896		872	930	946	917	911	933	934	944	951	959	961
23	Mw Output		MW			27	23.3	23.3	23.3	23.3	23.2	23.2	22.9	22.8	22.4	21.5	21.3	21.0		20.6	22.1	22.3	21.7	21.5	22.1	22.1	22.3	22.5	22.7	22.7
24	80% Base Load Minimum		MW				19.1	19.1	19.1	19.1	19.0	19.0	18.8	18.8	18.5	18.0	17.9	17.8		17.5	18.4	18.5	18.2	18.1	18.4	18.4	18.5	18.5	18.7	18.7
25	Running Hours (unit overview)						6882	6883	6884	6885	6886	6887	6888	6889	6890	6891	6892	6893		6895	6896	6897	6898	6899	6900	6901	6902	6903	6904	6905
26	Ambient Temperature	T1 inlet					58	58	58	58	58	58	58	61.9	65.1	68.1	72.5	73.8		77.2	66.2	65.2	69.1	70.7	66	66	64	64	62	62
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	82	83	83	83	83	83	83	83	83	82	82	82		82	82	83	83	83	83	83	83	84	84	84
28	Total Fuel Flow		Mscf/h				226	226	226	226	226	226	226	285	223	217	216	213		207	201	220	215	214	224	223	225	225	227	227

Date: AUGUST 04 2021 Signature: MD

UI-LOG-033-R4
October 1, 2020

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	E	E	E	E	E	E	C	E	F	E	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	½	½	½	½	½	½	1/2	1/2	½	1/2	½	½	S	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	24	24	24	24	24	24	22	22	22	22	22	22	4	22	23	22	22	22	22	22	22	22	22	22
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F		F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	W	R	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	E	E	E	E	E	E	I	F	R	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	D	B	D	B	TH	B	D	D	B	B	B	B	B	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140	84	84	83	83	83	83	83	82	83	83	83	83		83	83	83	83	83	83	83	83	83	84	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	252	251	251	252	252	252	252	252	253	W	254	251	252	253	251	251	251	252	252	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	248	248	248	248	248	248	248	246	249	Y	250	250	248	250	250	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	565	564	564	564	564	564	564	564	564	D	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	561	560	560	560	560	560	O	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	58		59	59	59	59	59	59	59	59	60	60	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	164	164	164	163	163	163	163	164	164	165	B	164	164	162	162	164	163	163	163	163	164	164
Final Discharge Temp	TE-2120	deg		110	150	98	98	98	98	99	99	99	99	102	108	108	112	OF	117	117	102	108	108	104	104	102	102	103	102
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	223	224	224	224	224	223	225	225	228	231	231	233	C	234	234	226	229	229	230	230	229	229	229	228
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	225	225	225	225	224	224	227	227	230	234	234	240	L	242	241	229	234	234	228	228	229	229	230	230
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	221	221	221	221	222	222	233	233	226	229	229	231	#	231	231	224	227	227	227	227	226	226	226	227
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	226	226	226	225	225	225	226	226	230	235	238	240	3	242	242	230	235	235	230	230	230	231	231	231
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	03	03	03	03	03	03		03	01	07	03	03	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	05	08	05	05	10	05		05	.0	05	07	07	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE AUGUST 04 2021

SIGNATURE

Mid Shift

Days Shift

Notes

Utilities and Institutional Facilities

Date: AUGUST 05 2021

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	106	110	116	106	110	108	105	109	101	103	108	110	105	110	100	106	112	102	108	109	110	110	109	108
4	Instrument Temperature	TI-001	deg C		20	50	21	21	21	20	20	20	21	20	21	24	24	28	29	28	28	29	31	31	30	28	27	24	24	24
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	101	104	102	110	106	106	103	108	109	110	103	110	107	102	101	110	100	103	106	108	105	108	104
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	35	35	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	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	✓	Y	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	Y	Y	Y	Y	Y	Y	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%	40	40	40	40	40	40	40	46	40	40	40	40	40	40	40	40	39	39	39	39	39	40	40	40
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	0	0	0	0	0	6	6	0	0	6	0	0	0	0	10	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		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	971	970	972	976	977	974	962	974	936	927	893	885	880	859	849	843	839	883	859	869	884	885	894	900
23	Mw Output		MW			27	22.9	22.9	22.9	22.9	23.1	23.1	23.1	22.8	22.1	22.0	21.1	20.9	20.3	20.4	20.1	19.9	19.9	19.8	20.3	20.5	20.4	21.2	21.5	21.6
24	80% Base Load Minimum		MW				18.8	18.8	18.8	18.8	19.0	19.0	19.1	18.8	18.3	18.2	17.8	17.6	17.3	17.3	17.2	17.1	17.1	17.0	17.4	17.6	17.8	18.0	18.1	18.2
25	Running Hours (unit overview)						6906	6907	6908	6909	6910	6911	6912	6913	6914	6915	6916	6917	6918	6919	6920	6921	6922	6923	6924	6925	6926	6927	6928	6929
26	Ambient Temperature	T1 inlet					61	61	61	60	60	59	59	61.9	67.3	68.9	74.3	75.5	79.5	79.5	81.1	81.5	82.2	82.6	78	76.5	73.4	71.4	70.2	68.7
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	82	82	82	82	82	82	82	83	82	81	81	82	82	82	82	83	83	83	84	85	84	84	83	82
28	Total Fuel Flow		Mscf/h				224	224	225	225	227	227	228	226	221	218	215	214	145	209	209	206	206	206	214	217	216	217	216	216

Date: AUGUST 05 2021 Signature: MLD-

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

1391393

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	22	22	22	22	22	22	20	20	40	F	F	FULL	FULL	FULL	FULL	FULL	FULL	FULL	F	F	57	57	57	57
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	F	E	E	E	E	E	F	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	F	F	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	84	84	83	83	87	87	83	83	83	83	83	87	83	85	83	87	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	253	252	252	252	251	251	252	252	257	253	253	254	254	255	256	256	255	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	250	250	248	248	247	247	248	249	250	250	250	250	251	251	251	251	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	565	564	564	564	564	564	564	563	563	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	559	559	560	560	560	560	560	560	560	560	560	560	560	560	566	566
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	58	59	59	58	58	58	58	58	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	162	164	164	164	167	169	164	164	164	164	165	165	165	166	166	165	165	165	165	167	164	164	163
Final Discharge Temp	TE-2120	deg		110	150	99	99	99	98	97	97	98	99	104	108	113	114	114	119	120	121	120	120	120	114	111	110	110	104
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	225	225	225	225	225	225	225	226	228	231	233	234	234	237	238	238	238	238	238	235	233	231	230	228
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	227	227	228	228	226	226	224	226	230	235	240	242	242	245	247	248	247	247	246	242	238	236	234	233
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	223	223	224	224	223	223	224	224	226	229	231	232	232	234	235	236	235	235	233	233	231	230	228	226
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	228	228	229	228	226	226	224	227	231	235	240	242	242	245	247	248	248	248	240	24	239	238	236	234
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	.02	.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	.01	.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																			560					
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																			556					
																								546					

DATE	AUGUST 05 2021
	1394716
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

Date: 8-6-2021

CGTG HOURLY READING LOG

MST / MDT (circle one)
Time Gas introduced (Turbine Rolling):
Time of Turbine Online (Brkr Closed):
Time Turbine Offline (Brkr Open):
Time No Gas Flow:

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	109	110	110	108	109	109	112	108	106	117	107	113	111	106	108	110	110	106	109	110	111	110	109	110
4	Instrument Temperature	TI-001	deg C		20	50	24	24	24	24	24	24	24	24	24	26	29	30	32	33	33	33	32	32	32	26	26	25	24	26
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	108	103	104	108	106	103	107	104	110	107	108	112	105	105	108	111	103	105	106	105	104	103	104	104
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	61	61	61	61	62	62	62	62	63	63	62	62	61	61	61	61	61	61
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	36	36	37	37	38	38	38	38	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39	39	39	40	40
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	902	901	901	900	902	905	906	894	877	861	843	824	807	820	817	804	823	835	829	861	858	862	870	873
23	Mw Output		MW			27	21.7	21.6	21.6	21.6	21.6	21.7	21.8	21.5	21.1	20.6	20.2	19.8	19.3	19.6	19.6	19.2	19.7	20	19.8	20.6	20.6	20.7	20.9	21.0
24	80% Base Load Minimum		MW				18.2	18.2	18.2	18.2	18.2	18.3	18.3	18.1	17.8	17.6	17.3	17	16.8	17	16.9	16.8	17.1	17.3	17.2	17.7	17.1	17.8	17.9	17.9
25	Running Hours (unit overview)						6930	6931	6932	6933	6933	6934	6935	6936	6937	6938	6939	6940	6941	6942	6943	6944	6945	6946	6947	6948	6949	6950	6951	6952
26	Ambient Temperature	T1 inlet					68.4	68.7	68.6	68.7	68.4	68.0	67	70	73	76	80	82	85	82	84	85	82	79	81	75	71	74	73	72
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	82	82	82	82	83	83	83	83	82	82	81	80	80	81	81	82	82	82	83	83	83	82	82	82
28	Total Fuel Flow		Mscf/h				217	216	217	217	216	217	218	215	217	219	204	207	200	201	200	197	201	204	204	216	206	207	206	209

Date: 8-6-2021 Signature: Dob Ag

A Wlas

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	51	51	51	51	51	51	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	254	254	253	253	253	254	254	254	254	254	254	254	255	255	255	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	250	250	250	249	250	250	250	250	250	251	250	250	250	250	250	252	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	58	58	58	58	59	58	58	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	164	164	163	163	163	163	167	164	164	165	164	165	165	165	165	165	165	164	164	164	164	163
Final Discharge Temp	TE-2120	deg		110	150	106	107	107	107	106	106	105	110	110	112	119	120	123	121	121	120	123	123	123	111	111	111	110	110
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	228	227	227	226	225	228	230	232	234	235	236	238	236	236	235	237	236	236	232	232	231	231	230
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	233	233	232	232	232	231	232	236	239	240	244	245	247	244	244	243	248	248	248	240	238	237	235	234
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	226	225	225	225	224	225	227	229	230	233	234	236	234	232	232	235	236	235	229	229	228	228	227
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	234	234	233	233	233	232	232	236	240	242	244	245	248	245	244	245	249	249	248	240	239	237	238	237
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.03	.04	.04	.04	.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	.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.								566																					
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8			576																					
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20			595																					

DATE 8-6-2021

SIGNATURE

Mid Shift Bob Ling 1399718

Days Shift A Wan

Notes

1396304

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 08-07-2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	109	110	111	109	110	111	110	110	110	110	106	109	110	110	110	110	110	109	110	109	108	110	108	110
4	Instrument Temperature	TI-001	deg C		20	50	26	26	26	26	24	24	24	25	28	29	30	30	32	32	33	33	33	33	33	28	27	27	25	24
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	108	103	106	106	107	103	111	106	101	106	101	106	103	104	104	108	103	109	104	106	105	108	107	105
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	61	61	61	61	61	61	65	63	63	63	63	63	63	63	63	63	63	63	63	63	62	62	62	62
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	70	70	70	70	70	70	70	70	70	70	70	70	70	70	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39	39	39	39	39	39	40	40	40
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	6	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			1427	874	879	884	884	890	891	911	887	866	859	854	866	850	837	838	838	843		853	864	891	898	896	901
23	Mw Output		MW			27	21.0	21.2	21.3	21.5	21.4	21.4	21.8	21	20.4	20.3	19.8	19.9	19.1	19.6	19.4	19.5	19.6	19.1	20.0	20.4	21.1	21.4	21.3	21.4
24	80% Base Load Minimum		MW				17.9	18.0	18.1	18.4	18.2	18.2	18.3	17.9	17.5	17.5	17.2	17.2	17.1	17	17	17	17.1	17.2	17.4	17.7	18.0	18.2	18.1	18.3
25	Running Hours (unit overview)						6953	6954	6955	6956	6957	6958	6959	6960	6961	6962	6963	6964	6965	6966	6967	6968	6969	6970	6971	6972	6973	6974	6975	6976
26	Ambient Temperature	T1 inlet					72	71	70	70	69	69	67	73	76	76	80	80	81	83	83	83	81	81	78	75	71	69	69	66
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	82	84	94	93	93	93	94	93	93	93	93	93	93	92	94	94	94	94	94	94	94	94	95	95
28	Total Fuel Flow		Mscf/h				210	212	213	214	215	214	206	207	208	208	205	203	201	201	201	201	202	202	204	207	211	213	212	212

Date: 08-07-2021 Signature:

SGTG 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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	49	49	45	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	47	47	47	47	47
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	84	83	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	254	254	254	254	254	254	254	255	254	255	254	255	255	254	254	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	250	250	250	250	250	250	250	250	251	251	250	250	251	251	250	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	565	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	568	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	60	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	162	164	164	164	165	165	165	166	166	165	165	165	165	120	112	112	110	109
Final Discharge Temp	TE-2120	deg		110	150	110	109	109	107	106	106	109	115	115	115	119	115	120	122	122	120	120	120	120	238	238	233	231	231
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	230	229	228	228	226	226	230	234	235	235	237	235	239	240	240	238	238	238	238	240	240	235	235	234
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	234	234	234	233	232	232	233	240	239	239	245	245	247	248	247	245	245	246	245	235	232	232	230	230
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	227	226	225	225	225	227	232	233	233	235	235	237	238	238	236	236	236	236	240	240	234	235	235
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	235	235	235	234	233	233	234	240	240	240	246	245	247	248	248	246	246	246	246	240	240	234	235	235
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.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	.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				545																				

DATE 8-7-2021

SIGNATURE

Mid Shift Bob Ashley 1104774

Days Shift

Notes

Utilities and Institutional Facilities

Date: 8-8-2021

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	108	110	110	109	108	110	109	110	110	110	110	110	110		108	110	110	110	111	111	109	110	108	109
4	Instrument Temperature	TI-001	deg C		20	50	24	24	24	23	22	21	20	20	22	22	22	30	32		33	33	33	33	32	30	25	24	24	24
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	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	107	103	104	109	106	103	104	106	110	106	110	107	107		104	105	105	109	104	105	106	107	103	104
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	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	62	62	62	62	62	63	63	63	63	63	63	63	63	63	63	63	63	63	62	62	62	62	62	62
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	68	68	68	69	69	69	69	69	69		69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y		Y	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	Y	Y	Y	Y		Y	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%	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39	39	39	39	39	37	40	40	40
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		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	962	904	960	930	957	933	944	945	883	899	864	847	870	826	816	806	809	809	829	853	808	861	862	863
23	Mw Output		MW			27	21.4	21.1	21.6	21.9	22.3	22.4	22.5	22.5	21.1	21.1	20.6	20.1	19.6	19.4	19	19	19	19	19.5	20.1	20.6	20.5	20.5	20.5
24	80% Base Load Minimum		MW				18.3	18.3	18.4	18.5	18.8	18.8	18.8	18.8	18	18	17.1	17.3	17.1	17	16.9	16.8	16.9	16.9	17.2	17.6	17.9	17.8	17.8	17.9
25	Running Hours (unit overview)						6977	6978	6979	6980	6981	6982	6983	6984	6985	6986	6987	6988	6989	6990	6991	6992	6993	6994	6995	6996	6997	6998	6999	7000
26	Ambient Temperature	T1 inlet					68	68	67	66	62	62	61.5	62	71	71	75	79	91	83	84	85	84	84	80	75	73	73	73	73
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	95	95	94	94	94	94	94	94	94	94	94	93	94	94	95	95	95	95	95	95	95	95	95	95
28	Total Fuel Flow		Mscf/h				212	209	210	214	218	221	221	221	221	221	210	202	201	201	200	197	199	200	201	203	208	210	210	209

Date: 8-8-2021 Signature: Bob Lang (MIDS)

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	03	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	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	47	47	47	47	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	45	45	45	45	45
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	84	84	84	84	84	83	83	83	83	83	84	84	84	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	253	253	252	252	254	254	254	254	254	254	255	255	256	256	255	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	25	249	249	249	249	250	250	250	251	251	251	251	251	252	252	251	251	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	565	565	565	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	559	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	559	559
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	164	164	164	164	164	165	165	165	165	165	166	166	166	165	164	164	165	162
Final Discharge Temp	TE-2120	deg		110	150	108	109	109	106	101	99	101	101	104	104	104	119	119	119	119	119	124	124	128	120	108	110	111	111
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	231	230	230	229	228	226	226	226	229	229	229	236	236	236	241	240	240	240	240	237	236	237	238	238
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	234	233	233	231	229	227	227	228	229	229	229	245	245	245	249	249	249	249	244	246	236	236	237	238
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	229	229	228	227	225	224	225	225	227	227	227	233	232	232	238	239	238	238	238	237	234	233	232	231
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	235	235	235	231	230	227	228	228	228	229	229	245	244	244	249	249	248	248	248	246	244	242	240	238
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.01	.01	.01	.01	.01	.01	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.01	.01	.01	.05	.05	.01
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 8-8-2021

SIGNATURE

Mid Shift Bob Arcy 1409850

Days Shift

Notes

Utilities and Institutional Facilities

Date: 8-9-2021

CGTG HOURLY READING LOG

MST / MDT (circle one)
Time Gas Introduced (Turbine Rolling):
Time of Turbine Online (Brkr Closed):
Time Turbine Offline (Brkr Open):
Time No Gas Flow:

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	110	109	✓	✓	✓	✓	105	109	104	109	111	102	105	104	100	104	102	100	108	110	110	106	108	110
4	Instrument Temperature	TI-001	deg C		20	50	24	24	24	24	24	25	23	23	23	23	29	31	31	32	32	32	32	32	30	26	26	24	24	24
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	103	104	102	106	103	109	108	107	104	111	110	102	104	104	104	105	108	100	102	108	104	112	106	110
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	68	68	68	69	69	69	69	68	69	69	68	68	68	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39	39	39	39	39	39	39	39	39
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	35	20																									
21	Acknowledge Alarms Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	864	879	880	881	888	884	903	869	860	889	809	817	801	799	782	799	794	794	802	815	835	837	839	835
23	Mw Output		MW			27	20.5	20.9	20.9	20.9	21.0	21.0	21.2	20.6	20.4	19.9	19.1	19.2	18.9	18.7	18.5	18.9	18.8	18.8	18.8	19.2	19.7	19.7	19.8	19.7
24	80% Base Load Minimum		MW				17.9	18.1	18.1	18.1	18.2	18.2	18.3	17.8	17.7	17.4	14.9	16.9	16.8	17.7	16.6	16.9	16.8	16.8	16.8	16.9	17.3	17.4	17.4	17.4
25	Running Hours (unit overview)						7001	7002	7003	7004	7005	7006	7007	7008	7009	7010	7011	7012	7013	7014	7015	7016	7017	7018	7019	7020	7021	7022	7023	7024
26	Ambient Temperature	T1 inlet					73	70	70	70	69	69	68.2	73.2	74.8	78	84.7	84.2	85.7	85.3	87.8	84.6	85.5	85.1	83	80	80	78	78	77
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	95	95	97	95	95	95	95	95	96	93	93	93	93	93	95	93	95	95	96	96	96	96	96	96
28	Total Fuel Flow		Mscf/h				209	210	211	211	213	213	215	206	204	201	194	196	195	198	194	194	192	192	201	209	210	211	215	213

Date: 8-9-2021 Signature: Bob Lang

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	44	44	44	44	44	44	43	43	43	43	47	47	43	47	43	47	43	43	43	43	43	43	43	43
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	83	83	83	83	83	84
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	254	254	253	253	254	254	254	254	255	255	255	255	254	254	255	256	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	251	251	251	250	250	250	250	250	251	251	251	256	251	251	252	252	255	255	252	252	252	255
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	566	566
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	54	59	59	59	59	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	162	162	162	163	163	163	164	166	166	167	167	167	166	165	165	164	164	164	164	163	163
Final Discharge Temp	TE-2120	deg		110	150	111	111	109	108	106	106	106	106	110	117	122	122	125	125	125	124	124	124	122	121	123	123	122	122
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	238	238	236	233	233	230	230	230	234	235	239	239	241	241	241	238	240	240	240	240	241	241	241	241
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	238	237	236	235	233	233	232	234	239	243	247	247	250	250	251	246	249	249	246	245	246	246	245	245
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	234	231	231	230	229	229	228	229	231	232	234	236	239	239	239	241	238	238	236	235	235	234	233	234
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	238	238	237	234	233	233	233	232	234	243	243	243	250	250	251	249	249	249	250	250	251	251	252	252
Motor Frame Vibration	VT-1015	IPS			0.15	.05	.03	.03	.03	.03	.03	.03	.02	.04	.07	.03	.03	.03	.03	.03	.03	.03	.02	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.04	.05	.04	.04	.05	.05	.05	.05	.05	.05	.04	.04	.03	.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.										560																			
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8					556																			
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20					545																			

DATE 8-9-2021

SIGNATURE

Mid Shift Brett Lacy

Days Shift

Notes

Utilities and Institutional Facilities

Date: AUGUST 10 2021

CGTG HOURLY READING LOG

MST / MDT (circle one)
Time Gas Introduced (Turbine Rolling):
Time of Turbine Online (Brkr Closed):
Time Turbine Offline (Brkr Open):
Time No Gas Flow:

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	106	108	110	110	106	101	105	103	108	105	109	104	102	107	100	106	101	108	110	110	106	108	110
4	Instrument Temperature	TI-001	deg C		20	50	29	29	29	28	28	26	25	25	24	24	24	27	28	29	29	29	29	29	28	28	26	26	26	26
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	106	101	102	106	101	109	106	110	104	103	110	100	103	105	101	109	105	100	104	102	111	113	109
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	36	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
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			1427	884	888	887	881	881	882	908	904	905	890	872	860	834	816	819	840	884	914	912	906	901	900	888	889
23	Mw Output		MW			27	20.8	20.8	20.8	20.8	20.7	20.7	21.4	21.3	21.3	21.0	20.6	20.3	19.7	19.3	19.4	19.8	20.9	21.6	21.6	21.2	21.2	21.2	20.9	20.9
24	80% Base Load Minimum		MW				18.0	18.0	18.0	18.0	18.0	18.0	18.3	18.2	18.3	18.0	17.7	17.0	12.2	17.0	17.0	17.4	17.9	18.4	18.4	18.2	18.2	18.2	18.0	18.0
25	Running Hours (unit overview)						7024	7025	7026	7027	7028	7029	7031	7032	7033	7034	7035	7036	7037	7038	7039	7040	7041	7042	7043	7044	7045	7046	7047	7048
26	Ambient Temperature	T1 inlet					69	71	71	71	72	72	67.8	68.7	68.2	70.9	75.4	76.0	80.1	83.1	82.9	79.2	72.3	66.4	71	70	69	70	71	71
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	95	95	95	95	96	96	96	96	96	96	96	96	96	96	95	95	95	95	96	96	96	96	96	96
28	Total Fuel Flow		Mscf/h				205	205	205	208	205	206	216	216	217	215	211	211	205	204	197	206	209	211	211	210	210	212	212	213

Date: AUGUST 10 2021 Signature: MD

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	43	43	43	43	43	43	40	40	40	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84
Stage Disch. Press	PI-2101	psig		238	285	256	256	256	256	255	255	253	253	253	253	253	253	255	255	255	254	254	254	254	254	254	254	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	252	252	253	253	252	252	249	249	249	250	250	250	251	254	251	252	250	250	250	250	250	250	251	251
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	565	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		60	60	60	60	59	59	59	59	59	59	59	59	59	59	58	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	164	164	163	163	163	163	163	163	164	164	164	164	165	165	163	163	164	164	164	164	162	162
Final Discharge Temp	TE-2120	deg		110	150	115	115	113	112	112	110	107	108	107	109	112	112	119	119	121	119	112	112	112	112	110	110	109	109
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	236	236	236	234	234	233	231	231	231	223	234	234	238	238	238	237	237	237	237	237	235	235	232	232
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	242	242	244	240	240	238	233	233	233	236	239	239	245	245	246	244	230	230	230	230	233	233	236	236
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	234	234	236	232	232	231	229	229	229	230	239	237	235	238	235	235	230	230	230	230	230	230	230	230
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	242	242	244	242	242	240	233	233	234	236	239	239	245	240	247	240	237	237	237	237	237	237	236	236
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	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE AUGUST 10 2021

SIGNATURE

Mid Shift

Days Shift

Notes

Utilities and Institutional Facilities

Date: AUGUST 11 2021

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

1421904

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	110	106	110	106	108	105	106	110	106	106	100	105	109	116	108	100	103	106	108	110	110	106	108
4	Instrument Temperature	TI-001	deg C		20	50	24	24	24	24	24	24	22	24	24	28	28	29	32	32	32	32	30	30	30	30	28	28	26	26
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	109	106	102	104	101	106	106	109	100	104	101	108	106	101	107	109	109	108	111	108	102	101	112	106
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	61	61	61	61	61	61	61	61	61	61	61	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	34	34	34	34	34	34	34	34	34	34	34	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	40	40	40	40	40	40	40	40	40	46	46	40	40	40	39	39	39	39	39	39	39	39	40	40
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	6	2	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			1427	911	912	914	911	920	918	930	903	886	865	842	831	795	796	830	837	826	824	852	855	859	881	900	899
23	Mw Output		MW			27	21.5	21.5	21.5	21.5	21.7	21.7	21.9	21.3	20.7	20.4	19.9	19.6	18.8	18.8	19.6	19.8	19.5	19.4	20.1	20.1	20.1	21.0	21.2	21.2
24	80% Base Load Minimum		MW				18.3	18.3	18.3	18.3	18.4	18.4	18.6	18.1	17.7	17.6	17.3	17.1	16.6	16.6	17.2	17.3	17.2	17.1	17.6	17.6	17.6	17.1	18.1	18.1
25	Running Hours (unit overview)						7048	7049	7050	7051	7052	7053	7054	7056	7057	7058	7059	7060	7061	7062	7063	7064	7065	7066	7067	7068	7069	7070	7071	7072
26	Ambient Temperature	T1 inlet					66	67	67	67	66	66	69.8	69.4	74.5	75.6	79.5	81.9	87.4	87.5	82.3	79.0	86.6	81.7	78	76	74	71	69	69
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	95	95	95	95	95	95	95	94	94	77	77	77	76	76	77	77	77	77	76	76	76	76	77	77
28	Total Fuel Flow		Mscf/h				213	213	214	213	215	215	217	213	210	201	203	200	194	197	200	202	202	202	201	201	210	211	212	212

Date: AUGUST 11 2021 Signature: MIO

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	38	38	38	38	38	38	38	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84	83	84
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	255	255	253	253	253	254	254	254	254	254	255	254	255	255	255	253	253	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	251	251	251	251	252	252	249	249	249	250	250	250	250	250	251	251	251	251	251	251	251	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	565	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		60	59	59	59	59	59	59	59	59	59	58	58	58	58	58	59	59	59	59	59	59	60	60	60
Lube Oil Temp	TE-1584	deg		150	170	163	163	164	164	164	164	163	163	163	164	165	165	166	166	167	164	164	164	164	164	163	163	164	163
Final Discharge Temp	TE-2120	deg		110	150	107	107	107	107	108	108	104	108	109	113	118	118	123	123	117	119	119	118	118	118	109	109	107	107
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	230	230	230	230	232	232	228	230	231	233	236	236	239	237	238	236	238	236	234	234	229	229	229	229
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	233	233	233	233	235	235	230	234	238	239	242	240	248	248	240	243	245	245	241	241	239	239	236	236
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	228	228	228	228	230	231	225	227	228	231	234	234	236	236	236	234	235	235	232	232	230	230	229	229
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	234	234	234	234	235	236	231	234	236	240	243	243	248	248	240	243	240	240	242	242	241	241	238	238
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	.04	.03	.03	.03	.04	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	01	05	05	08	05	09	05	08	06	05	05	08	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE AUGUST 11 2021

SIGNATURE

Mid Shift

Days Shift

Notes

Utilities and Institutional Facilities

Date: AUGUST 12 2021

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	110	110	106	108	110	104	103	110	109	107	100	108	110	106	110	106	110	110	106	108	110	110	108
4	Instrument Temperature	TI-001	deg C		20	50	25	25	24	24	24	24	22	22	27	27	30	31	30	30	30	30	24	25	25	23	23	22	22	22
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	109	111	102	106	111	110	108	105	105	102	100	107	107	108	100	106	105	105	110	106	102	107	101	104
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	63	63	63	63	63	63	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	35	35	35	36	36	36	36	36	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	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	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%	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39	40	40	40	40	40	40	40	40
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	904	902	912	915	933	932	919	899	876	860	852	854	840	841	841	838	926	921	933	938	947	949	948	945
23	Mw Output		MW			27	21.3	21.3	21.5	21.5	22.0	22.0	21.6	21.2	20.7	20.4	20.2	20.2	19.8	19.6	19.8	19.8	21.9	21.7	21.7	22.0	22.0	22.2	22.2	22.2
24	80% Base Load Minimum		MW				18.2	18.2	18.3	18.3	18.6	18.6	18.3	18.1	17.7	17.6	17.4	17.4	17.2	17.1	17.3	17.3	18.5	18.4	18.4	18.6	18.6	18.7	18.7	18.7
25	Running Hours (unit overview)						7073	7074	7075	7076	7077	7078	7079	7080	7081	7082	7083	7084	7085	7086	7087	7088	7089	7090	7091	7092	7093	7094	7095	7096
26	Ambient Temperature	T1 inlet					69	69	68	66	64	64	67.5	70.3	74.3	76.3	78.1	78.1	81.7	80.4	79.5	79.7	65.1	66	65	65	64	64	63	63
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	78	78	79	79	79	79	78	78	77	77	76	76	77	77	76	76	79	79	79	79	79	79	79	79
28	Total Fuel Flow		Mscf/h				215	215	216	216	217	216	217	216	209	207	206	208	202	202	202	202	210	218	218	219	219	220	219	219

Date: AUGUST 12 2021 Signature: MIO

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	37	37	37	37	37	36	35	35	35	38	38	35	35	35	35	35	35	35	35	35	35	35	35	35
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	83	83	83	83	83	82	83	83	83	83	83	83	83	83	84	84	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	253	253	253	253	253	253	253	253	254	254	254	254	254	254	253	253	253	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	250	250	250	249	249	249	249	250	250	251	250	251	251	249	249	249	249	249	249	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	565	565	564	564	564	564	564	564	564	564	565	565	565	565	564	564	564	565	565	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	561	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		60	59	59	59	59	59	59	59	59	59	58	58	59	59	59	59	60	60	60	60	60	60	60	60
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	163	163	164	164	165	165	165	165	165	165	162	162	162	162	162	162	162	162
Final Discharge Temp	TE-2120	deg		110	150	107	107	105	105	105	102	106	109	112	112	118	118	121	121	120	120	103	103	103	103	103	103	103	103
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	229	231	230	230	229	229	229	229	233	233	234	240	238	238	236	236	228	228	227	226	226	227	226	226
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	233	235	233	233	233	230	232	232	237	237	243	243	248	248	245	245	230	230	229	229	229	229	229	229
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	229	228	228	228	227	227	227	230	230	233	239	235	235	234	234	226	226	224	224	224	224	224	224
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	234	236	234	234	231	231	233	233	236	236	240	239	248	248	245	245	230	230	229	229	229	229	229	229
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	03	03	03	03	03	03	.04	.04	.04	.04	.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	.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 AUGUST 12 2021

SIGNATURE

Mid Shift

Days Shift

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: AUGUST 13 2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	109	110	110	108	108	110	112	110	108	108	110	110	108	112	106	108	110	105	108	110	109	109	110	110
4	Instrument Temperature	TI-001	deg C		20	50	21	21	21	20	20	20	19	20	22	26	27	29	30	30	31	30	30	30	29	26	25	22	21	21
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	108	102	101	100	106	104	100	103	107	110	101	101	111	102	103	109	109	104	103	107	102	108	107	106
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	62	62	62	62	62	64	63	63	63	62	62	62	61	61	61	61	61
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	36	36	37	37	38	39	39	39	39	37	37	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	64	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	40	40	40	40	40	40	40	40	41	41	40	40	40	40	40	40	40	40	40	40	40	40	40	40
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	961	958	960	902	880	981	979	960	944	851	841	844	850	832	828	826	840	841	848	841	843	893	840	841
23	Mw Output		MW			27	22.5	22.5	22.5	22.7	23.0	23.0	23.0	22.6	20.1	20.1	19.9	20.0	20.0	19.7	19.5	19.5	19.9	19.9	19.9	19.9	19.9	19.9	20.0	20.0
24	80% Base Load Minimum		MW				18.8	18.8	18.8	18.9	19.1	19.1	19.1	18.8	18.5	17.9	17.6	17.4	17.4	17.1	17.1	17.1	17.6	17.8	18.0	18.3	18.4	18.8	18.8	18.8
25	Running Hours (unit overview)						7097	7098	7099	7100	7101	7102	7102	7103	7104	7105	7106	7107	7108	7109	7110	7111	7112	7113	7114	7115	7116	7117	7118	7119
26	Ambient Temperature	T1 inlet					61	61	60	60	60	58	57	61	65	72	75	77	78	81	81	82	76	73	72	67	64	62	61	61
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	79	80	80	80	80	80	83	82	81	81	80	81	80	80	80	81	81	81	82	82	81	81	81	81
28	Total Fuel Flow		Mscf/h				221	221	221	224	222	223	230	227	206	207	207	206	206	204	203	203	205	204	203	206	206	206	207	206

Date: AUGUST 13 2021

Signature: MID Jam

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	35	35	36	35	35	33	33	33	33	33	32	32	32	32	32	32	32	32	32	31	31	31	31	31
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	E	E	F	F	F	F	E	E	E	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	253	254	254	251	251	252	252	253	253	253	253	253	253	253	253	253	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	250	250	250	250	247	247	249	249	249	249	249	250	250	250	250	250	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	60	60	59	58	59	59	59	59	58	58	58	58	58	59	58	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	164	163	163	163	164	164	165	164	164	164	165	165	165	165	165	166	166	166	163	163	163	162	162
Final Discharge Temp	TE-2120	deg		110	150	102	99	99	101	99	99	95	99	103	108	114	115	117	118	119	118	116	115	115	108	106	105	102	101
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	227	227	227	228	228	228	226	227	230	233	235	234	236	237	237	237	236	235	234	231	230	229	228	227
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	227	227	227	227	227	227	223	227	229	234	240	242	242	244	244	245	243	242	242	235	234	233	232	231
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	224	224	224	224	223	224	224	225	228	230	233	234	233	234	235	234	233	233	232	229	229	228	226	225
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	228	228	229	229	228	229	223	227	230	234	240	242	242	244	245	245	244	244	244	236	234	234	232	232
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.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	.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							544																	

DATE AUGUST 13 2021

SIGNATURE

Mid Shift

Days Shift 143278

Notes

Utilities and Institutional Facilities

Date: _____

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	~	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	109	109	110	110	109	106	106	110	110	106	114	108	112	114	112	106	108	110	109	108	110	110	109
4	Instrument Temperature	TI-001	deg C		20	50	21	20	20	20	20	20	20	20	22	24	24	26	26	27	29	29	29	29	28	26	24	22	22	22
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	103	108	108	107	102	107	99	101	103	105	106	109	109	110	111	100	102	107	104	107	108	106	107	103
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	61	61	60	60	60	60	62	62	62	62	62	62	62	62	64	60	62	62	62	62	62	62	62	62
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	35	35	35	35	36	36	36	37	37	37	37	35	38	37	37	37	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	40	40	40	40	40
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		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	843	843	844	845	845	845	837	839	843	836	847	846	850	838	848	842	850	853	847	848	848	846	841	843
23	Mw Output		MW			27	19.9	19.9	20.6	20.0	19.9	19.9	19.9	20.1	20.0	19.8	19.9	20.0	20.0	19.8	20.1	20.0	20.1	20.1	20.6	20.1	20.1	20.0	19.9	20.1
24	80% Base Load Minimum		MW				18.8	18.5	19.0	19.0	19.1	19.1	19.0	18.8	18.5	18.4	18.3	18.1	18.1	17.6	17.5	17.4	17.4	17.5	17.8	18.1	18.3	18.4	18.6	18.7
25	Running Hours (unit overview)						7120	7121	7122	7123	7124	7125	7126	7127	7128	7129	7130	7131	7132	7133	7134	7135	7136	7137	7138	7139	7140	7141	7142	7143
26	Ambient Temperature	T1 inlet					61	60	59	59	58	58	58	62	64	66	67	70	70	75	77	78	78	77	74	70	67	65	64	63
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	81	82	82	82	82	82	82	82	82	81	81	81	81	81	81	81	82	82	83	82	83	82	83	82
28	Total Fuel Flow		Mscf/h				206	206	207	207	208	208	205	204	205	206	204	206	205	206	207	206	205	205	205	206	205	206	205	205

Date: 8-14-2021 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																													
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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	31	31	31	31	30	30	30	30	30	30	30	30	30	30	29	27	27	27	29	29	29	29	29	29
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	253	253	253	253	253	252	253	253	253	253	253	252	254	254	254	254	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	249	249	249	249	249	249	249	249	249	249	249	250	250	251	251	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	565	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	162	162	162	163	163	163	164	164	163	163	163	163	164	163	164	164	164	164	164	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	101	100	99	97	95	95	96	101	102	106	107	110	111	113	117	118	118	118	117	116	106	106	104	102
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	227	227	226	226	226	226	226	228	230	231	231	234	234	235	236	237	236	237	238	232	231	230	229	228
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	228	227	225	224	223	223	224	229	231	234	235	238	239	242	243	245	245	248	241	235	235	233	231	229
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	225	224	224	224	224	224	226	228	229	229	231	231	232	233	234	233	233	231	230	229	228	227	226
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	228	227	225	225	224	224	225	229	231	234	235	238	240	242	244	245	245	244	240	236	235	235	234	230
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.03	.04	.04	.04	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.01	.01	.01	.01	.01	.01	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.01	.01	.01	.01	.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.												560								560									
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8							556								556									
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20							546								546									

DATE 8-14-2024

SIGNATURE

Mid Shift Bob Day

Days Shift Josh Ac

1440243

Notes

Date: 8-15-2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open): 2352

Time No Gas Flow: 2353

Notes:

Utilities and Institutional Facilities

UI-LOG-033-R4
October 1, 2020

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	110	109	111	110	116	106	108	106	114	106	110	110	108	104	106	114	106	110	110	108	109	110	110	
4	Instrument Temperature	TI-001	deg C		20	50	22	22	22	21	21	21	20	22	22	25	28	29	31	32	32	30	29	28	22	21	21	21	21	
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	19	19	19	19	19	19	
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	107	103	108	107	109	104	102	105	105	110	106	99	103	102	102	104	104	106	108	103	104	108	107	
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	5/8	5/8	
9	Coolant Return Differential from GG	FI-001	In WC		60	80	62	62	62	62	62	62	62	62	62	62	64	62	63	64	64	62	62	62	62	62	62	62	62	
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	36	38	38	36	39	39	38	39	39	37	37	36	36	36	
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	
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	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	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%	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	40	40	40	41	41	41	
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	
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			1427	844	847	845	847	847	846	839	849	842	841	849	849	837	836	820	850	843	843	851	850	848	841	846	
23	Mw Output		MW			27	20.0	20.0	19.9	20.1	20.1	20.0	19.9	20.0	20.0	20.0	19.9	19.7	19.7	19.3	20.0	19.9	19.9	20.2	20.1	20.1	20.0	20.0	
24	80% Base Load Minimum		MW				18.7	18.6	18.7	18.9	18.9	18.9	18.9	18.7	18.4	17.9	17.6	17.5	17.2	17.1	16.9	17.5	17.7	17.7	18.8	18.8	18.9	18.9	18.8	
25	Running Hours (unit overview)						7144	7145	7146	7147	7148	7149	7150	7151	7152	7153	7154	7155	7156	7157	7158	7159	7160	7161	7162	7163	7164	7165	7166	
26	Ambient Temperature	T1 inlet					63	64	63	62	61	61	59	63	66	71	73	77	80	81	84	76	75	75	62	61	60	61	62	
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	82	82	82	82	83	83	83	84	83	82	82	82	82	82	82	83	83	83	83	83	84	84	84	
28	Total Fuel Flow		Mscf/h				204	205	205	204	205	205	204	205	206	206	207	206	206	205	202	207	207	205	206	205	206	206	206	

Date: 8-15-2021 Signature: Bob Long

day shift - Jack Ames

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	
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	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	
Oil Day Tank Level	LI-1562	GAL	10		FULL	29	29	29	29	29	29	29	28	28	28	28	28	27	27	27	27	27	27	27	27	27	27	27	
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
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	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	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	
1st Stage Inlet Press.	PI-2100	psig		88	140	83	83	83	83	83	83	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	253	253	252	252	253	253	253	253	254	254	255	258	258	254	252	253	253	253	253	
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	250	250	250	249	249	249	249	250	249	250	250	251	251	251	251	250	250	250	250	250	
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	565	564	564	564	565	564	565	564	564	564	564	564	564	564	564	564	565	
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	58	58	58	58	59	59	59	59	59	59	59	59	
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	164	164	163	163	163	164	165	166	166	166	163	161	161	165	165	163	163	
Final Discharge Temp	TE-2120	deg		110	150	102	101	101	101	101	101	98	101	105	109	113	115	119	122	123	118	114	113	105	103	103	101	102	
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	228	228	227	227	227	227	230	232	234	236	237	239	240	240	236	235	236	227	227	228	229	229	
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	229	229	229	228	228	228	225	229	232	237	241	242	245	249	250	245	242	240	228	228	228	226	228	
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	227	226	226	226	226	224	227	229	231	233	234	235	237	237	234	233	231	226	226	227	227	227	
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	230	230	230	229	230	229	226	230	233	238	241	242	245	249	250	245	242	242	229	229	229	229	229	
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.05	.05	.05	.03	.03	.03	.03	.04	.04	.04	.04	.03	.04	.04	.04	.03	.03	.03	.03	.03	
Compresser Frame Vibration	VT-1512	IPS			0.35	.06	.06	.03	.05	.06	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.06	
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							560														
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8			556							557														
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20			547							547														

DATE 8-15-2024

SIGNATURE

Mid Shift Bob Arms

Days Shift John Arms

Notes

Utilities and Institutional Facilities

Date: 8-19-2021

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed): 1448

Time Turbine Offline (Brkr Open): 1503

Time No Gas Flow:

Notes: FUEL ON 1244, 1412, 1436
FUEL OFF 1245, 1413, 1817
SEVERAL UNIT START & STOPS WERE PERFORMED FOR SIEMENS

	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																								
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			1427																								
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: 8-19-2021 Signature: Josh Auer

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	1153																												
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 6-19-2021

SIGNATURE

Mid Shift

Days Shift

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 6-20-21

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1342

Time of Turbine Online (Brkr Closed): 1355

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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															110	112	112	100	116	110	108	109	110	110
4	Instrument Temperature	TI-001	deg C		20	50															30	31	31	30	28	26	26	24	25	25
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															19	19	19	19	19	19	19	19	19	19
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/3	2/3	FULL															99	103	107	107	103	106	106	106	109	103
9	Coolant Return Differential from GG	FI-001	In WC		60	80															5/8		5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8
10	Coolant Return Differential from	FI-002	In WC		37	50															60		60	60	60	60	60	60	60	60
11	Control Room		Units	Low	Norm	Max															36	36	38	36	36	36	36	36	36	36
12	Room Temperature		deg F		72	85																								
15	WECC Log		Operational?																		72	72	72	72	72	70	70	70	70	70
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%															5	4	4	4	4	4	5	5	5	5
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%															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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v																		✓		✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427															857	850	854	858	881	837	840	842	839	836
23	Mw Output		MW			27															20.3	20.3	20.7	20.4	20.9	20.0	20.0	20.4	19.9	19.9
24	80% Base Load Minimum		MW																		17.4	17.4	17.4	17.5	17.9	18.2	18.3	18.4	18.4	18.5
25	Running Hours (unit overview)																				7172	7174	7174	7175	7176	7177	7178	7179	7180	7181
26	Ambient Temperature	T1 Inlet																			78	77	77	77	73	69	68	67	66	65
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%															33	35	35	35	36	36	36	36	36	37
28	Total Fuel Flow		Mscf/h																		205	206	206	205	205	202	203	202	202	202

Date: 6-20-21 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	1323																												
Combustible Gas Detector	AAH-303	%		0%	20%															B		B	B	B	B	B	B	B	B
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																E		E	E	E	E	E	E	E	E
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY															1/2		1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL															25	25	25	25	25	25	25	24	24	24
Oil Day Tank Level	LI-1562	GAL	10		FULL															F		F	F	F	F	F	F	F	F
Lubricator Bulls eye		LEVEL	1/2	FULL																E		E	E	E	E	E	E	E	E
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY															E	E	E	E	E	E	E	E	E	E
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY															B	B	B	B	B	B	B	B	B	B
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																82		83	83	83	83	83	84	84	84
1st Stage Inlet Press.	PI-2100	psig		88	140															254		252	253	253	253	253	253	253	253
Stage Disch. Press	PI-2101	psig		238	285															247		249	249	249	249	249	249	249	249
2nd Stage Inlet Press	PI-2200	psig		267	285															565		564	564	565	565	565	565	564	564
2nd Stage Disch. Press	PI-2201	psig		575	600															560		560	560	560	560	560	560	560	560
Final Discharge Pressure	PI-2108	psig		575	600															59		59	59	59	59	59	59	59	59
Lube Oil Pressure	PI-1572	psig	40	60																164		164	164	164	164	163	163	162	164
Lube Oil Temp	TE-1584	deg		150	170															117		117	117	110	109	107	106	105	105
Final Discharge Temp	TE-2120	deg		110	150															241		239	238	234	234	234	233	233	233
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297															245		244	243	238	236	236	235	234	234
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283															239		237	236	235	233	232	232	231	231
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297															245		244	244	238	237	236	235	234	234
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283															.04		.04	.04	.04	.03	.03	.03	.03	.03
Motor Frame Vibration	VT-1015	IPS			0.15															.05		.05	.05	.05	.05	.05	.05	.05	.05
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	5-20-2021
SIGNATURE	14# 9460
Mid Shift	
Days Shift	
Notes	

Utilities and Institutional Facilities

Date: _____

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	109	110	109	110	108	109	114	108	110	112	112	110	108	112	112	114	110	105	110	111	110	108	111	110
4	Instrument Temperature	TI-001	deg C		20	50	25	24	22	22	22	22	20	22	24	24	26	28	29	29	30	30	30	29	29	27	25	25	24	25
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	104	109	110	109	107	103	105	108	110	110	101	103	109	109	103	108	111	101	102	111	107	103	103	105
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	35	36	36	37	35	36	37	36	37	37	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	76	76	76	70	70
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	50	50	50	50	50	50	50	60	50	50	50	50	50	40	40	40	40	40	40	40	40	35	50	50
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
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			1427	857	939	942	944	950	950	946	946	899	909	884	881	853	859	840	862	857	852	851	884	896	896	964	910
23	Mw Output		MW			27	19.9	22.3	22.4	22.5	22.1	22.6	22.5	21.9	21.4	21.6	21.1	20.9	20.3	20.4	20.0	20.5	20.4	20.3	20.2	21.0	21.3	21.2	21.5	21.6
24	80% Base Load Minimum		MW				18.5	18.7	18.7	18.0	18.9	18.8	18.7	18.4	18.1	18.1	17.8	17.8	17.4	17.5	17.2	17.6	17.5	17.5	17.4	17.9	18.1	18.0	18.2	18.2
25	Running Hours (unit overview)						7182	7183	7184	7185	7186	7187	7188	7189	7190	7191	7192	7193	7194	7195	7196	7197	7198	7199	7200	7201	7202	7205	7204	7205
26	Ambient Temperature	T1 inlet					63	63	62	62	62	62	62	66	70	69	73	73	78	77	80	76	77	77	78	72	70	71	70	69
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	37	38	38	38	38	38	37	37	35	35	35	35	36	36	37	37	38	38	38	38	37	37	37	37
28	Total Fuel Flow		Mscf/h				203	204	202	204	204	205	221	216	214	217	213	211	208	208	206	209	208	207	206	208	209	209	211	212

Date: 8-21-2021 Signature: Bob Avery day shift / 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																													
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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	22	22	22	22	22	22	22	22	22
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	83	83	83	83	82	82	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	252	252	251	251	251	252	252	252	253	253	253	254	254	254	254	254	254	254	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	248	247	246	247	248	248	249	249	249	250	250	250	250	250	250	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	565	565	565	565	564	564	564	565	565	564	565	564	565	565	561	563	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	162	163	163	163	164	164	163	163	163	163	164	164	164	164	164	164	163	163	163	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	165	165	162	160	[illegible]	164	160	161	161	162	163	165	168	168	169	168	167	167	163	161	161	160	159	158
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	233	233	231	229	230	230	228	229	233	234	236	237	239	238	239	238	237	236	236	235	235	234	234	233
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	234	232	230	229	228	228	228	231	235	237	242	244	246	245	247	246	245	244	244	240	240	239	237	236
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	231	231	230	229	228	228	226	227	231	232	234	235	235	236	236	235	235	235	235	233	233	232	232	231
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	234	234	232	231	229	229	229	231	235	236	242	244	246	246	247	246	245	244	244	240	239	239	237	236
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.02	.03	.03	.04	.03	.04	.04	.04	.04	.04	.04	.04	.04	.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								560								560								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								556								557								
													545								546								

DATE	8-21-2021
SIGNATURE	
Mid Shift	Bob [illegible] 1452740
Days Shift	[illegible]

Notes

Utilities and Institutional Facilities

Date: _____

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	110	109	109	110	110	109	114	112	108	112	106	110	108	106	110	112	110	108	110	111	110	109	110	110
4	Instrument Temperature	TI-001	deg C		20	50	24	24	23	22	21	21	21	21	24	27	29	27	26	29	30	29	30	30	29	27	26	26	28	24
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	111	109	109	103	104	104	107	107	100	110	107	108	102	105	109	111	107	103	111	109	109	103	107
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	35	36	36	36	37	37	37	38	37	37	37	37	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.3MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	H	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	5	5
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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	924	925	926	931	953	960	962	930	892	883	863	887	898	846	849	872	853	857	870	889	896	895	901	914
23	Mw Output		MW			27	21.9	21.9	22.1	22.2	22.6	22.8	22.9	22.1	21.2	21.0	20.4	21.1	21.3	20.1	20.2	20.7	20.2	20.3	20.7	21.1	21.5	21.2	21.3	21.7
24	80% Base Load Minimum		MW				18.4	18.4	18.5	18.5	18.7	18.8	18.9	18.5	17.5	17.8	17.4	17.9	18.0	17.2	17.4	17.7	17.3	17.4	17.7	17.9	18.0	18.0	18.1	18.2
25	Running Hours (unit overview)						7206	7207	7208	7209	7210	7211	7212	7213	7214	7215	7216	7217	7218	7219	7220	7221	7222	7223	7224	7225	9226	7227	7228	7229
26	Ambient Temperature	T1 inlet					67	66	65	63	62	61	60	65	71	74	77	72	71	80	78	75	79	78	75	72	71	71	70	68
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	38	38	39	39	39	39	38	38	37	36	35	38	38	37	37	37	38	38	39	39	39	39	39	39
28	Total Fuel Flow		Mscf/h				212	214	223	225	227	227	228	221	215	213	209	214	214	205	206	210	207	205	209	215	214	218	216	216

Date: 8-22-2021 Signature: Josh Arnold

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						B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Combustible Gas Detector	AAH-303	%		0%	20%	E	E	E	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 Left Side	FSL-1501B	LIGHT		BLINK		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
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY	22	22	22	22	21	21	21	21	21	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Oil Day Tank Level	LI-1562	GAL	10		FULL	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Lubricator Bulls eye		LEVEL	1/2	FULL		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 Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY	253	253	253	252	252	252	252	252	253	253	253	253	253	253	251	254	254	254	255	254	254	254	255	253
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		250	250	250	249	249	249	248	248	249	250	250	250	250	249	250	250	250	250	250	250	250	250	250	250
1st Stage Inlet Press.	PI-2100	psig		88	140	565	560	565	565	565	565	564	565	564	565	560	565	565	565	565	565	565	565	565	565	565	565	565	565
Stage Disch. Press	PI-2101	psig		238	285	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
2nd Stage Inlet Press	PI-2200	psig		267	285	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
2nd Stage Disch. Press	PI-2201	psig		575	600	163	163	163	165	163	163	164	164	163	163	164	164	163	162	164	164	163	162	163	163	163	163	163	163
Final Discharge Pressure	PI-2108	psig		575	600	108	107	104	101	99	99	98	102	110	115	111	112	117	117	116	119	118	118	111	110	110	109	108	
Lube Oil Pressure	PI-1572	psig	40	60		233	232	231	236	229	229	229	230	233	236	238	235	233	237	236	235	238	238	237	235	234	234	233	232
Lube Oil Temp	TE-1584	deg		150	170	236	235	233	231	229	229	228	231	237	242	245	241	239	243	243	243	246	246	246	234	239	238	237	236
Final Discharge Temp	TE-2120	deg		110	150	231	231	230	230	226	228	227	228	231	233	235	232	230	234	234	233	235	238	235	232	232	231	229	229
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	236	235	233	231	230	230	229	232	238	242	245	241	239	244	244	244	246	246	246	240	239	238	239	237
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03	.03	.03	.03
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
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.	A63FGDT	49-48=psid			8			560							560														
Double Block and Bleed Pressure	A63FTGST	50-49=psid			20			556							557														
Fuel Gas Supply Pressure								547							547														

DATE 9-22-2021

SIGNATURE

Mid Shift Bob

Days Shift Josh 1458022

Notes

Utilities and Institutional Facilities

Date: 8-23-21

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	109	111	110	110	109	113	112	111	113	112	110	107	112	110	113	107	105	110	106	110	106	112	110
4	Instrument Temperature	TI-001	deg C		20	50	24	23	22	21	21	21	22	22	23	24	27	28	30	30	31	30	31	32	32	32	31	30	30	28
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	106	111	103	110	109	104	105	107	110	108	111	110	112	107	104	108	107	106	104	110	106	104	108	111
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	66
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	37	37	37	37	37	37	37	37	37	37	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	76	76	70	70	70	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	5	5	5	5	5	5	5	5	6	6	5	5	5	4	4	4	4	4	4	4	5	5	5	5
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			1427	919	928	930	943	957	958	941	934	926	896	885	871	859	829	820	842	828	835	849	855	868	881	887	884
23	Mw Output		MW			27	21.8	22.0	22.2	22.6	22.8	22.8	22.3	22.1	22	21.2	20.9	20.5	20.2	19.7	19.4	19.9	19.6	19.7	20.2	20.5	20.7	21.0	21.0	21.0
24	80% Base Load Minimum		MW				18.3	18.5	18.6	18.7	18.8	18.8	18.6	18.5	18.3	17.9	17.6	17.4	17.3	17.2	16.9	17.3	17.1	17.2	17.4	17.6	17.7	17.9	17.9	17.9
25	Running Hours (unit overview)						7230	7231	7232	7233	7234	7235	7236	7237	7238	7239	7240	7241	7242	7243	7244	7245	7246	7247	7248	7249	7250	7251	7252	7253
26	Ambient Temperature	T1 inlet					67	66	64	62	61	61	64	65.7	67.5	72.7	75.6	77.7	79.7	82.9	84.7	79.9	82	81	78	76	74	72	72	72
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	39	39	39	39	39	39	40	40	38	37	37	37	37	37	37	38	38	38	38	38	39	39	40	40
28	Total Fuel Flow		Mscf/h				217	219	221	226	226	227	222	220	220	214	212	209	204	202	199	206	203	200	200	208	208	210	214	214

Date: 8-25-2021 Signature: Bob Hung (MIDS) Awar

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	19	19	19	19	19	18	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	E	E	E
Packing Lube Oil Flow Indicator Right Side	FSI-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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	83	84	84
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	253	252	252	251	252	252	252	253	253	253	253	254	252	254	254	254	253	253	255	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	249	249	249	247	248	249	250	249	249	250	250	250	249	251	251	251	252	252	252	251	251
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	564	565	564	565	565	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	58	58	58	59	59	59	59	59	59	60	60	
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	164	163	163	164	163	163	165	166	166	164	166	166	166	163	163	163	162	162
Final Discharge Temp	TE-2120	deg		110	150	108	105	107	100	99	99	98	104	106	108	113	114	119	120	121	119	121	121	121	117	117	115	110	110
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	232	231	231	230	229	229	228	230	231	232	235	236	239	240	240	238	239	240	240	236	235	236	233	233
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	235	232	230	229	229	228	227	231	233	234	240	240	245	246	248	246	247	247	247	244	244	245	237	236
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	229	230	230	229	246	228	225	228	228	230	232	232	235	236	239	236	237	238	238	234	235	234	231	231
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	236	233	232	230	280	230	227	232	234	235	241	242	247	247	248	246	248	248	248	245	245	245	258	256
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.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	.06	.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.										560																			
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8					556																			
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20					545																			

DATE 8-23-2024

SIGNATURE

Mid Shift Bob Ang

Days Shift A Wan

Notes 145981

Utilities and Institutional Facilities

Date: AUGUST 24 2021

MST / (MDT) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	108	110	110	106	108	110	108	112	107	109	107	113	110	110	108	110	112	113	111	110	108	109	110	109
4	Instrument Temperature	TI-001	deg C		20	50	26	26	26	26	24	24	22	22	26	26	29	30	30	32	32	32	32	30	29	29	26	26	26	26
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	109	104	110	106	111	104	107	104	100	106	101	106	108	103	109	106	104	108	103	108	107	106	101	109
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	62	62	61	61	61	64	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	36	36	37	37	37	35	38	38	38	37	36	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	5	5	5	5	5		5	5	5	5	5	5	5	4	4	4	4	3	4	40	4	4	5	5
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
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			1427	893	891	892	906	908	91.7	930	919	897	877	861	847	841	821	819	812	818	823	843	856	877	876	878	877
23	Mw Output		MW			27	21.3	21.3	21.3	21.5	21.7	28.7	22.7	21.9	21.3	20.9	20.5	20.1	20	19.4	19.4	19.7	19.3	19.4	19.9	20.3	20.8	20.8	20.9	20.9
24	80% Base Load Minimum		MW				18.1	18.1	18.1	18.2	18.3	18.3	18.5	18.3	18	17.7	17.4	17.3	17.2	16.9	16.9	16.8	16.9	16.9	17.3	17.6	17.8	17.8	17.9	17.9
25	Running Hours (unit overview)						7254	7255	7256	7257	7258	7259	7260	7261	7262	7263	7264	7265	7266	7267	7268	7269	7270	7271	7272	7273	7274	7275	7276	7277
26	Ambient Temperature	T1 inlet					70	70	70	69	69	68	65	67	71	74.5	77.9	79.9	81	84.7	84	85.3	84.7	83.8	80	76	74	74	74	73
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	40	39	39	39	39	39	40	40	38	38	37	37	37	37	37	39	39	39	40	43	42	42	42	42
28	Total Fuel Flow		Mscf/h				215	216	216	216	218	218	223	223	216	213	209	206	205	201	201	198	200	202	203	207	213	213	214	213

Date: AUGUST 24 2021 Signature: MD

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	17	17	17	16	16	16	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	83	83	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	255	254	254	253	253	253	252	252	252	253	253	253	254	254	254	255	255	255	255	255	255	255	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	252	251	251	251	251	251	248	248	249	249	249	249	250	251	251	251	251	251	251	251	251	251	251	251
2nd Stage Disch. Press	PI-2201	psig		575	600	566	566	565	566	566	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		60	60	60	60	60	60	59	59	59	58	58	58	58	58	58	58	58	58	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	162	162	162	163	163	163	164	164	164	165	165	167	167	167	167	167	167	163	163	163	163	162	162
Final Discharge Temp	TE-2120	deg		110	150	110	109	109	109	107	107	107	108	109	112	116	117	118	121	123	123	122	120	119	115	115	114	113	111
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	233	232	232	232	231	231	230	231	233	235	237	238	240	241	241	241	241	240	239	236	236	235	234	233
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	237	235	235	235	233	233	231	232	235	238	242	242	244	248	249	249	249	248	247	242	241	240	238	237
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	231	231	231	230	230	229	228	230	230	232	234	234	236	238	239	239	238	237	236	234	234	233	233	231
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	238	236	236	236	234	234	231	232	234	238	242	242	244	248	249	248	249	248	246	242	241	240	238	237
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.03	.03	.04	.04	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.06	.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.												560																	
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8							556																	
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20							545																	

DATE	AUGUST 24 2021
SIGNATURE	
Mid Shift	1468299
Days Shift	

Notes

1464838

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 8-25-21

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	111	110	NO	109	107	114	110	113	107	110	112	108	111	109	110	112	106	110	108	106	110	114	108
4	Instrument Temperature	TI-001	deg C		20	50	25	24	23	23	22	22	23	23	24	26	29	30	31	32	32	31	31	31	30	30	30	28	28	28
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	108	104	109	111	110	110	107	105	100	106	108	105	109	106	104	107	102	100	107	104	108	106	107
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	62	62	61	61	61	60	60	60	60	66	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	37	37	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
17	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	5	5	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	3	4	4	4	4	4	4
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			1427	892	908	914	919	927	929	906	890	875	858	848	828	815	801	800	809	805	821	827	828	847	902	900	849
23	Mw Output		MW			27	21.2	21.7	21.8	21.8	22.1	22.2	21.6	21.2	20.8	20.3	20.1	19.7	19.3	18.9	18.8	19.1	19	19.4	19.7	19.7	20.1	21.2	21.5	20.1
24	80% Base Load Minimum		MW				18.1	18.3	18.4	18.4	18.5	18.5	18.2	18	17.8	17.4	17.3	17	16.9	16.6	16.5	16.7	16.6	16.9	17.1	17.1	17.4	18.1	18.1	18.4
25	Running Hours (unit overview)						7278	7279	7280	7281	7282	7283	7284	7285	7286	7287	7288	7289	7290	7291	7292	7293	7294	7295	7296	7297	7298	7299	7300	7301
26	Ambient Temperature	T1 inlet					70	69	67	66	66	65	68	71	74.3	78.4	80	83.3	84	87	88	86.7	87	83	81	81	78	76	72	70
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	42	42	42	42	42	42	42	42	40	39	39	39	38	39	40	41	40	40	40	41	42	42	42	42
28	Total Fuel Flow		Mscf/h				215	218	218	219	224	222	217	212	208	208	206	203	199	196	198	202	200	198	203	204	205	209	211	211

Date: 8-25-2021 Signature: Bob Guay

A Wan

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	15	15	14	14	14	14	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	254	254	253	253	253	253	253	254	254	255	255	255	255	255	255	256	256	256	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	251	251	251	251	251	251	250	251	249	250	250	251	250	251	251	251	251	251	251	251	252	256	255	251
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	564	566	565	566	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	58	58	58	58	58	58	58	58	58	58	58	59	59	60	60
Lube Oil Temp	TE-1584	deg		150	170	162	162	162	162	162	162	163	164	164	165	165	167	167	167	167	166	167	167	166	166	164	164	162	162
Final Discharge Temp	TE-2120	deg		110	150	110	110	109	109	108	108	105	107	113	113	116	118	121	125	125	124	126	126	125	125	117	115	113	113
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	233	232	232	232	232	231	231	234	235	236	238	241	241	243	243	240	241	241	241	241	238	238	239	239
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	233	233	233	233	232	232	233	234	239	241	243	244	248	252	252	250	250	250	250	250	245	244	240	240
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	237	231	230	230	230	229	229	231	232	233	235	238	238	239	239	240	238	236	236	236	235	234	232	232
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	239	236	233	232	232	232	233	234	238	241	244	244	248	252	252	250	250	250	250	250	246	245	241	241
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.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.													560																
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								557																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								546																

DATE 8-25-2021

SIGNATURE

Mid Shift Bob Lang

Days Shift A Wan

Notes 1469954

Utilities and Institutional Facilities

Date: AUGUST 26 2021

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	108	105	111	110	108	106	111	113	108	112	114	110	110	112	113	110	108	112	110					
4	Instrument Temperature	TI-001	deg C		20	50	23	23	23	22	22	22	22	22	24	24	28	30	32	32	32	32	32	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	19	19	19	19	19	19	19	19	19	19	19					
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	106	111	108	103	102	106	101	106	102	109	106	103	105	108	105	107	103	101					
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					
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	62	62	62	62	62	60	60					
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	36	36	36	36	37	37	37	37	37	36	35					
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69					
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	Y	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	Y	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%	4	4	4	4	4	4	5	5	6	5	5	5	5	4	4	4	4	4	4					
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	0	0	0	0	6	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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	908	919	924	927	942	945	936	932	886	874	866	846	835	835	812	816	822	848	844					
23	Mw Output		MW			27	21.7	21.8	22.1	22.1	22.5	22.5	22.3	22	21.1	20.8	20.6	20.1	19.8	19.4	19.2	19.3	19.5	20.2	20.2					
24	80% Base Load Minimum		MW				18.3	18.4	18.5	18.5	18.7	18.7	18.5	18.4	17.8	17.6	17.5	17.2	17	16.8	16.7	16.9	17	17.4	17.4					
25	Running Hours (unit overview)						7301	7302	7303	7304	7305	7306	7308	7309	7310	7311	7312	7313	7314	7315	7316	7317	7318	7319	7320					
26	Ambient Temperature	T1 inlet					67	67	66	65	63	63	65	67	73	75	77	80	82	86	86	84	83	78	76					
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	42	42	42	42	42	42	42	42	41	40	40	39	38	38	37	38	38	38	38					
28	Total Fuel Flow		Mscf/h				218	216	219	221	225	225	222	220	222	211	209	204	199	196	194	196	197	196	198					

Date: AUGUST 26 2021 Signature: MIO

A Wan

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					
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					
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½					
Oil Day Tank Level	LI-1562	GAL	10		FULL	12	12	12	12	12	12	10	10	10	10	10	10	50	52	52	52	52	52	52					
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F					
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					
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					
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					
1st Stage Inlet Press.	PI-2100	psig		88	140	84	84	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83					
Stage Disch. Press	PI-2101	psig		238	285	256	255	254	253	253	253	253	253	253	254	254	254	254	254	254	254	254	253	253					
2nd Stage Inlet Press	PI-2200	psig		267	285	252	251	250	249	249	249	249	249	249	250	250	251	250	251	251	251	251	249	250					
2nd Stage Disch. Press	PI-2201	psig		575	600	565	566	565	565	564	565	565	565	565	565	565	565	565	565	566	565	566	565	565					
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560					
Lube Oil Pressure	PI-1572	psig	40	60		59	60	59	59	59	59	59	59	59	59	59	59	59	58	58	58	58	58	59					
Lube Oil Temp	TE-1584	deg		150	170	164	162	164	164	164	164	164	164	164	162	164	164	165	165	166	166	166	164	163					
Final Discharge Temp	TE-2120	deg		110	150	113	110	107	105	105	102	104	105	106	112	119	121	125	126	128	128	127	125	125					
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	238	239	238	235	236	231	229	229	230	234	237	239	239	239	240	241	240	238	238					
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	245	240	238	235	233	230	231	232	234	240	245	247	249	251	252	252	251	248	245					
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	235	232	231	229	229	228	227	228	230	232	234	237	236	237	239	240	236	234	233					
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	246	241	240	239	238	238	232	232	234	240	246	247	250	251	253	254	251	249	248					
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.03	.03	.03					
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.04	.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.												560																	
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8							556																	
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20							545																	

DATE AUGUST 26 2021

SIGNATURE

Mid Shift

Days Shift

Maint Filled oil Day tank

Notes 157 1475048

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 8-27-2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1059 1206 1136 1115

Time of Turbine Online (Brkr Closed): 1218 1354

Time Turbine Offline (Brkr Open): 1300

Time No Gas Flow: 1101 1116 1137

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														106	110	106	112	110	108	110	110	106	110	110
4	Instrument Temperature	TI-001	deg C		20	50														32	26	26	28	28	27	27	27	27	27	20
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
7	Coolant PLC Temperature	TI-002	deg F	100	110	120														108	105	106	101	104	108	110	106	108	106	102
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
9	Coolant Return Differential from GG	FI-001	In WC		60	80														60	60	60	60	60	63	63	63	63	63	63
10	Coolant Return Differential from	FI-002	In WC		37	50														39	36	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85														70	70	70	70	70	70	70	70	70	70	70
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%														6	6	6	7	7	7	7	7	7	7	7
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%														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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v																	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on PowerManagement page)																													
22	Generator Current		Amps			1427														859	817	875	847	863	876	899	937	897	838	838
23	Mw Output		MW			27														20.3	21.8	20.8	20.1	20.6	20.8	21.8	22.3	23	19.9	19.9
24	80% Base Load Minimum		MW																	17.6	18.4	17.7	17.4	17.6	17.8	18.3	18.6	19	18.9	19
25	Running Hours (unit overview)																			7322	7322	7323	7324	7325	7326	7327	7328	7329	7330	7332
26	Ambient Temperature	T1 inlet																		74	66	74	78	75	73	66	64	59	61	59
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%														40	43	44	44	44	44	44	44	45	45	45
28	Total Fuel Flow		Mscf/h																	210	219	211	207	209	212	219	216	222	227	205

Date: 8-27-2021 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	1028																												
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															50										
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															E										
1st Stage Inlet Press.	PI-2100	psig		88	140														B										
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														103										
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297														109										
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283														279										
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297														240										
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283														233										
Motor Frame Vibration	VT-1015	IPS			0.15														240										
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.																			559										
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8														555										
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20														545										

DATE	8-27-2021
SIGNATURE	
Mid Shift	
Days Shift	Josh Aust

Notes

Utilities and Institutional Facilities

Date: AUG 2 8 2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	106	108	110	106	110	112	112	108	110	108	112	112	108	110	108	110	106	108	109	110	100	109	110
4	Instrument Temperature	TI-001	deg C		20	50	20	22	24	24	20	20	20	20	22	24	27	28	29	30	30	32	30	30	30	29	24	24	24	24
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	110	110	106	108	103	105	103	105	108	111	107	101	102	100	101	101	106	109	110	109	107	107	107	107
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	63	67	63	67	63	23	60	60	60	60	62	62	62	13	62	62	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	35	36	37	35	35	36	36	37	37	37	37	37	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	72	72	72	74	72	72	72	72	72	72	72	72	72	72	72	72	72
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%	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6
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 5T-01	psig	35	20		✓	✓	✓	✓	✓	✓																		
21	Acknowledge Alarms Hourly		v										✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	848	840	841	834	~~19.8~~ 846	839	843	836	846	835	835	846	846	839	846	832	841	840	857	848	845	84[illegible]	846	845
23	Mw Output		MW			27	20.1	20	19.9	19.9	~~18.9~~	20.2	20.1	19.9	20.1	19.9	19.9	20.1	20.2	19.9	20.0	19.8	19.9	19.9	19.9	20.1	20.1	19.9	19.8	19.9
24	80% Base Load Minimum		MW				18.9	18.9	19	19	18.9	18.9	18.8	18.6	18.4	18.1	17.7	17.7	17.5	17.1	17.2	17.1	17.4	17.7	17.7	17.9	18.2	18.2	18.3	18.3
25	Running Hours (unit overview)						7333	7334	7335	7336	7337	7338	7338	7339	7340	7341	7343	7343	7344	7345	7346	7347	7348	7349	7350	7351	7352	7353	7354	7355
26	Ambient Temperature	T1 inlet					62	61	59	59	60	61	61	64	66	70	74	74	77	78	80	82	78	75	75	73	69	69	66	68
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	45	44	44	44	44	44	44	44	43	42	42	43	42	43	43	44	44	44	45	44	44	44	44	44
28	Total Fuel Flow		Mscf/h				205	210	214	208	206	204	204	204	205	204	205	206	206	204	208	205	206	205	206	206	205	205	203	203

Date: AUG 2 8 2021 Signature: GOMER

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	50	49	49	49	49	49	49	49	48	48	48	48	48	47	47	47	47	47	47	47	47	47	46	46
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	253	253	253	252	252	252	252	253	253	253	253	253	253	253	253	253	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	249	249	248	248	248	249	249	249	249	250	250	250	250	250	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	57	59	59	59	59	58	58	58	58	58	59	58	58	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	164	164	164	164	164	164	164	163	163	164	164	165	165	165	165	165	165	165	164	164	164	164	163
Final Discharge Temp	TE-2120	deg		110	150	97	97	97	99	99	99	100	102	105	106	112	112	115	119	120	121	118	116	116	112	109	109	108	107
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	230	230	230	230	230	230	230	231	232	234	236	237	237	239	240	240	237	236	236	234	232	232	232	232
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	227	227	227	228	228	228	228	230	232	234	236	237	237	239	240	240	237	236	236	234	232	232	232	232
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	228	228	228	228	228	228	228	229	230	232	234	234	234	236	237	237	235	235	235	231	229	229	230	230
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	228	228	228	228	228	228	229	230	232	237	241	242	243	247	248	249	246	245	244	240	236	236	236	235
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.05	.05	.05	.05	.05	.05	.05
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	.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								561									
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8							556								557									
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20							546								546									

DATE AUG 2 8 2021

SIGNATURE

Mid Shift

Days Shift Rob Arnett 1484789

Notes

Utilities and Institutional Facilities

Date: _____

CGTG HOURLY READING LOG

MST / MDT (circle one)
Time Gas Introduced (Turbine Rolling):
Time of Turbine Online (Brkr Closed):
Time Turbine Offline (Brkr Open):
Time No Gas Flow:

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	109	111	110	110	109	106	108	114	105	100	112	108	112	110	106	106	110	110	109	110	109	108	107
4	Instrument Temperature	TI-001	deg C		20	50	23	23	23	21	20	20	20	21	22	25	28	28	28	29	29	30	30	30	28	25	23	23	21	21
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	108	103	106	101	109	104	104	106	107	110	100	102	106	108	105	107	100	104	103	103	108	107	100	103
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	61	61	60	60	60	60	60	62	60	62	62	62	62	60	62	62	62	61	61	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	37	35	36	36	37	36	37	37	37	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	6	6	6	6	6	6	7	7	7	7	7	6	6	6	6	6	5	5	5	5	6	6	6	6
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	844	845	847	84	836	838	847	843	844	842	844	843	837	841	842	845	841	838	842	844	840	859	840	841
23	Mw Output		MW			27	20.1	20.0	20.0	20.0	20.0	20.0	20.1	20.1	20.0	20.1	20.1	20.0	20.0	20.1	20.1	20.1	19.9	20.0	20.1	20.1	20.1	20.1	19.9	20.0
24	80% Base Load Minimum		MW				18.4	18.1	18.1	18.6	18.8	18.9	18.7	18.6	18.5	18.0	17.7	17.7	17.6	17.6	17.5	17.4	17.5	17.5	17.8	18.1	18.4	18.5	18.7	18.6
25	Running Hours (unit overview)						7356	7357	7358	7359	7360	7361	7362	7363	7364	7365	7366	7367	7368	7369	7370	7371	7372	7373	7374	7375	7376	7377	7378	7379
26	Ambient Temperature	T1 inlet					66	66	66	65	62	61	63	64	65	70	75	74	75	76	77	78	77	77	74	70	66	66	65	64
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	44	44	45	45	45	45	46	45	45	43	43	44	44	44	44	45	45	45	44	44	44	44	44	44
28	Total Fuel Flow		Mscf/h				204	203	204	204	206	205	204	205	205	206	205	207	206	205	204	208	206	206	206	205	206	206	206	205

Date: 8-29-2021 Signature: Bob Hess Day shift - John Emmett

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	46	46	46	46	46	46	45	45	45	45	45	45	45	45	45	45	45	45	45	44	44	44	44	44
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	253	253	253	253	252	254	252	253	253	253	254	254	254	254	254	254	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	249	249	249	249	249	248	249	249	249	250	250	250	250	250	250	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	164	163	165	164	164	163	164	164	165	164	164	163	163	163	163	163	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	106	105	105	102	100	99	100	103	102	109	114	115	116	117	117	117	117	117	116	114	108	107	105	104
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	232	232	232	231	230	229	229	231	231	234	236	236	237	237	236	236	236	236	235	235	233	232	230	229
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	255	253	253	230	228	228	228	230	230	236	242	243	244	244	244	245	244	244	243	243	237	235	233	231
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	230	230	230	229	226	226	227	229	229	232	233	234	234	234	233	233	233	233	232	232	232	231	229	227
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	234	234	233	231	229	228	229	231	231	236	242	243	244	244	244	245	244	244	242	242	236	235	233	231
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.06	.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.								560									560												
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8			556									556												
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20			546									546												

DATE 8-29-24

SIGNATURE 1489818

Mid Shift Bob

Days Shift Josh

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: _____

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	109	108	110	110	109	112	106	110	112	106	108	106	112	112	106	114	108	110	110	109	109	111	108
4	Instrument Temperature	TI-001	deg C		20	50	21	21	20	20	20	20	19	19	21	24	26	27	28	29	29	28	28	28	28	27	26	25	24	24
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	106	108	103	107	111	102	101	103	104	110	109	100	108	108	100	111	107	102	100	103	106	103	110	107
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	5/8	<5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	62	60	60	62	60	62	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	36	36	38	36	36	36	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	6	6	6	6	6	6	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	6
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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	840	841	840	84	842	842	832	836	841	839	840	838	834	837	86	843	842	845	837	839	890	896	917	916
23	Mw Output		MW			27	20.0	20.1	20.1	20	20.0	200	19.9	19.9	20.0	20.0	20.0	19.9	20.0	19.9	19.9	20.1	20.1	20.1	19.9	20.0	21.2	21.4	21.9	21.9
24	80% Base Load Minimum		MW				18.6	18.6	18.8	18.8	19.0	190	19.0	18.9	18.6	18.3	18.0	17.8	17.6	17.6	17.6	17.7	17.5	17.5	17.7	17.7	18.0	18.1	18.4	18.4
25	Running Hours (unit overview)						7380	7381	7382	7383	7384	7385	7386	7357	7388	7389	7390	7391	7392	2394	7394	7395	7396	7397	7398	7399	7400	7401	7402	7403
26	Ambient Temperature	T1 inlet					64	65	61	60	59	59	58	60	63	66	71	73	76	76	75	75	76	76	75	73	71	70	66	67
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	44	44	45	45	45	45	46	47	44	43	42	42	43	44	45	45	46	46	46	46	47	47	47	47
28	Total Fuel Flow		Mscf/h				206	201	206	206	205	205	205	201	199	201	199	200	204	204	204	203	203	204	204	205	214	216	219	219

Date: 8-30-2024 Signature: Robert Long (M105)

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	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	B	B
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	44	44	44	44	44	44	44	44	44	44	43	43	43	43	43	42	42	42	42	41	41	41	41	41
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	84	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	253	253	253	253	253	252	251	251	252	252	253	254	254	254	254	254	254	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	249	250	250	250	249	248	248	248	248	248	250	250	250	250	250	250	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	564	564	565	565	561	561	561	564	564	564	564	564	564	564	564	564	564	564	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	58	58	58	58	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	164	164	164	164	164	165	165	165	164	164	165	165	163	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	104	104	99	98	97	97	96	99	102	106	109	112	116	117	116	114	116	114	113	112	110	108	107	105
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	229	229	228	229	228	228	228	226	227	230	231	233	236	236	235	234	235	235	234	233	233	232	231	230
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	231	231	228	227	226	226	225	225	227	231	231	238	243	243	242	240	242	240	239	238	236	235	234	233
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	227	227	226	226	226	225	224	225	228	229	230	233	234	232	232	233	233	232	230	230	229	229	228
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	231	231	229	228	229	227	226	227	227	231	234	238	243	244	242	241	243	241	241	238	236	235	234	233
Motor Frame Vibration	VT-1015	IPS			0.15	.02	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.04	.04	.04	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.04	.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.									560								560												
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				556								556												
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				546								546												

DATE 8-30-2024

SIGNATURE

Mid Shift [signature] 1494828

Days Shift [signature]

Notes

Utilities and Institutional Facilities

Date: _____

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): _____

Time of Turbine Online (Brkr Closed): _____

Time Turbine Offline (Brkr Open): _____

Time No Gas Flow: _____

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	110	111	109	111	110	109	108	110	112	112	106	114	116	114	112	106	112	108	108	110	111	108	110	109
4	Instrument Temperature	TI-001	deg C		20	50	24	23	21	21	20	20	20	22	24	26	28	30	31	32	31	29	28	28	27	26	26	25	25	25
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	107	103	107	103	109	108	105	107	110	110	103	102	103	103	100	104	100	104	104	103	110	103	104	102
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	62	62	62	62	62	61	61	61	61	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	37	36	37	38	38	36	36	37	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	6	6	6	6	6	6	7	7	7	7	7	6	6	6	5	5	6	6	6	6	6	6	6	6
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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	917	94	933	938	946	947	942	930	914	885	874	852	836	820	844	879	873	859	861	842	858	834	850	856
23	Mw Output		MW			27	21.9	22.0	22.2	22.3	22.5	22.5	22.4	22.1	21.7	21.1	20.7	20.2	19.8	19.4	20.0	20.8	20.7	20.7	20.6	20.1	20.0	20.0	20.6	20.0
24	80% Base Load Minimum		MW				18.4	18.5	18.6	18.6	18.7	18.7	18.7	18.5	18.2	17.9	17.6	17.3	17.1	16.9	17.2	17.8	17.7	17.6	17.8	17.9	17.9	18.0	18.4	18.2
25	Running Hours (unit overview)						7404	7405	7406	7407	7408	7409	7410	7411	7412	7413	7414	7415	7416	7417	7418	7419	7420	7421	7422	7423	7424	7425	7426	7427
26	Ambient Temperature	T1 inlet					66	66	65	64	62	62	63	65	68	72	76	79	81	84	79	73	74	76	74	72	72	71	70	69
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	47	47	47	47	47	47	46	45	44	43	43	44	44	46	46	47	47	47	47	47	47	47	47	47
28	Total Fuel Flow		Mscf/h				219	220	221	222	223	224	220	217	215	211	212	208	204	202	206	212	212	212	212	206	205	204	205	205

Date: 8-31-2021 Signature: Dg shift - [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																													
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	B	B	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	41	41	41	41	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39	39	39	39	39	39
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	254	254	252	252	252	253	252	254	253	254	254	254	254	254	254	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	210	250	250	250	250	248	248	248	248	249	250	250	251	251	250	250	250	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	561	565	565	565	565	564	564	564	564	565	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	559	559	559	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	54	59	58	58	58	58	58	59	59	58	59	59	59	59	57	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	163	164	163	164	165	165	165	166	166	165	163	163	163	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	105	104	104	104	102	102	102	104	106	108	113	119	120	122	118	117	117	112	111	108	108	108	108	108
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	230	229	229	228	227	227	226	227	229	232	235	238	239	240	239	238	234	234	234	232	232	232	232	232
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	233	231	231	228	227	225	228	229	232	235	239	246	246	249	247	241	239	239	238	235	235	236	236	236
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	228	227	227	226	226	225	224	225	227	230	233	235	236	238	237	232	232	232	232	230	230	230	230	230
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	233	231	231	228	227	227	229	230	232	235	240	246	246	249	247	241	234	234	233	232	232	234	234	235
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.07	.03	.03	.03	.03	.04	.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.								560								560													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8			556								556													
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20			544								546													

DATE 8-31-2021

SIGNATURE

Mid Shift 1499908

Days Shift

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: _____

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	110	109	110	109	111	110	106	108	108	108	114	106	110	110	114	108	110	108	110	109	110	109	110	109
4	Instrument Temperature	TI-001	deg C		20	50	25	24	23	22	21	21	22	23	24	24	26	25	26	26	26	26	25	25	20	20	21	20	20	20
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	104	101	108	108	108	108	106	109	108	109	110	109	109	111	107	110	110	104	107	103	110	109	103	103
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	62	60	62	60	62	62	62	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	38	36	38	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72
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	Y	Y	Y	Y
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	H	✓	✓	✓
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%	6	6	6	6	6	6	7	7	7	7	6	6	6	6	6	6	6	6	6	7	7	7	7	7
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	832	831	830	831	835	834	849	848	850	847	849	844	853	844	838	844	839	843	845	841	848	840	849	848
23	Mw Output		MW			27	20.0	20.0	19.9	20.1	20.0	20.0	20.1	20.1	20.1	19.9	20.1	20.0	20.1	20.0	19.9	20.1	20.0	20.1	20.1	20.1	19.9	20.0	20.0	20.0
24	80% Base Load Minimum		MW				18.2	18.3	18.4	18.5	18.5	18.6	18.6	18.7	18.3	18.2	18.1	18.3	18.2	18.1	17.8	18.0	18.1	18.9	18.8	19.1	19.0	19.0	19.0	19.0
25	Running Hours (unit overview)						7428	7429	7430	7431	7432	7433	7434	7435	7436	7437	7438	7439	7440	7441	7442	7443	7444	7445	7446	7447	7448	7449	7450	7451
26	Ambient Temperature	T1 inlet					69	68	66	65	64	64	64	68	67	69	70	68	68	70	74	71	69	60	61	58	59	59	59	59
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	47	47	47	47	47	47	47	46	46	47	46	47	48	48	48	48	48	48	49	48	48	48	47	47
28	Total Fuel Flow		Mscf/h				205	205	205	206	205	205	202	201	203	204	205	204	205	204	206	205	204	205	205	204	204	205	204	204

Date: 9-1-2021 Signature: Bob Mug

Day Shift - John Ames

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	39	39	39	39	39	39	38	38	38	38	38	38	37	37	37	37	37	37	36	36	36	36	36	36
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	254	254	253	253	253	253	253	253	253	253	253	254	254	254	253	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	250	250	250	249	249	249	249	249	250	250	249	250	250	250	250	249	249	249	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	565	565	565	561	561	561	561	561	564	564	564	564	564	564	564	564	565	565	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	560	559	560	560	560	559	560	560	560	560	560	560	560	560	560	559
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	165	163	163	163	163	163	162	162	162	163	162	162	162	163	162	162	162	162	163	165	166	164
Final Discharge Temp	TE-2120	deg		110	150	100	107	105	104	103	102	107	107	107	105	104	108	108	110	113	111	110	109	98	98	98	98	97	97
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	252	231	230	230	229	229	228	230	230	232	234	232	231	233	235	237	237	236	227	227	226	226	225	225
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	255	229	228	229	228	229	224	224	234	235	238	235	236	237	241	238	237	237	227	227	226	226	225	224
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	230	231	231	229	227	226	226	229	228	229	231	229	230	230	232	231	230	239	226	226	226	225	224	223
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	235	234	231	231	230	230	230	234	234	235	239	236	237	238	241	239	238	237	227	227	226	226	226	225
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.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	.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								560								
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								556								556								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								546								545								

DATE 9-1-2021

SIGNATURE

Mid Shift Bob [illegible] 1504869

Days Shift Josh [illegible]

Notes

Utilities and Institutional Facilities

Date: 9-2-21

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	111	109	109	110	108	110	106	110	104	110	110	104	105	108	110	110	110	113	112	106	113	114	110
4	Instrument Temperature	TI-001	deg C		20	50	20	20	19	20	20	20	20	17	20	20	22	22	24	24	25	25	26	26	24	24	24	22	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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	109	102	101	101	109	103	110	97	106	102	105	108	106	110	109	111	106	100	110	107	104	101	105	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	62	63	63	63	63	63	63	63	63	63	63	61	61	61	61	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	72	71	71	71	71	71	71
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	848	848	849	847	846	848	849	844	848	841	844	847	847	845	843	845	841	839	845	844	843	841	843	847
23	Mw Output		MW			27	19.9	20.0	20.0	20.0	20.1	20.0	20.1	19.9	19.9	20.1	19.9	19.9	19.9	20.1	20	20.1	20	20	20	20.1	20.1	20.1	20.1	20.1
24	80% Base Load Minimum		MW				19.0	19.1	19.2	19.1	19.0	19.0	19.4	19.4	18.9	18.9	18.5	18.4	18.3	18.1	17.9	18	17.9	17.9	18.2	18.3	18.5	18.4	18.5	18.6
25	Running Hours (unit overview)						7452	7453	7454	7455	7456	7457	7458	7459	7460	7461	7462	7463	7464	7465	7466	7467	7468	7469	7470	7471	7472	7473	7474	7475
26	Ambient Temperature	T1 inlet					59	58	56	57	58	58	53	53	59	59	66	67	67	70	72	71	72	72	69	67	65	63.9	70	63.9
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	47	47	48	48	47	47	46	46	45	45	45	45	46	47	47	46	46	46	46	46	46	46	47	47
28	Total Fuel Flow		Mscf/h				204	204	203	203	204	204	200	198	199	199	200	204	204	205	205	201	201	201	199	198	196	195	196	196

Date: 9-2-2021 Signature: Bob Hwang (MIDS)

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	36	36	36	36	36	36	35	35	35	35	35	35	35	35	35	35	35	35	34	34	34	34	34	34
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	84	84	84	84	83	83	84	84	84	84	84	84	83	84	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	254	254	254	251	250	251	252	252	252	253	253	254	254	253	253	253	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	250	250	250	247	248	248	248	249	249	250	250	250	250	250	250	250	250	249	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	565	565	565	565	565	565	565	565	565	565	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	559	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	559	559	559	559
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	164	164	165	163	163	166	166	165	165	164	164	163	163	163	163	163	162	163	163	163	163	162	162
Final Discharge Temp	TE-2120	deg		110	150	97	97	97	97	97	97	92	92	92	92	104	104	107	107	110	110	112	112	109	105	103	101	101	100
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	225	225	225	224	224	224	222	222	225	225	231	231	232	232	231	231	232	232	228	228	227	226	226	226
2ndStage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	224	224	224	223	224	224	218	218	223	223	233	233	236	236	237	237	236	236	230	231	229	228	228	228
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	223	225	223	223	223	223	219	219	222	222	229	229	230	230	229	229	229	229	226	226	225	224	224	224
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	225	225	225	225	224	224	219	219	224	224	234	234	236	236	237	237	236	236	233	231	229	228	228	228
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.04	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.04	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 9-2-2021

SIGNATURE

Mid Shift Rob Lang

Days Shift

Notes 0900 - 1506487 0000 - 1509805

Utilities and Institutional Facilities

Date: SEP 03 2021

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	113	110	107	112	113	112	110	110	110	110	110	110	106	108	105	105	108	108	113	110	108	113	110	112
4	Instrument Temperature	TI-001	deg C		20	50	20	20	20	20	20	20	20	20	24	24	25	27	27	27	28	28	28	28	28	28	26	26	24	24
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	106	100	103	107	101	110	102	108	105	105	105	106	111	110	111	110	110	107	109	107	104	100	103
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	61	60	60	60	60	60	60	60	60	60	63	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6
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		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	835	837	847	846	831	837	849	843	845	843	848	847	852	849	846	853	850	843	843	847	849	845	848	845
23	Mw Output		MW			27	20	20	20.1	20.1	20	19.9	20.1	20	20	19.9	20	19.9	19.9	20	20	20.1	20.1	19.9	20	20.1	20.1	20.1	20.2	20.1
24	80% Base Load Minimum		MW				18.7	18.8	18.8	18.9	18.8	18.9	18.9	19	18.5	18.1	17.1	17.8	17.1	17.8	17.7	17.6	17.6	17.6	17.6	18	18.1	18	18.1	18.2
25	Running Hours (unit overview)						7476	7477	7478	7479	7480	7481	7482	7483	7484	7485	7486	7487	7488	7489	7490	7491	7492	7493	7494	7495	7496	7497	7498	7499
26	Ambient Temperature	T1 inlet					63	62	61	60	62	60	60	59	65	70	75	74	74	73	75	76	76	76	75	71	70	71	70	68
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	47	47	47	47	47	47	47	46	46	44	44	44	46	47	47	47	48	48	49	49	49	49	49	48
28	Total Fuel Flow		Mscf/h				197	196	196	197	198	198	199	199	200	200	200	200	202	204	202	202	202	204	205	202	200	201	200	199

Date: SEP 03 2021

Signature: A Wall

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	33	33	33	32	32	32	33	33	33	33	33	33	32	32	32	32	32	32	30	30	30	30	30	30
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	84	84	84	84	88	85	84	84	84	84	84	84	83	83	84	84	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	253	253	253	252	252	253	253	253	253	254	254	255	255	255	255	255	255	255	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	249	249	249	249	249	249	249	249	250	251	251	251	251	251	251	251	251	251	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	164	164	164	164	164	164	164	164	163	163	163	163	164	163	161	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	101	101	101	101	101	101	99	99	108	108	108	110	112	112	115	115	115	115	112	110	108	108	108	108
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	227	226	226	225	226	227	225	225	230	230	230	230	233	233	234	234	234	234	235	233	231	230	231	230
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	228	227	226	226	226	226	225	225	233	233	233	233	234	239	241	241	243	244	239	238	236	235	235	234
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	225	225	225	223	224	225	223	223	228	228	229	229	231	231	232	232	233	234	237	230	228	230	229	228
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	228	228	227	227	227	228	226	226	233	233	233	233	234	239	242	242	243	243	240	238	236	236	236	235
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.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.											560																		
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8						556																		
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20						546																		

DATE SEP 03 2021

SIGNATURE

Mid Shift A Wlan

Days Shift

Notes

1514532

Utilities and Institutional Facilities

Date: SEP 0 4 2021

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	109	112	112	114	110	108	112	108	110	112	106	106	110	110	106	112	110	108	108	112	113	110	108	112
4	Instrument Temperature	TI-001	deg C		20	50	24	24	22	23	22	23	21	22	24	26	27	28	29	29	26	30	30	29	26	26	24	24	24	22
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	105	100	106	104	107	101	105	107	110	100	110	111	100	102	40	101	104	106	108	104	107	104	100	104
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	62	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	35	36	36	36	36	37	36	38	36	37	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	71	71	71	71	71	71	70	70	72	72	72	72	72	71	71	71	71	71	71	71	71	71	71	71
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	6	6	6	6	6	6	7	7	7	7	6	6	6	6	6	6	6	5	6	6	6	6	6	6
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)	AG3GGD 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	844	842	841	837	835	838	840	842	843	851	851	848	850	854	850	848	847	845	842	843	848	842	841	842
23	Mw Output		MW			27	20.1	20	19.9	19.9	19.9	20	19.9	19.9	20.1	20.1	20.1	19.9	20.1	20.1	20.0	20.1	20.1	20.1	20	20	20.1	20.1	19.9	20
24	80% Base Load Minimum		MW				18.8	18.4	18.6	18.6	18.7	18.7	18.6	18.5	18.2	17.8	17.6	17.6	17.4	17.4	18.1	17.9	17.6	17.4	18.2	18.4	18.4	18.5	18.7	18.8
25	Running Hours (unit overview)						7500	7501	7502	7503	7504	7505	7506	7507	7508	7509	7510	7511	7512	7513	7514	7515	7516	7517	7518	7519	7520	7521	7522	7523
26	Ambient Temperature	T1 inlet					68	66	64	64	63	63	64	65	69	73	76	76	77	72	70	79	76	78	69	67	66	65	62	62
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	48	48	48	48	48	48	49	48	47	47	46	47	47	47	48	49	49	49	49	49	50	50	50	50
28	Total Fuel Flow		Mscf/h				198	197	202	201	200	200	199	199	197	200	199	200	200	200	201	203	201	200	200	201	203	200	198	200

Date:

Signature: A Ware

day shift - Josh Cruz

UTILITIES AND INFRASTRUCTURE

CGTG TURBINE

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	28	28	28	28	28	27
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	83	83	82	83	83	83	83	83	83	83	83	83	83	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	254	254	253	253	253	253	254	253	253	253	254	253	254	253	253	254	254	254	254	254	254	254	254	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	250	250	249	250	249	249	249	250	249	250	249	249	249	250	250	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	566	564	564	564	564	565	565	565	564	565	565	565	565	565	565	565	565	565	565	566	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	59	58	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	163	163	163	164	164	164	164	165	164	164	165	165	162	161	160	161	160	162
Final Discharge Temp	TE-2120	deg		110	150	108	107	102	102	102	102	102	104	108	111	115	115	114	115	110	118	115	114	110	108	108	108	105	103
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	230	229	229	229	228	227	227	228	229	230	231	233	234	235	233	232	235	234	233	231	229	228	228	227
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	233	231	230	230	229	228	228	229	231	235	240	241	243	240	234	237	240	238	237	235	234	231	230	229
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	228	227	227	227	227	225	225	227	229	231	235	240	241	243	241	235	242	240	240	237	235	233	232	230
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	234	233	230	230	229	228	229	229	232	235	240	241	243	241	235	242	240	240	237	235	233	232	230	229
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.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.													560								560								
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								557								557								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								547								547								

DATE SEP 0 4 2021

SIGNATURE

Mid Shift

Days Shift

Notes 1519185

Utilities and Institutional Facilities

Date: SEP 0 5 2021

CGTG HOURLY READING LOG

MST / MDT (circle one)
Time Gas Introduced (Turbine Rolling):
Time of Turbine Online (Brkr Closed):
Time Turbine Offline (Brkr Open):
Time No Gas Flow:

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	113	110	108	112	110	108	108	106	112	110	110	112	114	108	106	108	110	108	110	112	114	113	110	112
4	Instrument Temperature	TI-001	deg C		20	50	22	20	20	20	20	20	19	19	21	24	25	27	29	30	31	32	32	31	28	28	26	24	24	24
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-230	psig		25		18.8	18.8	18.8	18.8	18.8	18.8	19	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	101	100	106	108	104	101	100	102	106	110	104	104	107	103	102	103	103	104	107	111	108	104	109	104
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	62	60	62	62	62	62	62	62	61	61	61	61	61	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	37	37	37	38	38	39	39	38	38	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	68	68	68	68	68	68	68	68	68
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	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	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%	6	6	7	7	7	7	7	7	7	7	7	6	6	6	6	5	5	5	5	5	6	6	6	6
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)	AS3GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		V				√	√	√	√	√	√	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	841	843	843	844	853	836	848	843	838	839	840	846	840	845	836	833	835	828	838	844	840	838	838	843
23	Mw Output		MW			27	19.9	19.9	20.1	20.1	20.2	19.9	20.1	20.0	19.9	19.9	17.9	20.1	19.9	20.0	19.8	19.7	19.6	19.6	19.9	20	20	19.9	19.9	20.1
24	80% Base Load Minimum		MW				18.9	19	19	19.1	19	19	19.1	18.9	18.6	18.3	17.9	17.6	17.5	17.4	17.1	17.2	17.1	17.1	17.1	18	18.1	18.4	18.5	18.6
25	Running Hours (unit overview)						7524	7525	7526	7527	7528	7529	7530	7531	7532	7533	7534	7535	7536	7537	7538	7539	7540	7541	7542	7543	7544	7545	7546	7547
26	Ambient Temperature	T1 Inlet					60	58	58	57	58	58	57	60	64	67	72	72	77	77	81	81	82	81	74	71	70	67	64	64
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-820	%			70%	50	50	50	50	50	50	51	50	49	48	48	47	48	48	48	48	50	50	51	51	51	51	53	53
28	Total Fuel Flow		Mscf/h				200	199	199	199	200	200	201	200	202	200	204	201	201	200	199	197	199	198	203	203	202	200	200	201

Date: SEP 0 5 2021 Signature: A Wilson day shift - Josh Cave

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	27	27	27	27	27	27	27	27	27	27	26	26	26	26	26	26	26	26	26	26	26	26	25	25
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	84	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	253	253	253	253	253	252	252	253	253	253	253	254	254	254	254	255	255	255	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	260	260	260	260	249	249	249	249	248	248	249	249	249	250	250	250	251	250	251	251	251	251	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	565	565	565	565	561	565	565	565	565	565	565	565	565	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	559	559	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	559	559
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	58	58	58	58	58	58	58	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	162	161	161	161	163	163	164	164	164	164	164	165	165	165	166	166	166	166	163	163	162	160	162	162
Final Discharge Temp	TE-2120	deg		110	150	101	101	102	101	98	98	97	99	102	105	160	113	115	115	119	121	120	120	112	110	109	106	104	105
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	226	224	224	224	225	225	225	226	228	229	231	233	234	234	236	236	237	236	233	232	231	229	231	231
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	228	226	225	224	224	224	225	225	228	230	235	238	241	240	243	244	244	244	239	236	235	233	232	232
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	225	224	224	223	223	223	223	224	226	227	229	232	231	232	233	234	234	234	231	230	229	227	229	228
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	228	226	226	224	225	224	225	226	229	230	236	238	241	241	244	244	245	245	239	237	235	234	233	232
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.04	.07	.03	.03	.03	.04	.04	.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	.01	.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.													560							560									
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								557							557									
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								547							547									

DATE SEP 0 5 2021

SIGNATURE

Mid Shift A Wan

Days Shift

Notes

1524268

Utilities and Institutional Facilities

Date: SEP 0 6 2021

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	108	113	112	110	108	114	106	110	106	112	106	108	106	112	106	114	110	108	110	109	109	109	111	110
4	Instrument Temperature	TI-001	deg C		20	50	24	24	22	22	21	21	20	21	23	24	27	29	30	30	31	32	32	32	30	29	26	25	26	26
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	108	111	104	101	107	100	104	105	108	109	111	104	105	110	102	103	105	107	103	103	108	110	108	107
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	In WC		60	80	60	60	60	60	60	60	60	60	62	62	62	62	62	62	62	62	62	62	62	62	60	60	60	60
10	Coolant Return Differential from	PI 002	In WC		37	50	36	36	36	36	36	36	36	36	37	38	37	38	38	38	38	38	38	38	37	37	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	67	68	68	68	68	68	68
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	6	6	6	6	6	6	7	7	7	7	7	6	6	6	5	5	5	5	5	5	6	6	6	6
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		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	846	846	844	840	844	836	841	841	845	844	842	844	846	842	832	819	810	817	842	858	873	872	875	878
23	Mw Output		MW			27	20.1	20.1	20	20.1	20.1	19.8	20.0	19.9	20.1	19.9	20.0	19.9	20.1	20.0	19.7	19.4	19.1	19.4	19.9	20.3	20.6	20.6	20.7	20.8
24	80% Base Load Minimum		MW				18.5	18.5	18.8	18.8	18.8	18.8	18.7	18.6	18.4	18.1	17.7	17.5	17.4	17.2	17.0	17.0	16.8	16.9	17.3	17.6	17.7	17.7	17.7	17.8
25	Running Hours (unit overview)						7548	7549	7550	7551	7552	7553	7554	7555	7556	7556	7558	7559	7560	7561	7561	7562	7563	7564	7565	7566	7567	7568	7569	7570
26	Ambient Temperature	T1 Inlet					65	65	61	61	61	61	62	63	46	70	74	77	79	50	82	83	85	93	79	76	74	74	74	73
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	52	52	52	52	51	51	51	51	52	51	50	49	49	49	49	50	51	52	52	52	52	53	53	53
28	Total Fuel Flow		Mscf/h				201	201	202	201	202	202	200	200	204	204	202	201	201	200	198	195	196	145	199	202	203	204	204	203

Date: SEP 0 6 2021 Signature: A Wilson day shift - Josh Anderson

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	24	24	24	24	24
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	253	253	253	253	253	252	253	253	253	254	254	254	255	255	255	255	255	255	255	255	255	255
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	249	249	249	249	250	249	249	249	250	250	250	251	251	251	251	251	251	251	251	251	251	251
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	566	565	565	565	565	565	565	565	565	565	561	565	565	561	561	560	560	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	58	58	58	58	59	58	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	164	164	163	163	163	163	163	164	164	165	165	165	165	165	165	165	163	163	163	163	165	163
Final Discharge Temp	TE-2120	deg		110	150	106	106	101	99	99	99	101	102	104	108	113	116	119	119	122	123	123	122	116	116	115	114	114	113
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	232	232	228	227	227	228	227	228	230	231	233	234	235	234	236	236	238	237	234	234	234	234	234	233
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	233	233	228	228	228	227	228	228	230	232	238	241	244	244	246	246	248	248	244	240	240	240	239	238
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	230	230	225	225	226	226	225	226	228	230	231	231	232	232	233	233	235	235	232	232	232	232	232	232
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	233	232	228	227	227	227	228	228	231	234	239	241	244	244	246	247	248	248	242	241	241	240	239	238
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.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.											560								560										
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8						557								557										
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20						548								547										

DATE SEP 0 6 2021

SIGNATURE

Mid Shift A Wan 529289

Days Shift

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: _____

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	109	111	110	109	110	112	110	112	106	108	110	104	114	106	110	108	110	109	111	110	106	111	110
4	Instrument Temperature	TI-001	deg C		20	50	25	25	24	24	24	24	22	22	24	29	31	32	32	34	34	34	34	34	33	29	29	27	25	25
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	103	108	19	109	109	109	106	107	103	101	103	105	106	107	108	108	107	106	107	103	102	102	109	108
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	62	62	62	62	62	62	62	62	62	61	61	61	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	30	36	37	38	38	36	38	39	39	39	39	39	39	37	37	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	68	68	68	68	68	68	68	70	70	70	70	70	70	70	70	70	70
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	4	4	5	5	5	5	6	6
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	6	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			1427	903	904	907	846	846	846	843	837	842	843	858	814	804	802	788	774	798	804	816	841	847	840	840	841
23	Mw Output		MW			27	21.4	21.4	21.5	20.0	20.1	20.0	20.1	19.9	20.0	20.0	19.9	19.3	19.2	19.0	18.8	18.9	19.0	19.2	19.5	19.9	20.1	20.1	19.9	20.0
24	80% Base Load Minimum		MW				18.1	18.1	18.2	18.1	18.3	18.3	18.5	18.3	17.9	17.7	17.3	16.0	16.8	16.6	16.6	16.6	16.7	16.8	17.1	17.0	17.1	17.9	18.1	18.1
25	Running Hours (unit overview)						7571	7572	7573	7574	7575	7576	7577	7578	7579	7580	7581	7582	7583	7584	7585	7586	7587	7588	7589	7590	7591	7592	7593	7594
26	Ambient Temperature	T1 Inlet					70	70	69	69	69	68	65	68	72	79	79	85	85	87	88	88	87	85	82	76	75	73	71	70
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	54	54	54	53	53	53	53	53	52	52	52	51	51	51	51	52	52	51	51	52	52	52	54	54
28	Total Fuel Flow		Mscf/h				206	206	207	201	201	202	202	202	206	207	206	200	195	197	192	193	193	192	200	201	202	202	202	201

Date: 9-7-2024 Signature: Bob Lang

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23	22	22	22	22	22	22	22	22	22
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	83	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	255	255	251	255	255	255	253	253	253	254	254	255	254	253	255	258	255	255	255	255	255	255	255	255
2nd Stage Inlet Press	PI-2200	psig		267	285	251	251	251	251	251	201	250	249	250	250	250	251	251	251	252	251	251	251	251	251	251	251	251	251
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	564	564	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	58	58	58	58	58	58	58	58	58	58	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	163	163	167	163	164	165	167	167	167	168	167	167	167	164	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	113	111	109	107	102	106	103	106	110	117	120	123	123	126	126	127	126	125	125	122	117	115	111	109
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	253	252	251	250	229	229	230	229	233	237	236	239	241	234	240	237	238	237	237	236	236	235	234	233
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	258	257	255	252	251	251	229	231	235	241	243	248	249	250	250	251	250	250	250	249	245	242	240	237
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	252	251	248	227	227	227	228	227	231	234	234	236	238	235	237	237	236	236	236	236	235	234	233	232
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	258	256	254	253	252	252	230	231	236	242	243	248	249	250	250	251	251	250	250	249	244	240	240	237
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.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	.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								560												
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				557								557												
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				547								547												

DATE 9-7-2021

SIGNATURE

Mid Shift Bob Hug 1534207

Days Shift John Ass

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: _____

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): _____ Time Turbine Offline (Brkr Open): _____

Time of Turbine Online (Brkr Closed): _____ Time No Gas Flow: _____

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	110	109	109	111	110	108	108	114	112	106	112	106	106	104	108	110	108	110	110	109	110	111	110	110
4	Instrument Temperature	TI-001	deg C		20	50	25	23	23	23	22	22	23	23	25	26	28	29	31	31	32	32	32	32	31	30	25	26	26	26
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	106	103	102	109	102	101	106	108	110	100	108	104	100	102	102	103	103	106	101	100	103	102	109	108
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	In WC		60	80	60	60	60	60	60	60	60	60	62	62	62	62	62	62	62	62	62	62	61	61	61	60	60	60
10	Coolant Return Differential from	PI-002	In WC		37	50	36	36	36	36	36	36	37	37	36	37	38	38	38	38	39	39	38	38	37	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	6	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	6	6	6
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)	A63GGO ST-01	psig	35	20							✓																		
21	Acknowledge Alarms Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	836	836	838	846	855	836	845	844	845	844	842	839	839	845	836	824	820	832	841	842	837	836	837	839
23	Mw Output		MW			27	20.0	19.9	20.0	20.1	20.0	20.0	20.1	20.1	20.1	20.1	20.1	20.0	19.9	19.9	19.8	19.6	19.5	19.7	20.0	20.1	20.1	19.9	20.0	20.1
24	80% Base Load Minimum		MW				18.1	18.2	18.4	18.5	18.5	18.5	18.6	18.3	18.1	17.8	17.6	17.4	17.2	17.1	17.0	17.0	16.9	17.1	17.4	17.6	17.8	17.6	17.8	17.9
25	Running Hours (unit overview)						7597	7596	7597	7598	7599	7600	7601	7602	7603	7604	7605	7606	7607	7608	7609	7610	7611	7612	7613	7614	7615	7616	7617	7618
26	Ambient Temperature	T1 Inlet					70	68	67	67	66	66	64	67	70	73	76	78	80	81	82	83	83	82	79	76	74	75	74	73
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	54	54	55	53	53	53	52	52	53	53	53	53	53	54	54	54	54	54	54	53	53	53	53	53
28	Total Fuel Flow		Mscf/h				202	201	201	201	201	202	200	201	205	205	207	206	206	206	205	203	203	202	202	202	202	201	201	201

Date: 9-8-2021 Signature: Bob Long day shift — Joel Ace

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	O	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	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	22	22	21	21	21	21	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	255	255	255	254	253	253	254	254	254	254	254	254	255	255	255	255	255	255	255	255	255	255	255	255
2nd Stage Inlet Press	PI-2200	psig		267	285	251	251	251	251	250	250	250	250	250	250	251	251	251	251	252	251	251	250	252	252	251	251	251	251
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	561	565	564	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	58	58	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	163	163	163	163	163	164	164	165	164	165	165	165	163	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	109	107	106	106	104	105	103	106	109	112	115	118	120	120	122	123	121	120	117	115	115	114	113	112
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	233	230	229	229	229	229	227	231	233	235	237	238	238	238	239	240	239	238	236	235	235	234	233	232
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	237	233	231	230	230	229	229	232	237	240	243	245	248	247	248	249	248	248	246	241	241	239	239	238
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	230	230	227	227	228	228	225	228	230	233	234	235	236	236	237	237	237	238	238	238	238	237	236	235
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	237	234	232	230	232	232	229	232	237	240	243	245	248	248	248	249	248	248	248	244	241	240	239	238
Motor Frame Vibration	VT-1015	IPS			0.15	.02	.02	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
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.	A63FGDT	49-48=psid			8			560									560												
Double Block and Bleed Pressure	A63FTGST	50-49=psid			20			557									557												
Fuel Gas Supply Pressure								547									547												

DATE 9-8-2021

SIGNATURE

Mid Shift Bob Gray

Days Shift Josh Arnett

1539144

Notes

Utilities and Institutional Facilities

UI-LOG-033-R4
October 1, 2021

CGTG HOURLY READING LOG

Date: 9-9-2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	V				✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	V				✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	109	111	110	110	109	112	108	110		108	110	112	108	113	106	110	108	109	110	109	109	110	110
4	Instrument Temperature	TI-001	deg C		20	50	25	23	23	23	23	23	21	22	24		30	30	32	34	35	34	34	34	33	30	29	29	29	29
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	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	108	103	101	103	110	110	104	106	110		101	101	104	106	107	105	105	102	104	106	101	104	104	104
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	5/8	5/8
9	Coolant Return Differential from GG	PI-001	In WC		60	80	60	60	60	60	60	60	60	62	62		62	62	62	64	64	62	62	62	61	61	60	60	60	60
10	Coolant Return Differential from	PI-002	In WC		37	50	36	36	36	36	36	36	36	36	37		36	34	36	39	39	38	38	37	36	36	36	36	36	36
11	**Control Room**		**Units**	**Low**	**Norm**	**Max**																								
12	Room Temperature		deg F		72	85	70	76	70	70	70	70	68	68	68		68	68	68	68	68	69	70	70	70	70	70	70	70	70
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		Y	Y	Y	Y	Y	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		Y	Y	Y	Y	Y	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%	6	6	6	6	6	6	6	6	7		6	6	6	5	5	5	5	5	5	5	5	5	5	5
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
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				✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(23–24 found on Power Management page)																													
22	Generator Current		Amps			1427	839	840	838	838	834	835	837	842	838		847	845	829	812	809	812	818	806	823	838	838	839	839	838
23	Mw Output		MW			27	20.0	20.1	20.0	20.0	19.9	20.0	19.8	20.1	19.9		20.1	20.0	19.5	19.3	19.1	19.2	19.3	19.1	19.5	19.9	19.9	19.9	19.9	19.9
24	80% Base Load Minimum		MW				179	179	183	184	184	186	187	185	182		174	172	169	167	166	167	168	167	170	176	171	176	176	176
25	Running Hours (unit overview)						7619	7620	7621	7622	7623	7624	7625	7626	7627		7629	7630	7632	7632	7633	7634	7635	7636	7637	7638	7639	7640	7641	7640
26	Ambient Temperature	T1 Inlet					70	67	67	65	64	64	62	65	68		78	81	84	86	87	86	85	85	83	76	76	75	76	76
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	53	53	55	55	55	55	56	55	55		52	52	52	52	53	54	54	54	53	54	54	54	54	54
28	Total Fuel Flow		Mscf/h				201	201	201	202	202	202	204	206	203		206	202	200	195	199	199	199	200	200	201	202	201	202	202

Signature: Bob Away (MIOS)

day shift - Jack Away

CGTG TURBINE

Natural Gas Compressor																																
GAS COMPRESSOR START TIME		**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**
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	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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	19	19	19	19	19	19	16	16	18	18	17	17	17	17	17	16	16	16	16	16	16	16	16	16	16	16	16
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140	85	83	83	83	83	83	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	254	254	254	254	253	253	253	253	254	254	255	255	256	256	255	255	255	255	255	255	255	255	255	255	255
2nd Stage Inlet Press	PI-2200	psig		267	285	251	250	250	250	250	250	250	249	249	250	250	250	251	251	252	252	251	251	251	251	251	251	251	251	251	251	251
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	58	58	58	58	58	58	58	58	58	58	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	163	164	164	164	165	166	167	167	166	166	166	166	166	165	165	163	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	109	106	105	104	103	103	100	107	106	116	114	122	124	125	125	125	124	121	115	115	114	112	111	111	111	111	111
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	232	230	230	229	228	227	230	231	232	237	236	238	239	241	241	241	240	239	237	236	235	234	233	233	233	233	233
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	237	230	230	230	229	229	229	230	232	242	243	246	248	251	251	250	250	248	243	241	240	239	238	238	238	238	238
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	232	228	228	227	225	225	229	229	224	234	233	235	236	239	238	238	238	237	236	234	234	232	232	231	231	231	231
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	231	232	232	230	229	229	229	230	233	242	244	246	248	251	251	251	251	250	246	244	241	240	238	238	238	238	238
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.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	.01	.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.	A63FGDT	49-48=psid			8				560						560	560																
Double Block and Bleed Pressure	A63FTGST	50-49=psid			20				537							557																
Fuel Gas Supply Pressure									547							547																

DATE 9-9-2021

SIGNATURE

Mid Shift Bob Lang 1544017

Days Shift John Ave

Notes

Utilities and Institutional Facilities

Date: 9-10-21

CCTS HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

	Instrument Air 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
1	Blowdown Dry Receiver Tank Hourly	BLT-003	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BLT-001	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	109	110	110	108	110	109	110	110	110	110	110	110	110	110	110	110	110	110	110	110	112	109	110	112
4	Instrument Temperature	TI-001	deg C		20	50	28	25	23	23	23	26	23	23	25	28	30	30	32	36	35	34	35	35	33	31	30	30	28	26
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-350	psig		25		19	19	19	19	19	19	19	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	108	101	104	108	102	101	104	108	106	104	101	104	110	106	108	110	110	106	104	107	109	107	104	110
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	61	61	61	61	61
10	Coolant Return Differential from	PI-001	In WC		37	50	35	36	36	36	35	36	36	36	36	36	36	36	36	36	39	39	39	39	37	37	37	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.2MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	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-151	%			70%	5	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	4	4	5	5	5	5	6	6
19	12 gal gas TG Drain Tank (Air Diagram page)	LI-150	%			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)	AS-330 ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	839	841	845	844	844	848	834	836	839	844	842	844	811	816	813	794	800	806	841	845	836	839	837	843
23	Mw Output		MW			27	19.9	20.0	20.6	20.0	19.9	19.9	19.9	20	20	20.1	20.1	20	19.2	19.1	19.3	18.8	18.9	19.1	20	20.1	19.9	20	19.9	20.1
24	80% Base Load Minimum		MW				17.6	18.3	18.3	18.2	18.0	18.0	18.6	18.4	18.1	17.5	17.3	17.3	16.1	16.6	16.1	16.5	16.6	16.7	17.3	17.5	17.6	17.7	17.9	17.9
25	Running Hours (unit overview)						7643	7644	7645	7646	7647	7648	7649	7650	7651	7652	7653	7654	7655	7656	7657	7658	7659	7660	7661	7662	7663	7664	7665	7666
26	Ambient Temperature	TE-Ambi					75	71	68	69	70	71	64	67	70	77	79	80	86	87	86	89	88	86	79	77	76	74	72	72
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-001	%			70%	54	54	55	55	55	55	56	56	55	54	53	53	53	54	54	55	55	55	54	54	55	54	54	54
28	Total Fuel Flow		Mscf/h				202	201	202	202	202	201	206	207	205	206	207	207	208	201	200	199	199	200	200	202	202	201	200	201

Date: 9-10-2021 Signature: Bob Young

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	16	16	16	16	16	16	15	15	15	15	15	15	F	F	F	F	F	F	F	F	F	F	F	F
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7415	LIQID		EMPTY	ANY	E	E	E	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	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	83	83	83	84	84	84	84	83	83	83	83	83	83	83	83	83	83	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	255	253	255	255	254	254	254	254	254	254	254	254	255	255	256	256	256	256	254	254	255	255	255	254
2nd Stage Inlet Press	PI-2200	psig		267	285	251	250	250	250	250	250	250	250	250	250	250	250	252	252	253	253	253	253	251	251	252	252	252	251
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	565	565	565	565	565	566	566	566	566	565	565	565	566	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	561	561	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	58	58	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	163	163	165	165	165	165	166	167	166	166	166	166	169	164	164	164	163	162
Final Discharge Temp	TE-2120	deg		110	150	111	169	105	106	109	109	106	106	113	113	117	117	117	116	127	127	125	125	124	117	116	114	111	111
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	233	232	230	231	232	232	233	233	236	236	239	239	243	243	243	243	243	243	241	235	234	233	231	231
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	238	237	230	230	231	231	233	233	240	240	244	244	254	254	254	254	255	255	253	242	241	239	237	236
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	231	230	228	229	230	230	230	230	234	234	236	236	240	240	240	240	240	240	238	233	232	231	229	229
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	238	233	231	230	230	230	234	234	241	241	245	245	254	254	254	254	254	254	253	243	241	239	237	237
Motor Frame Vibration	VT-1015	IPS			0.15	.02	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.01	.01	.01	.01	.01	.01	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.04	.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																			560					
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																			557					
																								547					

DATE 9-10-24

SIGNATURE

Mid Shift

Days Shift

Notes

Date: SEP 1 1 2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

GE7E HOURLY READING LOG

	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	BLVT-015	V				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
2	Blowdown Wet Receiver Tank Hourly	BLVT-017	V				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
3	Wet Receiver Air Pressure	PI-002	psig	80	105	120	110	107	112	110	108	113	110	111	106	110	110	110	110	110	106	106	108	109	109	111	109	112	113	110
4	Instrument Temperature	TI-001	deg C		20	50	26	24	24	24	26	26	24	22	25	27	30	31	33	33	34	34	33	34	30	30	30	28	28	26
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-230	psig		25		19	19	19	19	19	19	19	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	107	105	110	109	107	103	107	109	109	106	106	102	106	105	106	106	106	104	104	102	104	107	101	109
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in WC		60	80	61	61	61	60	60	60	60	60	63	63	63	63	63	63	63	63	63	63	61	61	61	61	61	61
10	Coolant Return Differential from	PI-001	in WC		37	50	36	36	36	36	36	36	36	36	36	36	39	39	39	39	39	39	39	39	37	37	37	37	37	37
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2300 gal Oil Water Tank Level	LI-231	%			70%	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	6	6	6
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	6	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)	AE8881 BT-01	psig	85	20																									
21	Acknowledge Alarms Hourly		V				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	839	837	831	832	839	839	843	835	842	843	830	838	821	807	802	807	807	814	836	839	836	841	840	843
23	Mw Output		MW			27	19.9	20	19.9	20.1	20.1	19.8	20	19.9	20.1	20.1	20	19.9	19.6	19.3	19.1	19.2	19.3	19.4	20	20.1	20	20.1	20.1	20.1
24	80% Base Load Minimum		MW				17.9	18.1	18.1	18.3	18	18.3	18.5	18.5	18.1	17.7	17.2	17.1	17	16.8	16.7	16.8	16.9	16.9	17.3	17.6	17.7	17.7	17.7	18
25	Running Hours (unit overview)						7667	7668	7669	7670	7671	7672	7673	7674	7675	7676	7677	7678	7679	7680	7681	7682	7683	7684	7685	7686	7687	7688	7689	7690
26	Ambient Temperature	TI-015					72	70	70	69	70	68	66	65	71	75	81	81	83	86	86	86	84	84	79	75	74	75	74	71
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-232	%			70%	54	54	54	55	56	56	56	56	53	52	51	51	51	51	51	52	53	53	54	54	54	54	54	54
28	Total Fuel Flow		Mscf/h				201	199	199	198	199	200	204	206	200	200	201	203	201	196	196	196	199	199	201	207	201	201	201	199

Date: SEP 1 1 2021 Signature: A Wlan

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	E	E	E	E	E	E	E	E	E	E	E	E	E	E	F	E	F	F
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	E	50	50	50	50	50	50
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	84	84	84	84	83	83	84	84	83	83	83	83	93	93	93	93	84	84
Stage Disch. Press	PI-2101	psig		238	285	254	254	253	253	254	254	254	254	254	254	255	255	255	255	256	256	256	256	255	255	255	255	255	255
2nd Stage Inlet Press	PI-2200	psig		267	285	251	251	251	251	251	251	250	250	250	250	251	251	252	252	252	252	254	254	251	251	251	251	251	251
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	564	564	565	565	565	565	565	565	565	565	566	566	566	566	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	559	559	560	560	560	560	560	560	560	560	561	561	561	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	162	161	160	161	163	164	163	163	164	164	165	165	165	165	165	165	165	165	163	164	163	163	163	161
Final Discharge Temp	TE-2120	deg		110	150	109	107	106	105	110	108	105	105	113	113	120	120	126	126	126	126	126	126	118	114	113	112	113	112
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	229	227	227	229	233	232	230	231	233	233	237	237	240	240	240	240	240	240	235	234	233	232	233	232
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	234	232	231	232	234	233	231	232	238	238	246	246	251	250	251	251	251	250	243	240	238	237	239	238
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	227	226	226	228	231	231	228	229	231	231	235	235	236	236	237	237	237	236	233	232	232	231	231	230
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	235	233	231	233	235	234	231	232	238	238	247	247	251	250	251	251	251	250	244	240	238	237	239	238
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.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	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE SEP 1 1 2021

SIGNATURE

Mid Shift A Wan

Days Shift

Notes 1553694

Utilities and Institutional Facilities

Date: SEP 1 2 2021

DATE HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	BT-019	√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
2	Blowdown Wet Receiver Tank Hourly	BT-020	√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	112	113	110	114	112	113	106	109	109	110	110	110	110	110	106	108	106	106	109	108	110	113	114	
4	Instrument Temperature	TI-002	deg C		20	50	25	25	24	22	22	23	22	23	25	27	29	31	32	33	33	33	33	33	32	28	28	27	25	
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	19	19	19	19	19	19	
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	103	107	110	107	101	104	107	104	108	112	106	102	105	104	104	104	104	102	107	108	106	101	104	
8	Sight glass Level Expansion Tank	LI-002	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	5/8	5/8	
9	Coolant Return Differential from GG	PI-002	In WC		60	80	61	61	61	60	60	60	60	60	63	63	63	63	63	63	63	63	63	63	63	61	61	61	61	
10	Coolant Return Differential from	PI-002	In WC		37	50	36	36	36	36	36	36	36	36	39	39	39	39	36	36	36	36	36	36	36	36	36	36	36	
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	8000 gal Oil Water Tank Level	LI-232	%			70%	6	6	6	6	6	6	6	7	7	7	6	6	6	5	5	5	5	5	5	5	5	6	6	
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	
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	ASSOC: ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	839	840	835	843	836	839	838	860	868	873	878	876	872	859	854	867	869	810	869	878	836	840	849	
23	Mw Output		MW			27	19.9	20.1	19.9	20.1	20	20	20	20.1	20.1	19.9	20.1	19.9	19.4	19.5	19.3	19.3	19.4	19.5	20	20.1	20.1	20.1	20.1	
24	80% Base Load Minimum		MW				18.1	18.2	18.3	18.5	18.7	18.6	18.7	18.4	18.2	17.7	17.3	17.2	16.9	16.9	16.8	16.9	17	11	17.3	17.8	17.8	17.9	18.2	
25	Running Hours (unit overview)						7691	7692	7693	7694	7695	7696	7697	7698	7699	7700	7701	7702	7703	7704	7705	7706	7707	7708	7709	7710	7711	7712	7713	7714.49
26	Ambient Temperature	TI-Met					70	68	68	65	63	63	63	66	69	75	79	81	84	84	85	84	84	83	79	74	74	73	68	
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-22	%			70%	54	54	54	54	54	54	54	55	55	53	52	52	51	51	52	53	54	54	54	54	54	54	55	
28	Total Fuel Flow		Mscf/h				200	199	199	201	201	200	202	204	202	203	200	201	199	196	198	198	198	199	200	201	201	200	200	

Date: SEP 1 2 2021 Signature: A Wan

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	
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	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	
Oil Day Tank Level	LI-1562	GAL	10		FULL	50	50	50	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	47	47	47	47	47	
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
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	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	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	
1st Stage Inlet Press.	PI-2100	psig		88	140	84	84	84	84	84	84	84	84	84	84	83	87	84	84	84	84	84	84	84	84	84	84	84	
Stage Disch. Press	PI-2101	psig		238	285	254	253	253	254	253	253	254	254	254	254	254	254	255	255	256	256	256	256	255	255	255	255	254	
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	250	250	250	250	250	250	250	251	251	252	252	252	252	252	252	252	251	251	251	251	
2nd Stage Disch Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	565	566	566	565	565	565	565	565	565	565	565	565	565	565	
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	561	561	560	560	560	560	560	560	560	560	560	560	560	
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	
Lube Oil Temp	TE-1584	deg		150	170	163	161	161	162	161	161	163	163	164	164	166	166	165	165	164	164	164	164	163	163	163	163	162	
Final Discharge Temp	TE-2120	deg		110	150	108	107	107	104	103	103	105	105	112	112	120	120	125	125	126	125	125	125	121	113	112	111	108	
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	231	230	230	229	228	228	234	232	233	233	237	237	239	239	239	239	239	239	237	234	234	233	230	
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	234	232	233	231	230	229	231	231	237	237	245	245	250	250	251	251	251	251	249	234	238	237	235	
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	229	228	228	227	226	226	229	229	231	231	234	234	236	236	236	236	236	236	235	232	232	232	231	
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	234	233	234	231	230	230	232	232	237	237	245	245	250	250	251	251	251	251	249	240	239	237	235	
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.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	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	SEP 12 2021
SIGNATURE	
Mid Shift	A Wac
Days Shift	

Notes

Utilities and Institutional Facilities

Date: 09-17-2021

GGT3 HOURLY READING LOG

MST (MST) (circle one)

Time Gas Introduced (Turbine Rolling): 1357 / 1452

Time of Turbine Online (Brkr Closed): 1413

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

	Instrument Air Compressor	I/C	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	BVTK-003	√																		√	√	√	√	√	√	√	√	√	√
2	Blowdown Wet Receiver Tank Hourly	BVTK-001	√																		√	√	√	√	√	√	√	√	√	√
3	Wet Receiver Air Pressure	PI-003	psig	80	105	120															112	110	110	111	108	110	111	108	110	111
4	Instrument Temperature	TI-001	deg C		20	50															34	34	32	32	32	32	31	30	30	27
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
7	Coolant PLC Temperature	TI-002	deg F	100	110	120															101	104	101	101	102	111	101	100	106	102
8	Sight glass Level Expansion Tank	LI-003	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
9	Coolant Return Differential from GG	PI-004	In WC		60	80															62	62	63	63	60	60	60	60	60	60
10	Coolant Return Differential from	PI-003	In WC		37	50															38	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85															74	72	72	72	72	72	72	72	72	72
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)															Y	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	Y
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page																													
18	3000 gal Oil Water Tank Level	LI-251	%			70%															6	5	5	5	5	5	5	5	5	5
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-250	%			70%															0	0	0	0	0	0	0	0	0	0
20	Record on hard S/D trip over 4500 rpm ML Compressor (on line trip)	AEBEGC BT-01	psig	85	20																									
21	Acknowledge Alarms Hourly		√																		√	√	√	√	√	√	√	√	√	√
	(22–26 found on Power Management page)																													
22	Generator Current		Amps			1427															807	822	839	836	840	837	848	845	847	845
23	Mw Output		MW			27															19.1	19.4	19.8	19.8	20.0	19.9	20.0	20.0	20.1	20.1
24	80% Base Load Minimum		MW																		17	17	17.2	17.2	17.6	17.7	18.1	18.1	18.5	18.5
25	Running Hours (unit overview)																				7715	7716	7717	7718	7719	7720	7721	7722	7723	7724
26	Ambient Temperature	TI-1161																			83	83	81	81	76	74	70	68	65	65
	(27–28 found on Gas Flow Enthalpy page)																													
27	Waste Oil Tank	LI-252	%			70%																								
28	Total Fuel Flow		Mscf/h																		54	54	55	55	55	55	55	55	55	55
																					201	199	205	205	205	205	206	205	206	206

Date: 09-17-2021 Signature: GOMEZ

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	1335																												
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
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY															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	Y2	Y2	Y2	Y2	Y2	Y2
Oil Day Tank Level	LI-1562	GAL	10		FULL															47	47	47	47	47	47	47	47	47	47
Lubricator Bulls eye		LEVEL	1/2	FULL																F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY															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
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																B	B	B	B	B	B	B	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140															83	83	83	83	83	84	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285															253	253	253	253	253	254	254	253	252	250
2nd Stage Inlet Press	PI-2200	psig		267	285															249	249	250	250	250	251	251	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600															565	565	564	564	564	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600															560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60																59	59	59	59	59	60	60	59	59	59
Lube Oil Temp	TE-1584	deg		150	170															163	163	163	163	163	162	163	162	162	162
Final Discharge Temp	TE-2120	deg		110	150															121	121	120	120	119	115	113	110	106	106
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297															246	246	243	243	239	239	236	235	233	232
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283															251	251	249	250	245	243	243	242	233	233
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297															243	243	240	240	239	236	234	233	230	230
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283															251	251	249	249	240	243	242	240	235	233
Motor Frame Vibration	VT-1015	IPS			0.15															.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35															.05	.05	.05	.05	.08	.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.																				560									
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8															557									
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20															547									

DATE	09-17-2021
SIGNATURE	
Mid Shift	
Days Shift	GOMEZ
Notes	

Utilities and institutional Facilities

Date: SEPT 18 2021

GE7F HOURLY READING LOG

MT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes: BUSY WITH PLANT STARTUP

	Instrument Air 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
1	Blowdown Dry Receiver Tank Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓			✓				✓			✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓			✓				✓			✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure		psig	90	105	120	110	106	108	111	108	110	106	108	110			110				110			108	111	108	106	108	111
4	Instrument Temperature		deg C		20	50	23	23	22	22	22	20	19	19	19			27				30			28	28	26	26	26	24
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure		psig		25		19	19	19	19	19	19	19	19	19			19				19			19	19	19	19	19	19
7	Coolant PLC Temperature		deg F	100	110	120	103	100	102	106	101	100	97	98	100	10		107				100			100	102	99	103	104	102
8	Sight glass Level Expansion Tank		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
9	Coolant Return Differential from GG		In WC		60	80	60	60	60	60	60	60	60	60	60	63		63				60			60	60	60	60	60	60
10	Coolant Return Differential from		In WC		37	50	35	35	35	35	35	35	35	35	35	76		36				36			35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	72	72	72	72	72	72	72	72	72			70				70			70	70	70	70	70	70
15	WECC Log		Operational?																											
16	Operation of PSS/cn sl 6.2 MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	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		%			70%	5	5	5	5	6	6	7	7	7	7	7	7	6	6	5	5	5	5	5	5	6	6	6	6
19	10 gallons TG Drain Tank (Air Diagram page)		%			70%	0	0	0	0	0	0	0	0	0	0	0	6	6	6	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)		psig	35	20																									
21	Acknowledge Alarms Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	842	847	850	847	845	844	845	852	851	842	846	842	838	838	836	846	844	844	853	850	853	850	845	850
23	Mw Output		MW			27	19.9	19.9	20	20	20	19.9	20	20	20	20	20	19.9	19.9	19.9	19.8	20	20	20	20.1	20.1	20.1	20.0	20.0	20.0
24	80% Base Load Minimum		MW				18.8	18.8	19.3	19.3	19.3	19.3	19.3	19.1	18.5	18.3	18	17.7	17.2	17.1	17.2	17.3	17.4	17.4	17.8	17.8	18.2	18.2	18.2	18.2
25	Running Hours (unit overview)						7725	7726	7727	7728	7729	7730	7731	7732	7733	7734	7735	7736	7737	7738	7739	7740	7741	7742	7743	7744	7745	7746	7747	7748
26	Ambient Temperature		°F Inlet				61	61	60	58	56	55	55	57	65	68	71	76	80	81	81	79	78	78	76	74	70	70	70	69
	(27–28 found on Gas Fuel System page																													
27	Waste Oil Tank		%			70%	55	55	55	55	56	56	57	57	55	55	54	54	54	54	55	56	56	56	56	56	57	57	57	57
28	Total Fuel Flow		Mscf/h				200	200	202	205	205	206	204	206	206	206	204	205	206	206	206	207	208	209	208	208	208	206	207	207

Date: SEPT 18 2021 Signature: MLD

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
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	½	½	½	½	½	½	½	½	½			½				½			½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	46	46	46	46	46	46	46	46	46			46				45			45	45	45	45	45	45
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F			F				F			F	F	F	F	F	F
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	84	84	84	84	84	84	84	84	84			83				83			83	83	83	83	84	84
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	252	252	252	252	252	252			253				254			253	253	253	253	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	249	250	250	249	249	249	248	248	248			249				250			250	250	250	250	251	251
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	564	564	565	565	565			565				565			565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560			560				560			560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59			59				59			59	59	59	60	60	60
Lube Oil Temp	TE-1584	deg		150	170	163	163	164	164	164	164	164	164	164			163				163			163	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	101	101	100	100	94	94	95	95	95			114				119			116	115	115	111	109	108
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	231	231	231	231	230	230	230	230	230			237				239			238	236	236	236	235	235
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	229	229	228	228	226	226	226	226	226			243				248			243	243	243	243	240	240
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	228	228	228	228	228	228	228	228	228			234				236			234	234	234	234	233	233
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	230	230	229	229	228	226	227	227	227			243				248			246	245	245	244	242	242
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03			.04				.04			.04	.04	.04	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	SEPT 18 2021
SIGNATURE	
Mid Shift	Jae
Days Shift	

BUSY WITH PLANT STARTUP

Notes

Utilities and Institutional Facilities

Date: SEPT 19 2021

GSTS HOURLY READING LOG

(MT / MGT Units 2/3)
Time Gas Introduced (Turbine Rolling):
Time of Turbine Online (Brkr Closed):
Time Turbine Offline (Brkr Open):
Time No Gas Flow:

Notes:

							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	Instrument Air Compressor 12 13		Units	Low	Norm	Max																								
1	Blowdown Dry Receiver Tank Hourly	BAT-213	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BAT-207	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	106	108	110	111	106	106	105	108	106	110	110	110	110	110	110	111	106	110	106	108	110	108	
4	Instrument Temperature	TI-001	deg C		20	55	26	24	23	25	25	22	20	20	20	20	20	24	26	27	29	29	29	29	27	26	26	25	25	25
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-251	psig		25		19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-022	deg F	100	110	120	101	104	102	106	101	103	100	98	100	100	100	104	104	104	100	104	110	109	104	102	100	103	101	104
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/8	2/8	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	66	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-011	in WC		47	57	35	35	35	35	35	35	36	36	36	36	36	36	36	36	39	39	36	36	35	36	36	36	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	72	72	72	72	72	72	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 8.3MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	1000 gal Oil Water Tank Level	LI-251	%			70%	5	6	6	6	6	6	6	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-231	%			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 Mt. Compressor (on line trip)	MT-001 ST-01	psig	95	80																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Boiler Management page)																													
22	Generator Current		Amps			1427	844	850	852	848	851	846	847	857	845	847	853	855	852	847	850	847	846	855	842	854	852	851	852	851
23	Mw Output		MW			25	20.0	20.1	20.0	20.0	20.0	20.0	20	20.1	19.9	20.1	20.1	19.9	20.1	20	20	20	20.1	20.2	20.0	20.2	20.0	20.0	20.0	20.0
24	80% Base Load Minimum		MW				18.6	18.6	18.8	18.8	18.8	18.8	19.2	19.2	18.8	18.6	18.2	17.9	17.7	17.6	17.5	17.4	17.7	17.7	18.0	18.0	18.3	18.3	18.3	18.3
25	Running Hours (unit overview)						7749	7750	7751	7752	7753	7754	7755	7756	7751	7758	7759	7760	7761	7762	7763	7764	7765	7766	7767	7768	7769	7770	7771	7772
26	Ambient Temperature	TI-Intel					64	64	63	63	62	61	56	56	62	64	68	72	75	76	77	77	75	75	73	71	70	70	68	68
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-201	%			70%	57	57	57	57	57	57	58	57	57	57	56	55	55	55	55	56	56	56	56	56	57	57	57	57
28	Total Fuel Flow		Mscf/h				205	205	205	205	205	205	207	205	208	206	208	209	207	208	208	207	208	206	206	206	207	207	207	207

Date: SEPT 19 2021

Signature: MIA

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	41	41	41	41	41	41	41
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	84	84	87	84	83	83	83	83	83	83	83	83	83	83	83	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	254	254	253	253	253	253	252	252	252	252	253	253	253	253	254	254	254	254	254	254	253	253	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	251	250	250	250	250	250	248	248	248	249	250	250	250	250	250	250	250	250	250	251	251	251	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564	567	565	565	565	565	565	565	565	565	565	564	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		60	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	60	60	60
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	163	163	163	165	165	163	163	163	163	163	163	164	164	163	163	163	163	163	162	162	162
Final Discharge Temp	TE-2120	deg		110	150	108	105	103	102	102	100	95	95	100	106	114	114	114	114	115	115	113	113	111	110	108	108	106	106
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	235	232	231	231	231	231	228	228	231	232	237	238	238	238	239	239	237	237	237	236	234	234	234	234
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	231	232	230	230	228	228	224	224	229	231	241	241	241	241	245	245	242	242	242	242	240	240	235	235
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	233	231	230	229	229	229	226	226	229	234	234	234	234	234	236	236	234	234	234	233	232	232	231	231
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	238	233	232	232	230	229	224	224	229	234	241	241	241	241	245	245	242	242	243	242	240	238	235	235
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.06	.06	.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.												560																	
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8							557																	
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20							541																	

DATE SEPT 19 2021

SIGNATURE

Mid Shift

Days Shift

Notes

Date: SEPT 20 2021

MST / MDT (circle one)

Time Gas introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	108	106	110	111	108	110	114	110	112	106	108	110	112	110	106	108	110	108	110	110	108	108	110	106
4	Instrument Temperature	TI-001	deg C		20	50	24	24	22	22	21	21	20	20	24	24	26	26	28	29	29	29	28	28	24	24	24	25	28	20
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	103	101	106	102	101	104	102	109	107	109	110	109	110	102	109	107	111	105	108	106	106	108	105	100
8	Sight glass Level Expansion Tank	LI-003	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	62	62	62	62	62	62	62	62	62	63	62	62	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	37	36	39	38	38	38	37	36	37	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	68	68	68	68	68	68	68	69	68	68	68	68	68	68	68	68	68	68
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	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	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%	6	6	6	6	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	6
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)	A83GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	857	848	850	846	850	854	845	849	846	841	845	842	848	842	845	848	851	849	851	851	851	846	856	857
23	Mw Output		MW			27	20.1	20.1	20.1	19.9	20.0	20.1	19.9	20.1	20.0	19.9	20.0	20.0	19.9	19.9	20.1	20.0	20.1	20.0	20.1	19.9	20.1	19.9	20.1	20
24	80% Base Load Minimum		MW				18.5	18.5	18.5	18.8	18.8	18.8	18.8	18.1	18.5	18.3	18.1	17.8	17.7	17.7	17.1	17.6	17.0	18.1	18.4	18.4	18.8	19	19	19
25	Running Hours (unit overview)						7773	7774	7775	7776	7777	7778	7779	7780	7781	7781	7783	7784	7784	7786	7787	7788	7788	7789	7791	7792	7793	7794	7795	7796
26	Ambient Temperature	T1 Inlet					66	66	64	64	63	61	61	62	65	67	70	73	75	75	76	75	73	70	67	66	62	59	60	60
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	56	56	57	57	57	57	59	59	58	58	57	57	57	56	57	58	58	58	58	58	59	59	59	59
28	Total Fuel Flow		Mscf/h				201	201	206	207	208	206	206	206	205	203	204	203	205	203	203	202	202	201	203	206	202	202	201	201

Date: SEPT 20 2021 Signature: MID

day shift Tech

CGTG TURBINE

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	83	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	84	84	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	254	253	253	252	252	252	252	252	252	253	253	253	252	253	253	254	254	254	254	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	249	249	249	248	249	248	248	248	249	249	249	249	249	250	249	250	250	250	250	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564	564	564	565	564	565	565	564	564	564	564	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		60	60	60	60	59	59	59	59	59	59	59	58	58	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	162	162	163	163	163	163	163	163	163	163	163	164	164	164	164	162	162	163	163	163	163	164	164	164
Final Discharge Temp	TE-2120	deg		110	150	106	104	102	102	100	100	99	102	105	106	109	111	113	114	114	113	112	111	106	106	106	106	98	98
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	234	233	232	232	230	230	229	231	232	233	234	235	236	236	236	235	234	233	230	230	230	230	228	228
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	235	234	233	230	230	229	228	230	231	233	235	239	241	241	241	240	238	236	232	232	232	230	226	226
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	231	231	230	230	228	228	226	228	229	230	231	232	233	233	234	231	230	228	228	228	228	225	225	225
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	235	235	233	232	232	230	228	230	232	234	236	239	241	241	241	241	239	237	233	233	233	227	227	227
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	-.03	.04	.04	.04	-.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							560								560									
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20							556								556									
												546								546									
DATE																													
SIGNATURE																													
Mid Shift																													
Days Shift																													
Notes																													

Utilities and Institutional Facilities

UI-LOG-003-RN
October 1, 2020

Date: 09-21-2021

IVT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

GT'S 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-003	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-002	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	106	108	110	106	106	104	110	112	110	104	110	104	110	106	110	102	108	110	110	107	108	110	109	110
4	Instrument Temperature	TI-001	deg C		20	50	20	20	20	17	17	✓	16	16	17	18	20	20	21	22	23	24	24	23	22	21	20	20	19	19
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-001	psig		25		19	19	19	19	19	19	19	19	19	19	19	19	17	19	19	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	100	104	106	94	99	100	91	92	93	94	97	99	102	103	105	107	107	101	104	107	107	106	101	103
8	Sight glass Level Expansion Tank	LI-002	LEVEL	1/8	2/8	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-004	In WC		60	80	60	60	60	63	63	63	62	60	60	60	60	60	62	62	62	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-003	In WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	68	68	68	68	68	68	69	69	69	69	64	64	69	69	68	68	68
15	WECC Log		Operational?				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)	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	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Entronic Control System		Units	Low	Norm	Max																								
	(36-40 found on Air Diagram page)																													
18	6000 gal Oil Water Tank Level	LI-251	%			70%	6	6	6	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-250	%			70%	0	6	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)	ASS/SSD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	859	862	853	856	855	848	868	873	876	866	994	986	956	940	931	922	915	927	948	967	982	995	999	1015
23	MW Output		MW			27	20.1	20.2	19.9	20	20.1	20	20.3	20.6	20.7	20.4	23.4	23.2	22.5	22.3	22.0	21.8	21.7	22.6	22.4	23.0	23.4	23.7	23.8	24.1
24	80% Base Load Minimum		MW				19.1	19.3	19.5	19.4	19.5	19.6	19.8	19.5	19.4	19.3	19.1	18.9	18.6	18.5	18.3	18.2	18.2	18.3	18.4	18.9	19.1	19.2	19.3	19.5
25	Running Hours (unit overview)						7797	7798	7799	7800	7801	7802	7803	7803	7804	7805	7807	7807	7809	7809	7810	7811	7812	7813	7814	7815	7816	7817	7818	7819
26	Ambient Temperature	TI-01	F				57	55	53	53	52	52	49	52	54	55	58	59	64	65	67	69	68	67	64	60	57	56	54	53
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-252	%			70%	59	59	60	60	60	60	60	60	59	59	58	58	58	58	58	59	60	59	60	60	60	61	61	61
28	Total Fuel Flow		Mscf/h				202	202	201	205	204	206	211	206	209	207	229	228	224	220	219	218	218	219	223	227	231	233	234	237

Date: 09-21-2021 Signature: GOMEZ

day shift - Jacob Ames

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	39	39	39	39	39	39	38	38	38	38	38	37	37	37	37	37	37	37	37	37	37	36	36	36
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	255	252	252	252	252	252	252	252	250	251	252	252	253	253	253	253	253	250	251	251	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	249	249	248	248	248	248	247	247	248	249	249	249	249	249	249	247	248	248	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564	564	564	564	564	564	565	85	564	565	565	564	564	564	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	560	560	560	560	560	560	562	559	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	58	58	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	164	164	165	165	165	167	167	165	164	164	163	163	162	162	162	162	162	161	161	164	164	165	165
Final Discharge Temp	TE-2120	deg		110	150	98	98	98	92	92	92	88	97	94	96	99	101	104	107	105	109	108	107	108	102	99	96	93	92
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	228	228	226	226	226	223	224	225	226	227	228	229	230	230	231	230	229	228	226	228	227	226	225
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	226	226	226	222	222	222	219	220	223	225	228	230	232	235	236	236	236	235	231	228	228	226	226	225
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	225	225	224	223	223	223	221	221	222	223	224	225	225	226	227	227	227	227	228	225	225	224	223	222
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	227	227	228	222	222	222	219	221	223	225	228	230	232	235	234	237	236	236	231	230	229	225	224	223
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.04	.04	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
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								560								560								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								556								556								
													546								545								

DATE	09-21-2021
SIGNATURE	
Mid Shift	GOMEZ 188079-8
Days Shift	

Notes

Date: 9-22-2021

MST (MDT) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

UL/OG-033-R4
October 1, 2021

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	109	110	110	109	109	111	110	108	106	108	106	108	110	112	112	110	112	110	109	110	109	108	110	108
4	Instrument Temperature	TI-001	deg C		20	50	17	16	16	16	16	16	14	15	17	19	21	22	24	24	25	26	26	26	24	23	22	22	21	20
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	19	19	17	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	103	109	102	103	105	107	89	93	97	98	105	106	109	107	108	110	101	104	103	103	101	100	103	103
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC			80	60	60	60	60	60	60	60	60	60	60	62	62	62	62	62	62	62	62	62	62	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	35	36	36	36	36	36	39	39	39	38	37	37	37	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	68	68	68	69	69	69	69	69	69	69	69	69	69	69	68	68	68
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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-291	%			70%	6	7	7	7	7	7	7	7	7	7	7	7	6	6	6	5	5	5	5	6	6	6	6	6
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		V																											
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1029	1046	1045	1045	1045	1050	1049	1026	1005	982	950	950	924	917	904	880	873	883	916	921	931	945	950	961
23	Mw Output		MW			27	24.5	24.8	24.8	24.8	24.9	24.9	24.8	24.3	23.8	23.4	22.5	22.5	21.9	21.7	21.4	20.9	20.7	20.9	21.6	21.9	22.2	22.4	22.6	22.9
24	80% Base Load Minimum		MW				19.7	19.9	19.9	19.9	19.9	19.9	19.9	19.6	19.3	19.0	18.6	18.6	18.2	18.2	18.0	17.8	17.7	17.8	18.3	18.5	18.5	18.7	18.8	19.0
25	Running Hours (unit overview)		MW				7820	7821	7822	7823	7824	7825	7826	7827	7828	7829	7831	7831	7832	7833	7834	7835	7836	7837	7838	7839	7840	7841	7842	7843
26	Ambient Temperature	T1 Inlet					50	48	48	48	47	47	47	50	55	58	64	64	68	69	71	73	74	73	68	64	64	62	61	59
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	62	62	62	62	62	62	62	62	61	60	57	60	59	59	60	61	61	62	62	62	62	63	63	63
28	Total Fuel Flow		Mscf/h				240	245	248	247	245	245	244	240	237	233	227	225	220	219	217	213	213	213	219	221	222	225	226	227

Date: 9-22-2021 Signature: Bob Avery

day shift - John Avery

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						13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Combustible Gas Detector	AAH-303	%		0%	20%	E	E	E	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 Left Side	FSL-1501B	LIGHT		BLINK		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
Liquid Level Coalescing	LA-7721	LIQID		EMPTY	ANY	36	36	36	36	36	36	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Oil Day Tank Level	LI-1562	GAL	10		FULL	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Lubricator Bulls eye		LEVEL	1/2	FULL		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 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	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	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-2300	psig		88	140	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2301	psig		238	285	251	252	252	252	252	252	249	249	249	251	251	251	252	253	253	253	254	254	254	254	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	249	249	249	249	245	246	247	247	247	248	249	249	249	249	248	249	250	250	250	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564	564	565	564	564	564	564	564	564	564	564	564	564	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	560	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1571	psig	40	60		59	59	59	59	59	59	58	58	58	58	58	58	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	169	169	169	169	169	169	165	165	167	165	161	164	164	164	163	163	163	163	163	163	163	163	162	162
Final Discharge Temp	TE-2120	deg		110	150	91	91	91	91	91	91	85	88	92	96	102	102	106	109	111	111	112	111	110	108	105	102	101	97
1st Stage Cylinder Disch. Temperature A	TE-2054A	deg		226	297	225	225	225	224	225	225	223	223	224	227	229	229	231	231	237	233	233	233	231	230	230	229	229	228
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	221	221	221	224	221	221	217	220	222	227	231	231	235	237	239	240	240	240	238	235	233	231	229	228
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	221	221	224	220	221	224	220	221	223	225	227	227	228	229	230	231	231	230	228	228	228	227	227	226
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	220	219	219	219	219	219	217	220	223	227	227	231	233	238	240	240	240	240	238	236	234	232	230	228
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.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.	A63FGDT	49-48=psid			8						560											560							
Double Block and Bleed Pressure	A63FTGST	50-49=psid			20						556											554							
Fuel Gas Supply Pressure											543											546							

DATE 9-22-2021

SIGNATURE

Mid Shift Bob Lucas

Days Shift John Crane

1586370

Notes

Utilities and Institutional Facilities

UI-LOG-003-R4
October 1, 2020

Date: 9-23-2021

MT (MC) Area and

Time Last Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

2276 HOURLY READING LOG

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	B-TK-018	Y				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	B-TK-017	Y				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	109	111	108	110	110	108	108	109	110	104	106	110	112	104	110	106	110	109	110	108	107	110	109
4	Instrument Temperature	TI-001	deg C		20	50	20	20	19	19	19	19	18	19	19	22	24	26	26	26	27	26	26	26	26	25	24	24	24	23
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-251	psig		25	-	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-001	deg F	100	110	120	101	108	109	102	104	109	99	101	100	107	105	108	111	111	111	100	110	105	102	101	109	100	104	104
8	Sight glass Level Expansion Tank	LI-002	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	62	62	62	62	62	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	In WC		37	50	36	36	36	36	36	36	36	36	35	37	37	37	39	38	36	36	37	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	68	68	69	70	69	68	68	68	68	68	68	68	68	68	68	68	68
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.9/VA		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																								
	18-20 found on Air Diagram page																													
18	1000 gal Oil Water Tank Level	LI-250	%			70%	6	6	6	6	6	6	6	7	7	7	7	6	6	6	5	5	5	6	6	6	6	6	6	6
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-251	%			70%	0	0	0	0	0	6	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 ML Compressor (on line trip)	ABS/BD ST-01	psig	35	20		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21	Acknowledge Alarms Hourly		Y																											
	22-24 found on Power Management page																													
22	Generator Current		Amps			1627	956	958	960	963	978	974	979	964	973	950	903	897	880	877	879	880	883	886	891	898	901	909	914	923
23	Mw Output		MW			27	22.5	22.7	23.9	25.0	23.2	28.1	23.2	22.9	23.1	22.1	21.3	21.2	20.9	20.9	20.9	20.9	20.9	20.9	21.1	21.2	21.3	21.5	21.7	21.9
24	80% Base Load Minimum		MW				18.4	18.9	19.0	19.0	19.1	19.4	17.1	19.0	19.1	18.5	18.1	18.0	17.8	17.8	17.8	17.9	17.9	17.9	18.0	18.1	18.2	18.3	18.4	18.5
25	Running Hours (unit overview)						7844	7845	7846	7847	7848	7849	7850	7851	7852	7853	7854	7855	7856	7857	7858	7859	7860	7861	7862	7863	7864	7865	7866	7867
26	Ambient Temperature	TI-181					61	60	59	58	57	58	57	59	57	65	70	71	73	73	73	72	72	72	71	70	69	68	67	66
	27-28 found on Gas Fuel & Fuel page																													
27	Waste Oil Tank	LI-000	%			70%	63	63	63	63	62	63	62	62	62	61	59	60	60	60	61	61	62	62	62	62	63	63	63	63
28	Total Fuel Flow		Mscf/h				227	226	228	229	230	229	230	229	230	223	215	214	211	210	211	214	214	214	215	215	216	218	219	221

Date: 9-23-2021 Signature: Bob Arg

day shift - Josh Arc

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-803	%		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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	34	24	31	34	31	34	34	34	33	33	33	33	33	32	32	32	32	32	32	32	32	32	32	32
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7415	LIQID		EMPTY	ANY	E	E	E	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	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	85	83	83	83	83	83	83	83	83	0	83	83	83	83	83	83	83	82	82	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	252	252	252	251	251	250	252	252	253	254	254	254	254	254	254	251	252	252	253	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	247	247	247	248	248	247	248	248	249	250	250	250	250	250	250	248	249	249	249	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	564	564	564	564	564	564	564	565	564	564	565	565	565	564	564	564	564	564	564	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	58	59	58	59	58	58	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	162	162	162	163	163	163	163	164	164	164	164	164	164	163	164	163	162	162	162	162	162	162	162	162
Final Discharge Temp	TE-2120	deg		110	150	99	98	97	96	95	96	94	96	96	104	107	109	112	114	113	112	111	119	111	108	107	106	104	103
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	226	228	228	227	227	227	225	226	227	228	231	231	232	234	233	233	232	232	232	232	232	231	230	230
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	226	228	228	227	227	227	225	225	225	230	234	238	239	241	240	240	239	238	238	237	237	235	234	233
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	228	228	227	227	227	225	226	225	230	234	238	239	241	240	240	239	238	238	237	237	235	234	233
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	226	228	228	227	227	227	225	226	225	230	234	238	239	241	240	240	239	238	238	237	237	235	234	233
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.02	.04	.04	.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	.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.	A63FGDT	49-48=psid			8																								
Double Block and Bleed Pressure	A63FTGST	50-49=psid			20																								
Fuel Gas Supply Pressure						760																							
						556									559														
						544									556														
															545														

DATE 9-23-2021

SIGNATURE

Mid Shift

Days Shift 191788

Notes

1548 C4

UI-LOG-032-RX
October 1, 2020

Utilities and Institutional Facilities

1593863

Date: 9-24-2021

CPP HOURLY READING LOG

MF (MT) circle one.
Time Gas Introduced (Turbine Rolling):
Time of Turbine Online (Brkr Closed):
Time Turbine Offline (Brkr Open):
Time No Gas Flow:

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
1	Blowdown Dry Receiver Tank Hourly	BVT-003	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	109	110	110	109	109	109	106	105	106	100	101	104	106	100	108	102	100	101	110	108	111	110	108	109
4	Instrument Temperature	TI-001	deg C		20	50	23	23	20	19	18	18	19	19	20	20	25	24	24	28	28	29	29	27	25	25	24	23	22	22
5	Fin Fan Cooler		Units	Low	Norm	Max																							
6	Coolant Pressure	PI-150	psig		25		19	19	19	19	19	19	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	108	102	109	108	103	97	103	110	110	103	109	110	103	103	102	107	104	100	102	104	106	102	110
8	Sight glass Level Expansion Tank	LI-002	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in W/C		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	in W/C		37	56	36	36	36	36	36	36	35	35	34	36	36	34	34	36	36	34	36	34	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																							
12	Room Temperature		deg F		72	86	68	68	68	68	68	68	68	68	68	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
15	WECC Log		Operational?																										
16	Operation of PSS/ on at 6.9MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																							
	(18–20 found on Air Diagram page)																												
18	2300 gal Oil Water Tank Level	LI-250	%			70%	6	6	6	6	6	6	6	6	7	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6
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)	ASSIST-01 ASSIST-02	psig	35	20								✓	✓	✓					✓				✓						
21	Acknowledge Alarms Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																												
22	Generator Current		Amps			1667	922	927	940	943	979	980	990	944	924	917	895	887	867	864	854	864	863	866	923	916	932	930	953	938
23	MW Output		MW			23	21.9	22.0	22.3	22.4	23.2	23.2	23.4	22.3	21.9	21.7	21.2	20.9	20.5	20.4	20.1	20.3	20.4	20.4	21.5	21.7	22.1	22.1	22.1	22.1
24	80% Base Load Minimum		MW				18.5	18.5	18.1	18.7	19.1	19.1	19.2	18.7	18.4	18.3	18.0	17.6	17.4	17.6	17.4	17.5	17.4	17.6	18.4	18.4	18.6	18.6	18.6	18.6
25	Running Hours (unit overview)						7868	7869	7870	7871	7872	7873	7874	7875	7876	7877	7878	7879	7880	7881	7882	7883	7884	7885	7886	7887	7888	7889	7890	7891
26	Ambient Temperature	TI-Misc					66	65	63	62	57	57	55.6	63.3	66.4	69.8	71.1	73.8	72.4	76.5	72.9	72.0	76.6	76.3	68	67	65	64	64	64
	(27–28 found on Gas Fuel System page)																												
27	Waste Oil Tank	LI-001	%			70%	63	63	63	63	63	63	63	63	62	61	60	60	61	61	61	61	61	61	61	61	62	62	62	62
28	Total Fuel Flow		Mscf/h				221	222	224	226	230	230	228	221	219	217	213	211	211	207	204	209	206	207	216	218	223	222	222	220

Date: 9-24-2021 Signature: (MIDS) Bob Ames

GE7E 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	4A4-ST1	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	PSL-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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1561	GAL	10		FULL	32	32	32	31	31	31	31	30	30	52	52	52	52	52	52	52	52	52	51	51	51	51	51	51
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	E	E	E
Packing Lube Oil Flow Indicator Right Side	PSL-1501A	LIGHT		BLINK		B	B	B	B	B	B	B	B	B	B	B	B	B	O	O	B	B	B	B	B	B	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140	83	83	85	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84
Stage Disch. Press	PI-2101	psig		238	285	254	254	254	252	252	252	252	252	252	252	252	252	253	253	252	255	254	254	253	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	248	248	248	248	249	248	248	249	248	249	249	249	251	251	251	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	564	564	564	564	565	565	565	564	564	565	565	565	565	564	564	565	565	565	565	563	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	58	58	58	58	58	58	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	162	162	162	163	163	163	165	163	163	163	164	164	164	164	164	165	163	163	163	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	103	103	103	100	95	95	95	102	106	104	109	109	114	114	114	116	115	115	113	112	110	108	105	102
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	230	230	229	227	225	224	224	227	230	230	232	232	234	234	234	238	234	234	234	233	233	230	230	230
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	233	233	231	227	225	225	225	229	232	232	236	236	240	240	240	242	242	242	241	241	241	240	239	239
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	228	228	227	226	225	225	225	225	227	227	229	229	232	232	231	232	231	231	231	231	231	230	229	229
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	233	230	230	228	225	225	235	230	233	232	236	236	241	241	240	242	241	241	241	241	241	240	240	238
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.06	.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	.04	.04	.05	.04	.04	.04	.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	AE3FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	AE3FTGST	50-49=psid			20																								

DATE 9-24-2021

SIGNATURE

Mid Shift Bob Ang

Days Shift

Notes

Utilities and Institutional Facilities

Date: SEPT 25 2021

GSTS HOURLY READING LOG

"MT" / "MDT" (circle one)
Time Gas Introduced (Turbine Rolling):
Time of Turbine Online (Brkr Closed):
Time Turbine Offline (Brk: Open):
Time No Gas Flow:

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	BLT-023	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	—	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BLT-022	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	106	108	110	111	106	102	100	102	100	108	110	105	109	107	106	102	100	110	108	108	101	110	108
4	Instrument Temperature	TI-001	deg C		20	50	22	22	21	21	21	20	20	20	20	23	23	27	27	29	30	30	29	29	26	26	24	22	22	21
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-230	psig		25		19	19	19	19	19	19	19	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	103	102	101	106	104	102	108	102	104	108	100	106	109	110	105	116	107	100	102	106	100	106	105	101
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/8	2/8	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	In WC		37	50	35	35	35	35	35	35	35	35	35	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	70	70	70	70	70	76	76	70	70	70	70	76	70	70	70	70	70	70	70	70	70	70
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	3000 gal Oil Water Tank Level	LI-231	%			70%	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	5	5	5	6	6	6	6	6	6
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)	ASSIGN BY OC	psig	35	20																									
21	Acknowledge Alarms Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	970	979	980	987	991	990	993	955	940	917	887	869	879	872	869	873	873	882	944	945	958	982	976	971
23	Mw Output		MW			27	22.8	22.8	22.8	23.4	23.4	23.4	23.5	22.6	22.6	21.8	21.1	20.7	20.8	20.6	20.6	20.7	20.6	20.8	22.3	22.3	22.7	23.1	23.0	23.0
24	80% Base Load Minimum		MW				18.9	18.9	18.9	19.2	19.2	19.2	19.2	18.8	18.0	18.2	17.9	17.7	17.7	17.6	17.4	17.7	17.7	17.8	18.6	18.6	18.8	19.0	19.0	19.0
25	Running Hours (unit overview)						7892	7893	7894	7895	7896	7897	7898	7899	7901	7902	7903	7904	7905	7906	7907	7908	7909	7910	7911	7912	7913	7914	7915	7916
26	Ambient Temperature	TI Inlet					60	58	58	57	56	56	55	62	65	68	72	74	74	75	75	75	75	73	65	63	61	58	58	58
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-232	%			70%	63	63	63	63	63	63	63	63	62	62	61	61	61	60	61	62	62	62	63	63	63	63	63	63
28	Total Fuel Flow		Mscf/h				229	231	232	234	233	234	233	227	224	221	214	212	211	206	211	210	211	210	225	225	228	232	232	231

Date: SEPT 25 2021 Signature: MIO

CSTG TURBINE

UTILITIES AND INFRASTRUCTURE

1599071

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	GAH-3103	%		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	E	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-1561	GAL	10		FULL	50	50	50	50	50	50	49	49	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	48
Lubricator Bulls eye		LFVFI	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7415	LIQID		EMPTY	ANY	E	E	E	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	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	84	84	84	84	84	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	253	253	253	252	252	252	253	253	254	254	254	254	254	254	253	253	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	249	249	249	248	249	249	249	249	249	250	250	250	251	251	251	250	250	250	251	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	564	564	565	565	564	564	564	564	564	564	564	564	564	565	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	164	164	164	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	162	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	100	100	99	99	99	106	100	100	109	107	109	114	114	116	115	115	116	115	113	112	111	100	99	99
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	228	226	226	226	228	228	228	234	232	229	235	235	234	236	234	234	234	233	233	232	228	228	228
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	230	230	230	231	231	231	228	229	229	235	238	242	242	242	242	242	242	242	241	241	240	230	230	230
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	226	226	228	228	226	225	225	225	229	229	232	232	232	232	232	232	232	232	231	231	225	225	225
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	230	230	229	229	230	230	229	229	229	226	238	242	242	243	240	243	240	242	241	241	240	230	230	230
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	03	02	03	03	03	03	01	03	02	03	03	03	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	01	01	01	05	6	04	05	5	01	01	01	01	.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.																					559								
Double Block and Bleed Pressure	A63PGDT	49-48=psid			8																554								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																546								

DATE	SEPT 25
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

1604367

Date: SEPT 26 2021

GTG HOURLY READING LOG

MT (MD) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	BLT-001	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BLT-002	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	106	110	106	108	111	110	109	105	100	105	101	105	108	103	99	105	110	109	110	108	111	106	108	110
4	Instrument Temperature	TI-001	deg C		20	50	22	22	20	20	20	20	20	20	20	20	20	21	21	21	24	24	24	24	22	22	22	22	20	20
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	103	101	106	101	102	103	106	104	103	101	108	100	101	108	102	109	109	103	100	102	101	103	105	102
8	Sight glass Level Expansion Tank	LI-003	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-003	In WC		37	50	35	35	35	35	35	35	35	35	35	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	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2300 gal Oil Water Tank Level	LI-251	%			70%	6	6	6	6	6	6	4	4	4	4	4	6	6	4	4	4	4	4	6	6	6	6	6	6
19	10 gal gas TG Drain Tank (Air Diagrm page)	LI-250	%			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)	ASSIST-01	psig	85	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	992	996	990	995	993	996	993	981	966	965	945	911	917	930	911	900	912	909	944	946	956	955	957	955
23	Mw Output		MW			27	23.5	23.5	23.5	23.5	23.5	23.5	23.5	22.3	22.8	22.5	22.4	21.5	21.7	21.9	21.5	21.3	21.6	21.5	22.3	22.3	22.6	22.6	22.6	22.6
24	80% Base Load Minimum		MW				19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.1	18.9	18.7	18.6	18.2	18.3	18.5	18.3	18.1	18.3	18.2	18.7	18.7	18.8	18.8	18.8	18.8
25	Running Hours (unit overview)						7917	7918	7919	7920	7921	7922	7923	7924	7925	7926	7927	7928	7929	7930	7931	7932	7933	7934	7935	7936	7937	7938	7939	7940
26	Ambient Temperature	TI-[illegible]					55	55	55	55	55	55	55	57	60	61	63	68	67	65	68	70	68	68	65	64	63	62	62	61
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-001	%			70%	63	63	63	63	63	63	63	63	63	63	62	62	62	63	63	63	63	63	63	63	63	63	63	63
28	Total Fuel Flow		Mscf/h				235	235	235	234	235	235	234	236	229	226	225	219	216	226	219	216	214	218	224	225	226	226	227	226

Date: SEPT 26 2021 Signature: MJ

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-1613	%		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	D	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	R	E	E	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LG-1574	LEVEL	1/4	1/2	FULL	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	47	47	47	47	47	47	46	46	46	46	46	46	46	46	46	45	45	45	45	45	45	45	45	45
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	F	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	F	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	D	B	B	D	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	84	84	83	83	83	83	83	82	83	83	83	83	83	83	83	83	83	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	254	254	253	253	251	250	252	253	253	253	253	253	254	254	254	253	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	250	250	250	249	249	249	249	248	248	249	249	249	249	250	250	250	250	250	250	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	564	564	565	565	565	565	565	564	564	564	564	564	564	564	564	564	564	564	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	162	162	163	163	162	162	161	163	164	163	163	162	163	163	163	163	163	163	164	164	164	164
Final Discharge Temp	TE-2120	deg		110	150	99	99	99	100	100	99	99	96	99	98	97	107	107	107	107	108	105	104	106	104	102	100	100	98
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	228	228	229	229	228	228	228	228	230	228	228	231	231	231	231	231	231	231	231	231	230	228	228	228
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	230	230	230	229	229	230	230	230	230	229	229	236	236	235	233	236	234	235	234	234	228	228	228	228
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	225	224	225	225	226	225	227	225	224	226	228	228	230	228	229	229	230	229	229	228	228	226	226
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	230	230	231	231	230	230	230	230	230	229	229	236	234	234	234	236	235	236	235	235	230	230	228	228
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.07	.06	.07	.03	.01	.03	.01	.01	.01	.03	.01	.01	.03	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.01	.01	.01	.01	.01	.01	.01	.01	.03	.01	.01	.03	.03	.03	.03	.03	.03	.03
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	A63PGDT	49-48=psid			8																556								
Fuel Gas Supply Pressure	A63PTGST	50-49=psid			20																545								

DATE	SEPT 26 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

138420 162

Date: SEPT 27 2021

MT (MCC) circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

GT'S HOURLY READING LOG

	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-003	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	106	110	108	108	110	105	96	100	102	100	106	105	102	109	105	100	102	106	112	110	113	109	112	108
4	Instrument Temperature	TI-001	deg C		20	50	20	20	20	20	20	20	18	18	18	18	21	25	26	28	28	28	28	28	27	27	22	27	20	20
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-002	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	108	102	110	103	105	95	99	105	102	110	109	106	108	108	107	102	104	104	107	110	104	101	104
8	Sight glass Level Expansion Tank	LI-002	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	61	61	61	61	61	61
10	Coolant Return Differential from	PI-001	In WC		37	50	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.3 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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-230	%			70%	6	6	6	6	6	6	4	4	4	4	4	4	4	6	4	4	4	4	6	6	6	6	6	6
19	10 gallons TG Drain Tank (Air Diagram page)	LI-130	%			70%	0	0	0	0	0	0	6	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)	AE93.2C, ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	970	973	996	995	997	995	1003	978	970	956	938	929	920	919	901	920	920	918	940	952	966	968	991	990
23	Mw Output		MW			27	23.0	23.0	23.5	23.5	23.5	23.5	23.7	23.1	22.9	22.6	22.2	22.0	22.0	21.7	21.4	21.7	21.8	21.9	22.4	22.6	23	23.1	23.5	23.6
24	80% Base Load Minimum		MW				19.1	19.1	19.3	19.3	19.3	19.3	19.4	19.1	18.9	18.8	18.6	18.5	18.5	18.3	18.1	18.3	18.2	18.5	18.7	18.9	19.1	19.2	19.4	19.4
25	Running Hours (unit overview)						7940	7941	7942	7943	7944	7945	7946	7947	7948	7949	7950	7951	7952	7953	7954	7955	7956	7957	7958	7959	7960	7961	7962	7963
26	Ambient Temperature	TI-001					58	58	56	56	54	54	53	57	62	61	64	65	67	68	70	67	64	65	62	60	57	56	54	53
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-231	%			70%	63	63	63	63	63	63	63	63	63	63	63	63	64	64	65	65	65	65	63	63	63	63	62	62
28	Total Fuel Flow		Mscf/h				227	227	230	231	231	231	230	230	229	226	224	222	220	220	217	219	217	215	218	220	221	222	226	227

Date: SEPT 27 2021 Signature: MIO

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-313	%		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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	44	44	44	44	44	44	43	43	43	43	43	43	43	43	43	43	43	43	41	41	41	41	41	41
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7418	LIQID		EMPTY	ANY	E	E	E	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	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	84	84	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	251	251	251	252	251	251	251	252	251	251	251	253	253	253	253	253	253	253	253	252	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	248	248	248	249	247	247	247	248	248	248	248	249	249	249	249	249	249	249	248	248	247	247
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	563	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	560	560	560	560	555	555	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	58	58	58	59	59	59	59	59	59	59	59	58	59	59	59	59	58	58
Lube Oil Temp	TE-1584	deg		150	170	164	164	163	163	164	164	164	165	163	164	163	163	163	163	163	163	163	163	163	163	163	163	165	164
Final Discharge Temp	TE-2120	deg		110	150	97	98	98	98	97	97	91	94	94	99	101	101	101	109	104	108	109	109	107	101	96	95	93	92
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	226	226	226	227	227	226	223	225	225	228	228	228	228	232	232	231	231	230	226	224	223	223	221	221
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	224	224	223	223	223	224	221	224	224	229	230	221	221	238	238	237	237	237	228	226	224	224	221	220
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	226	226	226	225	226	226	220	227	227	225	225	225	225	228	228	229	229	229	223	221	221	221	219	219
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	228	228	229	228	228	228	221	224	224	229	230	230	230	238	238	237	237	237	229	227	224	224	221	220
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	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	05	05	05	04	05	04	04	05	05	05	04	04	.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	AE3PGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	AE3PTGST	50-49=psid			20																								

DATE SEPT 27 2021

SIGNATURE

Mid Shift

Days Shift

Notes 161459

Utilities and Institutional Facilities

Date: SEP 2 8 2021

GE7FA HOURLY READING LOG

MT / MCT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	B-TT-003	√				√	√	√	√	√	√	√	T			B	√	√	√	√	√	√	√	√	√	√	√	√	√
2	Blowdown Wet Receiver Tank Hourly	B-TT-007	√				√	√	√	√	√	√	√	U			A	√	√	√	√	√	√	√	√	√	√	√	√	√
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	114	107	108	112	113	109	100	R			E	105	104	104	100	102	100	101	108	112	109	111	113	110
4	Instrument Temperature	TI-001	deg C		20	50	20	20	18	17	17	17	17	B			.	20	20	20	20	20	20	20	20	20	20	20	20	20
5	Fin Fan Cooler		Units	Low	Norm	Max								I			O													
6	Coolant Pressure	PI-001	psig		25		19	19	19	19	19	19	19	N			N	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-001	deg F	100	110	120	100	104	98	97	99	102	103	E			C	97	101	100	103	105	103	104	101	98	107	102	97	101
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				T	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	PI-003	In WC		60	90	61	61	61	61	61	61	60	T			H	60	60	60	60	60	60	60	61	61	61	61	61	61
10	Coolant Return Differential from	PI-002	In WC		37	50	36	36	36	36	36	36	36	R			I	36	36	36	35	35	35	35	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max								I			S													
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	P			T	70	70	70	70	70	70	70	70	70	70	70	70	70
15	WECC Log		Operational?														I													
16	Operation of PSS/ on at 6.2MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y				M	Y	Y	Y	Y	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				E	Y	Y	Y	Y	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-001	%			70%	6	6	6	6	7	7	7					7	7	7	7	7	7	7	6	6	6	7	7	7
19	50 gallons TG Drain Tank (Air Diagram page)	LI-001	%			70%	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)	AE6000 BT-02	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√					√	√	√	√	√	√	√	√	√	√	√	√	√
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	994	996	991	989	1001	1000	1002					963	967	982	954	958	954	957	966	974	980	990	986	988
23	Mw Output		MW			27	23.9	23.7	23.6	23.6	23.8	23.9	23.9					22.8	22.9	22.3	22.6	22.7	22.7	22.7	22.9	23.1	23.3	23.5	23.4	23.4
24	80% Base Load Minimum		MW				19.5	19.5	19.4	19.4	19.5	19.6	19.4					18.9	19.0	19.2	18.9	19.0	18.9	19.0	19.1	19.2	19.2	19.4	19.3	19.3
25	Running Hours (unit overview)						7964	7965	7966	7967	7968	7969	7970					7973	7974	7975	7976	7977	7978	7979	7980	7981	7982	7983	7984	7985
26	Ambient Temperature	TI-001					52	52	53	53	51	51	51					59	59	59	60	59	60	59	57	56	55	53	54	54
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-001	%			70%	63	64	65	65	65	65	66					67	67	68	68	69	68	67	67	67	66	66	67	67
28	Total Fuel Flow		Mscf/h				231	232	234	236	237	237	238					227	228	231	224	226	227	229	223	223	224	226	229	228

Date: SEP 2 8 2021

Signature: A Wan

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-1013	%		0%	20%	0																							
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
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
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
Oil Day Tank Level	LI-1562	GAL	10		FULL	41	41	41	41	41	41						41	41	41	41	41	41	41	39	39	39	39	39	39
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F					F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7418	LIQID		EMPTY	ANY	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
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
1st Stage Inlet Press.	PI-2100	psig		88	140	83	83	83	83	83	83	83					83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	251	251	251	251	251	251	250					251	250	250	251	251	251	251	251	251	251	251	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	247	247	247	247	246					247	246	246	248	247	247	248	248	248	247	247	247	247
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	566	565	566					564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560					560	560	559	560	560	560	560	559	559	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	58					59	58	58	59	59	59	59	59	59	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	164	164	165	165	164	163	161					163	164	165	165	164	164	161	164	163	165	164	164	164
Final Discharge Temp	TE-2120	deg		110	150	91	91	91	91	91	91	90					92	95	94	99	98	98	97	97	96	93	93	93	93
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	220	220	223	224	223	223	223					227	226	226	227	227	227	227	223	223	222	221	220	221
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	219	220	220	223	222	221	220					226	225	224	228	227	227	227	224	224	221	220	220	220
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	218	219	220	223	223	222	221					224	224	224	225	225	225	225	222	221	219	220	221	220
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	220	221	222	223	222	221	221					226	225	224	226	227	228	226	224	223	221	220	220	219
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
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
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	AE3PGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	AE3PTGST	50-49=psid			20																								

TRIP @ THIS TIME

DATE SEP 28 2021

SIGNATURE

Mid Shift A Wan

Days Shift

Notes 1618258

Utilities and Institutional Facilities

Date: 9-29-21

CGTS HOURLY READING LOG

MT / MDT (circle one)
Time Gas Introduced (Turbine Rolling):
Time of Turbine Online (Brkr Closed):
Time Turbine Offline (Brkr Open):
Time No Gas Flow:

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	112	108	114	106	110	113	99	101	110	106	108	105	102	102	105	106	102	100	109	112	110	113	108	112
4	Instrument Temperature	TI-001	deg C		20	50	20	20	20	20	20	18	18	18	18	19	19	19	19	20	26	20	21	21	21	21	21	20	20	19
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	17	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	104	101	98	107	94	99	95	99	105	106	109	109	106	103	108	107	108	108	103	107	101	98	103	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	5/6	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-004	in WC		60	80	61	61	61	61	61	61	60	60	60	60	60	60	60	60	60	60	60	60	61	61	61	61	61	61
10	Coolant Return Differential from	PI-003	in WC		37	50	36	36	36	36	36	36	35	35	35	35	35	35	35	35	34	34	35	35	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	70	70	70	76	74	74	76	70	70	70	70	70	70	70	70	70	70
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2500 gal Oil Water Tank Level	LI-251	%			70%	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-250	%			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)	AE8GC1 BT-01	psig	35	20		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			3427	989	980	983	990	989	994	1005	985	970	961	952	948	942	916	917	917	914	910	952	968	968	985	989	999
23	Mw Output		MW			27	23.3	23.3	23.4	23.4	23.5	23.6	23.8	23.3	22.9	22.8	22.5	21.8	21.8	21.7	22.0	21.7	21.6	21.6	22.7	22.9	22.9	23.4	23.5	23.8
24	80% Base Load Minimum		MW				19.2	19.3	19.3	19.3	19.4	19.4	19.5	19.2	19.0	18.9	18.8	18.4	18.4	18.4	18.6	18.4	17.4	18.4	18.9	19.0	19	19.3	19.3	19.5
25	Running Hours (unit overview)						7986	7987	7988	7989	7990	7991	7992	7993	7954	7995	7996	7997	7998	7999	8000	8001	8002	8002	8004	8005	8006	8007	8008	8009
26	Ambient Temperature	TI-Inlet					53	55	54	54	54	53	52	55	58	59	62	66	66	66	64	65	66	66	59	58	58	55	54	54
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-001	%			70%	67	67	67	67	67	67	68	68	67	66	66	65	65	65	65	65	66	66	67	67	67	67	68	67
28	Total Fuel Flow		Mscf/h				229	227	228	228	228	230	233	230	223	223	221	215	214	214	215	215	214	214	222	225	225	228	230	232

Date: 9-29-21 Signature: A Mac

LOTC 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-513	%		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	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	½	½	½	½	½	½	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	39	39	39	39	39	39	39	39	39	39	39	38	38	38	38	37	37	37	36	36	36	36	36	36
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	E	E	E	E	E	E	F	F	F	F	F	F	F	F	F	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	F	F	F	F	F	F	F	F	F	F	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	D	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	251	251	251	251	251	251	250	251	251	251	251	252	252	252	252	252	252	252	252	252	252	252	252	250
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	247	247	247	247	246	247	247	248	248	248	248	248	249	249	248	249	248	248	248	248	248	247
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	559	559	559	559	559	559	559
Lube Oil Pressure	PI-1572	psig	40	60		58	59	59	58	58	58	58	58	58	58	58	59	59	59	59	59	59	59	59	59	59	59	59	58
Lube Oil Temp	TE-1584	deg		150	170	163	164	164	165	165	165	166	166	165	165	165	164	164	164	163	163	163	163	163	163	163	162	162	163
Final Discharge Temp	TE-3120	deg		110	150	93	94	94	94	94	94	92	94	94	99	99	104	104	104	104	104	104	106	98	97	97	96	95	90
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	221	224	224	223	223	223	222	224	224	224	224	227	227	225	226	226	226	226	224	223	223	222	222	222
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	220	221	221	221	224	221	220	223	223	224	226	230	230	229	229	229	229	23'	225	224	223	221	220	220
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	219	220	220	219	220	220	220	221	223	221	221	223	223	223	223	223	227	225	224	221	220	220	221	220
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	219	220	221	221	224	221	220	223	223	226	224	230	230	230	229	229	229	232	225	224	223	221	220	221
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	.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.												560																	
Double Block and Bleed Pressure	AGSPGDT	49-48=psid			8							556																	
Fuel Gas Supply Pressure	AGSPTGST	50-49=psid			20							543																	

DATE 9-29-21

SIGNATURE

Mid Shift A Wan

Days Shift

Notes 1624170

Utilities and Institutional Facilities

Date: SEP 30 2021

CSTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	BLTT-013	√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
2	Blowdown Wet Receiver Tank Hourly	BLTT-007	√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	114	110	113	109	110	112	110	110	107	106	110	110	110	112	108	110	112	110	110	111	110	109	109	107
4	Instrument Temperature	TI-001	deg C		20	50	19	18	18	18	17	17	15	16	17	17	17	17	17	16	16	16	15	15	15	14	14	14	14	14
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-230	psig		25		19	19	19	19	19	19	19	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	97	93	90	96	94	99	94	95	96	94	94	95	95	97	92	91	91	91	94	92	94	93	94	93
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	5/4	5/4	5/8	5/8	5/8	5/8	5/8	5/8	5/4	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in WC		60	80	61	61	61	61	61	61	61	61	61	61	61	61	61	61	60	61	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	in WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36	35	35	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	68	68	68	69	69	69	69	69	69	69	68	68	68	67	68	68	68	68
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2300 gal Oil Water Tank Level	LI-231	%			70%	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	7	7	7	7	7	7	7	7	7
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)	AESSG2 ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22-26 found on Power Management page)																													
22	Generator Current		Amps			1427	987	1008	1007	1000	1025	1018	1011	997	993	1004	1009	1023	1031	1019	1012	1007	1021	1023	1037	1038	1037	1031	1038	1048
23	Mw Output		MW			27	23.4	23.5	23.9	23.7	24.3	24.2	24.0	23.7	23.6	23.8	23.9	24.3	24.4	24.2	23.9	24	24.2	24.3	24.6	24.7	24.7	24.6	24.6	249
24	80% Base Load Minimum		MW				19.3	19.5	19.6	19.5	19.8	19.7	19.6	19.4	19.3	19.4	19.5	19.7	19.8	19.7	19.5	19.5	19.7	19.7	19.9	19.9	19.9	19.9	19.9	204
25	Running Hours (unit overview)						8010	8011	8012	8013	8014	8015	8016	8017	8018	8019	8020	8021	8022	8023	8024	8025	8026	8027	8028	8029	8030	8031	8032	8033
26	Ambient Temperature	TI-Inlet					54	51	50	53	48	49	51	53	55	53	53	49	48	50	51	52	49	49	47	46	46	47	47	45
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-XXX	%			70%	68	68	68	69	69	69	69	69	68	67	67	67	66	67	67	67	67	67	67	67	67	67	67	67
28	Total Fuel Flow		Mscf/h				232	234	234	234	238	238	237	234	234	229	230	232	235	234	233	232	234	236	236	238	238	238	238	239

Date: SEP 30 2021 Signature: A Wes

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	A&H-803	%		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	LIQUID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	B	D	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	36	36	36	35	35	35	35	35	35	35	35	35	35	35	35	35	34	34	34	34	34	34	34	34
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7418	LIQID		EMPTY	ANY	E	E	E	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	250	250	250	251	251	249	250	250	252	251	251	251	251	250	250	250	250	250	250	250	250	249	249	249
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	247	247	247	246	247	247	247	247	247	247	247	247	246	246	246	246	246	246	246	246	246	246
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	565	564	564	564	561	564	564	564	564	564	564	564	564	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	559	559	559	559	559	559	560	560	560	560	560	560	560	560	559	560	559	559	559	557	559	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	57	58	58	59	58	59	59	59	58	58	59	58	58	58	58	58	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	162	163	164	164	166	166	166	164	165	165	165	166	166	165	165	166	166	165	164	165	165	166	167
Final Discharge Temp	TE-7120	deg		110	150	90	89	89	90	90	87	89	89	94	93	93	93	93	91	90	91	88	90	89	89	88	85	83	80
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	224	221	221	223	221	221	222	221	222	220	220	220	220	220	221	220	218	220	220	220	219	216	215	214
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	220	219	220	221	220	217	220	220	223	221	220	220	220	220	219	220	217	220	219	218	216	212	211	209
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	221	221	220	220	219	219	220	220	219	218	217	217	217	218	218	218	216	218	218	218	217	215	213	211
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	220	219	220	221	220	218	220	220	223	221	220	220	220	219	219	219	218	217	217	217	216	215	213	210
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.04	.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								560																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								556																
													543																

DATE SEP 30 2021

SIGNATURE

Mid Shift A Wa

Days Shift

Notes

Utilities and Institutional Facilities

Date: 10-1-2021

MT (MST) circle one

Time Last Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

CSTS HOURLY READING LOG

	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	110	109	109	111	109	109	108	110	112	106	112	110	108	100	112	108	112	104	110	109	109	110	109	111
4	Instrument Temperature	TI-301	deg C		20	50	14	13	13	12	12	12	12	12	12	14	15	14	15	16	17	18	17	16	15	15	15	14	14	14
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-251	psig		25		19	19	19	19	19	19	19	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	95	94	94	96	95	94	88	87	88	93	94	94	94	94	95	96	97	98	96	95	94	94	92	93
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	In WC		60	80	60	60	60	60	60	60	61	61	61	61	61	61	61	62	62	62	62	62	62	62	62	61	61	61
10	Coolant Return Differential from	PI-002	In WC		37	50	35	35	35	35	35	35	35	36	35	36	35	36	36	36	36	36	36	36	36	36	36	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	69	69	69	69	69	69	69	70	69	69	69	69	69	69	69	69	69	69
15	WECC Log		Operational?																											
16	Operation of PSS/pt at 6.8MVA		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2300 gal Off Water Tank Level	LI-251	%			70%	80	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
19	50 gallons TG Drain Tank (Air Diagram page)	LI-252	%			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)	AE93.2C ST-01	psig	85	90																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(23-24 found on Power Management page)																													
22	Generator Current		Amps			1427	1047	1052	1062	1049	1060	1059	1050	1060	1053	1035	1026	1023	1028	1003	999	993	994	1001	1017	1025	1029	1035	1035	1036
23	MW Output		MW			27	24.9	25.0	25.2	25.1	25.1	25.1	24.9	25.1	25.0	24.5	24.3	24.2	24.3	23.8	23.6	23.5	23.5	23.7	24.1	24.3	24.4	24.5	24.5	24.6
24	80% Base Load Minimum		MW				20.1	20.1	20.3	20.2	20.2	20.2	20.1	20.2	20.1	19.8	19.7	19.6	19.7	19.4	19.3	19.3	19.3	19.4	19.6	19.7	19.8	19.8	19.8	19.9
25	Running Hours (unit overview)						8034	8035	8036	8037	8038	8039	8040	8041	8042	8043	8044	8045	8046	8047	8048	8049	8050	8051	8052	8053	8054	8055	8056	8057
26	Ambient Temperature	TI-1[illegible]					45	44	42	42	42	43	44	43	44	48	50	50	50	53	55	54	55	54	51	49	49	48	48	47
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-001	%			70%	67	67	67	67	67	68	68	68	68	67	67	67	67	67	67	67	67	67	68	68	68	68	68	68
28	Total Fuel Flow		Mscf/h				234	241	242	242	242	242	240	241	240	237	232	234	236	231	230	229	229	230	233	236	236	237	238	238

Date: 1-1-2021 Signature: Brett Lang (MIDS)

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																													
Combustifils Gas Detector	AAH-1213	%		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	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LG-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	34	34	34	84	34	84	33	33	33	33	83	83	33	55	55	55	55	55	54	54	54	54	54	54
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7418	LIQID		EMPTY	ANY	E	E	E	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	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	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	249	249	249	250	250	250	248	248	248	249	249	249	249	250	251	251	251	251	250	250	250	250	250	250
2nd Stage Inlet Press	PI-2200	psig		267	285	246	246	246	245	245	245	244	244	245	245	245	244	245	247	247	247	247	247	247	247	247	247	247	247
2nd Stage Disch. Press	PI-2201	psig		575	600	561	565	565	564	565	565	563	560	564	565	564	564	565	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	558	560	559	560	559	560	560	559	560	559	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	58	58	58	58	57	58	57	57	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	167	168	169	169	169	170	169	169	168	168	168	168	168	165	164	164	165	165	165	165	165	166	166	167
Final Discharge Temp	TE-2120	deg		110	150	80	80	81	82	82	82	83	83	83	86	86	85	88	94	93	93	93	93	89	89	88	87	87	85
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	214	217	216	217	217	217	217	215	217	219	220	219	219	222	221	220	221	221	220	220	220	220	219	219
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	209	210	211	213	213	212	212	211	212	215	218	218	217	223	222	222	222	221	218	218	218	217	217	216
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	211	212	214	214	214	215	214	214	214	217	218	218	217	219	218	218	218	218	218	218	218	217	217	216
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	210	211	212	213	213	213	213	213	212	216	218	218	217	223	222	222	222	221	218	218	218	217	217	216
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.03	.03	.03	.03	.03	.03
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.01	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.07	.05	.01	.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.									560																				
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				555																				
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				542																				

DATE 10-1-2021

SIGNATURE

Mid Shift Bob 1632844

Days Shift

Notes

Utilities and Institutional Facilities

Date: 10-2-2021

WF (1.2) Brake amp

Time Set Introduced (Turbine Rolling):

Time of Turbine Online (Gen Closed):

Time Turbine Offline (Gen Open):

Time to Set Rotor:

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	B-TK-0118	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2	Blowdown Wet Receiver Tank Hourly	B-TK-0117	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3	Wet Receiver Air Pressure	PI-0118	psig	90	105	120	109	110	111	110	110	109	112	112	106	108	112	114	108	106	104	112	108	110	110	111	108	109	108	
4	Instrument Temperature	TI-001	deg C		20	50	14	14	14	13	13	12	12	13	15	17	19	19	20	21	21	21	20	19	19	18	18	17	15	
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-001	psig		25		19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	
7	Coolant PLC Temperature	TI-001	deg F	100	110	120	94	93	92	90	92	90	88	90	93	97	101	102	105	104	105	101	101	101	98	100	94	96	94	
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/8	2/8	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	5/8	5/8	
9	Coolant Return Differential from GG	PI-001	in W/C		60	80	61	61	61	61	61	61	61	60	60	62	62	62	62	62	62	62	62	62	62	62	61	61	61	
10	Coolant Return Differential from	PI-001	in W/C		37	50	35	35	35	35	35	36	36	36	36	36	36	36	38	38	39	38	37	37	37	37	36	36	36	
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	68	68	68	69	69	69	69	67	69	69	68	68	68	68	68	68	68	
15	WECC Log		Operational?																											
16	Operation of PSS/on all 8 MVA		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
17	Operation of AVR Voltage Mode @ 13.8 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on 41 Diagram page)																													
18	8000 gal Oil Water Tank Level	LI-251	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	9	9	9	
19	1K gal gas TG Drain Tank (Air Diagram page)	LI-121	%			70%	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 HL Compressor (on line trip)	LSS 0127 PT-121	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1437	1036	1038	1051	1053	1053	1054	1053	1037	1021	998	981	969	955	954	941	956	972	962	979	999	1007	1014	1009	
23	MW Output		MW			27	24.6	24.7	24.8	24.9	24.9	25.0	25.0	24.6	24.2	23.7	23.2	22.9	22.6	22.6	22.3	22.6	23.0	22.8	23.1	23.5	23.6	23.7	23.9	
24	80% Base Load Minimum		MW				19.9	19.9	20.0	20.1	20.1	20.1	20.1	19.9	19.6	19.3	19.0	18.6	18.7	18.7	18.5	18.8	19.0	18.9	19.1	19.2	19.5	19.5	19.5	
25	Running Hours (unit overview)						8058	8059	8060	8061	8062	8063	8064	8065	8066	8067	8068	8069	8070	8071	8072	8073	8074	8075	8076	8077	8078	8079	8080	
26	Ambient Temperature	TI-001					47	47	46	45	45	44	44	47	50	54	59	60	62	62	65	62	59	60	58	56	54	53	53	
	(27-28 found on Gas Turbine Diagram page)																													
27	Waste Oil Tank	LI-001	%			70%	68	68	69	69	68	68	68	68	68	67	66	67	67	67	68	68	68	68	68	69	68	68	68	
28	Total Fuel Flow		Klbs/Hr				238	238	242	242	241	241	240	238	235	231	227	225	223	223	221	225	223	224	227	230	230	230	230	

Date: 10-2-2021

Signature: Bob Lang (MMS)

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																													
Combustibls 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	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LG-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-1561	GAL	10		FULL	54	54	53	53	53	53	50	50	50	50	50	50	50	50	50	50	50	50	50	49	49	49	49	49
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7415	LIQID		EMPTY	ANY	E	E	E	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	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	83	83	83	83	83	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	250	250	250	250	249	249	249	249	249	250	251	251	252	252	252	253	252	252	251	250	250	250	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285	247	249	249	249	245	245	245	245	246	246	247	247	248	248	249	248	248	248	249	248	247	246	247	247
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	563	563	564	561	564	560	561	564	564	564	565	564	564	564	564	564	564	564	564	565
Final Discharge Pressure	PI-2106	psig		575	600	560	560	560	560	559	559	559	559	560	559	559	560	560	560	560	559	559	559	559	559	559	559	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	57	57	58	58	58	58	58	58	59	59	59	59	59	59	59	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	167	168	169	169	169	169	169	168	167	167	166	165	165	164	164	163	163	163	163	163	164	164	164	166
Final Discharge Temp	TE-2120	deg		110	150	83	83	83	82	83	83	83	86	88	92	96	97	99	106	103	102	98	96	96	94	92	90	91	91
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	219	219	218	217	217	217	217	218	219	221	223	224	225	224	226	225	222	221	221	221	221	224	219	219
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	216	214	213	212	212	212	213	214	217	219	224	226	228	228	231	230	224	223	222	220	220	219	219	219
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	216	216	215	215	214	214	215	215	217	218	221	222	223	222	223	222	220	218	218	218	218	218	217	217
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	216	215	214	214	214	213	213	214	217	219	224	226	227	228	231	230	224	223	222	219	219	219	219	219
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.04	.04	.01	.04	.04	.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	.01	.05	.05	.05	.04	.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.										560								560											
Double Block and Bleed Pressure	A69FGDT	49-48=psid			8					555								556											
Fuel Gas Supply Pressure	A69FTGST	50-49=psid			20					543								544											

DATE	10-2-2021
SIGNATURE	
Mid Shift	Bob [illegible] 1632844
Days Shift	[illegible]
Notes	GAS Reading for COTG is NOT counting

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 10.6.21

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): 1233

Time of Turbine Online (Brkr Closed): 1350

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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														111	110	107	101	105	113	110	114	107	112	114
4	Instrument Temperature	TI-001	deg C		20	50														22	22	22	22	24	20	20	20	20	20	19
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25															18	25	19	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120														99	103	104	104	104	101	104	100	101	99	103
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
9	Coolant Return Differential from GG	FI-001	In WC		60	80														60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50														35	35	35	35	35	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85														70	64	70	70	70	68	68	68	68	68	68
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	Y	Y
17	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)														Y	Y	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%														9	8	8	8	8	8	8	9	9	9	9
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%														0	0	0	6	6	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		v																	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427														928	920	912	926	945	970	976	972	978	983	986
23	Mw Output		MW			27														22.0	22	21	22	22	23	23.2	23.1	23.2	23.3	23.4
24	80% Base Load Minimum		MW																	18.6	18.4	18.3	18	18	19.1	19.1	19.1	19.2	19.2	19.2
25	Running Hours (unit overview)																			8082	8083	8084	8085	8086	8087	8088	8089	8090	8091	8092
26	Ambient Temperature	T1 inlet																		64.6	66.	67	65	62	58	57	57	56.8	56	55
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%														68	69	69	70	70	70	70	69	70	70	70
28	Total Fuel Flow		Mscf/h																	216	221	220	222	224	228	230	228	231	232	232

Date: 10.6.21 Signature: Randy Vigil

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	1231																												
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
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY														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
Oil Day Tank Level	LI-1562	GAL	10		FULL														49	49	49	49	49	47	47	47	47	47	47
Lubricator Bulls eye		LEVEL	1/2	FULL															F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY														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
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK															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	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285														251	251	252	252	252	251	251	251	251	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285														248	248	248	248	247	247	247	247	247	247	247
2nd Stage Disch. Press	PI-2201	psig		575	600														564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600														560	560	560	560	560	560	560	560	560	559	559
Lube Oil Pressure	PI-1572	psig	40	60															59	59	59	59	59	59	59	59	59	58	58
Lube Oil Temp	TE-1584	deg		150	170														163	163	163	162	161	163	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150														167	102	106	103	103	95	94	93	93	94	93
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297														233	233	233	231	231	227	227	226	226	226	225
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283														233	233	235	233	233	226	225	225	225	224	224
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297														231	231	230	229	229	225	224	224	224	224	223
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283														234	233	234	233	233	226	225	224	224	225	224
Motor Frame Vibration	VT-1015	IPS			0.15														04	.04	04	04	04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35														05	.06	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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 10-6-21

SIGNATURE Randy Wyd

Mid Shift

Days Shift

Notes 1632882

Utilities and Institutional Facilities

Date: OCT 07 2021

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	110	113	114	108	112	114	102	100	106	105	101	108	104	103	102	106	100	103	113	110	113	108	112	110
4	Instrument Temperature	TI-001	deg C		20	50	20	20	19	17	17	17	17	18	18	18	20	21	21	22	23	22	22	22	23	21	20	19	19	19
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	99	103	96	93	99	102	100	95	99	105	106	100	105	110	102	110	109	104	105	101	104	100	106	103
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	61	61	61	61	61	61	61	60	60	60	60	60	60	60	60	60	61	61	61	61	61	61
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	34	34	35	35	35	37	38	37	38	35	38	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	69	70	70	70	70	70	70	70	70	70	70	70	70	68	68	68	68	68
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	9	9
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	984	980	991	1002	1001	1003	1002	1004	963	959	939	933	931	903	887	888	893	897	939	955	965	967	968	967
23	Mw Output		MW			27	23.3	23.2	23.6	23.8	23.8	23.8	24	23	22	22	22	22	23	21	21	21	21	21	22.3	22.7	22.9	23	23	23
24	80% Base Load Minimum		MW				19.2	19.2	19.4	19.5	19.5	19.5	19	19	18	18	18	18	18	18	18	18	18	18	18.7	18.9	19	19	19	19
25	Running Hours (unit overview)						8093	8094	8095	8096	8097	8098	8099	8100	8101	8102	8103	8104	8105	8106	8107	8108	8109	8110	8111	8112	8113	8114	8115	8116
26	Ambient Temperature	T1 inlet					54	55	53	52	52	52	51	53	60	60	64	64	65	70	71	70	69	69	63	60	59	58	58	58
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	70	70	70	69	70	69	70	69	68	68	67	67	67	67	68	68	69	69	69	70	70	70	70	70
28	Total Fuel Flow		Mscf/h				231	231	232	233	233	234	235	229	226	226	224	219	218	217	212	213	215	215	223	226	228	229	229	229

Date: 10.01.2021 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																													
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	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	½	½	½	½	½	½	½	1/2	1/2	1/2	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	47	47	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	45	45	45	45	45	45
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	E	E	F	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	251	261	261	250	250	250	249	250	250	251	251	252	252	253	253	253	253	253	253	253	253	253	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	247	246	246	246	247	247	247	247	248	248	248	250	250	250	250	250	249	249	249	249	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	565	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	559	559	559	560	560	560	560	559	559	560	559	560	560	560	560	560	560	560	559	559	559	559	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	59	58	58	58	58	58	58	59	59	59	59	58	59	59	58	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	163	163	163	164	164	164	164	165	168	164	164	164	164	163	162	162	162	161	163	163	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	94	94	93	91	91	91	91	91	91	99	102	105	105	110	116	108	108	109	100	98	98	97	95	95
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	226	227	226	223	223	224	224	220	220	226	226	227	227	229	229	230	230	230	227	226	226	225	224	224
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	225	226	225	221	222	221	224	219	219	227	230	233	232	231	231	235	235	235	229	228	227	226	225	225
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	224	225	224	221	221	221	231	218	220	223	224	225	225	226	226	226	225	225	225	224	224	224	223	224
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	225	226	225	221	222	221	221	220	220	227	231	233	232	231	231	231	234	234	229	228	227	226	225	225
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.04	.05	.04	.03	.04	.04	.04	.05	.04	.05	.04	.04	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	OCT 0 7 2021
SIGNATURE	
Mid Shift	
Days Shift	1632844

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: OCT 0 8 2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	107	113	112	110	114	113	112	112	106	104	106	112	106	104	110	112	106	110	108	109	111	116	108	109
4	Instrument Temperature	TI-001	deg C		20	50	18	18	18	18	17	17	18	18	19	20	22	23	24	25	26	26	25	24	24	23	23	22	21	20
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	100	98	103	104	97	102	98	97	102	103	106	107	108	110	109	109	109	107	109	103	101	104	108	107
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	61	61	61	61	61	61	60	60	60	60	60	62	62	62	60	62	62	62	62	62	62	61	61	61
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	35	35	35	36	38	39	39	38	38	36	36	36	36	36	36	36	36	36
11	**Control Room**		**Units**	**Low**	**Norm**	**Max**																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	64	64	64	66	66	66	66	66	66	66	64	64	65	67	67	67	65	65
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	981	983	978	964	977	989	998	972	986	951	926	923	908	880	889	899	901	904	927	935	932	934	946	948
23	Mw Output		MW			27	23.3	23.3	23	22.9	23.2	23.5	23.5	23.1	22.7	22.6	22.10	21.8	21.5	20.8	21.1	21.0	21.3	21.5	21.9	22.2	22.1	22.2	22.4	22.5
24	80% Base Load Minimum		MW				19.2	19.2	19	19	19.2	19.3	19.3	19.1	18.9	18.8	18.5	18.3	18.2	17.8	18.0	18.0	19.1	18.3	18.5	18.6	18.6	18.7	18.7	18.8
25	Running Hours (unit overview)						8117	8118	8119	8120	8121	8122	8123	8123	8124	8125	8126	8127	2128	8129	8130	8131	8132	8133	8134	8135	8136	8137	8138	8139
26	Ambient Temperature	T1 inlet					56	56	57	58	56	55	54	57	60	61	65	67	69	73	71	71	69	68	67	64	64	63	61	61
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	71	71	71	70	70	70	71	71	70	69	69	68	68	69	69	70	71	71	71	71	71	71	71	71
28	Total Fuel Flow		Mscf/h				232	231	232	229	232	234	233	230	223	224	220	217	215	214	214	214	216	217	221	223	223	223	225	225

Date: OCT 0 8 2021

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%																								
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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	45	45	45	45	44	44	44	44	44	44	44	44	44	44	44	43	43	43	43	43	43	43	43	43
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	251	251	251	251	251	251	251	251	251	252	252	252	253	254	254	254	254	254	254	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	248	248	248	248	247	247	248	248	249	249	250	250	250	250	250	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	564	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	559	559	559	559	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	58	58	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE 1584	deg		150	170	164	164	164	164	164	164	164	164	165	164	163	164	163	163	163	162	162	162	163	162	162	162	162	162
Final Discharge Temp	TE-2120	deg		110	150	94	94	95	98	95	94	96	97	98	101	103	105	109	112	111	111	109	117	104	108	104	104	104	100
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	224	224	225	224	224	223	222	222	223	225	226	227	228	231	230	230	229	228	226	226	226	226	226	226
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	224	223	224	224	223	223	222	222	224	228	231	232	236	239	239	239	236	234	231	231	230	229	229	228
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	222	223	223	223	222	223	220	220	221	222	224	224	225	228	227	228	227	227	224	224	224	223	225	225
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	224	223	224	225	223	222	223	223	224	229	231	233	236	240	239	239	237	237	235	231	230	230	229	
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.04	.04	.04	.04	.04	.03	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.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	.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								560								
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								556								556								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								544								545								

DATE	OCT 0 8 2021
SIGNATURE	
Mid Shift	A Ware 1632844
Days Shift	

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 10-09-2021

MST / (MDT) (circle one)

Time Gas introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	108	109	111	109	110	108	104	110	106	106	110	108	112	108	108	104	108	110	107	109	110	110	109
4	Instrument Temperature	TI-001	deg C		20	50	20	20	20	19	19	19	19	19	20	21	22	24	24	24	24	24	23	22	20	19	19	19	18	18
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	107	19	19	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	107	108	103	104	107	99	100	101	102	105	106	106	108	108	107	104	102	104	103	105	103	103	102
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	61	61	61	61	61	61	60	60	60	60	62	62	62	62	62	60	62	62	62	62	62	62	61	61
10	Coolant Return Differential from	FI-002	in WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	38	38	37	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	65	65	65	65	65	65	65	65	66	66	66	65	65	65	65	65	65	65	65	65	65	65	65	65
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	8	8	8	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	9	9	9	9	9
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			1427	949	949	949	950	954	957	965	955	954	940	933	922	924	918	901	922	943	943	951	958	955	968	973	984
23	Mw Output		MW			27	22.5	22.5	22.5	22.4	22.6	22.7	22.9	22.7	22.5	22.3	22.1	21.8	21.9	21.7	21.4	21.7	22.3	22.4	22.6	22.6	22.7	22.9	23.1	23.1
24	80% Base Load Minimum		MW				18.6	18.7	18.4	18.9	18.4	19.0	19.1	18.9	18.8	19.7	18.6	18.4	18.5	18.4	16.2	18.6	18.8	18.8	19.0	19.0	19.0	19.1	19.2	19.4
25	Running Hours (unit overview)						8140	8141	8142	8143	8144	8145	8146	8147	8148	8149	8150	8151	8152	8153	8154	8155	8156	8157	8158	8159	8160	8161	8162	8163
26	Ambient Temperature	T1 Inlet					60	60	60	60	60	59	58	57	61	62	64	65	65	66	68	64	61	60	59	58	59	57	56	53
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	71	71	71	71	71	71	71	71	71	69	68	68	70	69	70	70	71	71	72	72	73	72	72	72
28	Total Fuel Flow		Mscf/h				224	224	224	223	224	227	225	224	222	218	216	217	218	217	215	218	220	222	224	225	224	226	227	230

Date: 10-09-2021 Signature: Bob Ay

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	43	43	43	43	43	45	42	42	42	41	41	41	41	41	41	41	41	41	41	41	41	40	40	40
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	253	253	251	251	252	252	252	252	252	252	252	252	253	253	252	252	252	252	252	252	252	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	249	247	247	247	249	248	248	248	248	249	249	249	249	249	249	248	248	249	249	249	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	564	564	565	564	561	564	564	565	564	564	564	564	565	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	559	560	560	560	560	560	560	559	559	559	559	559	559	559	559	559
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	162	162	163	163	162	163	162	163	163	163	163	163	163	163	163	163	162	162	162	162	162	162	163	162
Final Discharge Temp	TE-2120	deg		110	150	100	100	99	98	98	98	96	97	99	101	102	104	103	106	107	104	100	99	98	97	97	96	94	94
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	226	225	224	223	223	223	222	222	224	223	225	227	228	229	229	227	225	223	223	222	222	222	223	223
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	228	227	225	224	224	223	224	225	226	226	229	231	232	233	234	231	228	226	224	224	224	223	223	223
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	223	223	222	221	221	221	220	220	222	221	223	225	225	226	226	225	223	221	222	221	221	220	221	221
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	229	228	226	224	224	224	225	225	227	227	229	231	232	234	234	232	228	227	227	225	225	224	224	224
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.04	.04	.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	.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.									560								560												
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				556								556												
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				545								545												

DATE 10-09-2021

SIGNATURE

Mid Shift Bob Hug

Days Shift

Notes

Utilities and Institutional Facilities

Date: 10/10/21

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:

	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	110	106	111	110	111	109	108	112	105	108	110	106	112	106	104	112	108	110	104	108	110	106	104	109
4	Instrument Temperature	TI-001	deg C		20	50	18	17	17	16	16	16	14	13	15	15	15	14	16	16	17	17	17	17	17	17	17	16	15	15
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	164	98	98	99	101	101	89	89	94	92	93	90	96	96	95	97	96	96	96	91	93	92	93	92
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	61	61	61	61	61	61	62	60	60	60	60	60	62	62	62	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	36	36	36	36	36	36	35	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	65	GT	GT	GT	GT	GT	65	65	65	65	65	65	65	65	65	65	65	65	GT	GT	GT	GT	GT	GT
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	9	9	9	9	9
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	990	992	999	1011	998	1018	1029	1025	993	1023	1020	1044	990	985	981	980	992	990	1006	1002	1006	1007	1016	1022
23	Mw Output		MW			27	23.6	23.7	23.8	24.0	23.9	24.2	24.4	24.4	23.6	24.2	24.1	24.6	23.7	23.5	23.4	23.3	23.5	23.4	24.0	23.8	23.9	25.9	24.0	24.2
24	80% Base Load Minimum		MW				19.4	19.6	19.7	19.8	19.7	19.9	20.0	20.0	19.5	19.8	19.8	20.1	19.5	19.4	19.4	19.3	19.4	19.4	19.7	19.6	19.7	19.7	19.8	19.8
25	Running Hours (unit overview)						8164	8165	8166	8167	8168	8169	8170	8171	8172	8173	8174	8175	8176	8177	8178	8179	8180	8181	8182	8183	8184	8185	8186	8187
26	Ambient Temperature	T1 Inlet					53	53	52	49	49	48	46	45	52	48	48	44	51	53	53	54	53	54	50	51	50	50	49	48
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	72	72	72	73	73	72	72	72	72	72	72	72	72	71	71	71	71	71	72	72	72	72	72	72
28	Total Fuel Flow		Mscf/h				232	233	234	236	238	237	236	236	231	237	236	241	232	229	229	228	230	230	234	233	234	235	236	237

Date: 10/10/2021 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																													
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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	40	40	40	40	40	40	39	39	39	39	39	39	39	39	39	39	38	38	38	38	38	38	38	38
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	85	85	85	85	85
Stage Disch. Press	PI-2101	psig		238	285	253	253	252	252	250	250	250	250	250	252	249	249	249	250	251	250	251	250	250	251	251	252	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	249	246	246	247	246	246	247	246	245	245	245	246	247	247	246	246	247	247	247	247	247	248
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	565	567	564	565	560	564	561	561	561	564	564	564	561	561	561	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	559	559	560	560	560	560	559	559	559	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	58	58	57	57	58	57	58	57	58	58	58	58	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	162	163	164	164	163	168	168	168	169	166	168	167	164	166	166	165	165	165	165	165	164	164	164	164
Final Discharge Temp	TE-2120	deg		110	150	94	92	92	92	88	87	84	84	90	86	88	83	81	90	92	92	92	92	87	87	86	86	86	86
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	223	223	224	224	218	218	217	217	219	218	218	217	220	219	220	220	220	220	218	218	218	218	218	218
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	223	222	222	222	218	216	215	213	218	216	216	213	219	218	221	221	221	221	217	217	216	216	216	216
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	221	221	222	222	218	216	215	215	217	217	216	214	217	217	218	218	218	218	217	217	217	216	216	216
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	224	222	222	222	218	216	215	213	219	216	216	213	219	219	221	221	221	221	217	217	217	216	216	216
Motor Frame Vibration	VT-1015	IPS			0.15	.03	.03	.03	.03	.04	.04	.04	.03	.03	.03	.04	.03	.03	.04	.04	.04	.04	.04	.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.								560									560												
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8			556									556												
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20			544									543												

DATE	10/10/2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: _____

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling): _____

Time of Turbine Online (Brkr Closed): _____

Time Turbine Offline (Brkr Open): _____

Time No Gas Flow: _____

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	111	109	109	110	110	109	105	100	101	98	99	100	98	98	102	101	105	108	110	106	112	109	112	106
4	Instrument Temperature	TI-001	deg C		20	50	16	17	18	15	17	17	19	18	18	19	19	20	20	21	21	21	21	21	20	20	20	18	18	16
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	91	92	93	91	92	91	85	89	91	94	98	95	100	98	100	101	100	101	102	107	102	100	101	104
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	35	35	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	65	65	65	65	65	65	65	65	66	69	69	69	69	70	70	70	70	70	70	70	70	70	70	70
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1025	1037	1041	1044	1046	1044	1039	1028	1015	979	981	971	955	952	941	934	939	938	966	962	972	980	999	996
23	Mw Output		MW			27	24.3	24.6	24.7	24.8	24.9	24.9	24	24	24	23	23	23	22	23	22	22	22	22	22.8	22.8	23.2	23.4	23.7	23.7
24	80% Base Load Minimum		MW				19.9	20.0	20.2	20.2	20.3	20.2	20	19	19	19	19	19	19	19	18	18	18	18	19.2	19.2	19.4	19.5	19.7	19.7
25	Running Hours (unit overview)						8188	8189	8190	8191	8192	8193	8194	8195	8197	8197	8198	8199	8200	8201	8202	8203	8204	8205	8206	8207	8208	8209	8210	8211
26	Ambient Temperature	T1 Inlet					47	45	44	43	43	42	43	42	50	55	55	56	58	59	60	61	60	60	58	56	54	52		
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	72	72	73	73	73	73	72	72	72	70	71	71	71	71	71	71	72	71	71	71	71	71	71	71
28	Total Fuel Flow		Mscf/h				240	240	241	241	241	242	241	237	230	227	222	226	223	222	221	221	218	218	222	222	225	226	229	229

Date: 10-11-2021 Signature: Bob

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	38	38	38	38	38	38	38	37	37	37	36	36	36	36	36	36	36	36	36	36	36	36	36	36
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	E	E	E
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	F	F	F	E	E	E	F	F	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	250	250	250	250	249	249	249	249	249	251	251	251	251	252	252	252	253	253	253	253	252	252	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	246	246	246	245	245	245	245	245	245	247	247	248	249	249	249	249	249	249	250	250	250	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	564	564	564	565	564	564	565	561	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	559	559	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	57	57	57	57	57	57	58	58	58	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	164	164	165	169	169	164	164	164	168	169	165	165	163	163	162	162	162	162	162	162	163	163	163
Final Discharge Temp	TE-2120	deg		110	150	86	87	86	83	83	81	84	84	84	94	94	96	94	101	101	100	100	100	99	99	99	96	96	94
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	212	216	214	214	215	215	215	215	216	219	219	220	220	223	224	224	221	221	221	221	221	220	220	220
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	216	208	209	209	210	211	217	218	220	222	222	225	225	228	229	229	226	224	226	226	226	221	221	220
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	211	208	203	208	211	213	216	216	216	217	217	217	217	220	221	224	218	218	218	218	218	216	216	216
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	211	208	203	206	211	212	220	220	220	222	222	225	225	228	229	229	226	226	223	223	223	220	220	220
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
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.									560																				
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				556																				
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				543																				

DATE 10-11-2021

SIGNATURE

Mid Shift Bob Kay

Days Shift

Notes

Utilities and Institutional Facilities

Date: OCT 12 2021

MST (MDT) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	108	106	108	112	106	108	100	105	109	102	105	101	105	110	100	102	103	99	108	116	108	106	110	112
4	Instrument Temperature	TI-001	deg C		20	50	16	16	16	16	16	16	16	16	17	17	16	16	16	17	16	15	16	16	16	16	16	16	16	16
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	17	17	17	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	105	109	103	105	101	102	100	90	96	90	89	90	90	90	90	84	85	89	99	90	88	93	91	94
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	35	35	35	35	35	35	35	35	35	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	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
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 5T-01	psig	35	20																✓	✓	✓	✓						
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	999	1002	1008	1011	1010	1013	1000	993	984	999	1014	1028	1020	1036	1046	1041	1040	1044	1069	1068	1069	1070	1076	1077
23	Mw Output		MW			27	23.7	23.8	23.8	24.0	24.0	24.0	23	23	23	23	24	24	24	24	24	24	24	24	25.2	25.2	25.2	25.4	25.4	25.4
24	80% Base Load Minimum		MW				19.7	19.7	19.7	19.9	19.9	19.9	19	19	19	19	19	20	19	20	20	20	20	20	20.6	20.6	20.6	20.8	20.8	20.8
25	Running Hours (unit overview)						8212	8213	8214	8215	8216	8217	8218	8219	8220	8221	8222	8223	8224	8225	8226	8227	8228	8229	8230	8231	8232	8233	8234	8235
26	Ambient Temperature	T1 Inlet					49	49	48	48	47	47	49	50	52	50	48	46	44	43	41	42	42	41	37	37	37	36	36	36
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	71	71	71	71	71	71	70	70	70	70	70	70	70	71	71	71	71	71	72	72	72	72	72	72
28	Total Fuel Flow		Mscf/h				228	230	230	230	231	231	229	227	227	229	231	233	233	236	234	235	235	234	245	246	247	247	246	247

Date: OCT 12 2021 Signature: MID

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	D	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	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	35	35	35	35	35	35	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	33	33
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	G	E	E	E	E
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY	E	E	G	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	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140	84	84	84	84	84	84	84	83	83	83	83	83	83	82	83	83	81	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	251	251	251	250	250	251	251	251	250	250	250	251	249	249	248	249	245	249	248	248	248	248
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	248	248	248	247	247	247	247	247	245	245	246	246	245	245	245	245	245	245	245	243	243	243
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	560	564	564	564	565	565	565	565	564	565	563	565	562	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	559	559	560	560	560	560	559	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	58	58	58	56	56	59	58	58	58	58	57	57	57	57	57	57	57	57	57	57
Lube Oil Temp	TE-1384	deg		150	170	166	166	167	168	168	168	168	167	167	163	167	165	162	162	162	168	161	166	166	168	168	167	169	169
Final Discharge Temp	TE-2120	deg		110	150	92	92	90	90	88	86	80	92	92	90	87	87	87	87	83	83	83	88	88	80	80	77	77	75
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	219	219	218	217	217	215	215	215	215	216	216	216	214	214	213	213	217	213	213	213	214	214	214	214
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	219	219	217	217	215	214	214	218	218	218	215	215	214	215	211	212	213	212	212	210	210	207	207	207
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	216	216	214	214	214	213	213	212	212	213	213	213	213	213	210	214	214	210	210	211	211	212	212	212
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	220	220	218	218	214	215	215	216	214	218	215	215	216	214	212	217	217	213	213	210	210	210	208	208
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.04	.04	.04	.04	.04	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	OCT 12 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

16.05
117.7 98 2/14/17

Utilities and Institutional Facilities

Date: OCT 13 2021

MST / (MDT) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	108	110	112	106	108	110	100	110	105	106	103	107	100	102	105	101	110	105	108	110	108	108	110	104
4	Instrument Temperature	TI-001	deg C		20	50	10	8	8	8	8	8	8	10	10	10	15	15	15	15	15	17	17	17	17	16	16	14	14	14
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	17	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	81	84	80	78	81	80	82	80	81	87	89	90	91	94	92	91	96	94	92	90	89	84	88	89
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	37	35	35	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	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	9	9	9	9	9	9
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 5T-01	psig	35	20								✓		✓					1										
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1079	1072	1080	1086	1091	1087	1089	1074	1053	1044	1071	1010	1011	1009	982	991	994	1004	1043	1042	1044	1069	1068	1067
23	Mw Output		MW			27	25.6	25.6	25.6	25.6	25.9	25.9	25	25	25	24	24	23	22	23	23	23	23	23	24.2	24.7	24.8	26.3	25.4	25.4
24	80% Base Load Minimum		MW				20.9	20.9	20.9	20.9	21.1	21.1	21	21	20	20	19	19	19	19	19	19	19	19	20.0	20.2	20.2	20.6	20.6	20.6
25	Running Hours (unit overview)						8236	8237	8238	8239	8240	8241	8242	8243	8244	8245	8246	8247	8248	8249	8250	8251	8252	8253	8254	8255	8256	8257	8258	8259
26	Ambient Temperature	T1 inlet					37	35	35	33	32	32	37	36	41	43	46	50	51	50	54	52	51	49	46	45	43	40	38	38
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	74	74	74	74	74	74	74	75	71	71	72	71	71	71	72	72	72	73	73	73	73	73	73	73
28	Total Fuel Flow		Mscf/h				249	250	250	251	251	251	252	249	238	238	234	230	231	314	225	227	226	228	235	236	236	240	240	240

Date: OCT 13 2021 Signature: MIO Jeu

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	D	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	F	E	E	E	F	F	E	F	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	33	33	33	33	33	33	31	31	31	31	31	31	30	30	30	30	30	30	30	30	30	30	30	30
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	D	B	B	B	B	B	D	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	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	248	248	248	248	246	246	246	246	246	248	249	250	250	250	250	250	250	250	250	250	250	250	250	250
2nd Stage Inlet Press	PI-2200	psig		267	285	244	244	244	243	243	243	242	242	242	244	245	246	246	246	247	247	246	246	245	245	245	245	245	245
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	566	565	565	565	564	564	564	564	565	564	564	564	565	565	564	564	164	164	164	163	163	163
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	559	560	560	560	560	560	560	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	57	57	58	58	58	58	58	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	170	170	170	169	169	169	169	169	166	166	166	166	166	166	166	166	166	166
Final Discharge Temp	TE-2120	deg		110	150	75	74	74	74	73	73	73	73	77	81	86	90	90	90	92	92	90	90	90	88	88	86	86	86
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	214	214	214	214	213	213	213	213	213	213	214	215	215	216	216	214	215	215	218	216	216	215	215	215
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	207	206	206	206	205	205	206	207	207	210	215	217	217	217	219	219	216	214	214	212	212	212	212	212
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	212	211	211	210	210	210	211	211	211	211	211	212	212	214	214	214	213	213	213	211	211	210	210	210
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	208	207	207	205	205	205	206	206	206	210	215	217	217	217	219	219	217	217	216	216	215	215	215	215
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.03	.03	.03	.03	.03	.03	.03	.02	.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	.01	.03	.04	.01	.05	.05	.07	.07	.09	.05	.04	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	OCT 13 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Date: OCT 14 2021

MST / (MDT) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

UI-LOG-033-R4
October 1, 2020

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes: 223T switching in field Tripped off CGTG

	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	110	106	112	106	102	112	106	108	110	108	104	112	108	106	104	110	108	110	111	108	109	110		
4	Instrument Temperature	TI-001	deg C		20	50	10	8	8	10	10	10	10	10	12	14	16	16	16	18	19	18	15	18	16	14	12	12		
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	19	19	19	19	19		
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	81	80	83	85	88	80	83	84	85	89	91	92	95	97	96	95	94	93	90	89	87	87		
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	5/8		
9	Coolant Return Differential from GG	FI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	62	60	60	60	60	60	60	60	60		
10	Coolant Return Differential from	FI-002	in WC		37	50	35	35	35	35	35	35	35	35	36	36	36	36	36	37	37	35	34	36	30	30	30	30		
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	65	65	65	65	65	65	66	66	66	65	65	65	65	65	65	65		
13	WECC Log		Operational?																											
15	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	9	9		
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		
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A83GGD 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1077	1076	1078	1060	1062	1061	1060	1060	1042	1027	1020	1007	1010	991	983	990	997	1003	1018	1020	1043	1045		
23	Mw Output		MW			27	25.6	25.6	25.6	25.5	25.2	25.2	25.2	25.1	24.6	24.4	24.2	23.9	24.0	23.5	23.5	23.6	23.7	23.9	24.5	24.4	24.8	24.9		
24	80% Base Load Minimum		MW				20.8	20.8	20.8	20.7	20.5	20.5	20.5	20.4	20.1	19.9	19.8	19.6	19.6	19.4	19.4	19.5	19.5	19.6	19.9	19.9	20.2	20.2		
25	Running Hours (unit overview)						8260	8261	8262	8263	8264	8265	8266	8267	8268	8269	8270	8271	8272	8273	8274	8275	8276	8277	8278	8279	8280	8281		
26	Ambient Temperature	T1 Inlet					38	36	36	38	38	39	39	40	44	47	48	50	50	52	53	52	51	50	47	46	44	42		
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	73	73	73	73	73	73	73	74	73	72	72	72	72	72	73	74	74	73	74	74	74	74		
28	Total Fuel Flow		Mscf/h				242	243	243	241	239	239	239	238	234	233	231	230	228	225	226	227	227	229	232	233	236	238		

Date: OCT 14 2021 Signature: MID Joe

day shift Jack Owen

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		
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	E		
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½		
Oil Day Tank Level	LI-1562	GAL	10		FULL	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	29	29	29	29		
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		
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	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	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		
1st Stage Inlet Press.	PI-2100	psig		88	140	83	83	83	83	83	83	82	83	83	83	82	82	83	82	83	83	83	83	83	83	83	83		
Stage Disch. Press	PI-2101	psig		238	285	247	247	247	248	248	249	248	248	249	250	249	249	250	250	250	251	250	249	250	249	249	249		
2nd Stage Inlet Press	PI-2200	psig		267	285	244	244	244	244	245	245	244	244	246	246	245	246	246	246	246	247	246	245	247	245	246	245		
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564	564	564	565	564	564	564	564	565	561	560	564	564	565	565		
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	560	560	559	560	559	560	560	559	559	559	559	559	559		
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	58	57	57	58	58	58	58	58	57	58	58	57	57		
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	169	169	170	170	169	168	168	169	168	166	166	165	165	165	166	167	167	168		
Final Discharge Temp	TE-2120	deg		110	150	76	76	76	78	78	78	78	74	84	86	86	88	90	91	91	91	89	88	86	84	82	81		
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	210	210	210	210	211	211	210	211	212	213	214	215	216	217	217	216	215	214	214	214	213	212		
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	206	206	206	206	208	208	207	208	211	211	214	216	217	218	218	218	216	214	213	211	210	209		
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	208	208	208	208	209	209	208	209	209	211	212	212	213	215	214	214	213	211	211	210	210	209		
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	206	206	206	206	208	208	208	209	211	214	214	216	217	219	218	218	216	213	211	210	210	209		
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04		
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		
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								560								559								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								556								556								
													543								544								

DATE OCT 14 2021

SIGNATURE

Mid Shift

Days Shift

2235 Switching in the field Tripped of CG-TG

Notes

Utilities and Institutional Facilities

Date: 10-15-2021

MST / ~~MDT~~ (circle one)

CGTG HOURLY READING LOG

Time Gas Introduced (Turbine Rolling): 1032
Time of Turbine Online (Brkr Closed): 1015 / 1049
Time Turbine Offline (Brkr Open):
Time No Gas Flow: 1017

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												✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	Instrument Temperature	TI-001	deg C		20	50												110	106	104	110	108	104	108	110	109	110	108	109	110
5	Fin Fan Cooler		Units	Low	Norm	Max												14	15	17	17	17	18	17	15	14	12	11	11	10
6	Coolant Pressure	PI-250	psig		25													19	19	19	19	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120												87	92	95	95	97	97	96	94	94	87	85	86	83
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
9	Coolant Return Differential from GG	FI-001	In WC		60	80												60	60	60	60	60	62	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50												36	36	37	37	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85												68	66	68	66	66	65	65	67	65	67	67	67	67
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	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	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%												7	9	8	6	8	8	8	8	8	8	8	9	9
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
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			1427												1038	1028	1020	1006	1009	1008	1016	1033	1055	1062	1059	1060	1064
23	Mw Output		MW			27												24.1	24.4	24.2	23.8	23.9	23.9	23.9	24.5	24.9	85/	25.1	25.1	25.2
24	80% Base Load Minimum		MW															19.9	19.8	19.6	19.5	19.4	19.5	19.5	19.8	20.1	20.1	20.2	20.2	20.2
25	Running Hours (unit overview)																	8283	8284	8285	8286	8287	8288	8289	8290	829/	8292	8293	8294	8295
26	Ambient Temperature	T1 inlet																46	44	50	52	53	52	51	48	45	45	43	43	43
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%												72	73	72	73	73	74	74	74	74	74	74	74	74
28	Total Fuel Flow		Mscf/h															235	233	231	229	229	229	229	234	237	239	239	239	240

Date: 10-15-2021 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	0943																												
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
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY												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
Oil Day Tank Level	LI-1562	GAL	10		FULL												27	27	55	55	55	55	55	55	55	55	55	55	55
Lubricator Bulls eye		LEVEL	1/2	FULL													F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY												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
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK													B	B	B	B	B	B	B	B	B	B	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140												82	82	83	82	82	82	82	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285												247	248	250	249	249	250	250	250	250	249	249	249	249
2nd Stage Inlet Press	PI-2200	psig		267	285												244	244	246	246	246	246	246	246	246	246	246	246	244
2nd Stage Disch. Press	PI-2201	psig		575	600												564	564	564	564	561	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600												559	560	560	560	560	559	559	560	560	559	559	559	559
Lube Oil Pressure	PI-1572	psig	40	60													57	57	58	58	58	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170												169	169	169	167	166	166	165	169	169	169	169	169	169
Final Discharge Temp	TE-2120	deg		110	150												94	85	90	90	91	90	89	86	86	85	79	79	78
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297												216	217	218	218	217	217	217	215	213	212	211	211	210
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283												214	214	218	218	219	218	218	214	214	212	208	208	207
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297												213	214	215	215	215	214	214	213	214	212	208	208	208
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283												214	214	219	219	219	219	219	215	214	213	209	209	208
Motor Frame Vibration	VT-1015	IPS			0.15												.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35												.05	.05	.06	.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															560									
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20															556									
																				544									

DATE 10-15-2021

SIGNATURE

Mid Shift

Days Shift

1900 Discharge pressure readings show ??? on OIU screen, Can be Taken at X-mitter

Notes

Utilities and Institutional Facilities

UI-LOG-033-R4
October 1, 2020

Date: 10-16-2021

MST (MDT) (circle one)

CGTG HOURLY READING LOG

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	109	108	111	110	110	106	104	106	104	104	104	108	106	106	106	110	109	110	109	110	106	108	110
4	Instrument Temperature	TI-001	deg C		20	50	10	10	10	10	10	10	10	10	12	15	17	18	19	20	21	22	22	22	19	15	14	15	16	16
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	83	83	84	84	83	83	82	84	88	92	96	99	102	103	104	105	104	103	103	100	93	93	93	93
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	60	62	60	62	62	60	62	62	62	62	62	61	61	60
10	Coolant Return Differential from	FI-002	in WC		37	50	36	35	35	35	35	36	35	35	36	35	36	37	36	39	36	36	36	35	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	65	65	65	65	65	65	65	65	65	65	65	65	65	65	66	65	65	65	65	65	65	65	65	65
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	5'	8	8	8	8	8	8	8	8	9	9
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1065	1068	1074	1082	1082	1084	1089	1073	1059	1041	1019	999	980	967	955	948	958	960	998	1026	1028	1031	1026	1036
23	Mw Output		MW			27	25.2	25.3	25.4	25.6	25.6	25.6	25.7	25.4	25.0	24.6	24.1	23.6	23.2	22.9	22.6	22.4	22.7	22.8	23.6	24.3	24.3	24.4	24.3	24.5
24	80% Base Load Minimum		MW				20.2	20.2	20.3	20.5	20.5	20.5	20.6	20.4	20.1	19.8	19.5	19.2	19.1	18.9	18.8	18.7	18.8	18.9	19.4	19.7	19.7	19.8	19.7	19.8
25	Running Hours (unit overview)						8296	8297	8298	8299	8300	8301	8302	8303	8304	8305	8306	8307	8308	8309	8310	8311	8312	2313	8314	8315	8316	8317	8318	8319
26	Ambient Temperature	T1 Inlet					43	42	41	39	39	39	38	40	44	47	51	55	57	59	61	63	61	60	54	50	49	49	49	48
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	74	74	74	74	74	74	74	74	74	74	72	72	72	72	73	73	73	74	74	74	74	74	74	74
28	Total Fuel Flow		Mscf/h				240	240	241	242	243	244	244	242	239	235	231	227	223	222	219	218	220	221	227	232	232	233	232	234

Date: 10-16-2021 Signature: Bob

day shift - Josh

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	55	52	52	52	52	51	51	51	51	51	51	51	51	51	50	50	50	50	50	50	50	50	50	49
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	248	248	249	245	249	249	248	248	248	248	250	251	251	252	253	253	253	253	250	250	249	250	251	250
2nd Stage Inlet Press	PI-2200	psig		267	285	245	245	245	245	245	245	244	244	245	245	246	247	247	248	249	249	249	248	246	246	246	248	247	247
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	565	564	564	564	564	560	564	565	565	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	559	559	560	560	560	560	559	559	559	560	560	560	562	560	561	559	559	559	559	559	559	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	57	57	57	57	57	57	57	57	58	58	58	59	59	59	59	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	169	169	169	169	169	169	170	170	169	169	169	167	167	166	165	163	163	162	168	168	168	168	168	168
Final Discharge Temp	TE-2120	deg		110	150	78	78	78	78	78	78	76	79	83	86	89	92	95	98	101	101	99	97	96	87	86	87	87	86
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	210	210	211	211	211	211	210	211	212	213	215	217	218	219	219	219	219	219	216	214	213	216	214	214
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	207	207	208	207	207	207	206	206	209	212	216	219	221	225	226	227	225	223	217	214	214	214	214	214
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	208	208	209	209	209	209	208	208	210	213	214	215	216	217	217	216	216	216	217	212	212	212	212	212
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	208	208	209	208	208	208	207	207	210	212	216	219	221	225	227	227	225	223	218	214	214	215	215	214
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.04	.04	.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.									560								560												
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				555								556												
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				543								546												

DATE 10-16-2021

SIGNATURE

Mid Shift Bob Arz

Days Shift Josh Arndt

pressure Readings on DIU show ???. Can be found on Transmitters

Notes

Date: 10-17-2021

MST / (MDT) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

UI-LOG-032-R4
October 1, 2020

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	108	104	108	108	108	104	110	112	108	112	108	108	112	112	108	106	110	108	110	110	108	108	110	111
4	Instrument Temperature	TI-001	deg C		20	50	16	15	13	11	11	11	11	12	14	16	19	20	22	23	24	24	23	22	19	18	18	18	18	18
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	93	89	87	83	83	83	84	87	92	96	99	103	104	106	106	107	105	104	100	102	102	102	100	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	62	62	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	36	36	36	36	36	36	35	35	36	36	36	36	37	39	37	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	65	65	66	67	64	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	9	9
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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1037	1036	1053	1063	1070	1065	1062	1061	1034	1019	993	971	955	936	941	938	943	966	992	996	997	981	986	986
23	Mw Output		MW			27	24.5	24.6	24.9	25.2	25.3	25.2	25.1	25.1	24.4	24.0	23.4	23.0	22.5	22.1	22.2	22.1	22.3	22.8	23.4	23.5	23.5	23.2	23.3	23.3
24	80% Base Load Minimum		MW				19.8	19.8	20.0	20.2	20.3	20.3	20.2	20.2	19.8	19.5	19.2	18.9	18.7	18.5	18.6	18.5	18.7	19.0	19.3	19.4	19.4	19.1	19.2	19.2
25	Running Hours (unit overview)						8320	8321	8322	8323	8324	8325	8326	8327	8328	8329	8330	8331	8332	8333	8334	8335	8336	8337	8338	8339	8340	8341	8342	8343
26	Ambient Temperature	T2 Inlet					48	47	45	43	42	42	42	43	48	52	56	60	62	64	63	64	62	59	55	54	54	56	56	56
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	74	74	75	75	75	75	75	75	75	74	73	73	73	73	74	75	75	75	75	75	75	75	75	75
28	Total Fuel Flow		Mscf/h				234	235	237	239	240	239	238	239	233	231	227	222	219	217	217	216	218	221	226	227	227	225	227	228

Date: 10-17-2021

Signature: Bob [illegible]

day shift - Josh Anderson

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	48	47	47	47	47	47	47	47	47
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	C	C	B	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	250	250	250	249	249	249	249	249	250	250	251	252	253	254	254	254	253	253	253	250	251	251	252	253
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	247	245	245	245	245	245	246	247	248	248	249	250	250	250	250	250	250	250	249	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	564	564	564	565	565	565	564	564	564	564	564	564	564	565	565	564	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	559	559	559	559	560	559	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	57	57	57	58	58	58	59	59	59	59	58	58	58	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	166	168	169	169	169	169	169	170	169	168	168	166	165	164	162	162	162	162	163	163	165	165	162	164
Final Discharge Temp	TE-2120	deg		110	150	86	86	85	79	79	79	79	82	86	90	94	97	101	104	105	105	102	100	98	97	96	96	94	94
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	214	213	213	210	210	210	210	211	213	214	217	218	220	221	221	221	219	218	216	216	217	217	217	217
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	214	213	213	208	208	208	208	209	212	216	220	224	227	229	230	230	227	225	216	218	219	220	220	220
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	212	212	212	208	208	208	209	209	211	212	214	215	217	218	218	218	216	215	216	215	215	215	214	215
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	214	213	213	208	208	208	208	209	213	216	220	224	227	229	230	230	227	227	218	218	218	220	221	221
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
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.										560								560											
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8					555								556											
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20					543								544											

DATE 10-17-2024

SIGNATURE

Mid Shift Bob Stig

Days Shift Josh Amos

Notes

Utilities and Institutional Facilities

335 86 78

Date: 10-18-2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

CGT8 HOURLY READING LOG

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	109	110	111	109	110	110	109	105	102	103	100	103	109	108	101	108	99	101	106	108	110	108	110	111
4	Instrument Temperature	TI-001	deg C		20	50	18	17	16	16	16	15	15	16	18	18	20	21	21	21	20	22	20	20	20	20	19	19	19	19
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	100	97	94	94	94	93	93	95	94	96	102	100	104	102	100	100	100	98	90	92	86	88	93	91
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-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	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	67	67	67	67	67	67	65	65	65	65	65	67	65	69	69	69	69	69	69	69	69	69	69	69
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	9	9	9	9	9
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)	AE9GED ET-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on: Power Management page)																													
22	Generator Current		Amps			1427	986	999	1024	1022	1020	1051	1029	1003	981	964	959	939	924	926	922	920	924	925	902	910	974	972	970	975
23	Mw Output		MW			27	23.3	24.0	24.3	24.2	24.1	24.1	24	23	22	22	22	22	22	22	21	21	21	22	22.1	22.1	23.1	23.1	23.1	23.1
24	80% Base Load Minimum		MW				19.7	19.5	19.8	19.8	19.7	19.4	19	19	19	19	18	18	18	18	18	18	18	18	18.1	18.1	19.2	19.2	19.2	19.2
25	Running Hours (unit overview)						8344	8345	8346	8347	8348	8349	8350	8351	8352	8353	8354	8355	8356	8357	8358	8359	8360	8361	8362	8363	8364	8365	8366	8367
26	Ambient Temperature	T2 Inlet					56	52	48	48	49	47	48	53	57	59	60	62	64	64	64	64	64	63	60	60	58	56	56	56
	(27-28 found on: Gas Fuel System page)																													
27	Waste Oil Tank	LI-232	%			70%	75	76	76	76	76	76	76	76	75	75	74	74	74	74	75	76	78	75	75	76	76	76	76	76
28	Total Fuel Flow		Mscf/h				229	252	232	232	231	234	231	227	222	220	219	215	214	214	213	213	214	214	220	221	222	223	223	223

Date: 10-18-2021 Signature:

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-803	%		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	E	E	E	F	E	E	F	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	46	46	46	46	46	46	46	46	46	46	46	46	45	45	45	45	45	45	45	45	45	45	45	45
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	85	83	83	83	87	83	87	83	83	83	82	83	83	83	83	83	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	251	250	250	250	250	250	256	252	252	253	253	253	253	253	253	253	253	253	253	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	247	248	248	248	248	248	248	249	249	249	249	250	250	250	250	250	250	250	249	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	564	564	564	564	564	564	564	564	564	564	565	565	564	564	564	564	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	58	58	58	58	58	58	58	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	164	166	167	167	167	167	167	164	164	166	166	167	163	163	163	162	162	163	163	163	164	164	164	164
Final Discharge Temp	TE-2120	deg		110	150	94	89	86	86	86	86	85	91	91	101	101	105	105	106	108	104	104	101	101	100	97	97	97	97
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	217	215	214	214	214	214	214	214	219	219	219	221	221	222	222	220	220	220	220	220	218	218	218	218
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	220	216	214	214	214	214	214	217	217	226	226	226	228	230	230	228	225	223	223	223	222	222	222	222
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	215	216	212	213	213	213	213	211	211	210	214	218	218	218	218	218	215	218	218	216	216	215	215	215
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	224	216	214	214	213	213	213	217	217	226	224	228	230	227	227	229	229	223	223	225	223	223	223	223
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.01	.04	.04	.01	.04	.01	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.01	.01	.05	.05	.05	.01	.05	.01	.05	.01	.05	.05	.01	.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.										560																			
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8					551																			
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20					543																			

DATE	10.18.2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

1 1/2 52

54

Date: OCT 19 2021

MST / (MDT) (circle one)

CGTG HOURLY READING LOG

Time Gas introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	112	111	108	112	106	110	108	108	106	102	108	110	105	112	103	109	100	108	110	106	106	112	110
4	Instrument Temperature	TI-001	deg C		20	50	18	18	18	16	16	16	17	17	17	17	17	19	20	20	20	20	20	20	18	18	16	16	16	16
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	19	19	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	90	88	91	90	86	88	91	90	93	96	99	95	98	97	106	101	99	97	95	93	88	82	86	90
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	62	63	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	33	36	36	36	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	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8
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			1427	983	987	985	1007	1010	1006	1028	1027	1010	1002	996	998	976	972	966	974	976	982	1016	1015	1018	1041	1040	1042
23	Mw Output		MW			27	23.4	23.4	23.4	23.6	23.9	23.9	24	24.4	24	22.8	23	23	23	23	22	23	23	23	24.1	24.1	24.5	24.7	24.7	24.7
24	80% Base Load Minimum		MW				19.4	19.4	19.4	19.5	19.6	19.6	19	19.9	19.6	19.5	19	19	19	19	19	19	19	19	19.7	19.7	19.8	20.0	20.0	20.0
25	Running Hours (unit overview)						8368	8369	8370	8371	8372	8373	8374	8375	8376	8377	8378	8379	8380	8381	8382	8383	8384	8385	8386	8387	8388	8389	8390	8391
26	Ambient Temperature	T1 inlet					54	54	54	52	52	50	47	47	50	52	53	52	55	55	57	56	55	55	51	49	47	45	45	45
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	76	76	76	76	76	76	76	76	76	75	74	74	74	75	75	75	76	76	77	77	77	77	77	77
28	Total Fuel Flow		Mscf/h				225	225	225	226	228	229	233	233	230	227	227	227	223	229	224	222	223	224	231	231	233	235	236	236

Date: OCT 19 2021 Signature: MCD

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	A&H-803	%		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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	45	45	45	45	45	45	44	44	44	44	44	43	43	43	43	43	42	42	42	42	42	42	42	42
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	F	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	P	E	E	E	F	F	F	F	F	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	D	D	B	B	D	B	B	B	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140	84	84	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	82	82	82	83	83	84	84
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	252	252	252	251	251	251	251	251	251	251	251	252	252	252	252	252	252	251	251	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	248	248	247	247	247	247	247	247	248	248	248	248	248	248	248	248	247	247	247	247
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	59	58	58	57	57	58	58	58	58	58	58	59	59	59	59	59	59	59	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	164	164	164	164	164	164	168	168	167	167	167	166	165	165	165	165	164	164	164	164	166	166	166	168
Final Discharge Temp	TE-2120	deg		110	150	97	97	97	95	93	90	86	88	89	89	89	92	95	95	97	97	94	94	94	94	91	91	90	90
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	218	218	218	216	216	215	213	213	214	214	214	216	218	218	218	218	217	217	217	217	216	216	216	214
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	222	222	222	220	218	217	214	214	215	215	215	219	232	232	222	222	220	220	220	220	218	218	216	216
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	215	215	215	213	213	213	211	210	212	212	212	214	215	215	215	215	214	214	214	214	213	213	212	212
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	223	223	223	221	220	220	214	214	215	218	215	219	221	221	223	223	224	224	221	221	220	220	216	216
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
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	.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								544																

DATE	OCT. 19 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

Date: OCT 20 2021

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	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	105	108	102	110	112	106	100	106	100	105	100	103	105	106	100	102	99	101	100	108	112	110	106	112
4	Instrument Temperature	TI-001	deg C		20	50	16	16	14	14	14	14	15	15	15	16	17	17	19	19	19	19	19	19	18	18	18	16	16	16
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	86	82	84	80	83	81	86	91	95	98	97	99	102	104	104	100	101	104	102	98	94	91	92	90
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	35	35	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	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
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		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1057	1058	1061	1064	1066	1065	1059	1059	1010	1042	1006	980	962	956	950	953	952	960	1001	1011	1022	1019	1017	1036
23	Mw Output		MW			27	25.1	25.1	25.2	26.3	25.3	25.3	25	25	24	24	23	23	22	22	22	22	22	22	23.8	24.1	24.1	24.1	24.1	24.5
24	80% Base Load Minimum		MW				20.3	20.3	20.3	20.4	20.4	20.4	20	20	19	19	19	19	18	18	18	18	18	18	19.5	19.6	19.6	19.6	19.6	19.9
25	Running Hours (unit overview)						8392	8393	8394	8395	8396	8397	8398	8399	8400	8401	8402	8403	8404	8405	8406	8407	8408	8409	8410	8411	8412	8413	8414	8415
26	Ambient Temperature	T1 Inlet					42	42	41	40	40	40	41	42	51	52	52	57	59	59	62	60	61	59	53	50	56	48	47	47
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	76	76	76	76	76	76	74	76	75	75	74	74	74	75	75	76	75	74	76	76	76	76	76	76
28	Total Fuel Flow		Mscf/h				239	239	239	240	240	241	239	238	230	230	230	224	221	220	219	221	219	221	229	230	230	233	232	234

Date: OCT 20 2021 Signature: MIO

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-309	%		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	E	F	F	F	F	F	F	F	F	F	F	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	42	42	42	42	42	42	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	82	82	83	83	83	83	84	84
Stage Disch. Press	PI-2101	psig		238	285	251	251	251	250	250	250	249	250	250	250	251	251	253	253	253	253	253	252	253	252	252	251	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	242	245	246	245	245	246	246	247	247	247	249	249	249	250	250	250	250	248	248	247	247	247
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	564	564	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	57	57	57	58	58	58	58	58	59	59	59	59	59	59	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	168	168	169	169	170	170	170	169	169	168	167	167	167	167	164	163	167	163	163	165	165	166	166	166
Final Discharge Temp	TE-2120	deg		110	150	87	87	85	85	83	80	80	82	82	89	91	91	98	98	101	99	97	99	98	96	96	94	94	92
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	212	212	212	210	210	210	210	210	210	214	218	218	218	219	218	218	218	218	218	215	215	213	213	213
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	212	212	210	210	208	208	208	209	209	215	218	218	223	223	226	225	225	225	224	215	215	213	213	213
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	210	210	210	208	208	208	208	208	206	212	213	213	215	215	216	215	215	215	215	213	213	212	212	212
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	213	213	210	210	209	209	209	209	206	214	218	218	223	222	226	225	225	223	223	221	221	218	218	218
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
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	.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	OCT 20 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

Date: OCT 21 2021

MST / (MDT) (circle one)

Time Gas introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	112	106	112	108	107	100	104	109	105	111	100	108	110	101	107	104	100	108	112	110	106	108	111
4	Instrument Temperature	TI-001	deg C		20	50	16	16	16	16	16	16	14	14	14	15	20	20	20	21	21	21	21	21	20	20	20	18	18	18
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	88	90	91	88	89	88	89	92	94	102	108	100	106	102	100	107	105	98	99	101	100	98	92	94
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	61	61	61	61	61	61	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	36	35	35	35	35	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	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
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 5T-01	psig	35	20								✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1037	1035	1034	1036	1033	1034	1045	1020	996	965	957	965	940	933	922	938	848	952	966	975	976	977	978	1001
23	Mw Output		MW			27	24.6	24.6	24.5	24.5	24.5	24.5	24	24.2	23.7	22.9	22.7	22.9	22.3	22.1	21.9	22.2	22.3	22.5	22.9	23.2	23.2	23.2	23.2	23.3
24	80% Base Load Minimum		MW				19.9	19.9	19.9	19.9	19.9	19.9	20	19.7	19.4	18.9	18.9	18.9	18.7	18.5	18.4	18.6	18.7	14.8	18.9	19.2	19.2	19.2	19.2	19.2
25	Running Hours (unit overview)						8416	8417	8418	8419	8420	8421	8422	8423	8424	8425	8426	8427	8428	8429	8430	8431	8432	8433	8434	8435	8436	8437	8438	8439
26	Ambient Temperature	T1 inlet					47	47	47	47	47	47	45	50	54	59	60	60	62	64	66	64	61	60	60	58	58	56	55	53
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	78	78	78	78	78	78	78	73	74	74	74	74	75	75	76	76	76	74	76	76	76	76	76	76
28	Total Fuel Flow		Mscf/h				241	241	241	241	242	242	241	231	228	223	221	222	219	218	216	219	221	220	221	223	224	223	223	223

Date: OCT 21 2021 Signature: MLD

CGTG TURBINE — UTILITIES AND INFRASTRUCTURE

CK 233 WO C1450

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	39	39	39	39	39	39	39	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	E	E	E
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	E	E	E	E	F	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	84	84	84	83	83	83	83	83	83	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	251	251	251	251	251	251	251	251	251	252	252	252	253	253	253	254	254	254	254	252	253	253	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	248	248	248	248	249	247	247	248	248	248	249	250	250	250	250	250	250	250	250	250	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	565	565	565	564	565	565	565	565	560	560	565	566	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	559	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	58	58	58	58	58	58	59	60	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	168	168	168	168	168	168	164	168	168	163	167	167	165	164	164	163	163	162	163	163	163	163	164	164
Final Discharge Temp	TE-2120	deg		110	150	85	85	85	85	85	85	85	87	87	97	97	97	102	102	102	102	102	102	101	101	100	100	96	96
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	213	213	214	214	214	214	214	212	212	217	217	217	220	220	220	220	220	220	218	218	218	218	215	215
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	213	213	213	214	214	214	214	214	214	222	222	223	227	227	227	227	227	227	225	225	225	225	220	220
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	211	211	211	211	212	212	212	210	210	215	215	215	217	217	217	217	217	217	215	215	215	215	213	213
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	213	213	214	214	215	215	214	214	214	222	222	221	227	223	223	226	224	226	225	225	225	225	221	221
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	04	04	04	04	04	04	04	04	04	04	04	04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	05	05	05	01	05	05	04	05	05	04	05	07	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	OCT 21 2021
SIGNATURE	
Mid Shift	Jan
Days Shift	

Notes

Utilities and Institutional Facilities

Date: OCT 22 2021

MST / (MDT) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

CCTG HOURLY READING LOG

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes: 1943 HRS BlackOut Turbine Tripped

	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	EVT-013	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
2	Blowdown Wet Receiver Tank Hourly	EVT-007	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	108	112	108	112	110	108	108	110	108	108	108	112	110	106	104	108	110	109					
4	Instrument Temperature	TI-001	deg C		20	50	16	16	16	16	16	16	13	13	15	15	20	20	22	23	24	24	24	24	20					
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	19	19					
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	98	94	96	99	102	106	89	90	95	96	104	106	107	109	110	110	110	110	107					
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					
9	Coolant Return Differential from GG	PI-001	in WC		60	80	60	60	60	60	60	60	60	60	61	61	61	61	62	60	62	62	62	62	62					
10	Coolant Return Differential from	PI-002	In WC		37	50	35	35	35	35	35	35	35	36	36	36	38	36	39	36	39	37	37	36	36					
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	76	70	70	70	65	65	66	66	67	67	66	66	66	66	66	66	66					
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	Y	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	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8					
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					
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A&BGD-ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1042	1045	1043	1033	1026	1021	1045	1037	1013	984	956	953	929	925	924	909	915	929	950					
23	Mw Output		MW			27	24.8	24.8	24.8	24.5	24.5	24.3	24.8	24.5	24.0	23.3	22.7	22.6	22.1	21.9	21.9	21.6	21.7	22.0	22.6					
24	80% Base Load Minimum		MW				20.1	20.1	20.1	19.9	19.9	19.8	20.1	19.9	19.6	19.2	18.9	18.8	18.5	18.5	18.5	18.4	18.5	18.5	18.9					
25	Running Hours (unit overview)						8440	8441	8442	8443	8444	8445	8445	8446	8447	8448	8449	8450	8451	8453	8453	8454	8455	8456	8457					
26	Ambient Temperature	T2 Inlet					45	45	45	47	47	48	44	46	51	56	60	61	64	65	66	66	66	63	60					
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-[illegible]	%			70%	77	77	77	77	77	77	78	79	78	78	77	77	78	79	79	80	79	80	79					
28	Total Fuel Flow		Mscf/h				238	237	238	235	233	233	243	235	231	233	219	224	222	220	219	215	216	219	221					

Date: OCT 22 2021 Signature: MID [illegible] dy shift - [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					
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					
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					
Oil Day Tank Level	LI-1562	GAL	10		FULL	37	37	37	37	37	37	35	35	35	35	35	35	35	35	35	35	35	35	35					
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F					
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					
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					
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					
1st Stage Inlet Press.	PI-2100	psig		88	140	85	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83					
Stage Disch. Press	PI-2101	psig		238	285	251	251	251	251	251	251	250	251	251	250	253	253	253	254	254	254	254	254	254					
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	247	246	246	247	246	247	248	250	249	249	249	250	250	250	250	250	249					
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	565	565	565	564	565	565	564	565	565	565					
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	560	560	560	560	559	560	560	559	560	560	560					
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	57	57	58	59	59	59	59	59	59	59	59	59	59					
Lube Oil Temp	TE-1584	deg		150	170	168	168	168	168	168	168	169	169	167	167	165	165	165	164	164	163	162	163	164					
Final Discharge Temp	TE-2120	deg		110	150	84	84	84	84	84	84	83	84	90	96	98	98	102	107	104	105	105	105	98					
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	213	213	213	212	212	212	213	211	214	214	220	220	222	223	223	222	221	220	220					
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	213	213	213	214	214	213	212	212	216	216	225	225	230	229	231	230	229	229	225					
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	210	210	210	210	212	212	211	209	212	212	217	217	219	220	220	219	219	219	217					
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	213	213	213	214	214	214	212	212	216	216	225	225	230	232	231	230	230	230	226					
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04					
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					
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								560									559							
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								556									556							
													544									545							

DATE OCT 22 2021

SIGNATURE

Mid Shift

Days Shift

1943 Plant in Blackout : TIE Breaker opened CGTG is Down

Notes

Utilities and Institutional Facilities

Date: 10-26-2021

MST / MDT (circle one)

Time Gas introduced (Turbine Rolling): 1606

Time of Turbine Online (Brkr Closed): 1652

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

CGTG HOURLY READING LOG

Notes:

							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	I.D	Units	Low	Norm	Max																								
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																	110	110	111	109	109	110	109	109
4	Instrument Temperature	TI-001	deg C		20	50																	16	16	15	15	13	10	10	16
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																	102	104	96	89	84	88	88	88
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
9	Coolant Return Differential from GG	FI-001	in WC		60	80																	61	61	61	61	60	60	60	60
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																								
15	WECC Log		Operational?																				70	70	70	70	70	70	70	70
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%																	9	9	9	9	9	9	9	9
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%																	0	0	6	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		V																				✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427																	1036	1053	1051	1062	1053	1051	1062	1062
23	Mw Output		MW			27																	24.5	24.8	24.9	25.2	25.0	25.1	25.2	25.2
24	80% Base Load Minimum		MW																				20.3	20.4	20.4	20.6	20.5	20.5	20.6	20.6
25	Running Hours (unit overview)																						8459	8460	8461	8462	8463	8464	8465	8466
26	Ambient Temperature	T1 Inlet																					42	41	40	38	39	39	38	38
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%																	80	80	80	80	80	80	80	80
28	Total Fuel Flow		Mscf/h																				235	238	238	240	252	239	239	239

Date: 10-26-2021 Signature: GOMEZ

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	1520																												
Combustible Gas Detector	AAH-505	%		0%	20%																	B	B	B	B	B	B	B	B
Packing Lube Oil Flow Indicator Left Side	FSL-1501B	LIGHT		BLINK																		E	E	E	E	E	E	E	E
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY																	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL																	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Oil Day Tank Level	LI-1562	GAL	10		FULL																	F	F	F	F	F	F	F	F
Lubricator Bulls eye		LEVEL	1/2	FULL																		E	E	E	E	E	E	E	E
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																	B	B	B	B	B	B	B	B
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK																		83	83	83	83	83	83	85	83
1st Stage Inlet Press.	PI-2100	psig		88	140																	261	261	261	261	261	261	261	261
Stage Disch. Press	PI-2101	psig		238	285																	257	258	257	257	257	257	258	258
2nd Stage Inlet Press	PI-2200	psig		267	285																	565	565	565	565	565	565	565	565
2nd Stage Disch. Press	PI-2201	psig		575	600																	560	560	560	560	560	560	560	560
Final Discharge Pressure	PI-2108	psig		575	600																	60	59	59	59	59	59	58	58
Lube Oil Pressure	PI-1572	psig	40	60																		162	165	165	165	165	165	165	165
Lube Oil Temp	TE-1584	deg		150	170																	153	150	147	146	143	141	140	140
Final Discharge Temp	TE-2120	deg		110	150																	237	232	230	229	229	227	226	226
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297																	266	261	259	259	256	254	254	253
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283																	235	230	228	227	226	225	224	224
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297																	267	262	259	257	255	255	254	254
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283																	.04	.04	.03	.03	.04	.04	.04	.04
Motor Frame Vibration	VT-1015	IPS			0.15																	.05	.05	.05	.05	.05	.05	.05	.05
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.																						560							
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																	555							
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																	542							

DATE 10-26-2021

SIGNATURE

Mid Shift

Days Shift JM GOMEZ

Notes

Utilities and Institutional Facilities

Date: 10-27-2021

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:

	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	110	111	111	109	109	110	110	110	108	112	110	108	106	104	105	106	110	110	111	107	110	111	110	109
4	Instrument Temperature	TI-001	deg C		20	50	10	10	9	8	8	8	7	7	7	12	14	14	17	17	18	18	18	18	15	14	13	13	13	12
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	100	104	98	102	103	101	108	106	104	104	107	104	105	105	109	108	109	106	104	116	107	111	109	104
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	61	61	61	61	61	61	61	61	61	61	61	61	63	63	63	61	61	61	61	61	61	61	61	61
10	Coolant Return Differential from	FI-002	in WC		37	50	36	36	36	36	36	30	35	35	35	35	36	36	39	38	36	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	68	68	68	68	68	70	70	70	68	70	70	70	70	70	70	68	70	68	66	64	64	64	64
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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-252	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-250	%			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)	AS3/GD ET-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1063	1066	1067	1088	1103	1091	1108	1106	1075	1066	1021	1022	995	997	1004	999	1018	1026	1044	1051	1055	1066	1063	1065
23	Mw Output		MW			27	25.2	25.3	25.9	26.0	26.2	25.9	26.3	26.3	25.5	25.3	24.2	24.3	23.1	23.1	23.8	23.7	24.1	24.4	24.9	24.9	25.1	25.1	25.1	25.3
24	90% Base Load Minimum		MW				20.6	20.7	21.1	21.1	21.3	21.0	21.3	21.3	20.7	20.5	19.8	19.8	19.5	19.5	19.6	19.5	19.7	19.9	20.2	20.2	20.3	20.3	20.3	20.5
25	Running Hours (unit overview)						8467	8468	8469	8470	8471	8472	8473	8474	8475	8476	8477	8478	8479	8480	8481	8482	8483	8484	8485	8486	8487	8488	8489	8490
26	Ambient Temperature	TE Inlet					38	36	33	31	30	33	30	30	38	40	48	49	52	52	51	52	49	47	44	43	42	42	42	40
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-XXX	%			70%	80	80	80	80	80	80	80	80	76	17	21	23	27	29	32	34	35	35	36	36	37	38	38	38
28	Total Fuel Flow		Mscf/h				239	240	244	241	240	243	241	249	242	239	233	232	228	228	228	229	231	234	237	238	234	234	237	240

Date: 10-27-2021 Signature:

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-305	%		0%	20%																								
Packing Lube Oil Flow Indicator Left Side	FSL-1501E	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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	34	34	34	34	33	33	33	33	33	33	33	33	33	33	33	32	32	32	32	32	32	32	32	32
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	261	261	260	260	260	260	260	260	260	261	263	262	262	263	262	262	250	250	250	250	250	250	250	250
2nd Stage Inlet Press	PI-2200	psig		267	285	258	258	257	257	257	257	257	257	257	258	259	259	259	259	259	258	246	246	246	246	246	246	246	246
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	567	565	565	565	565	565	565	565	566	565	565	565	566	566	565	566	561	566	567	565	565	561
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	57	57	57	57	57	57	57	58	59	59	59	59	59	59	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	165	168	169	168	167	166	169	169	168	165	164	164	163	163	162	163	166	166	168	168	168	168	168	168
Final Discharge Temp	TE-2120	deg		110	150	140	139	137	137	136	136	134	134	134	147	152	151	152	155	151	151	87	96	82	82	81	80	80	80
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	226	225	224	222	222	222	221	221	221	226	229	229	231	232	230	230	214	214	211	210	210	210	210	210
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	253	253	251	251	250	250	248	248	249	258	262	263	263	263	261	262	214	214	206	206	208	208	208	208
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	224	223	221	221	220	220	219	219	219	224	227	226	229	229	228	228	212	212	209	204	202	206	208	208
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	254	254	253	251	251	251	250	250	250	259	264	264	263	265	263	262	214	214	209	214	208	208	208	208
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.05	.04	.04	.04	.04	.05	.05	.05	.05	.04	.05	.03	.04	.04	.03	.03	.03	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.03	.03	.03	.03	.03	.03	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.03	.03	.03	.03	.03	.03
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				555																				
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				541																				

DATE 10-27-2021

SIGNATURE

Mid Shift

Days Shift

Notes

HIGH ALARM - FINAL DISCHAGE TEMP
NICK NELSON NOTIFIED. LOUVERS FOUND CLOSED

Utilities and Institutional Facilities

Date: 10-28-2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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-018	√				✓	✓	✓	✓	✓	✓	√	√	√	√	√	√	√	√	√	√	√	√	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√				✓	✓	✓	✓	✓	✓	√	√	√	√	√	√	√	√	√	√	√	√	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	111	110	108	112	111	110	115	114	110	113	108	113	110	111	109	113	114	110	108	110	108	112	106	108
4	Instrument Temperature	TI-001	deg C		20	50	9	8	9	9	9	9	8	8	11	12	14	16	18	19	19	20	20	19	18	18	16	16	16	14
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	103	106	108	104	107	106	112	110	108	102	100	104	107	112	104	110	106	101	100	104	102	106	104	101
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	61	61	61	61	61	61	60	60	60	60	60	60	60	62	62	62	62	61	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	37	37	37	37	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	64	64	64	64	64	64	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.9MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8
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)	AS9 GG2 ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	√	√	√	√	√	√	√	√	√	√	√	√	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	1079	1080	1082	1093	1095	1079	1085	1076	1047	1026	1017	1010	986	983	968	962	960	973	1001	1000	1088	1033	1037	1035
23	Mw Output		MW			27	25.6	25.6	25.7	25.9	26.0	25.8	25.7	25.5	24.8	24.4	24.1	23.9	23.4	23.3	23.0	22.8	22.8	23.1	23.8	23.8	24.4	24.4	24.7	24.7
24	80% Base Load Minimum		MW				20.7	20.7	20.7	20.8	20.9	20.8	20.7	20.5	30.1	19.8	19.6	19.5	19.2	19.1	19.0	18.9	18.9	19.1	19.5	19.5	19.8	19.8	19.9	19.9
25	Running Hours (unit overview)						8491	8492	8493	8494	8495	8496	8497	8498	8499	8500	8501	8502	8503	8504	8505	8506	8507	8508	8509	8510	8511	8512	8513	8514
26	Ambient Temperature	T2 Inlet					37	37	37	36	35	35	37	39	44	48	50	52	55	56	59	59	59	57	53	52	49	48	46	46
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-232	%			70%	38	38	38	38	38	38	38	38	38	36	36	35	35	35	37	37	37	37	37	37	37	37	37	37
28	Total Fuel Flow		Mscf/h				243	243	244	244	241	241	244	243	237	234	232	230	225	225	223	223	221	225	229	230	235	235	237	237

Date: 10-28-2021 Signature:

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	32	32	32	32	31	31	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	82	82	82	83	83	83	83	83	83	83	83	83	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	249	249	249	248	248	248	248	248	249	249	249	250	251	252	253	253	253	253	252	252	252	252	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	245	245	245	244	244	244	244	244	245	245	245	246	247	248	248	248	249	249	249	249	248	248	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	566	565	565	565	565	566	565	565	565	565	565	565	565	565	565	565	565	565	565	585	585	585	585	585
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	57	57	58	58	58	58	58	59	59	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	169	170	170	170	170	170	169	170	169	169	170	169	166	166	167	167	164	164	164	164	165	165	165	166
Final Discharge Temp	TE-2120	deg		110	150	78	77	76	76	74	74	74	76	83	84	84	88	94	94	97	97	96	96	95	95	93	93	92	92
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	209	209	209	209	209	209	208	208	210	212	213	214	216	216	218	218	216	215	214	214	214	213	213	213
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	206	206	205	205	204	204	205	206	209	210	212	216	220	221	223	222	221	220	219	219	218	216	216	215
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	207	207	207	206	206	206	206	206	208	208	210	212	213	214	217	218	216	215	214	214	212	212	211	211
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	206	206	205	205	204	204	205	206	209	210	210	216	220	222	224	223	222	221	220	220	218	218	215	215
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.06	.06	.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.									560																				
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				556																				
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				544																				

DATE 10-28-2021

SIGNATURE

Mid Shift Bob Hs

Days Shift

note: At 0700 Alarm reads High ~~temp~~ temp Recycle on Cgtg Gas comp

Notes

Utilities and Institutional Facilities

Date: OCT 29 2021

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:

	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-012	√				✓	✓	✓	✓	✓	✓	√	√	√	√	√	√	√	√	√	√	√	√	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√				✓	✓	✓	✓	✓	✓	√	√	√	√	√	√	√	√	√	√	√	√	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	108	112	100	108	104	112	114	110	110	113	114	110	107	114	108	113	106	112	100	108	110	112	108
4	Instrument Temperature	TI-001	deg C		20	50	14	14	14	14	14	14	12	12	15	16	17	17	18	20	20	20	20	19	18	18	16	16	16	16
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	104	98	101	102	100	104	104	107	103	98	101	103	109	106	98	100	100	98	95	101	99	108	110	105
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	60	60	60	60	60	60	60	60	61	61	61	61	61	61	61	61	61	61	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	35	35	35	35	35	35	35	35	36	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	8	8	8	8	8	8	8	8	8
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)	A89GGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	√	√	√	√	√	√	√	√	√	√	√	√	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	1028	1029	1031	1033	1048	1044	1059	1068	1034	1011	992	979	944	947	949	947	952	962	996	999	1019	1002	1004	1001
23	Mw Output		MW			27	24.5	24.5	24.7	24.7	24.9	24.7	25.2	25.4	24.6	24.1	23.6	23.2	22.4	22.4	22.4	22.3	22.6	22.8	23.6	23.8	23.4	23.1	23.1	23.1
24	80% Base Load Minimum		MW				19.8	19.8	19.9	19.9	20.1	20.1	20.3	20.4	19.9	19.6	19.3	19.1	18.7	18.7	18.7	18.7	18.8	18.9	19.4	19.5	19.3	19.1	19.1	19.1
25	Running Hours (unit overview)						8515	8516	8517	8518	8519	8520	8521	8522	8523	8524	8525	8526	8527	8528	8529	8530	8531	8532	8533	8534	8535	8536	8537	8538
26	Ambient Temperature	TG Inlet					48	48	47	47	46	45	42	40	47	51	55	57	62	62	62	63	61	59	53	52	55	56	57	57
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-232	%			70%	38	38	38	38	38	38	38	38	38	36	35	35	36	36	37	37	38	39	38	38	38	38	38	38
28	Total Fuel Flow		Mscf/h				235	236	237	237	238	238	240	241	235	231	227	224	220	219	220	218	220	221	228	228	228	223	224	224

Date: OCT 29 2021 Signature: A Mac

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	28	28	28	28	28	28	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	25	25	25
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	83	83	83	83	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	252	251	251	250	250	250	249	249	249	251	251	251	253	253	253	253	253	253	253	253	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	248	247	247	245	245	245	247	247	247	249	249	249	250	250	250	250	250	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	559	559	559	559	559	559	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	57	57	57	57	58	58	58	58	59	59	59	59	59	59	59	59	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	168	168	166	166	167	167	168	170	172	169	170	172	167	165	164	163	162	162	163	163	164	164	164	164
Final Discharge Temp	TE-2120	deg		110	150	88	87	87	86	86	86	86	79	84	89	90	94	98	101	101	102	100	99	98	97	95	95	94	94
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	213	213	213	213	212	212	210	209	212	213	214	214	218	218	220	218	216	216	216	216	215	215	215	215
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	215	214	214	214	214	214	209	207	210	214	214	215	220	224	226	227	225	224	223	223	220	220	220	220
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	211	211	211	211	210	210	208	207	210	211	212	213	215	216	216	216	216	215	214	214	213	213	213	213
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	215	215	214	214	215	215	210	208	211	215	216	216	221	225	227	227	225	224	223	223	221	221	221	220
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	OCT 29 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

Date: OCT 30 2021

MST / (MST) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

CGTG HOURLY READING LOG

	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	102	112	108	106	110	112	113	112	114	108	114	109	106	112	112	114	110	108	114	106	105	112	108	114
4	Instrument Temperature	TI-001	deg C		20	50	16	16	16	16	16	16	16	16	16	17	18	18	18	19	21	22	22	22	20	20	20	20	18	18
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-230	psig		25		19	19	19	19	19	19	19	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	101	100	98	102	101	99	96	107	101	104	112	101	110	103	108	107	101	110	112	107	102	100	105	99
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	61	61	61	61	63	63	63	63	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	in WC		37	50	35	35	35	35	35	35	36	36	36	36	36	36	36	36	38	38	38	38	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	8	8	8	8	8	8	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8
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)	AS3GCD FT-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	√	√	√	√	√	√	√	√	√	√	√	√	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1038	1041	1042	1056	1057	1061	1042	1015	995	973	960	947	923	915	909	914	911	924	960	963	961	976	978	976
23	Mw Output		MW			27	23.9	24.1	24.1	24.4	24.4	24.4	24.8	24.1	23.6	23.2	22.8	22.5	21.9	21.8	21.6	21.7	21.7	21.9	22.8	22.8	22.8	23.2	23.2	23.2
24	80% Base Load Minimum		MW				19.5	19.7	19.7	19.8	19.8	19.8	20.1	19.7	19.4	19.2	19.0	18.8	18.6	18.5	18.4	18.4	18.4	18.6	19.0	19.0	19.0	19.2	19.2	19.2
25	Running Hours (unit overview)						8539	8540	8541	8542	8543	8544	8545	8546	8547	8548	8549	8550	8551	8552	8553	8554	8555	8556	8557	8558	8559	8560	8561	8562
26	Ambient Temperature	TG Inlet					51	50	49	49	48	48	44	49	53	56	59	61	64	65	66	66	66	64	58	58	57	57	56	56
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-122	%			70%	38	38	38	38	38	38	39	39	38	36	35	35	35	36	37	37	37	38	38	38	38	38	38	38
28	Total Fuel Flow		Mscf/h				230	232	232	233	234	234	238	232	229	225	222	220	215	215	212	214	213	216	222	223	224	225	225	226

Date: OCT 30 2021 Signature: MA

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-305	%		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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	23	23	23	23	23	23	25	25	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84	84	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	252	252	252	251	251	252	252	252	252	252	252	252	252	253	254	254	254	255	254	254	254	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	248	248	248	248	248	248	249	249	249	249	249	250	250	250	250	250	251	250	250	248	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	566	565	565	565	566	564	564	564	564	565	565	565	565	565	565	565	565	565	563
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	559	559	559	559	559	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		59	59	59	58	58	58	57	57	58	58	58	58	59	59	59	59	59	59	59	59	59	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	164	166	166	168	168	168	168	168	168	169	167	164	164	164	164	164	164	163	163	164	164	164	166	166
Final Discharge Temp	TE-2120	deg		110	150	94	92	92	90	90	87	85	86	88	91	95	100	101	103	105	105	106	104	99	95	93	93	90	90
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	215	213	213	212	212	212	210	211	212	212	216	218	220	222	221	221	220	220	219	217	215	215	215	215
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	219	216	216	214	214	214	211	212	213	214	218	223	226	227	229	228	227	226	224	222	222	222	221	221
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	213	213	210	210	210	210	209	209	210	212	214	216	218	220	218	219	220	220	216	215	215	215	214	214
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	220	218	218	215	215	215	212	213	214	215	219	225	226	228	230	230	229	227	225	223	223	224	224	224
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	-03	-03	-03	-03	-04	-04	-04	-04	-04	-04	-04	-04	.04	.04	.04	.04	.04	.04
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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE OCT 30 2021

SIGNATURE

Mid Shift

Days Shift

Notes

Utilities and Institutional Facilities

Date: OCT 31 2021

MST / (MDT) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

CGTG HOURLY READING LOG

	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-015	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	100	102	108	112	106	108	110	114	115	112	110	113	107	110	102	114	113	108	112	108	112	104	112	108
4	Instrument Temperature	TI-001	deg C		20	50	18	18	18	18	18	18	16	16	16	16	17	18	18	18	18	18	18	18	18	18	18	18	18	18
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	101	104	103	100	102	106	96	106	100	102	106	100	108	103	109	111	104	100	98	105	101	103	100	98
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	61	61	61	61	61	61	62	62	62	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	35	35	35	35	35	35	35	35	35	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	70	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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-221	%			70%	8	8	8	8	8	8	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8
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)	A&B GGD ET-01	psig	35	20																									
21	Acknowledge Alarms Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	1019	1018	1020	1016	1015	1016	1038	1029	1027	1008	1000	988	984	970	963	961	968	970	985	982	1020	1031	1046	1046
23	Mw Output		MW			27	24.2	24.2	24.2	24.2	24.1	24.1	24.6	24.5	24.2	24.0	23.7	23.5	23.4	23.0	22.9	22.8	23.0	23.1	23.4	23.4	24.4	24.4	24.8	24.8
24	30% Base Load Minimum		MW				19.7	19.7	19.7	19.7	19.7	19.7	19.9	19.9	19.7	19.5	19.4	19.3	19.3	19.1	19.0	18.9	19.1	19.1	19.3	19.3	19.8	19.8	20.0	20.0
25	Running Hours (unit overview)						8563	8564	8565	8566	8567	8568	8569	8570	8571	2572	8573	8574	8575	8576	8577	8578	8579	8580	8581	8582	8583	8584	8585	8586
26	Ambient Temperature	TG Inlet					49	49	49	50	50	50	46	47	49	51	54	55	56	58	59	59	58	57	56	55	50	48	46	46
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-222	%			70%	38	38	38	38	38		38	38	38	37	37	37	37	36	37	37	37	38	38	38	38	38	38	38
28	Total Fuel Flow		Mscf/h				233	233	232	231	231	231	235	235	233	231	229	226	225	222	222	221	222	223	226	227	233	234	237	237

Date: OCT 31 2021

Signature: MD Jew

A Wan

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	23	23	23	23	23	23	22	22	22	22	22	22	22	22	21	21	21	21	21	21	21	21	21	21
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	83	83	83	83	84	84	84	83	83	83	83	83	84	84	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	252	253	253	251	251	251	252	252	253	253	253	253	254	254	254	254	254	254	254	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	250	250	250	247	247	247	247	248	249	249	249	249	250	250	250	250	250	250	250	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	566	566	566	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	559	559	559	559	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	57	57	57	58	58	59	59	59	59	59	59	59	59	59	59	59	58	58
Lube Oil Temp	TE-1584	deg		150	170	168	168	168	169	169	169	169	169	170	170	171	169	168	166	165	164	164	163	164	164	164	164	166	166
Final Discharge Temp	TE-2120	deg		110	150	87	87	87	88	88	89	84	85	87	89	93	95	97	98	99	99	98	98	95	95	95	95	92	92
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	213	213	213	213	213	213	211	212	213	213	214	215	216	216	217	216	215	215	215	215	215	215	213	213
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	215	216	215	215	216	216	213	213	213	215	216	219	220	224	224	224	222	221	221	221	221	221	219	219
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	211	211	211	211	212	212	209	210	211	213	214	214	215	214	215	213	213	212	216	213	213	213	210	210
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	215	215	216	215	215	215	213	214	214	216	217	221	221	225	226	225	224	222	222	222	222	222	220	220
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	OCT 31 2021
SIGNATURE	
Mid Shift	
Days Shift	A Wan

Notes

Utilities and Institutional Facilities

Date: NOV 01 2021

MST / (MDT) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

CGTG HOURLY READING LOG

Time Turbine Offline (Brkr Open): 0102 11.02.2021

Time No Gas Flow: 0110 11.02.2021

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	106	108	110	112	106	100	111	105	107	112	106	110	109	109	103	100	106	112	108	108	112		
4	Instrument Temperature	TI-001	deg C		20	50	18	18	18	18	18	18	18	10	11	14	19	18	18	20	20	20	20	20	18	18	18	18		
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	19	18	18	18	19	19	19	19	19	19	19	19	19	19	19	19		
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	101	100	101	99	102	104	111	107	110	109	109	103	106	102	109	110	103	100	101	99	108	102		
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	5/8		
9	Coolant Return Differential from GG	PI-001	in WC		60	80	60	60	60	60	60	60	60	60	61	61	62	62	62	62	62	62	62	62	60	60	60	60		
10	Coolant Return Differential from	PI-002	in WC		37	50	35	35	35	35	35	35	35	35	35	35	37	36	36	36	36	36	36	36	35	35	35	35		
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	70	70	70	70	70	70	70	70	70	70	68	68	69	69	69	69	69	69	69	69	69	69		
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	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-221	%			70%	8	8	8	8	8	8	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8		
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		
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	A69/GGD ET-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1054	1056	1058	1064	1068	1067	1077	1026	1013	985	994	987	977	962	953	949	961	964	992	1002	1014	1016		
23	Mw Output		MW			27	25.0	25.0	25.0	25.3	25.3	25.3	25.6	24.4	24.8	23.4	23.6	23.3	23.2	22.9	22.5	22.5	22.8	22.9	23.5	24.1	24.1	24.1		
24	80% Base Load Minimum		MW				20.2	20.2	20.2	20.4	20.4	20.4	20.6	19.8	19.6	19.3	19.3	19.2	19.1	19.0	18.8	18.8	19.0	19.0	19.3	19.6	19.6	19.6		
25	Running Hours (unit overview)						8387	8388	83	83	85	83	8597	8585	8584	8582	8597	8598	8599	8600	8601	8602	8603	8605	8606	8607	8608		
26	Ambient Temperature	T2 Inlet					43	43	42	42	40	40	38.5	41.7	58.0	55.4	55.9	60	57	59	61	61.7	57.2	58	54	53	51	51		
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-220	%			70%	38	38	38	38	38		39	39	40	38	39	39	39	40	41	41	42	42	42	42	42	42		
28	Total Fuel Flow		Mscf/h				239	239	240	242	242	242	242	234	231	225	226	227	224	223	220	220	222	223	228	230	233	233		

Date: NOV 01 2021 Signature: MIO

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

662970

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		
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	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		
Oil Day Tank Level	LI-1562	GAL	10		FULL	21	21	21	21	21	21	20	20	20	20	20	20	20	20	19	19	19	19	19	19	19	19		
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		
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	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	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		
1st Stage Inlet Press.	PI-2100	psig		88	140	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	82	82	82	82	82	82		
Stage Disch. Press	PI-2101	psig		238	285	251	251	251	251	251	251	249	249	251	251	252	253	253	253	253	254	254	254	254	254	254	254		
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	247	247	247	247	248	248	248	248	248	249	249	249	250	250	250	250	250	250	250	250		
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	563		
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560		
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	58	58	58	57	57	58	58	59	59	59	59	59	59	59	59	59	58	58	58		
Lube Oil Temp	TE-1584	deg		150	170	169	169	168	169	170	170	169	169	169	169	166	164	164	164	163	163	163	163	162	162	163	163		
Final Discharge Temp	TE-2120	deg		110	150	83	83	82	82	80	80	78	78	89	89	93	85	99	100	101	101	101	101	100	100	98	98		
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	210	210	209	209	209	209	207	207	211	211	215	215	217	217	217	217	217	217	217	217	217	216		
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	210	210	210	208	208	208	205	205	214	214	221	222	224	225	225	225	225	225	223	222	222	222		
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	208	208	207	207	207	207	208	208	209	209	212	212	214	215	215	215	215	215	215	214	214	214		
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	211	211	210	210	208	208	206	207	215	215	221	222	225	226	226	228	225	224	233	230	230	230		
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04		
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.04	.04	.04	.04	.04	.05	.05	.04	.04	.04	.04	.04	.04	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	NOV 01 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 11-4-21

MST / ~~CST~~ (circle one)

Time Gas Introduced (Turbine Rolling): 1747

Time of Turbine Online (Brkr Closed): 1529 / 1754

Time Turbine Offline (Brkr Open): 1822

Time No Gas Flow: 1547 1826

Notes: UNIT RAMPED UP TO FULL LOAD FOR 15 MINUTES.

							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	I.D	Units	Low	Norm	Max																								
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	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																								
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		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)	AE3GGD-ET-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√																											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427																								
23	Mw Output		MW			27																		22.9						
24	30% 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-000	%			70%																								
28	Total Fuel Flow		Mscf/h																											

Date: 11-4-21 Signature: Joshua Ross

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	1514																												
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	11-4-21
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

Date: 11-05-2021

MST (MDT) (circle one)

CGTG HOURLY READING LOG

Time Gas Introduced (Turbine Rolling): 09:25 - 09:40, 1542

Time of Turbine Online (Brkr Closed): 0953 1552

Time Turbine Offline (Brkr Open): 1500

Time No Gas Flow: 1506

Notes: UNIT SHUTDOWN FOR ONE HOUR FOR SIEMENS MAINTENANCE.

	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	Blowdown Wet Receiver Tank Hourly	BVT-007	√													✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120										106	112	110	108	112		110	108	113	111	109	110	110	112	108
4	Instrument Temperature	TI-001	deg C		20	50										18	20	20	21	23		26	26	25	20	20	19	18	17	16
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
7	Coolant PLC Temperature	TI-002	deg F	100	110	120										110	109	107	99	100		107	100	103	101	109	100	104	101	99
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
9	Coolant Return Differential from GG	FI-001	in WC		60	80										61	61	63	64	64		64	64	63	63	61	61	61	61	61
10	Coolant Return Differential from	FI-002	in WC		37	50										36	37	38	36	37		40	39	39	37	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85										70	70	70	70	70		72	70	70	70	70	70	70	70	68
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)										Y	Y	Y	Y	Y		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	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%										9	9	9	8	8		8	8	8	8	8	8	8	8	9
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
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	AGGGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√													Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427										1003	995	990	963	944		906	918	936	965	976	993	996	1004	1024
23	Mw Output		MW			27										23.7	23.3	23.2	22.7	22.1		21.4	21.6	22.2	22.9	22.9	23.5	23.6	23.9	24.3
24	90% Base Load Minimum		MW													19.5	19.1	19.1	18.9	18.7		18.5	18.5	18.8	19.1	19.2	19.4	19.4	19.6	19.8
25	Running Hours (unit overview)															8612	8613	8614	8615	8616		8617	8618	8619	8620	8621	8622	8623	8624	8625
26	Ambient Temperature	TG Inlet														53.1	57.0	58.5	60.6	63.5		65.7	65.1	61.7	57	57	53	52	51	48
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-232	%			70%										43	43	43	43	43		45	45	45	44	45	45	45	45	46
28	Total Fuel Flow		Mscf/h													234.4	232.0	229.9	226.4	221		217.0	218	219	225	227	232	233	235	238

Date: 11-05-2021 Signature: GOMEZ

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	0851																												
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
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY										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
Oil Day Tank Level	LI-1562	GAL	10		FULL										17	Full	Full	Full	F	F	F	F	F	F	F	F	F	F	50
Lubricator Bulls eye		LEVEL	1/2	FULL											F	F	F	F	F	F	F	F	E	F	F	F	F	F	F
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
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
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
1st Stage Inlet Press.	PI-2100	psig		88	140										82	82	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285										248	250	251	252	252	253	253	253	253	252	252	251	251	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285										245	247	248	248	249	249	249	249	249	248	248	248	248	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600										564	564	564	564	564	564	564	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600										560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60											58	58	58	59	59	59	59	59	59	59	59	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170										166	166	165	165	164	163	163	163	162	162	162	163	163	163	163
Final Discharge Temp	TE-2120	deg		110	150										91	95	96	97	101	103	102	102	100	99	97	93	91	89	87
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297										222	223	223	224	225	226	224	224	223	222	221	220	217	217	216
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283										220	224	226	228	229	230	228	228	227	224	224	221	217	217	216
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297										220	221	221	221	222	223	221	221	221	220	219	220	216	216	215
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283										221	225	225	229	230	231	229	229	227	226	225	221	217	217	217
Motor Frame Vibration	VT-1015	IPS			0.15										.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35										.05	.05	.05	.05	.05	.05	.05	.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.															560														
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8										555														
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20										543														

AT 1600 Cgtg was OOS for siemens add test. Entered readings on wrong line

DATE	11-05-2021
SIGNATURE	GOMEZ
Mid Shift	C69999
Days Shift	

Notes

Utilities and Institutional Facilities

Date: 11-06-2021

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: 1700 hrs Cgtg OFFline so J. Baughman can run oil Sample

	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	109	110	110	108	111	110	109	113	110	107	107	112	114	108	112	114	108	106	112	108	110	104	112	106
4	Instrument Temperature	TI-001	deg C		20	50	16	14	15	14	14	14	14	14	16	16	19	21	23	24	24	25	24	24	24	22	22	20	20	18
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	103	99	101	100	104	107	107	104	99	103	99	107	102	103	107	112	104	108	102	104	102	110	104	106
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in WC		60	80	61	61	61	61	101	61	60	60	61	61	62	62	63	64	64	64	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	in WC		37	50	36	36	36	36	35	36	36	36	37	37	37	38	38	39	39	39	35	35	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	67	66	66	66	66	66	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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-221	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-251	%			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)	AS&GGD ET-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	1025	1020	105	1038	1042	1032	1047	1042	1008	987	960	938	931	909	917	913		966	975	986	1000	1005	1003	1004
23	Mw Output		MW			27	24.4	24.3	24.1	24.3	24.7	24.5	24.8	24.6	23.9	23.4	22.7	22.2	21.9	21.4	21.7	21.6		22.1	23.0	23.4	23.7	23.8	23.8	23.7
24	80% Base Load Minimum		MW				19.8	19.8	19.7	19.8	20.0	19.9	20.1	20	19.6	19.3	18.9	18.7	18.6	18.3	18.4	18.4		18.7	19.1	19.3	19.5	19.5	19.5	19.5
25	Running Hours (unit overview)						8626	8627	8628	8629	8630	8631	8632	8633	8634	8635	8636	8637	8638	8639	8640	8641	~~8642~~	~~8643~~	8644	8643	8644	8645	8646	8647
26	Ambient Temperature	TG Inlet					47	47	49	46	45	46	44	46	51	54.9	59.7	63.1	64.8	67.5	66.2	66.7		55	57	54	52	52	52	51
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-220	%			70%	46	46	47	47	47	47	47	47	46	45	46	46	46	47	48	48		48	48	49	49	49	49	49
28	Total Fuel Flow		Mscf/h				240	239	237	239	242	240	243	242	236	232	226	222	221	218	219	218		226	228	232	235	235	234	235

Date: 11-06-2021 Signature: Bob Shoy

A Wan

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	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	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	50	50	50	50	50	50	50	50	50	50	50
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	251	252	252	252	251	251	250	250	251	252	252	253	254	254	254	254	254	254	251	255	253	252	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	248	248	248	246	246	247	248	248	249	250	250	250	250	250	251	251	250	250	250	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	565	565	565	564	564	564	564	564	564	565	566	563	564	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	57	57	57	58	58	59	59	59	59	59	59	59	59	59	59	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	163	168	163	168	167	169	169	169	169	166	167	164	165	164	163	163	163	164	164	165	163	165	165	167
Final Discharge Temp	TE-2120	deg		110	150	87	87	87	86	85	85	81	83	83	94	96	101	103	104	105	107	100	98	98	98	96	93	90	89
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	216	216	216	215	214	215	213	214	214	218	220	220	222	223	223	224	224	222	222	221	221	220	220	217
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	216	216	216	215	214	214	212	213	214	221	220	228	229	231	231	232	232	225	225	224	224	222	222	218
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	215	215	214	214	213	213	211	212	213	216	218	219	220	221	221	222	222	219	219	218	218	216	216	214
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	217	217	217	215	214	214	212	214	216	222	223	228	229	232	232	233	233	226	226	225	225	220	220	219
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE 11-06-2021

SIGNATURE

Mid Shift Bob Shaw

Days Shift A Wass

Notes

Utilities and Institutional Facilities

Date: NOV 07 2021

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-012	√				✓	✓	✓	✓	✓	✓	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√				✓	✓	✓	✓	✓	✓	√	√	√	√	√	√	√	√	√	√	√	√	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	112	105	108	112	104	110	113	110	108	112	114	111	109	112	111	114	112	108	112	110	106	108	110
4	Instrument Temperature	TI-001	deg C		20	50	18	18	18	18	18	18	16	17	18	18	19	19	21	23	24	23	22	22	20	20	20	20	20	20
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	100	103	99	101	100	98	94	106	103	107	110	99	108	103	106	103	107	102	104	100	101	99	102
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in WC		60	80	60	60	60	60	60	60	61	61	61	61	62	63	64	64	64	63	63	63	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	in WC		37	50	35	35	35	35	35	35	36	36	36	36	37	38	39	39	39	38	38	38	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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-251	%			70%	8	8	8	8	8	8	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-250	%			70%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	AGGGD ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	963	965	977	979	989	981	995	973	977	984	941	930	918	906	906	917	923	974	976	975	1000	999	983	984
23	Mw Output		MW			27	22.9	22.9	23.0	23.0	23.2	23.2	23.6	23.0	23.1	23.3	22.3	22.1	21.7	21.4	21.5	21.7	21.8	23.0	23.1	23.1	23.7	23.7	23.3	23.3
24	80% Base Load Minimum		MW				19.1	19.1	19.2	19.2	19.3	19.3	19.4	19.1	19.2	19.3	18.8	18.6	18.5	18.3	18.4	18.5	18.6	19.2	19.2	19.2	19.5	19.5	19.3	19.3
25	Running Hours (unit overview)						8650	8651	8652	8653	8654	8655	8656	8657	8658	8659	8660	8661	8662	8663	8664	8665	8666	8667	8668	8669	8670	8671	8672	8673
26	Ambient Temperature	TC Inlet					57	55	55	54	54	54	53.2	57.6	56.7	57.9	61.9	63.9	65.3	67.3	66.4	65.5	65	56.5	56	56	53	53	55	55
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-222	%			70%	49	49	49	49	49	49	49	49	47	47	46	45	45	47	47	48	47	49	49	49	49	49	49	49
28	Total Fuel Flow		Mscf/h				230	230	230	230	232	232	233	227	230	228	219	216	214	218	218	219	218	229	230	230	235	235	232	232

Date: NOV 07 2021 Signature: MO John A Wlas

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	252	253	253	252	252	252	253	253	253	254	254	254	254	255	255	255	255	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	250	250	250	250	248	249	249	249	249	249	250	250	250	250	251	251	251	251	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	563	563	563	564	564	565	564	564	564	563	564	564	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	557	558	558	558	559	560	559	559	560	559	560	560	570	570	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	59	59	59	59	58	58	58	58	59	59	59	59	59	59	59	59	58	58	59	59	59	59
Lube Oil Temp	TE-1584	deg		150	170	167	167	167	167	166	166	166	166	166	167	165	164	164	164	163	163	164	163	163	163	165	166	165	165
Final Discharge Temp	TE-2120	deg		110	150	89	90	90	91	91	91	90	93	93	95	99	103	104	106	105	103	98	96	95	95	92	92	90	90
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	217	217	216	216	216	216	215	216	216	217	218	218	221	223	222	221	220	219	219	219	217	217	217	215
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	218	218	218	218	218	218	217	218	217	217	223	226	228	229	230	228	225	223	223	223	220	220	219	219
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	214	214	214	214	214	214	213	215	215	216	216	215	217	219	220	219	218	218	218	218	215	215	214	214
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	219	219	218	218	218	218	218	219	218	218	224	227	229	230	231	229	226	224	224	224	220	220	220	220
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
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	.04	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	NOV 07 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

NOV 08 2021

MOT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

GETG HOURLY READING LOG

Notes:

	Instrument Air 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
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	106	108	110	105	110	106	112	110	112	110	108	106	108	108	106	106	108	110	109	111	110	109	111
4	Instrument Temperature	TI-001	deg C		20	50	18	18	18	18	18	18	14	16	19	21	22	22	23	25	26	25	24	24	20	17	17	17	17	16
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	101	98	103	106	108	104	99	101	111	99	110	104	110	100	110	99	102	105	101	103	109	106	103	109
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	62	62	62	63	61	62	62	62	62	62	61	61	61	61	61
10	Coolant Return Differential from	PI-002	in WC		37	50	35	35	35	35	35	35	36	36	36	37	38	37	38	37	36	36	36	36	36	34	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	65	66	66	67	66	66	67	66	67	67	66	67	67	67	67	67	67	67
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 5.5MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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-251	%				8	8	8	8	8	8	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	9	9
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-250	%			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)	AESGED ST-01	psig	35	20	70%	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21	Acknowledge Alarms Hourly		V																											
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	1010	1029	1033	1040	1038	1033	1035	997	961	944	937	936	923	911	908	922	954	969	985	1660	1016	1011	1013	1020
23	Mw Output		MW			27	23.9	24.1	24.2	24.5	24.5	24.5	24.5	23.6	22.8	22.4	22.2	22.2	21.8	21.6	21.5	21.7	22.4	22.7	23.3	23.7	23.8	24.0	24.1	24.2
24	80% Base Load Minimum		MW				19.6	19.7	19.7	19.9	19.9	19.9	19.9	19.4	19.0	18.8	18.7	18.7	18.5	18.4	18.4	18.4	18.8	19.0	19.3	19.5	19.5	19.6	19.7	19.7
25	Running Hours (unit overview)						8674	8675	8676	8677	8678	8679	8680	8681	8682	8683	8684	8685	8686	8687	8688	8689	8690	8691	8692	8693	8694	8695	8696	8697
26	Ambient Temperature	TI-Inlet					51	49	49	47	47	47	46	53	59	61	63	63	65	66	66	66	61	58	55	53	51	50	50	49
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-???	%			70%	49	49	49	49	50	50	52	50	49	49	49	49	49	50	50	50	51	51	51	51	51	51	51	51
28	Total Fuel Flow		Mscf/h				237	239	239	241	241	243	242	234	228	225	222	223	220	218	218	217	224	227	230	233	235	235	237	237

Date: NOV 08 2021 Signature: MLO

day shift - Jack Ames

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	48	48	48	48	48	47	45	45	45	45	45	45	45	45	45	45	44	44	44	44	44	44	44	44
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	83	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	252	252	251	251	250	254	253	253	254	253	254	255	255	255	255	257	253	253	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	249	249	249	248	247	249	250	250	250	250	250	251	251	251	251	248	248	248	249	249	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	563	563	563	563	563	563	563	563	563	563	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	560	560	560	559	559	560	559	560	560	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	57	58	58	59	59	59	59	59	59	59	59	59	59	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	167	167	167	168	168	169	168	169	167	165	164	164	163	163	162	163	162	162	162	168	167	167	167	167
Final Discharge Temp	TE-2120	deg		110	150	89	87	87	85	85	84	83	90	96	99	101	102	103	107	107	105	90	94	97	95	94	93	91	90
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	216	216	216	214	214	214	212	214	218	220	220	221	222	223	222	222	220	214	218	218	217	216	215	215
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	217	215	215	215	213	213	212	214	215	226	227	229	230	231	231	229	225	220	220	220	219	217	217	216
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	214	214	212	212	212	211	210	212	215	217	218	218	219	220	220	220	218	217	217	217	216	215	214	213
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	217	217	217	217	216	216	213	217	223	226	227	229	230	232	231	230	226	223	224	223	221	220	219	217
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.06	.05	.05	.05	.05	.05	.05	.05	.06	.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.														560								560							
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8									554								555							
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20									543								543							

DATE NOV 08 2021

SIGNATURE

Mid Shift

Days Shift 686830

Notes

Utilities and Institutional Facilities

UI-LOG-033-R4
October 1, 2021

Date: 11-09-2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

GGTG 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	111	108	111	110	109	108	108	106	106	106	110	106	106	104	106	108	110	109	111	110	109	109	110
4	Instrument Temperature	TI-001	deg C		20	50	16	16	16	16	16	16	14	16	19	20	20	21	21	22	22	21	20	20	17	17	17	17	17	17
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	169	103	106	109	101	103	101	111	111	101	108	99	104	110	109	101	107	101	109	103	106	106	108	101
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in WC		60	80	61	61	61	61	61	61	60	62	62	62	62	62	62	62	62	62	62	62	62	61	61	61	61	61
10	Coolant Return Differential from	PI-002	in WC		37	50	36	36	36	36	36	36	35	37	37	36	37	39	39	38	37	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	67	67	67	67	67	67	66	66	67	67	67	68	66	67	66	66	66	66	66	66	66	66	66	66
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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-251	%																											
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-250	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	9	9	9	9	9
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	AE9/GG2/ ET-01	psig	35	20	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
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			3427	1021	1016	1015	1016	1026	1016	1038	1002	995	981	983	981	968	961	970	975	992	1013	1009	1003	1007	1007	1012	1015
23	Mw Output		MW			27	24.2	24.1	24.0	24.0	24.3	24.1	24.6	23.7	23.4	23.0	23.0	23.0	22.7	22.5	22.8	22.9	23.3	23.7	23.7	23.5	23.7	23.7	23.9	24.0
24	80% Base Load Minimum		MW				19.7	19.6	19.6	19.6	19.8	19.7	20.0	19.4	19.2	19.0	19.1	19.0	18.9	18.9	19.0	19.1	19.3	19.5	19.5	19.4	19.5	19.5	19.6	19.6
25	Running Hours (unit overview)						8698	8699	8700	8701	8702	8703	8704	8705	8706	8707	8708	8709	8710	8711	8712	8713	8714	8715	8716	8717	8718	8719	8720	8721
26	Ambient Temperature	TA Inlet					49	50	50	50	48	50	46	53	55	58	58	58	59	60	58	58	55	52	52	53	52	52	51	50
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-220	%			70%	51	51	51	51	50	51	51	51	50	49	49	49	49	48	48	49	49	50	51	51	51	51	51	51
28	Total Fuel Flow		Mscf/h				237	237	236	237	238	237	240	234	231	228	229	228	222	220	224	226	229	233	233	233	234	234	235	236

Date: 11-09-2021

Signature: Bob Cary

Eng. Supp. — Josh Ass't

GGTG TURBINE

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	B	B	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	44	44	44	44	43	43	43	43	43	43	43	43	43	43	43	42	41	42	42	42	42	42	42	42
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	252	252	252	252	252	251	252	253	253	252	253	254	253	254	253	253	253	253	253	253	252	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	250	249	249	249	249	249	247	248	249	250	249	249	250	250	250	249	250	249	249	249	249	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	563	563	563	562	563	563	561	563	561	563	563	563	563	563	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	561	559	560	559	559	560	560	560	559	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	57	58	58	58	59	59	59	59	59	59	59	59	59	59	59	59	58	58
Lube Oil Temp	TE-1584	deg		150	170	167	167	168	168	168	168	164	167	165	165	165	164	163	163	164	164	164	168	168	168	168	168	168	168
Final Discharge Temp	TE-2120	deg		110	150	90	90	90	89	88	88	85	90	93	97	96	97	99	99	98	96	94	93	93	93	91	90	89	87
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	215	215	215	215	214	214	213	214	216	218	218	218	217	217	218	217	216	216	216	216	215	214	214	213
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	216	216	216	215	215	215	213	216	219	222	223	225	224	224	223	222	221	219	218	218	217	215	215	214
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	215	213	213	212	211	211	210	212	214	215	215	215	214	214	215	214	214	215	215	214	213	213	213	212
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	217	217	216	216	215	215	214	217	220	222	224	225	225	224	225	224	223	220	219	219	218	217	215	215
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.05	.05	.05	.04	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.04	.05	.05	.05	.05	.05	.05	.05	.05	.06	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
Take Once per Shift / at Full Load				Max psid		When the differential pressure exceeds Max psid the filter should be changed out. Notify System Engineer																							
Natural Gas Comp.Discharge Press.		psig						560								560													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8			555								555													
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20			542								543													

DATE 11-09-2021

SIGNATURE

Mid Shift Bob

Days Shift John 692489

Notes

Utilities and Institutional Facilities

Date: 11-10-2021

(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: CGTG OFF Line 2100
ON Line 2200

	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-012	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	109	111	110	110	109	110	106	106	112	106	110	106	112	108	114	106	110	109	108			110	111
4	Instrument Temperature	TI-001	deg C		20	50	15	14	14	14	14	13	12	14	16	17	16	18	19	19	19	19	19	19	15	15			14	14
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	19	19	19			19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	106	103	109	101	103	102	105	100	108	98	98	99	103	106	103	105	111	102	103	106			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	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	61	61	61	61	60	60	60	60	60	62	60	62	64	62	60	60	62	62	62	61			61	61
10	Coolant Return Differential from	FI-002	in WC		37	50	36	36	36	36	36	36	35	36	36	37	37	38	37	37	37	36	37	37	36	36			36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	66	66	66	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66	66			65	65
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	Y	Y	Y	Y	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	Y	Y	Y	Y	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-251	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	9	9			9	9
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-250	%			70%	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)	A89@GD FT-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			3427	1050	1050	1049	1053	1069	1071	1057	1037	1032	1022	1012	1004	992	991	989	987	1007	1022	1037	1033			1036	1052
23	Mw Output		MW			27	24.8	24.8	24.7	24.8	25.1	25.2	24.8	24.5	24.4	24.1	23.9	23.8	23.4	23.4	23.3	23.5	23.9	24.2	24.6	24.6			24.7	24.9
24	80% Base Load Minimum		MW				20.1	20.1	20.1	20.1	20.4	20.4	20.1	20.0	19.9	19.7	19.7	19.6	19.4	19.4	19.4	19.4	19.7	19.8	20.1	20.0			20.1	20.2
25	Running Hours (unit overview)						8722	8723	8724	8725	8726	8727	8728	8729	8730	8731	8732	8733	8734	8735	8736	8737	8738	8739	8740	8741			8743	8744
26	Ambient Temperature	TI in lat					44	44	44	43	40	40	44	46	47	49	50	51	53	53	53	53	49	48	45	46			44	43
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-222	%			70%	51	51	51	51	51	51	51	51	50	50	50	50	50	51	51	51	51	50	50	50			51	50
28	Total Fuel Flow		Mscf/h				241	242	242	242	246	246	242	241	239	237	235	234	233	232	231	230	229	229	232	234			236	236

Date:

Signature:

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-309	%		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	D	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	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	O	O	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	42	42	42	42	41	41	41	41	41	41	41	40	40	40	40	40	40	40	40	40	F	W	40	39
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		F	F
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	E
2nd Stege 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	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	L	L	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140	82	82	82	82	82	83	83	82	82	83	83	83	83	83	83	83	83	83	83	83	I	I	83	83
Stage Disch. Press	PI-2101	psig		238	285	250	250	250	249	249	250	250	251	250	252	251	252	252	252	252	252	253	252	250	252	H	H	250	252
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	247	246	245	246	246	247	246	248	248	248	248	248	248	248	249	248	247	248	E	E	247	247
2nd Stage Disch. Press	PI-2201	psig		575	600	563	563	564	564	564	564	563	564	563	563	563	563	563	564	564	564	564	563	563	564	C	C	563	564
Final Discharge Pressure	PI-2108	psig		575	600	559	559	560	559	559	560	559	559	559	560	559	560	559	560	560	560	560	560	559	560	G	G	559	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	58	58	58	58	58	58	58	58	58	58	58	57	56	T	T	57	57
Lube Oil Temp	TE-1584	deg		150	170	168	168	169	169	169	170	169	169	165	168	168	167	167	166	165	165	165	165	168	166	G	G	168	168
Final Discharge Temp	TE-2120	deg		110	150	83	83	82	80	78	78	82	83	85	87	89	90	93	91	93	92	89	86	83	84			83	83
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	212	212	211	210	210	216	211	211	213	214	214	216	215	216	215	214	212	210	211	210			211	209
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	210	212	210	210	208	206	209	209	211	214	214	216	217	217	217	215	213	211	212	209			212	208
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	213	210	210	210	208	206	209	209	210	213	212	213	214	214	213	212	209	209	210	206			212	207
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	213	213	211	211	209	208	209	210	212	215	215	217	218	218	218	216	213	213	212	210			212	208
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04			.04	.04
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
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									560											
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				555									554											
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				542									542											

DATE 11-10-2021

SIGNATURE

Mid Shift Bob Ad

Days Shift Josh Mee 698115

Notes

Utilities and Institutional Facilities

Date: 11-11-2021
(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:

	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	111	108	111	110	109	104	105	109	105	100	109	103	104	105	102	105	100	106	112	110	108	106	112
4	Instrument Temperature	TI-001	deg C		20	50	14	12	12	12	10	9	9	9	11	12	17	18	18	19	19	19	19	19	18	18	18	18	16	16
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	101	105	107	101	107	106	104	102	106	100	106	110	105	101	111	109	106	108	112	103	100	102	100	103
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	61	60	60	60	60	60	60	60	60	60	61	61	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	36	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	67	65	64	64	64	64	64	64	68	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	0	6	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)	AES/GGD ET-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	1053	1074	1077	1092	1098	1101	1089	1079	1056	1046	1024	1017	1001	998	1006	1012	1022	1041	1044	1051	1048	1061	1076	1077
23	Mw Output		MW			27	24.9	25.5	25.6	25.9	26.0	26.1	25.8	25.6	25.0	24.8	24.3	24.1	23.7	23.6	23.7	24.0	24.4	24.7	24.7	24.9	24.9	25.0	25.5	25.5
24	80% Base Load Minimum		MW				20.2	20.6	20.6	20.4	21.0	21.1	20.8	20.6	20.2	20.1	19.8	19.7	19.5	19.5	19.5	19.6	19.9	20.0	20.0	20.1	20.1	20.2	20.5	20.5
25	Running Hours (unit overview)						8745	8746	8747	8748	8749	8750	8751	8752	8753	8754	8755	8756	8757	8758	8759	8760	8761	8762	8763	8764	8765	8766	8767	8768
26	Ambient Temperature	T1 Inlet					43	38	37	34	33	32	36.3	38.1	43.0	48.0	48.6	48.7	52.5	52.5	52.5	50.7	47.5	48	46	44	42	40	38	38
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-220	%			70%	50	50	50	51	51	51	51	50	48	48	47	47	49	50	50	51	51	52	52	52	53	53	53	53
28	Total Fuel Flow		Mscf/h				236	240	241	244	245	246	243	241	237	234	230	229	228	230	232	235	238	241	240	243	246	246	248	248

Date: 11-11-2021 Signature: Bob Lang

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	D	B	B	B	B	B	B	B	B	B
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	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	39	39	39	39	39	39	39	38	38	38	38	38	38	38	38	37	37	37	37	37	37	37	37	37
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	E	E	E	E	E	E
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	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	83	83	83	83	82	83	83	83	83	83	83	83	83	83	82	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	251	249	249	249	249	248	249	249	251	251	252	252	252	253	252	251	251	251	251	251	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285	247	245	245	245	245	245	245	244	245	245	247	247	248	248	248	249	249	248	248	248	248	248	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	564	565	565	565	565	565	565	564	564	564	564	564	564	564	563	564	563	563	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	559	560	560	560	560	560	559	559	559	560	560	560	560	559	560	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	61	57	57	58	54	58	58	57	61	57	57	57	57	57	57
Lube Oil Temp	TE-1584	deg		150	170	168	168	169	170	170	170	170	170	170	170	170	170	169	169	167	167	169	164	166	166	168	168	170	170
Final Discharge Temp	TE-2120	deg		110	150	83	80	73	72	72	72	72	74	80	85	86	84	90	90	89	88	86	86	86	86	84	80	80	79
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	209	209	206	206	206	206	206	205	207	208	210	210	212	212	213	213	213	213	213	213	212	212	212	210
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	208	207	202	201	201	201	201	208	206	206	212	207	214	214	216	215	214	214	214	214	212	212	210	209
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	207	207	204	203	203	203	203	203	205	205	207	209	209	209	211	211	210	210	210	210	209	209	208	208
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	208	201	203	204	202	202	202	202	206	206	212	211	217	217	217	214	214	214	213	213	212	210	210	209
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.03	.03	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	1-11-2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

Date: NOV 12 2021

(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	108	112	108	106	112	108	116	110	105	100	109	104	100	111	103	105	101	102	100	108	102	110	106	112
4	Instrument Temperature	TI-001	deg C		20	50	10	10	10	10	10	10	10	16	12	16	18	18	18	20	20	20	19	19	18	18	16	16	16	14
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	108	102	100	106	101	104	106	109	101	105	109	110	107	98	99	100	100	101	106	105	107	101	106	102
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	35	35	35	35	35	35	35	35	35	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	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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-251	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	9	9	9	9	9	9	9
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-250	%			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)	AGGGD ET-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	1086	1090	1091	1092	1089	1093	1089	1068	1044	1028	1009	1004	981	981	989	1003	1013	1023	1027	1031	1044	1057	1055	1058
23	Mw Output		MW			27	25.8	25.8	25.8	25.8	25.8	25.8	25.7	25.3	24.8	24.3	23.9	23.8	23.2	23.3	23.4	23.8	24.1	24.2	24.4	24.4	25.1	25.1	25.2	25.2
24	80% Base Load Minimum		MW				20.8	20.8	20.8	20.8	20.8	20.8	20.6	20.3	20.0	19.8	19.5	19.5	19.2	19.2	19.2	19.5	19.7	19.7	19.8	19.8	20.2	20.2	20.2	20.2
25	Running Hours (unit overview)						8769	8770	8771	8772	8773	8774	8776	8777	8778	8779	8780	8781	8784	8783	87.54	8785	8784	8787	8788	8789	8790	8791	8792	8793
26	Ambient Temperature	TG Inlet					36	36	36	35	35	35	37.9	42.1	45.2	48.7	51.4	52.5	56.7	56.7	55.9	53.1	50.4	49.8	48	47	45	45	43	43
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-220	%			70%	53	53	53	53	53	53	50	49	48	48	49	49	50	51	52	52	52	52	52	52	52	52	52	52
28	Total Fuel Flow		Mscf/h				250	250	245	245	245	246	244	240	236	231	236	235	231	231	233	237	236	238	240	242	242	243	245	245

Date: NOV 12 2021 Signature: MB Jan

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	36	36	36	36	36	36	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	82	83	82	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	250	249	249	249	249	249	248	250	250	250	252	252	252	257	257	257	253	253	253	253	253	253	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	247	245	248	248	250	250	244	246	246	247	248	248	248	249	249	249	249	249	249	249	248	248	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564	564	564	564	564	564	563	563	563	564	564	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	559	559	560	560	560	560	560	560	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	57	58	58	57	58	58	59	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	170	169	169	168	168	168	168	167	167	165	165	165	165	166	166	166	169	169
Final Discharge Temp	TE-2120	deg		110	150	79	75	75	75	75	74	75	81	82	86	90	90	90	94	94	93	88	88	88	86	86	86	84	84
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	210	208	208	206	206	206	205	207	209	213	214	214	214	216	216	215	213	212	212	212	211	211	211	211
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	206	204	204	204	203	203	203	207	209	213	217	217	217	221	221	220	215	214	215	214	214	212	42	211
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	208	206	205	205	205	203	203	205	206	210	211	211	211	213	212	212	211	214	211	210	210	209	209	209
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	209	205	205	205	203	203	203	208	209	214	217	217	217	223	223	226	216	215	215	214	214	212	212	212
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	04	04	04	04	04	04	04	04	04	04	04	04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	05	04	05	01	01	1	02	02	02	01	02	02	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	NOV 12 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

8815 95 155

Date: NOV 13 2021

(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	106	110	108	104	112	106	105	110	108	100	104	109	103	110	105	111	105	100	112	106	113	106	108	112
4	Instrument Temperature	TI-001	deg C		20	50	14	14	12	12	12	12	10	13	14	14	16	18	19	19	17	18	17	19	18	16	16	16	16	16
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	103	101	100	99	104	101	111	100	99	97	99	98	97	98	99	99	96	99	100	98	102	106	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	in WC		37	50	35	35	35	35	35	35	35	35	35	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	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8
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)	AE9/GGD ET-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1055	1054	1056	1061	1083	1085	1080	1044	1027	1008	1000	988	980	962	972	972	994	989	1008	1012	1026	1028	1036	1037
23	Mw Output		MW			27	25.1	25.1	25.2	25.3	25.7	25.7	25.2	24.8	24.4	24.0	23.6	23.4	23.2	23.6	23.1	23.1	23.6	23.5	24.0	24.0	24.5	24.3	24.7	24.7
24	80% Base Load Minimum		MW				20.2	20.2	20.2	20.3	20.6	20.6	20.6	20.0	19.8	19.6	19.8	19.2	19.2	19.0	19.1	18.1	19.4	19.3	19.6	19.6	19.8	19.8	20.0	20.0
25	Running Hours (unit overview)						8794	8795	8796	8797	8798	8799	8800	8801	8802	8803	8804	8805	8806	8807	8808	8809	8810	8811	8812	8813	8814	8815	8816	8817
26	Ambient Temperature	TC Inlet					43	43	40	40	38	37	38.1	45.7	48.2	51.4	53.7	55.4	56.7	58.5	57.9	57.6	54.0	54.5	50	50	48	48	46	46
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-232	%			70%	52	52	52	52	52	52	55	53	52	52	53	53	53	85	56	56	57	56	57	57	57	57	57	57
28	Total Fuel Flow		Mscf/h				245	245	246	247	248	248	244	237	234	230	231	231	231	229	230	230	233	234	239	239	242	243	243	243

Date: NOV 13 2021 Signature: MW

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	34	34	34	34	34	34	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84	84	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	251	251	250	250	250	250	249	250	251	251	252	252	252	253	253	252	255	254	254	254	253	253	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	247	246	246	246	245	246	247	247	248	248	250	250	250	250	251	251	251	251	250	250	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	585	585	563	564	564	564	563	564	564	564	564	563	568	568	565	565	565	565	585	585
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	560	560	559	561	560	560	560	560	561	561	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	57	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	170	170	168	168	168	167	167	166	164	165	165	165	166	166	168	168	168	169
Final Discharge Temp	TE-2120	deg		110	150	80	80	78	78	77	77	76	84	87	87	93	92	92	96	99	99	93	93	94	94	92	92	90	90
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	211	211	216	216	209	207	206	208	210	211	215	215	215	216	216	215	215	215	215	215	213	212	212	212
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	209	209	207	207	205	205	203	208	211	211	220	220	220	222	222	222	219	219	219	219	216	216	214	214
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	208	208	206	206	204	204	203	206	207	207	213	213	213	214	214	215	213	213	213	213	212	212	210	210
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	210	210	209	209	209	205	209	209	212	217	220	220	220	223	220	223	220	220	219	219	217	217	215	215
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	04	04	04	04	04	04	04	04	04	04	04	04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	05	01	01	01	01	01	01	05	04	01	05	01	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	NOV 13 2021
SIGNATURE	
Mid Shift	Jae
Days Shift	

Notes

Utilities and Institutional Facilities

8822

Date: NOV 14 2021

(MST) / MDT (circle one)

CGTG HOURLY READING LOG

Time Gas introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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-010	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	106	102	112	108	112	106	109	100	101	110	111	105	111	108	111	102	100	101	112	105	108	101	108	109
4	Instrument Temperature	TI-001	deg C		20	50	14	14	14	14	12	12	12	16	17	17	18	18	19	19	18	18	18	18	16	16	16	14	14	14
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	98	102	99	100	102	101	98	99	100	98	102	110	106	99	102	101	98	89	90	105	108	100	101	99
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	35	35	35	35	35	35	35	35	35	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	69	69	69	69	69	69	69	69	69	69	69	67	69	69	69	69	69	69	69	69	69	69	69	69
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.9MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	T	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	Y	Y	Y	Y	Y	Y	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%	8	8	8	8	8	8	8	8	8	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8
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
20	Record on hard S/D trip over 4500 rpm NL Compressor (on line trip)	AES/GED ST-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	1047	1048	1043	1048	1056	1055	1070	1029	1009	1052	992	980	976	965	966	973	984	995	996	1006	1004	1038	1040	1039
23	Mw Output		MW			27	24.8	24.8	24.8	24.8	25.1	25.1	25.4	24.5	23.9	23.9	23.5	23.2	23.1	22.9	22.9	23.1	23.3	23.7	23.6	23.9	23.9	24.1	24.1	24.1
24	80% Base Load Minimum		MW				20.0	20.0	20.0	20.0	20.2	20.2	20.4	19.5	19.5	19.5	19.3	19.2	19.1	19.0	19.0	19.1	19.2	19.4	19.4	19.5	19.5	20.0	20.0	20.0
25	Running Hours (unit overview)						8818	8819	8820	8821	8822	8823	8824	8825	8826	8827	8828	8829	8830	8831	8832	8833	8834	8835	8836	8837	8838	8839	8840	8841
26	Ambient Temperature	TC Inlet					47	46	46	45	45	43	41.0	48.9	52.9	52.5	55.4	56.8	57.7	54.2	58.8	57.6	55.4	53.6	53	52	50	46	46	46
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-220	%			70%	57	57	57	57	57	57	57	56	54	54	53	53	53	55	55	54	56	56	56	56	56	56	56	56
28	Total Fuel Flow		Mscf/h				241	242	242	243	243	245	249	241	232	231	224	226	227	228	228	229	231	234	234	235	235	240	242	242

Date: NOV 14 2021 Signature: MIO

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	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	½	½	½	½	½	½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	32	32	32	32	32	32	34	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	30
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	E	F
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	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	E	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		B	B	B	B	B	B	B	O	N	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	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	253	253	253	251	251	251	252	252	253	253	253	254	254	254	254	254	254	254	253	253	252
2nd Stage Inlet Press	PI-2200	psig		247	285	249	249	249	249	249	248	248	247	247	248	249	249	249	249	250	251	251	251	251	251	250	250	250	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	566	565	565	565	558	563	563	565	565	564	561	564	563	563	563	563	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	570	560	560	559	559	561	561	560	560	560	559	559	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	58	58	50	58	58	56	56	58	59	59	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	169	169	169	169	169	169	169	169	169	169	169	167	167	167	164	164	165	165	165	166	166	168	168	169
Final Discharge Temp	TE-2120	deg		110	150	84	84	84	83	83	83	82	86	84	91	91	94	96	98	92	96	94	94	94	92	90	88	88	84
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	210	210	210	210	210	210	209	212	212	211	214	213	215	215	216	216	215	215	215	213	213	212	212	211
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	211	211	211	211	211	211	210	213	213	216	219	220	222	224	222	221	219	219	219	218	218	216	216	213
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	208	208	208	208	208	206	205	215	210	209	209	210	212	212	214	214	213	213	213	212	212	210	210	209
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	212	211	211	211	211	210	209	214	214	216	219	220	221	221	222	222	220	220	220	218	218	216	216	213
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	04	04	04	04	04	04	04	04	04	04	04	04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	05	05	05	05	04	04	04	04	04	04	04	04	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	NOV 14 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: NOV 15 2021

(MST) / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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-015	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-002	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	106	108	112	108	112	110	104	106	104	108	108	110	104	110	106	108	106	108	110	109	109	111	107	110
4	Instrument Temperature	TI-001	deg C		20	50	14	14	14	12	12	12	12	14	17	19	21	23	23	23	22	22	21	21	20	17	17	16	16	15
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	100	103	98	102	99	101	103	99	100	99	105	102	112	108	112	101	99	101	106	103	102	103	109
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	in WC		60	80	60	60	60	60	60	60	60	60	60	60	62	62	62	60	62	62	62	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	in WC		37	50	35	35	35	35	35	35	36	36	36	36	38	38	37	36	36	36	36	35	34	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	62	64	66	66	66	66	66	66	66	66	66	66	66	66	66	66	65	65
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.8MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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-230	%			70%	8	8	8	8	8	8	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	9
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-250	%			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)	A69GGD ET-01	psig	35	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	1045	1046	1044	1048	1057	1055	1057	1019	989	989	951	930	963	958	951	952	974	988	987	992	981	1000	1004	1023
23	Mw Output		MW			27	24.8	24.8	24.8	24.8	25.1	25.1	25.0	24.1	23.5	23.4	22.5	22.0	22.7	22.6	22.5	22.5	23.1	23.3	23.3	23.5	23.2	23.7	23.8	24.4
24	80% Base Load Minimum		MW				20.0	20.0	20.0	20.0	20.2	20.2	20.2	19.6	19.3	19.2	18.8	18.5	18.9	18.8	18.8	19.0	19.1	19.2	19.3	19.4	19.2	19.5	19.5	19.8
25	Running Hours (unit overview)						8842	8843	8844	8845	8846	8847	8847	8848	8849	8850	8851	8852	8853	8854	8855	8856	8857	8858	8859	8860	8861	8862	8863	8864
26	Ambient Temperature	TE Inlet					45	45	45	44	42	42	43	50	55	55	61	64	60	61	61	62	57	55	55	54	56	53	51	48
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-100	%			70%	57	57	57	57	57	57	56	57	56	55	55	55	55	56	56	56	57	57	57	57	57	57	57	57
28	Total Fuel Flow		Mscf/h				243	243	243	244	244	245	243	236	232	233	226	224	228	227	225	226	231	232	233	234	232	234	236	240

Date: NOV 15 2021 Signature:

GAS TURBINE

Natural Gas Compressor

GAS COMPRESSOR START TIME		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
Combustible Gas Detector	AEH-303	%		0%	20%	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Packing Lube Oil Flow indicator Left Side	FSL-1501B	LIGHT		BLINK		E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	33	33	33	33	33	33	29	29	29	28	28	28	28	28	28	27	27	27	27	27	27	27	27	27
Oil Day Tank Level	LI-1562	GAL	10		FULL	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Lubricator Bulls eye		LEVEL	1/2	FULL		E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
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	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	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	84	84	83	83	83	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	252	252	252	252	252	251	252	253	253	254	254	254	254	255	255	254	254	254	254	254	254	254	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	249	248	248	248	248	247	247	249	249	250	251	250	250	251	251	251	251	251	250	250	250	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	563	563	563	563	563	563	562	562	560	561	563	563	563	563	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	559	559	560	559	559	560	560	559	559	559	559	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	57	58	58	58	58	59	59	59	59	59	59	59	59	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	168	169	169	169	169	169	169	169	168	167	167	165	164	164	164	164	164	164	164	164	164	165	165	165
Final Discharge Temp	TE-2120	deg		110	150	86	84	83	83	83	83	61	57	93	92	97	102	100	100	99	99	95	93	93	93	92	90	88	86
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	213	211	210	210	210	210	209	211	213	215	217	219	219	218	218	217	216	215	214	214	214	213	215	212
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	214	212	211	211	211	211	209	213	217	219	223	227	227	226	225	224	221	219	219	219	218	217	215	214
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	209	209	208	208	208	208	206	209	211	212	214	215	216	215	215	215	214	213	213	213	213	212	212	210
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	214	212	211	211	211	211	209	214	218	219	223	227	227	227	226	225	222	222	222	222	221	219	217	215
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.04	.04	.05	.04	.04	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.06	.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						561								560										
Natural Gas Comp.Discharge Press.	A63FGDT	49-48=psid		8								555								555									
Double Block and Bleed Pressure	A63FTGST	50-49=psid		20								542								543									
Fuel Gas Supply Pressure																													

DATE Nov 15 2021

SIGNATURE

Mid Shift

Days Shift 727255

Notes

Date: 11-16-2021

Unit 1 / Unit 2 (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Sync Closed):

Time Turbine Offline (Sync Open):

Time No Gas Flow:

GE7E HOURLY READINGS LOG

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	SVT-001	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	SVT-002	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	111	107	110	111	111	108	108	112	112	112	110	110	110	106	110	105	110	108	110	111	109	108	110	110
4	Instrument Temperature	TI-001	deg C		28	50	15	15	15	15	15	15	16	16	17	19	19	19	19	19	21	21	20	20	16	16	16	16	16	16
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-003	psig		25		19	19	19	19	19	19	19	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	101	104	104	105	107	106	103	101	106	111	103	109	108	109	106	102	100	103	103	101	104	103	108
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/8	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-005	in WC		60		60	60	60	60	60	60	62	62	60	62	63	63	63	63	63	63	63	63	62	62	62	62	62	62
10	Coolant Return Differential from	PI-012	in WC		57	59	36	36	36	35	36	36	37	36	36	36	36	37	36	36	37	37	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F	60	72	85	65	65	65	67	65	65	66	66	66	67	71	69	69	71	68	68	71	71	68	68	68	68	68	66
13	WECC Log		Operational?																											
14	Operation of PSS/		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
15	Operation of AVR Voltage Mode @ 13.6 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																								
	(16-20 found on Air Diagram page)																													
16	2000 gal GE Water Tank Level	LI-201	%			75%	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	9	7	7
17	20 gal gas TG Drain Tank (Air Diagram page)	LI-203	%			75%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6
18	Record on hard S/D trip over 4500 rpm TSL Compressor (on the trip)	ASSOD ST-01	psig	35	28																									
19	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
20	Generator Current		Amps			3427	1024	1022	1017	1016	1004	995	1023	1020	997	1002	992	966	947	950	945	953	970	986	1010	1020	1019	1012	1014	1015
21	Mw Output		MW			27	24.4	24.3	24.1	24.1	23.8	23.5	24.1	24.1	23.5	23.8	23.4	22.8	22.4	22.6	22.3	22.6	22.9	23.3	24.0	24.2	24.1	24.6	24.1	24.1
22	85% Base Load Minimum		MW				19.6	19.6	19.6	19.6	19.6	19.4	19.7	19.7	19.4	19.5	19.4	19.1	18.9	19.0	18.9	19.0	19.2	19.4	19.7	19.9	19.9	19.7	19.8	19.8
23	Running Hours (unit overview)						8865	8866	8867	8868	8869	8870	8871	8872	8873	8874	8875	8876	8877	8878	8879	8880	8881	8882	8883	8884	8885	8886	8887	8888
24	Ambient Temperature	TE Inlet					48	49	50	50	51	53	50	49	53	52	54	57	60	59	60	59	56	54	49	47	47	49	48	48
	(27-28 found on Gas Fuel System page)																													
25	Main Oil Tank	LI-129	%			75%	57	57	57	57	57	57	57	57	57	57	57	56	56	56	56	56	56	56	56	57	57	57	57	57
26	Total Fuel Flow		lbm/h				240	240	239	237	235	234	237	237	233	235	233	228	224	225	223	225	230	228	237	236	238	234	235	236

Date: 11-16-2021 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																													
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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	27	26	25	26	26	26	26	26	26	25	25	25	25	25	25	25	25	25	25	25	25	24	24	24
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7415	LIQID		EMPTY	ANY	E	E	E	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	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	83	83	83	83	83	83	83	83	83	83	84	83	83	84	84	85	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	253	253	253	252	253	253	253	253	253	253	255	255	254	254	254	253	253	253	253	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	250	250	250	250	248	249	249	249	250	249	250	251	251	251	251	251	250	250	250	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	563	564	563	563	564	564	564	564	563	563	564	564	564	564	564	564	564	564
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	566	560	559	559	557	560	560	561	560	560	560	560	566	566	560	560	560	559	560	559
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	56	57	58	58	58	59	58	58	59	59	59	59	59	59	59	59	59	58	58
Lube Oil Temp	TE-1584	deg		150	170	165	165	165	168	168	168	167	164	168	167	166	166	166	164	164	164	165	165	165	165	165	165	168	168
Final Discharge Temp	TE-2120	deg		110	150	86	86	87	88	88	88	85	89	91	90	92	93	93	99	98	97	95	95	90	90	89	87	86	86
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	212	212	210	212	213	213	212	213	214	214	215	216	216	218	218	219	215	215	214	214	218	213	212	212
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	214	214	214	215	216	216	213	216	217	217	220	220	220	224	223	222	220	220	217	217	216	214	214	213
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	210	210	210	211	211	211	210	210	212	212	212	213	213	215	215	214	213	212	212	212	211	210	210	209
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	215	215	215	216	216	216	214	216	218	218	220	220	220	225	224	223	221	220	218	218	217	215	215	214
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.04	.05	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.07	.05	.05	.05	.01	.03	.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.									560												560								
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				555												555								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				543												544								

DATE 11-16-2021

SIGNATURE

Mid Shift Bob Shay 732978

Days Shift

Notes

Date: _____

MST / MDT (circle one)

Time Gas Introduced (Turbine Startup):

Time of Turbine Online (24hr Clock):

CGTG HOURLY READING LOG

Time Turbine Offline (24hr Clock):

Time No Gas Flow:

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	Shutdown Dry Receiver Tank Hourly	SVT-001	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Shutdown Wet Receiver Tank Hourly	SVT-002	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	109	110	111	106	110	110	108	106	112	108	110	104	104	108	114	110	104	110	110	111	107	111	110	108
4	Instrument Temperature	TI-001	deg C		28	50	16	16	16	14	13	13	14	14	15	17	18	19	19	19	19	19	18	18	16	14	12	11	10	9
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	104	101	107	106	107	101	103	108	98	104	105	98	100	110	103	97	106	104	101	104	101	107	99	103
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/8	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-005	in WC		60	80	62	62	62	62	62	62	62	62	62	62	62	62	62	60	62	60	62	62	62	62	62	62	62	62
10	Coolant Return Differential from	PI-032	in WC		37	50	36	36	36	36	36	36	36	36	36	37	38	39	38	38	36	36	36	36	36	36	36	36	37	38
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F	65	72	85	68	68	68	68	68	68	68	66	66	66	67	66	67	66	67	66	66	66	66	66	66	66	66	66
13	WECC Log		Operational?				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
14	Operation of PSS/ on at 4.5MW		Yes (Y)			No (N)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	Operation of AVR Voltage Mode @ 13.8 kV		Yes (Y)			No (N)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Entronic Control System		Units	Low	Norm	Max																								
	(16-20 found on Air Diagram page)																													
16	3000 gal Oil Water Tank Level	LI-251	%			75%	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	9	9	9	9
17	25 gal gas TG Drain Tank (Air Diagram page)	LI-253	%			75%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	Record on hand S/D trip over 4500 rpm NR Compressor (on line trip)	ASSOCD ST-01	psig	85	95																									
19	Acknowledge Alarms Hourly		Y				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
20	Generator Current		Amps			1427	1016	1022	1027	1048	1050	1060	1056	1034	1020	1011	992	981	980	986	977	981	1002	1021	1041	1049	1075	1092	1091	1111
21	Kw Output		kW			22	241	243	244	248	249	251	250	245	242	240	235	235	234	234	232	233	238	242	244	249	256	260	260	265
22	90% Base Load Minimum		kW				198	199	200	202	202	204	203	199	197	195	191	191	190	190	189	189	196	197	198	199	208	211	211	215
23	Running Hours (unit overview)						8889	8890	8891	8892	8893	8894	8895	8896	8897	8898	8899	8900	8901	8902	8903	8904	8905	8906	8907	8908	8909	8910	8911	8912
24	Ambient Temperature	TE 1010					48	47	44	43	42	41	42	46	49	51	53	54	54	54	55	54	51	49	45	43	38	34	33	30
	(27-28 found on Gas Fuel System page)																													
25	Waste Oil Tank	LI-129	%			75%	57	57	57	58	57	58	58	57	57	55	56	56	56	57	57	57	57	57	58	58	58	58	58	58
26	Total Fuel Flow		kscfh				232	238	240	243	244	246	244	241	238	234	233	233	233	231	231	231	235	238	244	246	251	254	255	257

Date: 11-17-2024 Signature: Bob Ava

day shift - Josh Hu

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-309	%		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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	24	24	24	24	24	24	24	23	23	23	23	23	23	23	22	22	22	22	22	22	22	21	21	21
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		258	285	252	252	252	252	252	252	250	251	251	252	252	253	258	253	253	253	253	253	253	251	251	250	250	249
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	248	248	246	247	248	249	248	249	249	249	249	249	249	249	249	248	248	246	245	245
2nd Stage Disch. Press	PI-2201	psig		575	600	564	564	564	564	564	564	564	563	563	563	563	563	564	564	563	563	563	563	563	564	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	559	559	559	559	560	560	559	559	559	559	559	560	560	560	559	560	559	559	559	559	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		56	58	58	58	58	58	57	57	58	58	58	58	58	58	58	58	58	58	58	58	58	57	57	57
Lube Oil Temp	TE-1584	deg		150	170	168	168	168	168	168	168	170	170	169	168	168	167	166	166	166	166	166	166	168	169	169	169	169	169
Final Discharge Temp	TE-2120	deg		110	150	84	85	82	80	80	86	78	87	86	90	91	93	92	93	93	92	88	85	86	82	75	73	72	70
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	212	212	211	210	210	210	209	211	212	214	214	215	215	215	215	215	214	212	210	210	208	207	207	206
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	213	213	212	210	209	209	207	208	213	218	220	221	220	220	220	219	216	215	215	211	205	204	203	201
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	209	210	210	210	206	208	206	208	210	211	212	212	212	213	213	213	212	212	212	210	208	205	204	203
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	214	214	212	211	210	210	207	212	214	218	220	221	221	222	224	219	216	214	214	211	206	204	203	202
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.05	.04	.05	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.06	.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.									560								560												
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				555								555												
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				543								543												

DATE 11-17-2021

SIGNATURE

Mid Shift Bob Lewis 758909

Days Shift

Notes

Date: 11-18-2021

EWT / LWT (delta-out):

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Star Clock):

CSTG HOURLY READING LOG

Time Turbine Offline (Star Clock):

Time No Gas Flow:

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-012	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-013	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-012	psig	90	105	120	111	110	108	111	108	110	108	106	104	106	110	106	110	104	108	110	110	108	110	107	108	110	106	109
4	Instrument Temperature	TI-001	deg C		20	50	9	9	8	8	8	8	5	5	7	9	10	11	12	14	14	14	13	12	11	10	10	10	10	10
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-220	psig		25		19	19	19	19	19	19	19	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	210	320	107	101	103	99	104	101	112	110	100	109	111	98	98	109	112	108	108	100	103	102	103	100	103	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-005	in WC		60		62	62	62	62	62	62	60	60	60	60	62	62	62	60	62	62	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	in WC		57	59	38	38	38	38	38	30	36	35	25	36	37	37	37	39	36	37	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	66	66	65	65	65	61	64	64	66	68	69	66	66	66	66	66	65	65	65	64	64	64	64	64
13	WECC Log		Operational?																											
14	Operation of PSS/		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
15	Operation of AVR Voltage Mode @ 13.8 kV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																								
	(16-20 found on Air Diagram page)																													
16	1000 gal Oil Water Tank Level	LI-231	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
17	50 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
18	Record on hard S/D trip over 4500 rpm HL Compressor (on Ring trip)	ASSGD SY-02	psig	95	20																									
19	Acknowledge Alarms Hourly		✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
20	Generator Current		Amps			5427	1116	1130	1132	1133	1137	1131	1141	1136	1124	1115	1101	1083	1068	1053	1049	1051	1072	1092	1092	1093	1091	1097	1100	1100
21	Mw Output		MW			27	26.6	26.9	26.9	26.9	27.0	27.0	27.1	27.0	26.7	26.4	26.0	25.5	25.1	24.9	24.8	24.8	25.3	25.7	25.8	25.8	25.8	26.0	26.1	26.0
22	80% Base Load Minimum		MW				21.3	21.6	21.8	21.8	21.8	21.8	21.8	21.6	21.3	21.1	20.0	20.4	20.2	20.0	20.0	20.0	20.3	20.5	20.7	20.7	20.7	20.8	20.9	20.9
23	Running Hours (unit overview)						8913	8914	8915	8916	8917	8918	8919	8920	8921	8922	8923	8924	8925	8927	8927	8928	2929	8930	8931	8932	8933	8935	8934
24	Ambient Temperature	TE Inlet					29	27	26	25	24	24	24	26	29	32	36	40	43	45	45	45	41	38	37	36	37	36	34	35
	(25-28 found on Gas Fuel System page)																													
25	Waste Oil Tank	SA-230	%			70%	58	58	57	57	57	57	58	58	57	56	56	56	56	56	57	57	57	57	57	57	56	56	56	57
26	Total Fuel Flow		Mscf/h				259	259	255	254	262	262	262	262	259	258	254	250	248	244	244	243	248	251	251	251	249	252	252	251

Date: 11-18-2021 Signature: Rob Lucy

day shift - Jake Arms

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-803	%		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	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LG-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	21	21	21	21	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	19	19
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	K	F	F
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	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	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	D	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	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	249	249	249	249	248	248	247	247	247	248	248	249	249	250	251	251	250	250	250	250	250	250	249	249
2nd Stage Inlet Press	PI-2200	psig		267	285	245	245	245	244	244	244	243	243	243	244	245	245	246	246	246	247	247	247	247	247	247	247	246	245
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	565	565	565	565	564	564	564	564	565	565	563	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	559	560	559	560	559	559	560	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
Lube Oil Temp	TE-1584	deg		150	170	169	169	169	169	169	169	168	169	168	169	169	169	170	169	169	169	169	169	170	170	170	170	170	170
Final Discharge Temp	TE-2120	deg		110	150	70	70	70	69	69	69	69	69	70	71	75	77	80	82	83	82	80	78	76	76	76	75	74	73
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	206	206	206	207	205	205	206	206	206	207	208	209	210	211	211	210	209	207	207	207	207	207	207	206
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	201	201	201	201	201	201	201	201	202	203	207	208	210	212	213	211	209	208	206	205	205	204	203	202
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	203	203	203	203	203	203	203	203	204	204	205	207	207	208	209	207	207	206	206	206	206	205	204	203
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	202	202	202	202	202	202	202	202	202	204	207	208	211	213	213	212	209	208	207	206	206	205	204	203
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
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.									560								560												
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				556								555												
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				592								542												

DATE 11-18-2021

SIGNATURE 745159

Mid Shift Bob Aug

Days Shift John Amme

Notes

Date: 11-19-2021

DST / PDST (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Sync Circuit):

Time Turbine Offline (Sync Open):

Time No Gas Flow:

Notes:

CCTE 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	Stonedrum Dry Receiver Tank Hourly	BVT-001	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Stonedrum Wet Receiver Tank Hourly	BVT-002	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	111	110	108	111	110	108	108	100	102	104	99	101	98	102	109	110	105	100	112	105	108	112	106	108
4	Instrument Temperature	TI-001	deg C		29	50	10	10	9	8	8	8	8	9	9	11	15	17	18	18	19	19	18	18	16	16	14	14	12	12
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-003	psig		25		19	19	19	19	19	19	18	18	18	18	18	17	18	18	18	18	14	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	200	220	320	103	100	104	103	106	104	100	104	104	106	92	91	99	93	94	92	93	96	98	99	104	102	100	101
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/8	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-004	in WC		80	88	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-005	in WC		87	96	36	36	36	36	36	36	30	30	30	30	30	30	30	30	30	30	30	30	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	64	64	64	64	64	64	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
15	WECC Log		Operational?																											
16	Operation of PSS/		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																								
	(18-26 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	7	9	9	9	9	9	9	9	9	9	9	9
19	20 gal gas TC Drain Tank (Air Diagram page)	LI-233	%			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 45000 rpm HP Compressor (on line trip)	AS9020 ST-01	psig	35	29																									
21	Acknowledge Alarms Hourly		✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427																								
23	Kw Output		KW			27	1100	1103	1115	1114	1109	1110	1123	1100	1076	1058	1034	1018	1015	1019	1018	1029	1042	1055	1050	1051	1055	1071	1090	1074
24	90% Base Load Minimum		KW				26.1	26.2	26.4	26.4	26.3	26.3	26.4	25.9	25.2	25.0	24.4	24.0	24.0	24.0	24.0	24.1	24.6	24.9	24.8	24.8	24.8	25.2	25.4	25.4
25	Running Hours (unit overflow)						20.9	21.0	21.2	21.2	21.1	21.1	21.2	20.8	20.3	20.1	19.8	19.7	19.6	19.6	19.6	19.8	19.9	20.1	20.1	20.1	20.1	20.3	20.5	20.5
26	Ambient Temperature	TI-1 Inlet					8937	8938	8939	8940	8941	8942	8943	8944	8945	8946	8947	8948	8949	8950	8951	8952	8953	8954	8855	8856	8857	8858	8859	8860
	(27-28 found on Gas Fuel System page)						34	33	32	32	32	32	30	35	42.3	44.1	48.2	50.4	51.8	50.5	51.5	48.6	46.6	44.1	44	44	42	40	40	40
27	Waste Oil Tank	LI-230	%			70%																								
28	Total Fuel Flow		Kscf/h				56	57	57	57	57	57	57	57	56	56	55	54	54	57	57	57	58	57	57	57	58	58	58	58
							252	252	253	253	252	252	255	252	246	245	240	235	237	238	236	239	241	244	243	243	245	245	248	248

Date: 11-19-2021 Signature: Bob Hoey

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	E	F	E	E	E	E	E	E	E	E	F	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	19	19	19	19	19	19	18	18	17	17	17	17	17	17	16	16	16	16	16	16	16	16	16	16
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	E	E	E	E	E	E	E	F	E	E	E	F	E	E	E	E	F	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	F	E	E	F	E	E	E	E	F	E	E	E	E	E	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		B	B	B	B	B	B	D	B	B	B	B	B	B	B	B	B	B	A	B	B	B	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140	83	83	83	83	83	83	83	82	83	82	83	83	83	83	83	83	83	83	83	83	83	83	84	84
Stage Disch. Press	PI-2101	psig		238	285	249	249	249	249	249	249	249	248	251	251	251	252	252	252	252	254	253	253	252	252	252	252	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	245	245	245	245	241	245	248	244	247	247	247	248	246	248	248	248	249	249	249	249	248	248	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	567	567	565	565	565	564	564	564	564	564	564	564	564	565	567	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	559	559	559	559	559	559	559	559	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	57	58	58	58	58	58	58	57	57	57	57	57	57	57	57
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	170	169	169	169	169	168	169	168	168	168	169	169	169	169	169	170	170	170
Final Discharge Temp	TE-2120	deg		110	150	73	72	71	71	71	71	71	73	82	82	87	88	87	84	86	87	87	88	88	88	86	86	84	84
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	206	206	205	205	205	205	205	206	209	209	211	212	212	212	212	212	211	211	211	211	210	210	210	210
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	202	201	200	200	200	200	200	202	210	210	215	216	214	216	210	214	214	214	214	214	212	212	210	209
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	203	202	202	202	202	201	201	203	204	204	208	209	209	209	209	209	209	209	209	209	209	208	208	208
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	203	202	200	200	200	200	200	202	211	211	215	217	217	216	216	214	215	215	216	216	214	212	212	210
Motor Frame Vibration	VT-1015	IPS			0.15	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.04	.04	.04	.04	.04	.05	.04	.05	.04	.04	.04	.04	.04	.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.									560																				
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8				555																				
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20				542																				

DATE	Nov 19 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

753303

Date: NOV 20 2021

Shift: 0001 (date out)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Date Closed):

Time Turbine Offline (Date Synch):

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-001	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-002	V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PT-002	psig	93	105	120	112	108	112	106	112	105	100	107	105	110	111	111	110	105	100	104	110	105	112	110	108	105	112	111
4	Instrument Temperature	TT-002	deg C		28	50	12	12	12	12	12	12	12	15	16	16	16	19	19	19	19	19	18	15	16	16	14	14	14	14
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PT-230	psig		25		19	19	19	19	19	19	18	18	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19
7	Coolant PLC Temperature	TT-002	deg F	109	110	120	102	104	100	105	99	101	97	109	93	94	97	96	98	98	98	96	98	100	103	107	106	102	107	102
8	Sight glass Level Expansion Tank	LI-001	EMPTY	1/8	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	5/8	5/8	5/8
9	Coolant Return Differential from GS	PI-015	in WC		60	80	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	in WC		37	55	35	35	35	35	35	35	35	35	35	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	66	66	66	66	66	66	65	65	65	65	65	65	65	63	65	65	65	65	65	65	65	65	65	65
13	WECC Log		Operational?																											
16	Operation of PSS/		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																								
	(18-20 found on Air Diagram page)																													
18	2500 gal Oil Water Tank Level	LI-231	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
19	20 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 ML Compressor (on line trip)	ASH-003 ST-01	psig	35	20												✓	✓	✓											
21	Acknowledge Alarms Hourly		V				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			3427	1076	1075	1077	1077	1075	1078	1084	1060	1027	1026	1020	997	993	996	987	988	1012	1016	1051	1054	1053	1066	1062	1061
23	Mw Output		MW			27	25.5	25.5	25.5	25.5	25.5	25.5	28.7	25.1	24.3	24.3	24.1	23.6	23.5	23.6	23.2	23.3	23.9	23.9	24.8	24.8	24.8	25.1	25.1	25.1
24	95% Base Load Minimum		MW				20.5	20.5	20.5	20.6	20.6	20.6	20.2	20.2	19.8	19.8	19.7	19.4	19.4	19.5	19.3	19.3	19.6	19.6	20.1	20.1	20.1	20.8	20.8	20.2
25	Running Hours (unit overview)						8861	8862	8863	8864	8865	8866	8867	8868	8869	8870	8871	8872	8873	8874	8875	8876	8877	8878	8879	8880	8881	8882	8883	8884
26	Ambient Temperature	TE 0001					39	38	38	38	38	38	36.7	42.4	48.7	48.9	50.0	53.1	53.8	52.7	55.4	54.5	50.7	50.7	45	45	45	43	43	42
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	58	58	58	58	58	58	58	58	56	56	54	56	56	57	57	57	57	58	58	58	58	58	58	58
28	Total Fuel Flow		Kw/Hr				248	250	250	250	251	251	251	245	240	239	238	234	234	234	232	232	237	236	243	243	244	245	246	246

Date: NOV 20 2021 Signature: MCO

COTG 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-903	%		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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	16	16	16	16	16	16	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	83	83	83	83	83	83	83	82	82	82	83	83	83	83	83	83	83	83	83	83	83	84	84
Stage Disch. Press	PI-2101	psig		238	285	252	251	251	251	251	251	250	251	251	251	253	253	253	253	253	253	252	252	252	252	252	252	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	248	247	247	247	247	247	246	247	248	248	249	249	249	249	249	248	248	248	248	248	250	250	250	252
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	564	564	564	564	564	564	564	564	564	564	564	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	559	559	559	560	560	559	559	559	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	58	58	58	58	58	58	58	56	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	170	170	169	169	169	168	166	167	167	167	167	167	167	167	169	169	169	170
Final Discharge Temp	TE-2120	deg		110	150	80	78	78	77	77	76	76	79	87	87	87	92	91	91	92	92	92	92	92	92	90	90	90	90
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	209	208	208	207	207	207	206	208	211	211	211	214	214	213	213	213	213	213	213	213	212	212	210	210
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	208	206	206	206	205	205	203	207	214	214	214	219	219	217	218	218	218	218	218	218	216	216	215	215
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	206	206	206	206	205	205	206	206	208	208	208	211	211	210	211	211	211	211	211	211	209	209	207	207
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	209	207	207	206	206	206	206	208	214	214	214	220	220	218	218	218	218	218	217	217	215	215	215	214
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.01	.01	.05	.05	.07	.05	.01	.05	.01	.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												560												
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20												586												
																	543												

DATE	NOV 20 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Date: NOV 21 2021

Shift (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Sync Closed):

GCTS HOURLY READINGS LOG

Time Turbine Offline (Sync Open):

Time No Gas Flow:

Notes: 117.9 / 102

							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	I.D	Units	Low	Norm	Max																								
1	Blowdown Dry Receiver Tank Hourly	BVT-015	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-015	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	112	108	102	108	102	108	109	103	100	102	110	108	111	101	112	104	108	107	108	112	112	110	106	108
4	Instrument Temperature	TI-001	deg C		20	50	14	14	14	14	14	14	14	16	14	16	17	18	18	18	18	18	18	15	14	14	14	14	12	12
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-230	psig		25		19	19	19	19	19	19	18	18	18	18	18	16	19	19	19	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	200	110	120	102	108	105	100	104	102	96	109	100	98	97	93	93	92	91	93	88	89	90	93	98	106	102	100
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/8	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-001	in WC		80	88	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	in WC		57	58	35	35	35	35	35	35	35	35	35	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	68	68	68	68	68	68	68	65	65	67	65	65	65	65	65	67	67	67	67	67	67	67	67	67
15	WECC Log				Operational?																									
16	Operation of PSS/		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
17	Operation of AVR Voltage Mode @ 13.8 KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	%			75%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
19	25 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	0	0	0	0	0	0	0	0	0	C	0	0	0	0	0	0	0	0	0	0
20	Record on hard S/D trip over 4500 rpm HL Compressor (on line trip)	ASO020 ST-01	psig	85	90																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			1427	1078	1077	1078	1079	1084	1086	1095	1027	1067	1063	1041	1036	1035	1026	1033	1048	1063	1072	1079	1086	1088	1091	1092	1090
23	Mw Output		MW			27	25.4	25.4	25.4	25.4	25.6	25.6	25.8	25.4	25.2	25.0	24.6	24.5	24.4	24.3	24.4	24.7	25.1	25.4	25.5	25.5	25.5	25.8	25.8	25.8
24	80% Base Load Minimum		MW				20.4	20.4	20.4	20.4	20.5	20.5	20.7	20.3	20.2	20.1	19.8	19.8	19.7	19.6	19.7	19.9	20.1	20.3	20.4	20.4	20.4	20.6	20.6	20.6
25	Running Hours (unit overview)						8985	8986	8987	8988	8989	8990	8991	8992	8993	8993	8994	8995	8996	8997	8998	8999	9000	9001	9002	9003	9004	9005	9006	9007
26	Ambient Temperature	TI Inlet					42	40	40	40	39	39	37.2	41.4	42.6	43.2	47.7	48.7	49.5	50.5	49.5	44.1	44.1	41.2	40	40	40	38	38	38
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-229	%			76%	58	58	58	58	58	58	58	58	57	57	56	56	56	57	56	56	56	56	58	58	58	58	58	58
28	Total Fuel Flow		lbs/hr				248	249	249	250	250	250	251	249	247	245	243	241	241	240	241	244	247	248	250	251	252	253	253	253

Date: NOV 21 2021 Signature:

CGTG TURBINE

UTILITIES AND INFRASTRUCTURE

T59 773

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-503	%		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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	15	15	15	15	15	15	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	83	83	82	82	82	83	83	83	83	82	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	251	251	251	250	250	250	251	251	251	251	252	252	252	252	252	252	252	252	252	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	246	246	247	246	246	246	247	247	247	247	248	248	247	248	248	248	248	248	248	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564	564	564	564	564	564	565	564	564	564	564	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	559	559	537	560	560	559	559	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	57	57	57	57	57	57	57	57	57	57	58	58	58	58	57	57	57	57	57	57	57	57	57
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	170	170	170	169	169	169	169	168	169	169	168	168	168	168	169	169	170	170
Final Discharge Temp	TE-2120	deg		110	150	80	78	78	78	78	78	80	80	80	83	83	83	87	87	86	86	83	87	83	83	81	81	80	80
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	210	208	208	208	208	206	206	206	206	208	208	208	211	211	210	210	209	209	209	209	209	207	207	207
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	209	207	207	207	207	207	205	205	205	209	209	209	214	215	214	214	211	211	211	211	210	210	209	209
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	207	206	206	206	206	206	204	204	204	205	205	205	208	208	207	207	207	207	207	207	207	207	205	205
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	210	208	208	208	207	207	206	206	206	209	209	209	214	216	214	214	212	213	212	212	210	210	208	208
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	04	04	04	04	04	04	04	04	04	04	04	04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	05	05	1	05	05	04	05	05	04	04	05	07	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	NOV 21 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Date: NOV 22 2021

DAY / NIGHT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Enter Closed):

CGTS HOURLY READING LOG

Time Turbine Offline (Enter Open):

Time No Gas Flow:

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	SVT-001	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	SVT-002	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	95	105	120	108	112	112	106	108	110	107	110	114	107	113	110	114	112	107	105	113	111	112	110	112	105	108	112
4	Instrument Temperature	TI-001	deg C		20	50	14	14	12	12	12	12	9	10	12	12	16	18	18	18	18	18	18	17	16	16	14	14	12	12
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-230	psig		25		19	19	19	19	19	19	19	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	101	98	101	104	98	100	105	109	103	107	101	99	101	104	103	101	104	99	100	106	101	99	102	105
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/8	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	PI-005	in WC		59	80	60	60	60	60	60	60	60	60	60	61	61	62	63	63	62	62	62	62	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	in WC		37	50	35	35	35	35	35	35	35	35	35	36	36	37	37	37	37	37	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
15	WECC Log		Operational?																											
16	Operation of PSS/ on at 6.9KV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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-201	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	9	9	9	9	9	9
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-200	%			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 HP Compressor (on line trip)	ASD000 ST-01	psig	85	20																									
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																													
22	Generator Current		Amps			3427	1091	1094	1102	1107	1106	1107	1090	1081	1074	1024	994	988	981	966	976	998	1026	1043	1048	1077	1067	1068	1066	1063
23	Mw Output		MW			27	25.8	25.8	26.1	26.1	26.2	26.2	25.7	25.5	25.3	24	23.3	23.2	23.1	22.8	23.0	23.5	24.2	24.6	24.6	25.3	25.3	25.3	25.3	25.3
24	85% Base Load Minimum		MW				20.6	20.6	20.9	20.9	21.0	21.0	20.5	20.4	20.3	19.6	19.3	19.2	19.2	18.9	19.0	19.3	19.7	19.9	19.9	20.3	20.3	20.3	20.4	20.4
25	Running Hours (unit overhaul)						9008	9009	9010	9011	9012	9013	9014	9015	9016	9017	9018	9019	9020	9021	9022	9023	9024	9025	9026	9027	9028	9029	9030	9031
26	Ambient Temperature	TE Inlet					35	35	34	34	34	34	38.5	40.3	43.1	50.9	55.4	56.8	57	59.9	59.4	54.9	49.6	46.2	43	42	42	41	41	41
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	59	59	59	59	59	59	59	58	58	56	56	56	57	57	58	59	59	59	59	59	59	59	59	59
28	Total Fuel Flow		Kscf/h				253	253	254	255	255	256	252	250	247	240	233	232	229	228	229	235	239	243	245	247	247	248	248	248

Date:

Signature:

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-305	%		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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	13	13	13	13	13	13	10	10	10	10	10	10	10	53	53	53	53	53	53	53	53	53	53	53
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	251	251	250	250	249	249	250	250	251	251	252	253	253	253	254	254	253	253	253	253	253	252	252	852
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	248	246	246	246	246	247	248	248	250	250	250	251	251	251	251	250	250	250	249	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	565	564	564	564	565	566	566	565	564	564	564	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	559	559	560	561	561	559	560	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	58	58	58	58	58	59	58	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	169	169	169	169	169	170	169	169	167	167	167	165	166	165	164	166	166	168	168	168	170
Final Discharge Temp	TE-2120	deg		110	150	77	77	77	75	75	72	75	78	83	87	91	94	96	98	95	92	90	89	87	87	85	85	82	82
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	207	207	207	205	205	205	205	206	208	211	213	214	215	216	215	213	211	210	210	210	210	209	209	209
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	206	206	204	202	202	202	205	206	210	214	215	219	220	220	221	218	216	214	212	212	212	210	210	209
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	205	205	205	203	203	203	203	204	206	208	212	213	214	216	213	211	209	210	210	210	210	210	210	210
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	207	207	205	205	202	202	205	206	210	215	216	220	221	221	220	220	217	215	212	212	212	210	210	207
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.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	.06	.06	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE	NOV 22 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Date: NOV 23 2021

Shift: 1 (0700) (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Inlet Closed):

GSTG HOURLY READING LOG

Time Turbine Offline (Inlet Open):

Time No Gas Flame:

Notes:

							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	LD	Units	Low	Norm	Max																								
1	Bloudrown Dry Receiver Tank Hourly	BVT-002	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	B	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Bloudrown Wet Receiver Tank Hourly	BVT-001	√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	93	105	120	110	112	108	110	106	112	110	108	112	110	114	114	110	107	112	5	109	112	110	106	108	110	112	106
4	Instrument Temperature	TI-001	deg C		28	50	12	12	12	12	10	10	9	9	13	13	14	16	17	17	17	X	16	16	14	14	12	12	12	12
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-220	psig		25		19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	W	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-001	deg F	100	110	120	99	102	107	102	98	102	109	106	107	101	97	96	98	160	103	i	89	107	108	104	101	105	102	99
8	Sight glass Level Expansion Tank	LI-001	LEVEL	1/8	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	5/8	5/8
9	Coolant Return Differential from GS	PI-001	in WC		60	80	60	60	60	60	60	60	60	60	61	61	62	62	63	61	61	h	61	61	60	60	60	60	60	60
10	Coolant Return Differential from	PI-002	in WC		27	50	35	35	35	35	35	35	36	36	36	36	36	36	36	36	36	p	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F	60	72	85	69	69	69	69	69	69	69	69	68	68	68	68	68	68	68	L	68	68	68	68	68	68	68	68
15	WECC Log		Operational?																			a								
16	Operation of PSS/ on at 5 MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	A	Y	Y	Y	Y	Y	Y	Y	Y
17	Operation of AVR Voltage Mode @ 13.8 kV		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	t	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max																A								
	(18-28 found on Alt Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-201	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	R	8	8	8	8	9	9	9	9
19	55 gal gas TG Drain Tank (Air Diagram page)	LI-202	%			70%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	C	0	0	0	0	0	0	0	0
20	Record on hard S/D trip over 4500 rpm HL Compressor (on line trip)	ASSSD ST-01	psig	55	70																	O								
21	Acknowledge Alarms Hourly		√				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	M	✓	✓	✓	✓	✓	✓	✓	✓
	(22-24 found on Power Management page)																					P								
22	Generator Current		Amps			3427	1084	1083	1085	1082	1086	1088	1082	1064	1054	1027	1020	1018	979	1021	1005		1035	1029	1031	1055	1058	1057	1058	1056
23	Mw Output		MW			27	25.6	25.6	25.6	25.6	25.8	25.8	25.6	25.1	24.8	24.9	24.1	23.9	23.0	24.1	23.6		24.4	24.2	24.2	24.6	25.0	25.0	25.1	25.1
24	80% Base Load Minimum		MW				20.7	20.7	20.7	20.7	20.8	20.8	20.6	20.3	20.1	19.8	19.6	19.6	19.1	19.8	19.05		19.9	19.8	19.8	20.1	20.3	20.3	20.3	20.3
25	Running Hours (unit overview)						9032	9033	9034	9035	9036	9037	9038	9039	9040	9041	9042	9043	9044	9045	9046		9048	9049	9050	9051	9052	9053	9054	9055
26	Ambient Temperature	TE Inlet					38	38	38	38	36	36	37	42	44	48.9	50.4	51.1	57.4	49.1	52.2		46.4	46.0	44	43	42	42	41	41
	(27-28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	60	60	60	60	59	59	59	59	58	57	57	57	57	58	59		59	59	59	59	59	59	59	59
28	Total Fuel Flow		lbm/h				251	251	251	251	252	252	251	246	245	239	238	236	230	239	235		241	240	242	244	246	245	246	246

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																													
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	E	E	E	E	E	E	E	E	E	U	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	S	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	52	52	52	52	52	52	50	50	50	50	50	50	50	50	50	Y	49	49	49	49	49	49	49	49
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		F	F	F	F	F	F	F	F
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	U	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	i	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	t	B	B	B	B	B	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140	84	84	84	84	83	83	82	82	82	82	83	83	83	83	83	h	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	250	250	250	250	249	249	251	251	252	252	253	253	253	P	253	253	253	253	252	252	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	247	247	247	246	246	247	247	248	248	248	249	249	L	248	248	248	248	248	248	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	566	565	564	565	564	564	564	564	564	565	565	a	564	564	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	560	559	559	559	560	560	559	559	n	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	57	57	57	57	57	58	58	58	58	58	58	+	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	170	170	170	171	172	168	169	168	168		169	169	169	169	170	170	170	170
Final Discharge Temp	TE-2120	deg		110	150	81	81	80	80	76	76	74	75	82	84	86	91	94	89	91	A	85	84	82	82	82	82	81	81
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	209	209	207	207	205	205	205	205	209	210	212	213	214	212	214	i	210	208	208	208	208	208	208	208
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	210	210	209	207	205	205	204	205	210	211	212	216	218	215	216	r	214	212	210	210	209	209	209	209
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	207	207	207	205	205	205	204	205	207	210	211	211	214	210	213		209	208	208	208	207	207	207	207
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	210	210	208	208	205	205	204	205	211	211	213	218	220	215	216	C	214	212	212	212	210	210	210	210
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.05	.04	.05	.05	.05	.05	.04	.04	O	.05	.05	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	M	.06	.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															P								
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								543																

DATE	NOV 23 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

Date: Nov 24 2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	108	106	110	108	112	112	110	112	114	109	112	114	110	109	107	113	110	114	110	106	109	110	110	110
4	Instrument Temperature	TI-001	deg C		20	50	12	12	12	12	12	12	10	10	10	11	12	14	16	16	16	16	14	14	12	12	11	12	12	10
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	104	99	102	98	100	110	107	98	103	100	97	106	99	104	101	107	104	108	106	109	106	108	110
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	61	61	61	61	61	62	62	62	62	62	61	61	60	60	60	60	60	61
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	36	36	36	37	37	37	37	37	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	68	68	68	68	68	68	68	68	68	68	68	68	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
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 5T-01	psig	35	20								✓																	
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1071	1070	1073	1074	1070	1074	1081	1083	1080	1075	1068	1051	1051	1044	1047	1053	1070	1078	1083	1083	1085	1099	1107	1106
23	Mw Output		MW			27	25.3	25.3	25.4	25.4	25.4	25.4	25.4	25.3	25.2	25.2	25.1	24.7	24.8	24.5	24.5	24.8	25.1	25.3	25.4	25.5	25.5	25.7	26	26
24	80% Base Load Minimum		MW				20.4	20.4	20.5	20.5	20.5	20.5	20.5	20.5	20.4	20.4	20.2	20.0	20.1	19.9	19.9	20.1	20.3	20.4	20.5	20.5	20.5	20.7	20.9	20.9
25	Running Hours (unit overview)						9056	9057	9058	9059	9060	9061	9062	9063	9064	9065	9066	9067	9068	9069	9070	9071	9072	9073	9074	9075	9076	9077	9078	9079
26	Ambient Temperature	T1 inlet					40	40	38	38	38	38	39	39.4	40.5	40.8	42.4	45	43.9	46.9	46.8	44.4	41.9	40.3	39	39	39	37	35	35
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	59	59	58	58	58	58	59	59	59	59	59	58	58	58	59	59	59	59	58	59	59	59	59	59
28	Total Fuel Flow		Mscf/h				246	245	247	247	248	247	249	249	249	248	246	243	244	241	241	243	245	247	248	249	249	250	253	254

Date:

Signature:

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	48	48	48	48	48	48	48	48	48	48	48	48	48	46	46	46	46	46	46	46	46	46	46	46
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	262	252	252	252	251	251	250	250	250	250	251	251	251	251	251	251	251	251	257	257	256	256	250	250
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	247	247	247	246	246	247	247	247	248	248	248	248	248	247	247	247	247	247	247	246	246
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564	564	564	564	564	564	564	565	565	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	559	559	559	559	559	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	57	57	57	57	57	57	57	57	57	57	58	58	57	57	58	57	58	58	57	57
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	170	170	170	170	169	170	170	169	169	168	169	169	170	170	170	170	170	170
Final Discharge Temp	TE-2120	deg		110	150	81	80	80	80	78	78	77	78	80	82	83	83	81	83	84	82	80	80	78	78	80	80	73	73
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	208	208	208	208	206	206	207	208	208	208	209	209	208	210	209	208	207	207	206	206	206	206	205	205
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	209	209	208	208	206	206	206	207	208	207	211	211	209	211	211	209	208	207	206	206	206	206	205	205
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	207	207	205	205	205	205	205	206	207	208	207	208	207	207	207	206	206	205	205	206	206	205	203	203
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	210	208	208	206	206	206	207	209	210	210	212	211	210	212	211	209	209	208	206	206	205	205	203	203
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.05	.04	.04	.05	.04	.04	.04	.04	.04	.04	.04	.04
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.													560																
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								556																
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								543																

DATE NOV 24 2021

SIGNATURE

Mid Shift

Days Shift 21184

Notes

Utilities and Institutional Facilities

Date: 11-25-2021

(MST) / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	106	107	108	108	110	108	112	106	106	110	106	108	112	110	112	110	108	110	110	109	111	109	111
4	Instrument Temperature	TI-001	deg C		20	50	10	10	10	10	8	7	7	7	9	9	10	12	13	13	14	13	12	12	10	10	10	10	10	9
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	110	110	106	108	97	94	110	108	103	111	107	111	106	106	109	98	103	99	101	107	101	106	108	109
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	61	61	61	61	61	61	60	60	62	62	62	62	62	62	60	62	62	62	62	62	62	62	62	61
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	36	36	37	36	39	36	37	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	67	68	68	68	65	65	65	65	65	65	65	65	65	65	65	65	65	65
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
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 5T-01	psig	35	20																							E		
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1101	1108	1110	1125	1138	1139	1136	1123	1107	1099	1080	1086	1071	1073	1064	1071	1086	1095	1105	1103	1105	1106	1106	1120
23	Mw Output		MW			27	26	26.1	26.4	26.6	26.8	26.8	26.7	26.4	26.1	25.9	25.7	25.5	25.2	25.3	25.1	25.3	25.6	25.8	26.0	25.9	26.0	26.0	26.1	26.4
24	80% Base Load Minimum		MW				20.9	20.9	21.1	21.3	21.5	21.4	21.4	21.1	20.9	20.7	20.5	20.4	20.2	20.2	20.1	20.3	20.4	20.6	20.8	20.7	20.7	20.8	20.9	21.2
25	Running Hours (unit overview)						9080	9081	9082	9083	9084	9085	9086	9087	9088	9089	9090	9091	9092	9093	9094	9095	9096	9097	9098	9099	9100	9101	9102	9103
26	Ambient Temperature	T1 inlet					35	35	33	31	29	29	29	32	34	37	39	40	43	43	44	42	40	38	36	37	36	36	35	32
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	59	59	59	59	59	59	59	63	61	61	61	61	61	62	62	62	63	63	63	63	63	63	64	64
28	Total Fuel Flow		Mscf/h				253	254	255	259	259	260	259	255	253	251	250	248	245	246	245	246	249	251	253	253	254	255	255	257

Date: 11-25-2021 Signature: GOMEZ day shift - [illegible]

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-503	%		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	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Crankcase Bulls eye	LG-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	46	46	46	46	45	45	45	45	45	45	45	45	45	45	45	44	44	44	44	44	44	44	44	44
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	82	82	82	82	82	82	82	82	82	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	250	250	250	250	249	249	247	248	248	248	249	249	250	251	251	250	251	250	250	250	250	250	250	250
2nd Stage Inlet Press	PI-2200	psig		267	285	246	246	246	246	245	245	243	244	244	245	245	246	246	247	247	247	247	246	246	246	246	246	246	246
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564	565	564	565	564	564	565	565	564	564	564	563	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	550	559	559	559	559	559	554	560	560	559	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	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	170	170	170	170	170	170	170	170	170	170	170	169	169
Final Discharge Temp	TE-2120	deg		110	150	73	73	73	73	70	70	70	70	72	74	76	78	60	81	81	80	79	79	73	73	73	73	73	73
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	205	205	205	205	204	204	202	203	203	204	206	207	207	207	207	206	206	25	205	205	205	205	205	204
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	203	203	203	203	200	200	198	199	200	202	205	206	208	209	208	207	206	206	203	203	203	203	203	203
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	203	203	203	204	202	202	200	201	201	202	204	205	206	204	204	205	204	204	203	203	203	203	203	203
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	203	203	203	203	200	200	198	199	200	203	205	206	209	210	209	208	207	207	203	203	203	203	203	203
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.05
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.06	.06	.05	.05	.04	.04	.05	.05	.05	.04	.04	.04	.04	.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					560								560											
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20					555								555											
										542								543											

DATE 11-25-2021

SIGNATURE

Mid Shift GOMEZ 21809

Days Shift

Notes

Utilities and Institutional Facilities

Date: 11-26-2021

CGTG HOURLY READING LOG

(MST) / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	109	110	109	111	111	108	112	104	108	104	106	108	108	108	104	104	112	110	111	107	110	108	109	111
4	Instrument Temperature	TI-001	deg C		20	50	9	9	9	8	8	8	6	8	10	13	14	14	16	16	17	16	14	14	14	13	13	13	11	11
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	109	103	101	106	107	106	103	111	106	106	111	95	103	106	100	110	98	101	103	107	101	100	104	107
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	61	61	61	61	61	61	60	60	60	62	62	62	64	62	62	62	62	62	62	62	62	62	62	61
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	31	36	36	35	36	36	37	36	39	39	39	36	36	35	35	31	36	36	35	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	65	65	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	9	9	9	9	9	9
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1124	1122	1123	1120	1114	1114	1129	1104	1082	1066	1046	1035	1034	1020	1026	1031	1057	1062	1057	1066	1041	1066	1076	1077
23	Mw Output		MW			27	26.4	26.5	26.5	26.4	26.3	26.3	26.6	26.0	25.4	25.1	24.6	24.5	24.4	24.0	24.2	24.3	24.9	24.9	24.9	24.9	24.9	25.1	25.4	25.4
24	80% Base Load Minimum		MW				21.2	21.2	21.2	21.2	21.1	21.1	21.3	20.9	20.4	20.2	20.0	19.8	19.8	19.6	19.7	19.7	20.0	20.2	20.2	20.2	20.2	20.3	20.5	20.5
25	Running Hours (unit overview)						9104	9105	9106	9107	9108	9109	9110	9111	9112	9113	9114	9115	9116	9117	9118	9119	9120	9121	9122	9123	9124	9125	9126	9127
26	Ambient Temperature	T1 inlet					32	32	32	32	35	33	29	35	40	43	47	48	48	51	50	49	44	43	44	43	43	42	40	40
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	64	64	64	63	63	63	63	63	62	61	61	61	61	62	62	63	63	63	63	63	63	63	63	63
28	Total Fuel Flow		Mscf/h				256	257	257	256	255	256	257	253	248	245	241	241	240	237	238	240	243	244	245	244	245	246	248	246

Date: 11-26-2021 Signature: ~~Bob Ar~~ day shift John Ar

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-309	%		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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	44	43	43	43	43	43	43	43	43	43	43	43	42	42	42	42	41	41	41	41	41	41	41	41
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	250	250	250	250	250	250	249	249	250	250	251	251	252	253	253	252	252	251	250	250	250	251	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285	246	246	246	246	246	241	245	245	246	246	247	248	248	249	249	249	248	248	248	248	248	248	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	565	564	564	564	564	564	564	565	564	564	564	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	560	559	560	559	560	560	560	560	559	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	57	57	58	58	58	58	58	57	57	57	57	57	57	57	57
Lube Oil Temp	TE-1584	deg		150	170	169	169	169	169	169	169	170	169	169	170	170	169	169	169	168	168	168	168	168	168	169	169	169	170
Final Discharge Temp	TE-2120	deg		110	150	73	73	73	73	73	73	70	72	78	80	84	85	87	88	88	82	83	80	79	79	79	79	79	79
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	204	204	204	204	204	204	203	203	205	207	208	209	209	210	209	209	208	206	206	206	206	206	206	206
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	203	203	203	203	203	203	200	201	205	208	212	214	214	215	215	214	210	208	207	207	207	207	207	207
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	203	203	203	203	203	203	201	201	203	205	206	207	207	208	207	207	206	204	204	204	204	205	205	205
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	203	203	203	203	203	203	200	201	205	208	211	214	214	216	216	214	211	208	207	207	207	207	207	207
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.05	.05	.04	.04	.04	.04	.05	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.06	.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								560								560								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								555								555								
													542								543								

DATE 11-26-2021

SIGNATURE

Mid Shift [signature] 22408

Days Shift [signature]

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 11-27-2021

(MST) / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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				✓	✓	✓	✓	✓	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	109	112	111	110	165	104	112	110	106	104	104	106	104	110	106	106	110	111	109	112	111	106	111
4	Instrument Temperature	TI-001	deg C		20	50	10	10	9	9	9	9	9	11	14	16	17	18	19	19	19	19	18	17	14	13	12	12	12	11
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	106	160	104	161	99	105	109	99	100	102	98	103	102	98	106	98	101	100	104	108	103	102	108
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	61	61	61	60	60	60	60	60	62	62	62	62	62	62	62	60	62	62	62	62	62	62	62	62
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	34	36	36	36	36	36	37	38	36	37	39	37	37	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	65	65	65	65	66	66	66	65	65	66	66	66	66	67	66	66	66	66	66	66	66	66	66	66
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	9	9	9	9	9
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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1093	1092	1093	1092	1082	1081	1078	1042	1024	1021	1006	996	982	978	986	997	1019	1036	1043	1048	1050	1069	1073	1083
23	Mw Output		MW			27	25.7	25.7	25.8	25.8	25.5	25.5	25.4	24.5	24.1	24.1	23.7	23.4	23.1	22.9	23.2	23.5	24.0	24.3	24.5	24.7	24.8	25.0	25.3	25.6
24	80% Base Load Minimum		MW				20.6	20.6	20.8	20.6	20.6	20.6	20.4	19.9	19.7	19.6	19.4	19.3	19.1	19.0	19.2	19.3	19.5	19.7	19.9	20.0	20.0	20.1	20.3	20.5
25	Running Hours (unit overview)						9128	9129	9130	9131	9132	9133	9134	9135	9136	9137	9138	9139	9140	9141	9142	9143	9144	9145	9146	9147	9148	9149	9150	9151
26	Ambient Temperature	T1 inlet					36	36	36	37	38	38	39	46	49	50	53	54	57	58	56	54	51	49	47	46	45	44	42	39
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	63	63	63	63	63	63	63	63	63	62	62	61	61	63	63	65	65	65	65	65	65	65	65	66
28	Total Fuel Flow		Mscf/h				251	252	252	252	249	249	249	242	238	238	235	233	231	230	232	235	238	239	243	244	245	246	249	251

Date: 11-27-2021 Signature: Bob Hoag

day shift - Jack Ann

Natural Gas Compressor

GAS COMPRESSOR START TIME

Combustible Gas Detector	AAH-303	%		0%	20%																										
Packing Lube Oil Flow indicator Left Side	FSL-1501E	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	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	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	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	41	41	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	39	39	39	39	39	39	39
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	250	250	250	250	250	250	250	250	252	252	253	253	253	253	254	255	254	254	253	253	252	251	251	251	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	249	248	248	247	248	248	249	250	249	250	250	251	250	250	250	250	250	250	249	249	248		
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564	564	565	564	566	564	564	574	564	565	565	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	560	560	561	560	560	570	559	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	58	58	58	58	58	58	59	59	58	57	57	57	57	57	57	57	57	57
Lube Oil Temp	TE-1584	deg		150	170	176	169	169	169	169	170	170	170	169	168	169	168	168	167	165	165	165	165	167	168	168	168	168	176		
Final Discharge Temp	TE-2120	deg		110	150	78	78	78	78	78	78	76	76	78	77	91	92	94	96	96	93	88	87	86	84	82	80	78	77		
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	205	206	206	206	206	206	205	207	209	210	211	212	213	214	213	212	211	211	211	210	208	207	209	206		
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	206	206	206	206	206	207	205	210	214	214	217	218	220	222	223	218	215	213	212	211	209	208	207	206		
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	205	205	206	206	205	205	203	205	207	207	209	210	211	211	210	209	209	209	209	209	208	207	207	205		
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	206	206	206	206	206	206	205	210	214	214	217	219	220	223	224	219	216	214	213	212	209	209	208	207		
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.05	.04	.04	.04	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04		
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			560										560													
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20			556										555													
								542										543													

DATE 11-27-2024

SIGNATURE

Mid Shift

Days Shift

23012

Notes

Utilities and Institutional Facilities

UI-LOG-033-R4
October 1, 2020

Date: _____

MST / MDT (circle one)

CGTG HOURLY READING LOG

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	110	111	110	108	111	109	108	110	104	112	106	108	104	108	110	112	108	110	111	108	110	103	110	14
4	Instrument Temperature	TI-001	deg C		20	50	11	11	10	10	8	8	8	10	12	14	16	17	18	18	19	19	18	18	15	15	15	14	14	13
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	103	106	99	104	102	107	112	105	100	105	111	106	107	111	103	107	106	101	104	107	101	106	103	107
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	5/4	5/8	5/4	5/8	5/8	5/8	5/4	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	62	62	61	61	61	61	62	62	62	60	62	62	62	62	60	60	60	60	60	60	60	60	60	61
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	37	37	39	37	37	36	37	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	66	66	66	66	66	66	64	64	64	66	66	66	66	66	67	66	66	66	66	66	66	66	66	66
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	9	9	9	9	9
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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1084	1030	1098	1105	1115	1115	1119	1084	1071	1043	1025	1000	1007	995	992	1001	1027	1042	1058	1061	1051	1051	1052	1064
23	Mw Output		MW			27	25.6	25.1	25.8	26.0	26.3	26.2	26.3	25.6	25.2	24.7	24.1	24.0	23.7	23.4	23.3	23.5	24.1	24.5	24.8	24.9	24.8	24.6	24.8	25.1
24	80% Base Load Minimum		MW				205	210	207	208	210	210	210	20.5	20.2	20.0	19.5	19.5	19.4	19.3	19.2	19.3	19.6	19.8	20.0	20.0	20.0	19.9	20.0	20.1
25	Running Hours (unit overview)						9152	9153	9154	9155	9156	9157	9158	9159	9160	9161	9162	9163	9163	9164	9166	9166	9167	9168	9169	9170	9172	9173	9174	9175
26	Ambient Temperature	T1 inlet					39	38	37	36	34	34	33	39	42	46	51	51	53	55	56	55	51	48	46	45	46	47	46	44
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	64	65	65	65	66	66	66	66	65	64	64	64	64	64	65	65	65	65	65	65	66	65	65	65
28	Total Fuel Flow		Mscf/h				251	252	253	255	256	256	256	251	247	243	239	238	235	233	232	233	237	240	243	244	244	243	245	246

Date: 1-28-2021

Signature: MIOS Bob Evans

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	D	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	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	38	38	38	38	38	38	36	37	37	37	37	37	37	37	37	37	36	36	36	36	36	36	36	35
Lubricator Bulls eye		LEVEL	1/2	FULL		E	F	E	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	251	250	250	250	250	250	249	251	250	252	252	252	253	253	254	256	254	253	252	252	252	252	250	252
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	248	246	246	245	247	247	248	248	248	249	249	250	250	250	250	250	250	250	250	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	564	564	564	565	565	564	565	564	565	564	564	564	564	564	564	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	559	560	560	560	560	560	560	558	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	57	58	57	58	58	58	58	58	58	58	58	58	57	57	57
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	169	170	169	170	170	169	170	168	167	167	167	167	167	167	169	169	168	168
Final Discharge Temp	TE-2120	deg		110	150	77	77	77	77	74	74	71	76	81	85	88	87	91	92	94	92	89	88	84	84	83	83	82	82
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	206	206	206	206	204	204	204	205	206	208	210	210	211	212	212	211	210	208	207	207	207	207	207	207
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	206	206	206	208	205	203	201	204	206	210	214	215	216	217	218	217	215	214	209	209	209	209	209	209
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	205	205	205	207	203	203	202	203	204	206	208	208	209	209	209	209	208	208	207	207	206	206	206	206
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	207	207	206	206	203	203	201	205	207	210	214	215	217	218	219	218	216	215	209	209	209	210	210	210
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.04	.05	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.06	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.06	.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.								560								560													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8			556								556													
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20			542								543													

DATE 11-28-2021

SIGNATURE

Mid Shift Bob Hug

Days Shift Josh Ames

23616

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: 11-29-2021

(MST) MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	110	111	107	110	108	111	111	113	108	111	109	113	114	110	109	112	113	110	112	108	108	112	106	112
4	Instrument Temperature	TI-001	deg C		20	50	13	13	13	13	13	13	12	12	14	18	18	19	20	20	20	22	20	20	20	20	18	18	18	16
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	101	107	103	106	100	103	111	101	106	98	104	110	112	106	108	110	99	104	106	105	107	103	104	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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	61	61	61	61	61	61	61	61	62	63	63	63	63	63	67	69	61	61	60	60	60	63	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	35	35	36	36	36	36	36	36	38	37	36	31	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	64	66	66	66	64	66	65	68	68	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8
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		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1065	1069	1049	1069	1058	1067	1072	1059	1027	1062	997	976	966	966	958	977	1011	1041	1040	1048	1044	1043	1042	1045
23	Mw Output		MW			27	25.2	25.1	24.7	25.2	25.0	25.0	25.1	24.8	24.0	23.4	23.2	22.8	22.6	22.5	22.5	22.9	23.8	24.4	24.4	24.4	24.6	24.6	24.6	24.6
24	80% Base Load Minimum		MW				20.1	20.1	19.9	20.2	20.1	20.1	20.2	20.0	19.6	19.3	19.2	19.0	18.8	18.8	18.8	19.0	19.5	19.8	19.8	19.8	20.0	20.0	20.0	20.0
25	Running Hours (unit overview)						9176	9177	9178	9179	9180	9181	9182	9183	9184	9185	9186	9187	9188	9189	9190	9191	9192	9193	9194	9195	9196	9197	9198	9199
26	Ambient Temperature	T1 inlet					44	45	46	43	45	44	43.2	45.7	51.4	55.6	56.8	59.0	61.3	61.3	61.5	58.8	53.1	48.0	48	47	47	46	46	46
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	65	65	65	65	65	65	66	66	65	65	65	64	65	65	66	66	66	66	67	67	67	67	67	67
28	Total Fuel Flow		Mscf/h				246	244	242	246	245	245	246	243	236	233	231	227	226	226	227	229	236	240	240	241	241	242	242	242

Date: 11-29-2021 Signature: Bob Ang

A Wac

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	B	E	E	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	Y2	Y2	Y2	Y2	1/2	Y2
Oil Day Tank Level	LI-1562	GAL	10		FULL	38	36	35	35	35	35	34	34	34	34	34	34	34	34	34	33	33	33	33	33	33	33	33	33
Lubricator Bulls eye		LEVEL	1/2	FULL		E	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	250	250	250	250	250	250	251	252	252	253	254	254	255	255	255	255	255	254	254	254	253	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	249	249	247	248	248	249	250	250	251	251	251	251	251	251	251	251	250	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	565	565	565	565	565	564	564	564	564	565	564	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	559	560	56	559	559	559	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	58	58	58	58	59	59	59	59	59	59	59	59	59	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	168	168	168	169	169	169	170	169	169	168	167	167	165	165	165	164	164	163	165	165	167	167	167	168
Final Discharge Temp	TE-2120	deg		110	150	82	82	82	81	81	81	79	89	85	93	95	98	99	100	101	99	93	90	88	88	88	87	87	87
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	207	207	207	207	206	207	206	207	209	211	213	214	214	214	215	213	213	211	211	211	210	210	210	210
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	209	209	208	207	207	207	207	209	211	218	220	223	224	225	225	223	220	218	216	216	214	214	214	214
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	205	205	206	206	207	207	204	205	207	209	210	212	212	213	214	213	211	210	210	210	208	208	208	208
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	210	210	210	209	209	209	208	210	212	218	220	223	224	225	226	223	221	218	218	216	216	216	215	214
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.05	.04	.04	.04	.04	.04	.04	.04	.04
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.								560																					
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8			556																					
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20			543																					

DATE 11-29-2021

SIGNATURE

Mid Shift Bob Hess

Days Shift A Wahr

Notes

Utilities and Institutional Facilities

Date: NOV 30 2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	U	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	112	108	110	112	108	106	113	112	110	113	S	114	113	110	112	114	108	110	118	112	106	99	102	108
4	Instrument Temperature	TI-001	deg C		20	50	14	12	12	12	12	12	12	12	14	16	Y	18	21	22	22	22	20	18	18	18	18	18	16	16
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	S	19	19	19	19	19	19	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	106	103	99	104	101	111	110	106	101	E	106	112	101	112	100	103	107	102	100	105	99	104	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	C	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	60	60	60	61	61	61	62	U	62	64	64	64	64	62	61	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	36	36	R	36	36	36	38	37	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max											E													
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	66	66	68	68	N	68	68	69	68	68	68	68	68	68	68	68	68	68
15	WECC Log		Operational?														T													
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	R	Y	Y	Y	Y	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	Y	O	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max											L													
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%	9	9	9	9	9	9	9	9	9	9	+	8	8	8	8	8	8	8	8	8	8	8	8	8
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	0	0	0	0	0	0	W	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 5T-01	psig	35	20												+													
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1067	1064	1065	1083	1083	1082	1043	1051	996	989		967	959	961	966	970	1012	1027	1026	1030	1026	1036	1043	1042
23	Mw Output		MW			27	25.2	25.2	25.2	25.5	25.5	25.5	24.4	24.7	23.4	23.2		22.7	22.5	22.5	22.6	22.7	23.8	24.1	24.1	24.1	24.1	24.2	24.5	24.5
24	80% Base Load Minimum		MW				20.3	20.3	20.3	20.5	20.5	20.5	19.8	20.0	19.2	19.1		18.9	18.8	18.9	18.8	18.9	19.5	19.7	19.6	19.6	19.6	19.7	19.9	19.9
25	Running Hours (unit overview)						9200	9201	9202	9203	9204	9205	9206	9207	9208	9209		9210	9212	9213	9214	9215	9216	9217	9218	9219	9220	9221	9222	9223
26	Ambient Temperature	T1 inlet					42	42	42	40	39	39	48.2	46.2	55.8	56.8		59.7	60.4	61.7	60.8	60.3	52.7	50.4	50	50	50	47	47	47
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	67	67	67	67	67	67	67	67	65	65		65	65	66	66	66	66	67	67	67	67	67	68	68
28	Total Fuel Flow		Mscf/h				247	247	247	249	249	256	240	243	232	230		226	225	226	227	227	233	240	240	240	240	243	243	248

Date: NOV 30 2021

Signature: MD Jhelum

A Wur

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																BUSY													
Combustible Gas Detector	AAH-303	%		0%	20%																								
Packing Lube Oil Flow indicator Left Side	FSL-15015	LIGHT		BLINK		B	B	B	B	B	B	B	B	B	B		B	B	B	B	B	B	B	B	B	B	D	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	E	E
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	½	½	½	½	½	½	½	½	½	½		½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	32	32	32	32	32	32	31	31	31	31	SEC	31	31	31	31	31	31	31	31	31	31	31	31	31
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F		F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		B	B	B	B	B	B	B	B	B	B	RING	B	B	B	B	B	B	B	B	B	B	B	B	B
1st Stage Inlet Press.	PI-2100	psig		88	140	84	84	84	84	83	83	83	83	83	83		83	83	83	83	83	83	83	83	83	83	83	84	84
Stage Disch. Press	PI-2101	psig		238	285	253	253	253	252	252	251	252	252	252	254		254	254	254	255	254	254	254	254	254	254	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	250	250	248	248	249	249	249	250		250	251	251	251	251	251	251	251	251	251	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	565	565	564	C	565	565	565	565	565	564	564	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	559	O	560	561	560	560	559	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	57	57	57	57	57	58	59	N	59	59	59	59	58	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	169	169	169	170	170	171	169	169	169	166		167	165	165	165	163	163	163	163	163	163	165	165	166
Final Discharge Temp	TE-2120	deg		110	150	86	86	86	84	82	82	84	83	87	96	R	103	99	98	97	92	92	90	90	90	90	88	88	88
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	209	209	209	208	208	206	207	206	210	217	e	214	214	214	213	210	209	208	208	208	208	209	209	210
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	213	213	213	212	210	210	210	208	216	219	t	221	223	223	221	216	216	214	214	214	214	213	213	213
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	207	207	207	205	205	204	205	204	207	210	U	212	213	213	211	208	207	206	205	205	205	207	207	208
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	214	214	214	210	210	207	211	210	211	219	r	220	223	222	223	216	216	215	215	215	215	213	213	213
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	n	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
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
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							560				LO													
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20							545				TD													

DATE NOV 30 2021

SIGNATURE

Mid Shift

Days Shift

Notes

Utilities and Institutional Facilities

Date: DEC 01 2021

CGTG HOURLY READING LOG

(MST) / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	108	112	110	106	108	112	115	117	114	114	110	113	108	111	107	110	110	114	106	108	112	106	112	112
4	Instrument Temperature	TI-001	deg C		20	50	14	14	14	14	14	14	12	14	15	20	20	22	22	24	23	21	20	20	18	18	18	18	16	16
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	99	102	106	101	103	100	105	101	106	98	110	104	112	106	105	101	103	107	111	100	98	103	106	102
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	61	61	63	63	63	64	64	63	62	62	62	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	36	36	36	36	37	37	37	36	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	65	67	67	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	8	8	8	8	8	8	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	8
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1068	1070	1067	1069	1071	1068	1077	1056	1024	979	990	981	968	963	967	974	1007	1013	1030	1033	1032	1040	1041	1037
23	Mw Output		MW			27	25.2	25.2	25.2	25.2	25.2	25.2	25.3	24.8	24.1	22.9	23.1	22.9	22.6	22.5	22.6	22.8	23.5	23.7	24.2	24.2	24.2	24.5	24.5	24.5
24	80% Base Load Minimum		MW				20.2	20.2	20.2	20.2	20.2	20.2	20.3	20.0	19.6	19.0	19.0	18.9	18.8	18.8	18.8	18.9	19.3	19.4	19.7	19.7	19.7	19.8	19.8	19.8
25	Running Hours (unit overview)						9224	9225	9226	9227	9228	9229	9230	9231	9232	9233	9234	9235	9236	9237	9238	9239	9240	9241	9242	9243	9244	9245	9246	9247
26	Ambient Temperature	T1 inlet					44	44	43	43	43	42	41.4	45.5	51.4	58.1	58.5	59.7	60.8	62.1	61.5	59.7	55.4	53.4	50	50	50	49	49	48
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	67	67	67	67	67	67	67	67	66	66	65	65	65	66	66	66	66	66	66	66	66	67	67	67
28	Total Fuel Flow		Mscf/h				247	247	247	248	248	248	248	243	238	230	230	229	226	224	226	228	232	234	238	238	238	240	241	242

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																													
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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	31	31	30	30	30	30	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84
Stage Disch. Press	PI-2101	psig		238	285	253	252	252	252	252	252	251	251	251	254	254	254	255	255	255	255	255	255	254	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	248	248	248	248	247	247	247	250	250	250	251	251	252	252	251	251	251	251	251	250	250	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	565	564	564	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	560	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	57	57	57	58	58	59	59	59	59	59	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	169	169	169	170	170	170	171	171	171	167	167	167	165	165	164	164	165	165	166	166	166	168	168	169
Final Discharge Temp	TE-2120	deg		110	150	85	84	84	82	82	82	79	81	85	96	96	98	99	104	100	98	94	92	92	90	90	88	88	88
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	208	208	208	207	207	207	206	208	210	213	213	214	214	216	214	212	212	210	210	210	210	209	209	209
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	210	210	210	210	208	208	207	209	212	220	221	222	223	225	223	221	219	217	217	217	217	215	215	215
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	208	208	206	206	205	205	204	206	208	210	210	212	214	214	212	210	210	208	208	208	208	208	208	208
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	210	210	210	210	209	209	207	210	213	220	221	222	224	226	224	221	220	218	218	218	218	215	215	215
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.05	.04	.04	.04	.04	.04	.04	.04	.04
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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE DEC 01 2021

SIGNATURE

Mid Shift

Days Shift

Notes

Utilities and Institutional Facilities

Date: DEC 02 2021

(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	v				✓	✓	✓	✓	✓	✓	√	√	B	√	√	√	√	√	√	√	√	√	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	√	√	U	√	√	√	√	√	√	√	√	√	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	108	112	108	106	112	112	108	S	112	110	108	113	111	107	108	113	110	112	105	112	108	112	105
4	Instrument Temperature	TI-001	deg C		20	50	16	16	16	16	14	14	12	14	Y	15	17	19	20	20	20	20	18	17	18	18	18	18	16	16
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	19	19	19	19	L	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	101	100	104	102	101	99	103	100	O	106	110	99	108	109	111	109	104	100	101	102	101	99	100	98
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	K	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	60	60	60	61	61	i	61	62	62	62	62	62	62	61	61	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	n	36	37	37	37	37	37	37	36	36	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max									O															
12	Room Temperature		deg F		72	85	68	68	68	68	68	68	68	68	U	68	68	68	68	68	68	68	68	68	68	68	63	68	68	68
15	WECC Log		Operational?												T															
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	L	Y	Y	Y	Y	Y	Y	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	E	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Entronic Control System		Units	Low	Norm	Max									A															
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%	8	8	8	8	8	8	9	9	2	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8
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
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			1427	1048	1053	1050	1071	1069	1068	1077	1047		1010	990	984	979	977	989	981	1019	1035	1008	1006	1026	1028	1037	1036
23	Mw Output		MW			27	24.8	24.8	24.8	25.2	25.2	25.2	25.4	24.6		23.7	23.7	23.1	23.0	22.9	23.0	23.1	23.9	24.2	23.6	23.6	24.1	24.1	24.5	24.5
24	80% Base Load Minimum		MW				20.0	20.0	20.0	20.0	20.3	20.3	20.4	19.9		19.4	19.1	19.1	19.0	19.0	19.1	19.1	19.6	19.7	19.4	19.4	19.7	19.7	19.8	19.8
25	Running Hours (unit overview)						9248	9249	9250	9251	9252	9253	9254	9255		9256	9257	9258	9259	9260	9261	9262	9263	9264	9265	9266	9267	9268	9269	9270
26	Ambient Temperature	T1 inlet					46	46	44	42	42	42	40.5	47.5		53.4	57.4	57.7	58.6	59.0	57.9	57.2	51.4	49.5	53	53	50	50	48	48
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	67	67	67	67	67	67	67			65	65	65	65	66	66	66	66	66	66	66	66	66	66	66
28	Total Fuel Flow		Mscf/h				243	243	245	247	247	247	247			234	230	229	228	227	229	229	236	238	234	234	237	237	240	240

Date: DEC 02 2021 Signature:

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														BUSY															
Combustible Gas Detector	AAH-305	%		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
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	E	E
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	½	½	½	½	½	½	½	½		½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	28	28	28	28	28	28	27	27	LOCK	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		B	B	B	B	B	B																		
1st Stage Inlet Press.	PI-2100	psig		88	140	84	84	84	84	83	83	83	83		83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	254	254	253	253	252	252	251	253		253	254	254	254	254	255	255	254	254	254	254	254	254	254	254
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	248	248	248	248	247	249		249	250	250	251	251	251	251	251	251	251	251	251	251	251	251
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564		564	565	565	565	565	565	565	566	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559		559	560	560	560	560	560	560	560	560	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	58	58	58	58		58	58	58	58	59	59	59	59	59	59	59	59	59	58	58
Lube Oil Temp	TE-1584	deg		150	170	169	169	169	169	170	170	170	169		169	167	166	166	165	165	166	165	165	164	164	164	164	166	166
Final Discharge Temp	TE-2120	deg		110	150	86	86	84	84	80	80	80	86		93	96	100	102	96	95	96	93	91	90	90	88	88	90	90
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	209	209	208	208	206	206	205	207		210	212	214	215	214	213	213	210	210	210	210	210	210	209	209
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	218	218	210	210	208	208	207	211		214	219	222	223	222	221	220	214	212	212	212	212	212	213	213
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	207	207	205	205	204	204	203	205		208	210	212	214	212	210	210	208	207	207	207	207	207	207	207
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	213	213	210	210	208	208	207	212		214	221	222	224	223	221	220	214	212	212	212	212	212	213	213
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	-04	-04		-04	-04	-04	-04	-04	-04	-04	-04	-04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	-05	-05		-05	-05	-05	-05	-06	-05	-05	-05	-05	.05	.03	.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																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE DEC 02 2021

SIGNATURE

Mid Shift

Days Shift

Notes

Utilities and Institutional Facilities

CGTG HOURLY READING LOG

Date: DEC 03 2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

Notes:

							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	I.D	Units	Low	Norm	Max																								
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	108	106	112	110	108	112	110	106	104	106	106	110	110	112	108	108	112	110	110	110	108	106	105	105
4	Instrument Temperature	TI-001	deg C		20	50	14	14	14	14	12	12	11	12	14	17	18	19	20	20	20	20	18	18	15	15	15	14	13	13
5	Aftercooler		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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	100	98	103	105	104	101	98	106	104	107	104	111	107	104	99	99	106	101	105	106	108	106	107	106
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	62	62	62	62	63	63	62	62	62	62	61	61	61	61	63	63
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	36	36	36	38	39	39	38	37	36	37	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	64	64	64	64	64	64	64	64	64	64	64	64	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	8	8	8	8	8	8	9	9	9	9	9	9	9	8	8	8	8	9	8	8	9	9	9	9
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1070	1067	1070	1080	1078	1077	1078	1061	1035	1015	1004	1002	991	977	986	986	1018	1040	1041	1032	1032	1047	1057	1059
23	Mw Output		MW			27	25.2	25.2	25.3	25.4	25.4	25.4	25.4	25.0	24.3	23.9	23.7	23.5	23.3	22.9	23.1	23.2	23.9	24.4	24.4	24.3	24.3	24.7	25.2	25.0
24	80% Base Load Minimum		MW				20.3	20.3	20.3	20.5	20.5	20.5	20.4	20.2	19.8	19.5	19.4	19.3	19.2	19.1	19.1	19.2	19.6	19.8	19.8	19.8	19.8	20	20.3	20.2
25	Running Hours (unit overview)						9271	9272	9273	9274	9275	9276	9277	9278	9279	9280	9281	9282	9283	9284	9285	9286	9287	9288	9289	9290	9291	9292	9293	9294
26	Ambient Temperature	T1 inlet					42	42	41	41	40	40	40	43	48	52	53	55	56	58	57	56	51	47	48	49	49	46	42	43
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	66	66	66	66	66	66	67	67	67	66	66	65	65	66	67	69	68	69	69	69	69	68	64	64
28	Total Fuel Flow		Mscf/h				246	246	246	247	247	247	246	241	239	236	235	233	232	228	231	230	234	238	238	237	237	239	243	243

Date: DEC 03 2021 Signature: MIO Jan

day shift — John Doe

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						B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Combustible Gas Detector	AAH-303	%		0%	20%	E	E	E	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 Left Side	FSL-1501B	LIGHT		BLINK		Y2	Y2	Y2	Y2	Y2	Y2	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
Liquid Level Coalescing	LI-7721	LIQID		EMPTY	ANY	26	26	26	26	26	26	25	25	25	25	25	25	25	25	24	24	24	24	24	24	24	24	24	24
Crankcase Bulls eye	LC-1574	LEVEL	1/4	1/2	FULL	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
Oil Day Tank Level	LI-1562	GAL	10		FULL	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Lubricator Bulls eye		LEVEL	1/2	FULL		E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
1st Stage Scrubber Liquid Level	LI-7416	LIQID		EMPTY	ANY	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY	84	84	83	83	83	83	83	83	83	82	83	83	83	83	83	83	83	83	84	84	84	84	84	84
Packing Lube Oil Flow indicator Right Side	FSL-1501A	LIGHT		BLINK		255	253	253	252	252	252	251	251	251	252	253	254	254	254	255	254	254	253	254	254	254	252	252	
1st Stage Inlet Press.	PI-2100	psig		88	140	251	251	260	250	248	248	247	248	249	249	249	250	250	248	248	250	250	250	250	250	250	250	248	248
Stage Disch. Press	PI-2101	psig		238	285	565	565	565	565	565	565	565	565	565	564	565	565	564	564	565	564	565	565	564	564	564	564	565	565
2nd Stage Inlet Press	PI-2200	psig		267	285	560	560	560	560	560	560	560	560	559	560	560	559	559	560	559	560	560	560	560	559	559	559	560	560
2nd Stage Disch. Press	PI-2201	psig		575	600	58	58	58	58	58	58	57	57	58	58	58	58	58	59	58	58	58	58	58	58	58	58	58	58
Final Discharge Pressure	PI-2108	psig		575	600	168	168	168	168	170	170	171	170	169	169	168	167	167	166	165	166	166	168	168	168	168	168	170	170
Lube Oil Pressure	PI-1572	psig	40	60		90	90	88	88	82	82	79	81	87	91	93	97	95	97	94	94	91	89	87	87	87	87	81	81
Lube Oil Temp	TE-1584	deg		150	170	209	209	207	205	205	205	205	206	208	210	211	212	214	213	212	211	210	209	208	206	206	206	206	206
Final Discharge Temp	TE-2120	deg		110	150	213	213	210	210	207	207	207	208	213	217	220	221	222	223	221	220	216	215	213	213	213	213	208	206
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	207	207	205	205	205	203	203	204	206	208	209	207	40	211	210	209	208	207	206	206	206	206	204	204
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	214	214	211	211	208	208	207	208	213	217	219	221	222	223	221	220	216	213	213	213	213	213	208	206
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.05	.05	.05	.05	.05	.05	.05	.07	.05	.05	.05	.07	.07
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
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.												560								560									
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8							555								556									
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20							542								544									

DATE DEC 03 2021

SIGNATURE

Mid Shift

Days Shift

Notes

Date: DEC 04 2021

(MST) / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	105	105	105	108	110	110	112	110	110	104	112	106	108	104	104	104	108	110	110	110	106	108	108	110
4	Instrument Temperature	TI-001	deg C		20	50	13	13	13	13	14	10	10	11	13	15	17	18	19	19	19	19	14	18	16	15	15	14	13	12
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	106	104	102	108	109	108	103	101	106	99	109	111	112	105	101	106	107	100	105	105	106	105	103	98
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	4/8	5/8	4/8	5/8	5/8	5/8	4/8	4/8	4/8	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	63	63	63	63	63	63	62	62	62	62	62	62	62	64	62	60	62	62	63	63	63	63	63	63
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	37	39	39	39	39	38	36	35	35	37	37	37	37	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	64	64	64	64	64	64	64	64	64	64	64	64	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	8	9	9	9	9
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1058	1066	1073	1082	1090	1093	1092	1060	1041	1037	1007	1007	1000	992	1002	1004	1079	1035	1041	1044	1043	1043	1060	1083
23	Mw Output		MW			27	25.0	25.2	25.4	25.6	25.8	25.8	25.7	25.0	24.6	24.2	23.7	23.5	23.3	23.1	23.3	23.4	24.2	24.1	24.3	24.3	24.3	24.3	25	25.4
24	80% Base Load Minimum		MW				20.2	20.3	20.4	20.6	20.7	20.8	20.7	20.2	19.9	19.7	19.4	19.3	19.2	19.1	19.2	19.3	19.7	19.7	19.8	19.8	19.8	19.8	20.2	20.4
25	Running Hours (unit overview)						9295	9296	9297	9298	9299	9300	9301	9302	9303	9304	9305	9306	9307	9308	9309	9310	9311	9312	9313	9314	9315	9316	9317	9318
26	Ambient Temperature	T1 inlet					43	42	40	38	37	36	36	43	47	50	53	54	56	57	55	55	49	49	49	48	48	48	44	40
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	69	69	69	69	70	70	69	69	69	68	68	68	69	69	70	71	70	71	70	70	70	70	70	70
28	Total Fuel Flow		Mscf/h				243	245	246	247	248	248	247	241	237	234	232	233	231	230	232	233	238	238	237	238	238	235	240	246

Date: DEC 04 2021 Signature: GOMEZ

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	24	24	24	24	22	22	22	22	22	22	22	22	22	21	21	21	21	21	20	20	20	20	20	20
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84	84	84	84
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	252	251	251	251	252	252	253	253	253	254	254	254	254	254	254	254	254	254	254	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	248	247	247	247	248	248	249	249	250	250	250	251	250	250	250	250	250	250	250	249	249
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	564	564	565	564	565	564	564	564	564	565	565	565	565	565	565	566	566
Final Discharge Pressure	PI-2108	psig		575	600	566	566	566	566	560	560	559	559	559	560	560	560	559	559	559	560	560	560	560	560	560	560	561	561
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	57	57	57	57	57	58	58	58	58	58	59	58	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	170	170	169	169	169	168	168	167	166	166	167	167	169	169	169	169	170	170
Final Discharge Temp	TE-2120	deg		110	150	81	81	81	81	76	76	75	81	85	88	90	92	94	94	95	93	87	86	87	87	87	87	80	80
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	206	206	206	206	203	203	202	204	206	207	211	212	212	212	212	211	210	209	208	208	208	208	205	205
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	208	208	208	208	207	203	203	206	209	213	216	219	220	219	220	218	215	213	212	212	212	212	207	207
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	204	204	204	204	201	201	200	203	204	205	208	209	210	210	210	209	208	207	206	206	206	206	203	203
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	208	208	208	208	207	207	203	206	210	213	216	219	220	220	220	219	215	214	212	212	212	212	208	208
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.05	.04	.04	.04	.04	.05	.05	.05	.05	.04	.05	.05	.05	.04	.05	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.06	.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.										560								561							560				
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8					556								556							556				
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20					542								545							543				

DATE	DEC 04 2021
SIGNATURE	
Mid Shift	GOMEZ
Days Shift	
Notes	

Utilities and Institutional Facilities

Date: DEC 05 2021

(MST) / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	108	106	110	110	110	108	110	106	112	112	110	106	106	110	112	106	110	110	110	110	106	110	110
4	Instrument Temperature	TI-001	deg C		20	50	12	12	11	11	10	10	10	10	12	14	16	16	18	18	19	18	17	16	15	15	14	14	13	13
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	98	106	108	100	97	99	98	100	106	101	112	106	104	111	110	110	109	100	104	100	98	104	102	102
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	63	63	63	63	63	63	62	62	62	62	62	62	62	62	62	62	62	62	62	61	62	62	63	63
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	37	37	36	37	39	39	36	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	64	66	64	64	64	64	64	64	64	64	64	64	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	8	8	8	8	8	8	8	9	9	9	9
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 fire trip)	A63GGD 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1076	1080	1085	1094	1097	1066	1066	1083	1060	1041	1022	1022	1010	1007	1002	1001	1020	1032	1041	1040	1051	1067	1089	1081
23	Mw Output		MW			27	25.1	25.2	25.4	25.5	25.6	24.8	24.8	25.2	24.8	24.3	23.9	23.5	23.5	23.3	23.4	23.7	23.9	24.1	24.2	24.4	24.8	25.4	25.3
24	80% Base Load Minimum		MW				20.4	20.5	20.5	20.6	20.7	20.2	20.2	20.4	20.2	19.8	19.6	19.6	19.4	19.1	19.3	19.4	19.6	19.7	19.8	19.8	19.9	20.1	20.5	20.5
25	Running Hours (unit overview)						9319	9320	9321	9322	9323	9324	9325	9326	9327	9328	9329	9330	9331	9332	9333	9334	9335	9336	9337	9338	9339	9340	9341	9342
26	Ambient Temperature	T1 inlet					41	40	39	37	36	43	43	40	43	48	50	50	52	54	55	53	51	49	49	48	46	44	39	40
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	70	71	71	71	71	71	70	69	69	67	67	67	68	69	71	71	71	71	72	72	71	71	72	71
28	Total Fuel Flow		Mscf/h				245	246	247	249	250	246	238	241	239	234	231	231	234	231	232	234	234	236	238	238	241	243	247	247

Date: DEC 05 2021 Signature: GOMEZ John Amo - dy shift

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	20	20	20	19	19	19	19	19	19	19	19	19	19	19	19	18	18	17	17	17	17	17	17	17
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	84	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	84	84	84	84	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	252	251	251	251	251	251	252	253	253	253	253	254	254	254	254	254	254	254	254	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	249	249	249	249	247	247	247	247	247	248	249	249	250	249	250	251	250	250	250	250	250	250	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	566	566	566	565	565	565	565	565	564	565	564	563	565	561	565	564	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	561	561	561	560	560	560	559	559	559	560	559	560	560	559	560	560	560	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	57	57	57	57	57	57	57	56	56	58	58	58	58	58	58	59	59	59	59	58	58
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	170	170	170	170	170	168	169	168	167	168	167	168	168	168	168	168	170	170
Final Discharge Temp	TE-2120	deg		110	150	80	80	78	77	75	75	76	78	81	86	89	90	91	91	91	90	90	87	87	87	86	78	78
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	205	205	205	204	204	204	201	202	204	206	208	208	211	211	211	210	210	209	208	208	208	206	205	205
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	207	207	206	205	203	203	202	204	206	210	215	216	218	218	218	217	214	214	211	211	211	210	206	206
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	203	203	203	202	202	202	199	200	202	204	205	206	208	208	209	208	208	206	206	206	206	205	203	203
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	208	208	206	205	203	203	202	204	207	210	214	216	218	219	218	218	215	214	212	212	212	211	207	207
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.05	.05	.04	.04	.05	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.06	.06	.04	.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.										560							560							560					
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8					556							556							556					
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20					543							544							542					

DATE DEC 0 5 2021

SIGNATURE

Mid Shift GOMEZ

Days Shift

Notes

Utilities and Institutional Facilities

8030

Date: DEC 0 6 2021

CGTG HOURLY READING LOG

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	110	106	108	110	110	108	104	110	100	98	109	103	99	104	108	102	104	110	112	108	110	106	108	112
4	Instrument Temperature	TI-001	deg C		20	50	12	12	11	11	10	8	5	5	4	4	9	10	12	14	14	15	15	14	14	14	12	12	12	13
5	Hx 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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	104	106	108	100	100	104	107	100	102	100	107	105	111	101	106	111	110	108	106	101	101	103	105
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	63	63	63	63	62	62	61	61	61	60	60	60	60	60	60	60	60	60	60	60	60	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	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
13	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Electronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
19	10 gal gas TG Drain Tank (Air Diagram page)	LI-230	%			70%	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Record on hand 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			1427	1083	1087	1106	1116	1132	1133	1153	1157	1120	1112	1102	1059	1058	1066	1058	1066	1080	1081	1088	1086	1093	1091	1092	1093
23	Mw Output		MW			27	25.4	25.5	25.8	26.1	26.5	26.5	26.9	26.9	26.1	25.9	25.7	24.7	24.8	24.4	24.7	24.8	25.1	25.1	25.1	25.1	25.5	25.5	25.5	25.3
24	80% Base Load Minimum		MW				20.5	20.6	20.8	21.1	21.4	21.4	21.7	21.7	21.0	20.8	20.7	20.1	20.1	20.1	20.0	20.2	20.3	20.4	20.4	20.4	20.7	20.7	20.7	20.7
25	Running Hours (unit overview)						9343	9344	9345	9346	9347	9348	9349	9350	9351	9352	9353	9354	9355	9356	9357	9358	9359	9360	9361	9362	9363	9364	9365	9366
26	Ambient Temperature	T1 inlet					39	38	37	32	29	29	25.9	26.1	33.4	35.4	37.2	45.1	45.0	44.1	45.1	43.5	41.9	41.9	40	40	38	37	37	37
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	72	72	72	72	72	72	72	72	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
28	Total Fuel Flow		Mscf/h				247	248	249	255	258	259	255	256	251	253	257	243	247	246	246	242	244	244	245	247	247	248	248	249

Date: DEC 0 6 2021 Signature: Gomez

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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	17	17	17	17	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	E	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		B	B	B	B	B	B	B	B	A	B	B	B	B	B	A	B	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	87	87	81	83	87	83	82	83	83	83	83	83	83	83	85	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	252	249	249	249	249	249	250	250	250	250	253	253	253	252	252	252	252	252	252	252	252
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	248	245	245	245	245	248	246	246	246	246	248	248	249	249	249	249	249	248	248	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	565	564	568	568	564	564	564	565	565	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	559	559	559	559	559	559	559	560	560	560	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	58	57	57	57	57	57	57	57	57	57	57	57	57	57	57	56	56	57	57	57	57
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	169	169	169	169	169	169	169	169	169	170	170	169	171	171	170	170	170	170	170	170
Final Discharge Temp	TE-2120	deg		110	150	78	77	77	77	69	69	70	70	70	76	76	76	76	83	83	83	81	81	80	80	80	77	77	77
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	205	205	205	205	202	202	199	199	199	204	204	208	208	206	206	206	205	205	205	205	204	204	204	204
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	206	205	205	205	200	200	198	196	196	205	207	207	208	210	210	209	208	208	207	207	205	205	205	205
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	203	203	203	203	201	201	197	197	197	202	204	204	204	203	203	203	203	203	202	202	201	201	201	201
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	207	207	207	207	201	201	199	199	200	205	207	207	207	210	210	209	208	208	208	208	206	206	206	206
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.01	.04	.04	.01	.01	.01	.04	.4	.05	.04	.04	.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.															568														
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8										554														
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20										542														

DATE	DEC 0 6 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

9032

Date: DEC 07 2021

CGTG HOURLY READING LOG

(MST) MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

Time Turbine Offline (Brkr Open):

Time No Gas Flow:

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	112	110	108	106	112	110	108	100	103	110	106	110	108	110	102	109	110	105	112	106	102	100	108	103
4	Instrument Temperature	TI-001	deg C		20	50	12	12	12	12	12	12	10	10	12	12	12	13	13	13	13	13	13	13	12	12	12	10	10	10
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	105	101	107	105	100	104	101	106	106	107	105	106	100	104	100	112	106	110	108	105				
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	3/4	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	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	38	35	35	34	35	35	36	36	35	35	35	35	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	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	Y	Y	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1076	1075	1072	1075	1077	1078	1082	1088	1074	1070	1067	1069	1052	1061	1062	1070	1078	1092	1086	1091	1090	1104	1105	1106
23	Mw Output		MW			27	25.1	25.1	25.1	25.2	25.2	25.2	25.1	25.3	24.9	24.8	24.8	24.9	24.5	24.7	24.4	24.9	25.0	25.2	25.3	25.3	25.3	25.8	25.8	25.8
24	80% Base Load Minimum		MW				20.4	20.4	20.4	20.5	20.5	20.5	20.4	20.6	20.2	20.1	20.2	20.2	20.0	20.1	20.1	20.2	20.3	20.4	20.5	20.5	20.5	20.8	20.8	20.8
25	Running Hours (unit overview)						9367	9368	9369	9370	9371	9372	9373	9374	9375	9376	9377	9378	9379	9380	9381	9382	9383	9384	9385	9386	9387	9388	9389	9390
26	Ambient Temperature	T1 inlet					40	40	40	39	39	39	40.1	40.2	42.4	42.6	43.5	42.8	46	45	44	43.0	44.7	39.0	39	39	38	36	35	35
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	72	72	72	70	70	70	70	70	70	70	70	69	70	70	70	70	70	70	70	70	70	70	70	70
28	Total Fuel Flow		Mscf/h				247	247	245	238	238	239	239	241	237	237	237	238	236	236	240	239	239	240	242	242	245	245	246	246

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																													
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	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	½	½	½	½	½	½	1/2	1/2	1/2	½	1/2	1/2	1/2	1/2	½	1/2	1/2	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	15	15	15	15	15	15	14	14	14	14	14	14	14	13	13	13	13	13	13	13	13	13	13	13
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	84	84	84	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	252	252	252	252	252	252	251	251	251	252	252	252	251	251	251	252	252	252	252	252	252	251	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285	248	248	248	248	248	248	248	247	247	248	248	248	249	249	249	248	248	248	248	248	248	248	247	247
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	565	565	248	248	564	565	565	564	564	564	564	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	560	560	564	564	559	560	560	560	559	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	57	57	57	58	58	58	57	57	57	57	57	57	57	57	57
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	171	171	171	171	171	170	170	169	169	169	169	170	170	170	170	170	170	170	170	170
Final Discharge Temp	TE-2120	deg		110	150	77	77	79	79	80	80	80	78	78	83	83	83	83	83	82	81	81	81	80	80	80	78	78	76
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	204	204	204	202	202	202	201	201	201	203	203	203	203	203	203	204	204	204	204	204	204	202	202	202
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	205	205	205	205	204	204	203	203	203	207	207	207	207	207	207	207	207	203	205	205	205	203	203	203
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	201	201	201	200	200	200	200	199	199	201	201	201	201	201	201	201	201	201	201	201	201	200	200	200
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	206	206	205	205	204	204	203	203	203	207	207	208	207	207	207	207	207	207	207	207	207	205	205	205
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.04	.05	.04	.04	.05	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04	.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.																													
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8																								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20																								

DATE DEC 07 2021

SIGNATURE

Mid Shift

Days Shift

28527

Notes

Utilities and Institutional Facilities

Date: DEC 08 2021

MST / MDT (circle one)

Time Gas Introduced (Turbine Rolling):

Time of Turbine Online (Brkr Closed):

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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	~~100~~	112	106	109	112	106	110	104	100	102	100	110	110	108	98	100	110	109	108	112	108	110	102	111
4	Instrument Temperature	TI-001	deg C		20	50	10	10	10	10	10	10	10	10	10	10	10	13	13	14	14	14	13	13	12	12	12	11	11	11
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	19	19	19	19	19	19	19
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	102	100	101	99	107	104	108	111	107	99	101	106	110	108	100	96	104	100	110	106	108	103	100	105
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	60	60	60	62	60	60	60	60	60	60	60	60	60	60	60	60
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	35	35	38	35	35	36	35	35	35	38	35	35	35	35	35	35	35	35
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69	69
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	Y	Y	Y	Y	Y	Y	Y	Y	N	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	Y	Y	Y	Y	Y	Y		Y	N	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
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 5T-01	psig	35	20								✓	✓	✓	✓			✓	✓	✓	✓	✓	✓						
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1080	1079	1116	1115	1117	1116	1120	1091	1083	1065	1062	1068	1063	1055	1043	1047	1070	1085	1075	1079	1077	1078	1077	1079
23	Mw Output		MW			27	25.8	25.8	26.1	26.1	26.1	26.1	26.0	25.5	25.2	24.8	24.6	24.8	24.7	24.5	24.2	24.6	24.7	25.1	25.0	25.0	25.0	25.2	25.2	25.2
24	80% Base Load Minimum		MW				20.8	20.8	21.1	21.1	21.1	21.1	21.1	20.6	20.3	20.1	20.0	20.1	20.0	20.0	19.8	20.2	20.6	20.4	20.4	20.4	20.4	20.5	20.5	20.5
25	Running Hours (unit overview)						9391	9392	9393	9394	9395	9396	9397	9398	9399	9400	9401	9402	9403	9404	9405	9406	9407	9407	9409	9410	9411	9412	9413	9414
26	Ambient Temperature	T1 inlet					35	35	33	32	32	32	32.2	38.1	41.2	44.4	45.3	44.6	45.3	44.4	47.5	47.2	43.3	40.1	40	40	40	39	39	39
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	71	71	71	71	71	71	71	71	70	69	69	70	70	70	77	75	75	75	75	75	75	75	75	75
28	Total Fuel Flow		Mscf/h				247	248	248	249	249	249	248	244	241	239	238	244	238	235	233	237	231	239	240	240	240	242	242	242

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																													
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	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	1/2	1/2	1/2
Oil Day Tank Level	LI-1562	GAL	10		FULL	13	13	13	13	12	12	12	11	11	11	11	11	11	11	11	11	11	4	11	11	11	11	11	11
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	E	E	E
Packing Lube Oil Flow Indicator Right Side	FSL-1501A	LIGHT		BLINK		B	B	B	B	B	B	0	B	B	B	B	B	A	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	83	82	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	251	251	251	251	250	250	249	250	251	251	252	253	253	253	253	253	253	253	253	253	251	251	251	251
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	247	247	245	245	246	246	247	247	248	249	249	249	249	249	249	249	249	249	248	248	248	248
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	564	564	564	564	565	565	565	565	564	564	564	564	565	565	565	565	565	565
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	559	559	560	560	560	560	559	559	559	559	560	560	560	560	560	560
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	57	57	58	58	58	55	55	57	57	57	57	57	57	57	57
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170
Final Discharge Temp	TE-2120	deg		110	150	75	75	75	75	75	74	74	77	81	81	84	83	87	87	86	86	83	87	83	83	80	80	80	78
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	200	200	200	200	200	206	204	201	203	203	204	205	205	205	206	206	204	204	204	204	202	202	202	202
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	201	201	201	201	200	200	200	203	207	207	210	210	210	210	211	211	208	208	208	208	205	205	205	205
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	198	198	198	198	197	197	199	199	201	201	201	202	202	202	203	203	201	201	201	201	201	200	200	200
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	201	201	201	201	200	200	203	203	207	207	210	210	210	210	211	211	208	208	208	208	205	205	205	205
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.01	.01	.01	.01	.01	.05	.01	.01	.01	.01	.01	.01	.01	.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.															560														
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8										555														
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20										543														

DATE	DEC 08 2021
SIGNATURE	
Mid Shift	
Days Shift	

Notes

Utilities and Institutional Facilities

Date: DEC 09 2021

(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	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Blowdown Wet Receiver Tank Hourly	BVT-007	v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Wet Receiver Air Pressure	PI-002	psig	90	105	120	110	109	112	108	104	112	108	106	104	108	112	104	104	112	112	114	108	110	111	108	110	111	103	107
4	Instrument Temperature	TI-001	deg C		20	50	12	12	12	12	12	12	11	11	14	13	13	14	15	16	16	16	15	14	14	14	14	14	14	13
5	Fin Fan Cooler		Units	Low	Norm	Max																								
6	Coolant Pressure	PI-250	psig		25		19	19	19	19	99	19	19	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	101	103	100	102	99	104	111	111	109	106	99	98	111	100	110	109	109	101	103	107	104	103	100	107
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	5/8	5/8	5/8
9	Coolant Return Differential from GG	FI-001	In WC		60	80	60	60	60	60	60	60	60	60	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	61
10	Coolant Return Differential from	FI-002	In WC		37	50	35	35	35	35	35	35	36	36	36	36	36	36	38	37	36	36	36	36	36	36	36	36	36	36
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	69	69	69	69	69	69	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
15	WECC Log		Operational?																											
16	Operation of PSS/on at 6.3MW		Yes (Y)			No (N)	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	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Entronic Control System		Units	Low	Norm	Max																								
	(18–20 found on Air Diagram page)																													
18	2000 gal Oil Water Tank Level	LI-231	%			70%	9	9	9	9	9	9	9	9	9	9	9	9	9	7	8	8	9	9	9	9	9	9	9	9
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 5T-01	psig	35	20																									
21	Acknowledge Alarms Hourly		v				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	(22–24 found on Power Management page)																													
22	Generator Current		Amps			1427	1075	1072	1071	1072	1071	1075	1081	1076	1067	1072	1066	1059	1046	1038	1037	1036	1042	1052	1049	1052	1053	1053	1054	1055
23	Mw Output		MW			27	25.1	25.1	25.1	25.0	25.0	25.0	25.1	25.0	24.8	25.0	24.9	24.6	24.3	23.9	24.1	24.1	24.2	24.4	24.4	24.5	24.5	24.5	24.6	24.7
24	80% Base Load Minimum		MW				20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.2	20.3	20.2	20.1	20.0	19.7	19.9	19.8	19.9	20.1	20.0	20.1	20.1	20.1	20.2	20.3
25	Running Hours (unit overview)						9415	9416	9417	9418	9419	9420	9421	9422	9423	9424	9425	9426	9426	9427	9428	9429	9431	9432	9433	9434	9435	9436	9437	9438
26	Ambient Temperature	T1 inlet					40	40	40	41	41	41	40	41	42	41	42	44	46	49	47	48	46	44	45	45	44	44	43	42
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	76	76	76	76	76	76	75	75	75	75	75	75	75	74	75	75	75	75	75	75	75	75	75	75
28	Total Fuel Flow		Mscf/h				242	242	242	241	241	242	241	239	239	240	239	237	235	231	233	232	233	235	235	235	236	236	236	237

Date:

Signature: Day shift – Jack Chase

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	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	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
Oil Day Tank Level	LI-1562	GAL	10		FULL	10	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
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	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	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	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
Stage Disch. Press	PI-2101	psig		238	285	251	251	250	250	250	250	251	251	251	252	252	252	253	253	253	253	253	252	252	252	252	253	253	253
2nd Stage Inlet Press	PI-2200	psig		267	285	247	247	247	247	245	245	247	247	247	248	248	248	249	249	249	250	249	249	248	248	248	249	249	250
2nd Stage Disch. Press	PI-2201	psig		575	600	565	565	565	565	565	565	565	564	564	565	564	565	564	564	565	564	565	565	565	565	565	566	566	568
Final Discharge Pressure	PI-2108	psig		575	600	560	560	560	560	560	560	560	559	559	560	559	560	559	559	560	559	560	560	560	560	560	561	560	562
Lube Oil Pressure	PI-1572	psig	40	60		57	57	57	57	57	57	57	57	57	57	57	58	58	58	58	58	58	58	58	58	58	58	58	58
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	170	170	170	171	170	170	170	170	169	169	169	168	168	169	169	169	169	169	170	170	170
Final Discharge Temp	TE-2120	deg		110	150	75	75	75	75	75	75	80	80	81	80	83	83	86	87	86	86	85	84	84	84	84	83	83	83
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	200	200	200	200	200	206	202	202	204	207	204	204	206	207	205	205	205	203	203	203	203	203	203	205
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	201	201	201	201	201	201	205	204	207	206	208	209	210	212	211	211	210	209	209	208	208	208	208	206
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	198	198	199	199	200	200	199	199	202	201	201	201	203	204	202	202	202	201	201	201	201	201	206	206
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	201	201	201	201	201	201	205	205	207	207	208	209	211	213	211	211	210	209	209	209	209	209	209	209
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.05	.04	.04	.05	.05	.05	.04	.04	.04	.04	.04	.04	.04	.04
Compresser Frame Vibration	VT-1512	IPS			0.35	.05	.05	.05	.05	.05	.05	.05	.05	.05	.03	.06	.05	.05	.05	.05	.06	.06	.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.													561								561								
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								556								556								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								544								544								

DATE DEC 09 2021

SIGNATURE

Mid Shift

Days Shift 300 88

Notes

Utilities and Institutional Facilities

Date: 12-10-2021

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: 2130 Low air pressure Alarm at CGTG Air Comp Wet Receiver Now at 30 psi Dry at 60 psi. CGTG off line 2300

	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	109	110	111	112	100	108	106	108	106	106	110	106	106	110	106	106	108	110	111	109	30		
4	Instrument Temperature	TI-001	deg C		20	50	13	13	12	10	10	10	10	10	10	10	11	11	11	11	10	8	6	6	9	9	9	9		
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	19	19	19	19	19		
7	Coolant PLC Temperature	TI-002	deg F	100	110	120	100	105	101	107	104	103	100	103	110	108	111	98	97	106	105	106	110	109	101	107	100	103		
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	5/8		
9	Coolant Return Differential from GG	FI-001	In WC		60	80	61	61	61	61	61	61	62	60	62	62	60	62	62	62	60	60	61	61	61	61	61	61		
10	Coolant Return Differential from	FI-002	In WC		37	50	36	36	36	36	36	36	36	36	36	36	36	36	36	36	35	35	35	35	35	35	35	35		
11	Control Room		Units	Low	Norm	Max																								
12	Room Temperature		deg F		72	85	64	64	64	64	64	64	64	64	66	66	66	66	66	66	66	66	64	64	64	64	64	64		
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	Y	Y	Y	Y	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	Y	Y	Y	Y	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%	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	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	0	0	0	0	0	0	0	0	0	0	0	0	0		
20	Record on Mark 5/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			1427	1055	1062	1065	1083	1087	1087	1096	1086	1085	1085	1088	1086	1089	1090	1114	1134	1138	1136	1135	1137	1133	1129		
23	Mw Output		MW			27	24.7	24.9	25.0	25.3	25.4	25.3	25.5	25.3	25.3	25.2	25.3	25.3	25.3	25.5	25.9	26.4	26.5	26.5	26.5	26.5	26.5	26.4		
24	80% Base Load Minimum		MW				20.3	20.4	20.4	20.6	20.7	20.6	20.9	20.8	20.8	20.7	20.8	20.8	20.8	21.0	21.2	21.6	21.8	21.8	21.8	21.8	21.8	21.8		
25	Running Hours (unit overview)						9439	9440	9441	9442	9443	9444	9445	9445	9446	9447	9449	9449	9450	9451	9452	9453	9454	9455	9457	9458	9459	9460		
26	Ambient Temperature	T1 inlet					42	40	39	36	35	35	34	36	35	37	36	36	35	34	31	26	24	22	21	21	21	19		
	(27–28 found on Gas Fuel System page)																													
27	Waste Oil Tank	LI-120	%			70%	75	75	75	75	75	75	76	76	75	75	75	75	76	75	76	76	76	76	76	76	76	76		
28	Total Fuel Flow		Mscf/h				238	239	240	241	240	242	244	241	241	240	242	241	248	244	247	251	252	250	251	250	250	249		

Date: 12-10-2021 Signature: Bob

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		
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	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		
Oil Day Tank Level	LI-1562	GAL	10		FULL	9	9	9	9	8	6	6	8	7	7	7	7	7	7	7	6	6	6	6	6	6	6		
Lubricator Bulls eye		LEVEL	1/2	FULL		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		
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	E		
2nd Stage Scrubber Liquid Level	LI-7466	LIQID		EMPTY	ANY	E	E	E	E	E	F	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		
1st Stage Inlet Press.	PI-2100	psig		88	140	83	83	83	83	83	83	83	83	83	83	83	83	83	82	82	83	83	82	83	83	83	83		
Stage Disch. Press	PI-2101	psig		238	285	253	252	252	252	25	25	250	251	250	250	252	250	250	250	249	250	249	249	249	249	249	249		
2nd Stage Inlet Press	PI-2200	psig		267	285	250	250	249	247	248	248	246	245	246	246	248	246	246	246	245	246	245	248	245	245	245	245		
2nd Stage Disch. Press	PI-2201	psig		575	600	567	565	565	565	565	565	565	565	564	565	564	564	564	564	564	564	565	565	565	565	565	565		
Final Discharge Pressure	PI-2108	psig		575	600	561	561	561	560	560	560	560	559	559	560	559	559	560	559	559	559	559	559	559	559	560	560		
Lube Oil Pressure	PI-1572	psig	40	60		58	58	58	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57		
Lube Oil Temp	TE-1584	deg		150	170	170	170	170	176	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169		
Final Discharge Temp	TE-2120	deg		110	150	83	82	80	79	78	77	74	75	74	75	73	73	73	72	70	70	70	70	70	69	69	69		
1st Stage Cylinder Disch. Temperature A	TE-2054 A	deg		226	297	208	203	202	201	201	200	200	200	199	200	200	202	203	200	199	198	197	197	197	196	195	195		
2nd Stage Cylinder Disch. Temperature A	TE-2062 A	deg		258	283	208	207	205	205	204	203	201	202	200	201	200	202	202	199	197	197	196	196	196	196	195	194		
1st Stage Cylinder Disch. Temperature B	TE-2054 B	deg		226	297	200	200	199	199	198	197	194	198	197	197	197	199	200	198	197	196	195	195	195	195	194	193		
2nd Stage Cylinder Disch. Temperature B	TE-2062 B	deg		258	283	209	208	206	205	204	203	201	202	200	201	200	202	202	200	198	197	196	195	195	195	194	194		
Motor Frame Vibration	VT-1015	IPS			0.15	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04	.04		
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		
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								560								
Double Block and Bleed Pressure	A63FGDT	49-48=psid			8								556								556								
Fuel Gas Supply Pressure	A63FTGST	50-49=psid			20								543								541								

DATE 12-10-2024

SIGNATURE

Mid Shift Bob Az

Days Shift John Anna

Notes

ATTACHMENT A1307.E.

TA-03 Power Plant

FGR Fan Inspection and Maintenance

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 :** 07/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00693722 01

MASTER

Date: 04/22/2021

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 :** 6-22-21

Complete Notice : Glenn Martinez **Complete Date :** 7-1-21

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

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 :** 07/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00693722 01

MASTER

Date: 04/22/2021

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

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 :** 07/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00693722 01

MASTER

Date: 04/22/2021

QC Requirements / Comments

Work Completion Signatures

Name	Function/Dept.	Date
Insert Text Here	LOG-CS/ PP MAINT....	7-02-21

Comments

(rework?)

Cost Accounting

Cost Center : 7D120C **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 :** 07/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00693722 01

MASTER

Date: 04/22/2021

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 1mo FGR Fan lube 7-2-21 C. Salazar	**Completed (X)**
What permits, permissions, or support are required to safely start this work?	
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	
What can cause us to go beyond the scope of the work?	
What hazards in the work area may not have been considered during planning of this job	

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 #: _____

The 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 specific activity location.

FOD 8	TA 03	Bldg. 22-24	Room N/A	Other Location Power Plant Bldg - Inside
FOD Designated Facility Point-of-Contact	Name Nicholas Nelson	Phone 505-655-5508	Pager N/A	Email nelson_n@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 must be Scheduled
- ☐ Quality Issues
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)
- ☒ Work-Area Training Required
- ☒ Check in Daily
- ☐ Other Security Requirements (ex.: Cellphone, No Foreign Nationals, etc.)
- ☒ Check out Daily
- ☒ Other Bounding Conditions: 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

All work must be approved by the Utilities FOD or OM or OS. POD/POTW – 1:30pm Mon. thru Friday. Evaluate outside ground conditions during cold or wet weather events, wear appropriate foot wear (spiky-plus) in snow and ice conditions. 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. All personnel entering any 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. 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. Avoid using the same Part 2, Form 2101 for multiple facilities. Ensure that work area hazards, specific to the facility or work location are identified and controlled. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the work area hazards, and also 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,	☐ Yes ☒ No			

or work on or near radiation producing devices. **Specify Hazard:**				

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:** Hot Piping, Potential Hot Water/Steam from pipe/fitting openings, Boiler Water Treatment Chemicals, Asbestos.	☒ 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 access. Call Serf Operators 667-8982 or by Radio Lanl for mitigation cleanup process. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation	• P101-6 PPE •P101-23 Asbestos • P101-31Hearing Conservations/Noise Program	•LANL PPE or equivalent • Hearing protection • Site specific training • Asbestos awareness • Hazcom

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, hot pressurized water/steam lines .	☒ 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 LOTOs require independent verification and written specific procedure. If questions consult with UI system engineer, Operation Mgr. Designee, or Safety rep. .	P101-13 Electrical Safety P101-3 LOTO P101-34 Pressure, Vacuum, 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.	P101-27 Confined Space	Confined Space Traning
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.	P101-20.0	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. **Specify Hazards:**	☐ Yes ☒ No			
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:**	☒ Yes ☐ No	Call pest control for clean-up if excessive rat droppings, dead rodents, wasp nest, etc in area of task activity.		

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** NICHOLAS NELSON (Affiliate) Digitally signed by NICHOLAS NELSON (Affiliate) Date: 2020.07.29 11:27:49 -06'00'

Date Approval Expires: 9-30-2021

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 :** 08/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00696128 01

MASTER

Date: 05/19/2021

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 :** 7-27-21

Complete Notice : Glenn Martinez **Complete Date :** 8-4-21

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

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 :** 08/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00696128 01

MASTER

Date: 05/19/2021

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

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 :** 08/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00696128 01

MASTER

Date: 05/19/2021

QC Requirements / Comments

Work Completion Signatures

Name	Function/Dept.	Date
Chris Salazar	LOG-CS/PP MAINT..	08-02-2021

Comments

(rework?)

Cost Accounting

Cost Center : 7D120C **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 :** 08/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00696128 01

MASTER

Date: 05/19/2021

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 Fan 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

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 #: _____

The 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 specific activity location.

FOD 8	TA 03	Bldg. 22-24	Room N/A	Other Location Power Plant Bldg - Inside
FOD Designated Facility Point-of-Contact	Name Nicholas Nelson	Phone 505-655-5508	Pager N/A	Email nelson_n@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 must be Scheduled
- ☐ Quality Issues
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)
- ☒ Work-Area Training Required
- ☒ Check in Daily
- ☐ Other Security Requirements (ex.: Cellphone, No Foreign Nationals, etc.)
- ☒ Check out Daily
- ☒ Other Bounding Conditions: 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

All work must be approved by the Utilities FOD or OM or OS. POD/POTW – 1:30pm Mon. thru Friday. Evaluate outside ground conditions during cold or wet weather events, wear appropriate foot wear (spiky-plus) in snow and ice conditions. 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. All personnel entering any 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. 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. Avoid using the same Part 2, Form 2101 for multiple facilities. Ensure that work area hazards, specific to the facility or work location are identified and controlled. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the work area hazards, and also 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,	☐ Yes ☒ No			

or work on or near radiation producing devices. **Specify Hazard:**				

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:** Hot Piping, Potential Hot Water/Steam from pipe/fitting openings, Boiler Water Treatment Chemicals, Asbestos.	☒ 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 access. Call Serf Operators 667-8982 or by Radio Lanl for mitigation cleanup process. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation	• P101-6 PPE •P101-23 Asbestos • P101-31Hearing Conservations/Noise Program	•LANL PPE or equivalent • Hearing protection • Site specific training • Asbestos awareness • Hazcom

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, hot pressurized water/steam lines .	☒ 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 LOTOs require independent verification and written specific procedure. If questions consult with UI system engineer, Operation Mgr. Designee, or Safety rep. .	P101-13 Electrical Safety P101-3 LOTO P101-34 Pressure, Vacuum, 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.	P101-27 Confined Space	Confined Space Traning
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.	P101-20.0	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. **Specify Hazards:**	☐ Yes ☒ No			
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:**	☒ Yes ☐ No	Call pest control for clean-up if excessive rat droppings, dead rodents, wasp nest, etc in area of task activity.		

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** NICHOLAS NELSON (Affiliate) Digitally signed by NICHOLAS NELSON (Affiliate) Date: 2020.07.29 11:27:49 -06'00'

Date Approval Expires: 9-30-2021

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 :** 09/30/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00698640 01

MASTER

Date: 06/09/2021

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 :** 8-24-21

Complete Notice : Glenn martinez **Complete Date :** 9-27-21

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

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 :** 09/30/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00698640 01

MASTER

Date: 06/09/2021

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

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 :** 09/30/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00698640 01

MASTER

Date: 06/09/2021

QC Requirements / Comments

Work Completion Signatures

Name	Function/Dept.	Date
Chris Salazar	Insert Text Here	09-27-21

Comments

(rework?)

Cost Accounting

Cost Center : 7D120C **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 :** 09/30/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00698640 01

MASTER

Date: 06/09/2021

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 1M FGR FAN 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

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 #: _____

The 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 specific activity location.

FOD 8	TA 03	Bldg. 22-24	Room N/A	Other Location Power Plant Bldg - Inside
FOD Designated Facility Point-of-Contact	Name Nicholas Nelson	Phone 505-655-5508	Pager N/A	Email nelson_n@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 must be Scheduled
- ☐ Quality Issues
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)
- ☒ Work-Area Training Required
- ☒ Check in Daily
- ☐ Other Security Requirements (ex.: Cellphone, No Foreign Nationals, etc.)
- ☒ Check out Daily
- ☒ Other Bounding Conditions: 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

All work must be approved by the Utilities FOD or OM or OS. POD/POTW – 1:30pm Mon. thru Friday. Evaluate outside ground conditions during cold or wet weather events, wear appropriate foot wear (spiky-plus) in snow and ice conditions. 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. All personnel entering any 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. 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. Avoid using the same Part 2, Form 2101 for multiple facilities. Ensure that work area hazards, specific to the facility or work location are identified and controlled. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the work area hazards, and also 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,	☐ Yes ☒ No			

or work on or near radiation producing devices. **Specify Hazard:**				

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:** Hot Piping, Potential Hot Water/Steam from pipe/fitting openings, Boiler Water Treatment Chemicals, Asbestos.	☒ 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 access. Call Serf Operators 667-8982 or by Radio Lanl for mitigation cleanup process. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation	• P101-6 PPE •P101-23 Asbestos • P101-31Hearing Conservations/Noise Program	•LANL PPE or equivalent • Hearing protection • Site specific training • Asbestos awareness • Hazcom

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, hot pressurized water/steam lines .	☒ 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 LOTOs require independent verification and written specific procedure. If questions consult with UI system engineer, Operation Mgr. Designee, or Safety rep. .	P101-13 Electrical Safety P101-3 LOTO P101-34 Pressure, Vacuum, 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.	P101-27 Confined Space	Confined Space Traning
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.	P101-20.0	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. **Specify Hazards:**	☐ Yes ☒ No			
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:**	☒ Yes ☐ No	Call pest control for clean-up if excessive rat droppings, dead rodents, wasp nest, etc in area of task activity.		

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** NICHOLAS NELSON (Affiliate) Digitally signed by NICHOLAS NELSON (Affiliate) Date: 2020.07.29 11:27:49 -06'00'

Date Approval Expires: 9-30-2021

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 :** 10/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00701374 01

MASTER

Date: 07/20/2021

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 :** 9-21-21

Complete Notice : Glenn Martinez **Complete Date :** 10-14-21

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

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 :** 10/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00701374 01

MASTER

Date: 07/20/2021

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

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 :** 10/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00701374 01

MASTER

Date: 07/20/2021

QC Requirements / Comments

Work Completion Signatures

Name	Function/Dept.	Date
Chris Salazar	LOG-CS/PP MAINT.....	10-14-21

Comments

(rework?)

Cost Accounting

Cost Center : 7D120C **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 :** 10/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00701374 01

MASTER

Date: 07/20/2021

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 1mo FGR Fan Lube 10-14-21 C.Salazar	**Completed (X)**
What permits, permissions, or support are required to safely start this work?	
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	
What can cause us to go beyond the scope of the work?	
What hazards in the work area may not have been considered during planning of this job	

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 #: _____

The 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 specific activity location.

FOD	TA	Bldg.	Room	Other Location
8	03	22-24	N/A	Power Plant Bldg - Inside
FOD Designated Facility Point-of-Contact	Name Nicholas Nelson	Phone 505-655-5508	Pager N/A	Email nelson_n@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 must be Scheduled
- ☐ Quality Issues
- ☐ Other Security Requirements (ex.: Cellphone, No Foreign Nationals, etc.)
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)
- ☒ Work-Area Training Required
- ☒ Check in Daily
- ☒ Check out Daily
- ☒ Other Bounding Conditions: 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

All work must be approved by the Utilities FOD or OM or OS. POD/POTW – 1:30pm Mon. thru Friday. Evaluate outside ground conditions during cold or wet weather events, wear appropriate foot wear (spiky-plus) in snow and ice conditions. 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. All personnel entering any 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. 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. Avoid using the same Part 2, Form 2101 for multiple facilities. Ensure that work area hazards, specific to the facility or work location are identified and controlled. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the work area hazards, and also 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,	☐ Yes ☒ No			

or work on or near radiation producing devices. **Specify Hazard:**				

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:** Hot Piping, Potential Hot Water/Steam from pipe/fitting openings, Boiler Water Treatment Chemicals, Asbestos.	☒ 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 access. Call Serf Operators 667-8982 or by Radio Lanl for mitigation cleanup process. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation	• P101-6 PPE •P101-23 Asbestos • P101-31Hearing Conservations/Noise Program	•LANL PPE or equivalent • Hearing protection • Site specific training • Asbestos awareness • Hazcom

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, hot pressurized water/steam lines .	☒ 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 LOTOs require independent verification and written specific procedure. If questions consult with UI system engineer, Operation Mgr. Designee, or Safety rep. .	P101-13 Electrical Safety P101-3 LOTO P101-34 Pressure, Vacuum, 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.	P101-27 Confined Space	Confined Space Traning
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.	P101-20.0	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. **Specify Hazards:**	☐ Yes ☒ No			
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:**	☒ Yes ☐ No	Call pest control for clean-up if excessive rat droppings, dead rodents, wasp nest, etc in area of task activity.		

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** NICHOLAS NELSON (Affiliate) Digitally signed by NICHOLAS NELSON (Affiliate) Date: 2021.07.13 10:14:50 -06'00'

Date Approval Expires: 9-30-2022

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 :** 11/30/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00703681 01

MASTER

Date: 08/24/2021

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 :** 10-14-21

Complete Notice : Glenn Martinez **Complete Date :** 11-22-21

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

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 :** 11/30/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00703681 01

MASTER

Date: 08/24/2021

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

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 :** 11/30/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00703681 01

MASTER

Date: 08/24/2021

QC Requirements / Comments

Work Completion Signatures

Name	Function/Dept.	Date
Jerry Lujan	LOG-CS/ PP Maint. 11/19/2021	

Comments

(rework?)

Cost Accounting

Cost Center : 7D120C **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 :** 11/30/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00703681 01

MASTER

Date: 08/24/2021

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 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

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 #: _____

The 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 specific activity location.

FOD	TA	Bldg.	Room	Other Location
8	03	22-24	N/A	Power Plant Bldg - Inside
FOD Designated Facility Point-of-Contact	Name Nicholas Nelson	Phone 505-655-5508	Pager N/A	Email nelson_n@lanl.gov

Entry and Coordination Requirements (*Check one or more of the following*)

- ☐ No Entry/Coordination Requirements
- ☐ FOD-designated facility Point-of-Contact must sign IWD Part 3
- ☒ Plan of the Day/Plan of the Week (POTD/POTW)
- ☒ Check in at Start of Work
- ☒ Work-Area Training Required
- ☒ Security Clearance Requirements
- ☒ Work must be Scheduled
- ☒ Check in Daily
- ☐ Co-located Hazards/Concerns
- ☐ Other Security Requirements (ex.: Cellphone, No Foreign Nationals, etc.)
- ☒ Check out at End of Work
- ☐ Quality Issues
- ☒ Check out Daily
- ☐ Escort Required
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)
- ☒ Other Bounding Conditions: 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

All work must be approved by the Utilities FOD or OM or OS. POD/POTW – 1:30pm Mon. thru Friday. Evaluate outside ground conditions during cold or wet weather events, wear appropriate foot wear (spiky-plus) in snow and ice conditions. 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. All personnel entering any 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. 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. Avoid using the same Part 2, Form 2101 for multiple facilities. Ensure that work area hazards, specific to the facility or work location are identified and controlled. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the work area hazards, and also 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,	☐ Yes ☒ No			

or work on or near radiation producing devices. **Specify Hazard:**				

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:** Hot Piping, Potential Hot Water/Steam from pipe/fitting openings, Boiler Water Treatment Chemicals, Asbestos.	☒ 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 access. Call Serf Operators 667-8982 or by Radio Lanl for mitigation cleanup process. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation	• P101-6 PPE •P101-23 Asbestos • P101-31Hearing Conservations/Noise Program	•LANL PPE or equivalent • Hearing protection • Site specific training • Asbestos awareness • Hazcom

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, hot pressurized water/steam lines .	☒ 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 LOTOs require independent verification and written specific procedure. If questions consult with UI system engineer, Operation Mgr. Designee, or Safety rep. .	P101-13 Electrical Safety P101-3 LOTO P101-34 Pressure, Vacuum, 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.	P101-27 Confined Space	Confined Space Traning
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.	P101-20.0	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. **Specify Hazards:**	☐ Yes ☒ No			
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:**	☒ Yes ☐ No	Call pest control for clean-up if excessive rat droppings, dead rodents, wasp nest, etc in area of task activity.		

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** NICHOLAS NELSON (Affiliate) Digitally signed by NICHOLAS NELSON (Affiliate) Date: 2021.07.13 10:14:50 -06'00'

Date Approval Expires: 9-30-2022

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 :** 12/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00706861 01

MASTER

Date: 09/13/2021

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 :** 11-22-21

Complete Notice : GLENN Martinez **Complete Date :** 12-16-21

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

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 :** 12/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00706861 01

MASTER

Date: 09/13/2021

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

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 :** 12/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00706861 01

MASTER

Date: 09/13/2021

QC Requirements / Comments

Work Completion Signatures

Name	Function/Dept.	Date
Chris Salazar	Insert Text Here	12-15-2021

Comments

(rework?)

Cost Accounting

Cost Center : 7D120C **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 :** 12/31/2021
Superintendant :

Hazard : LOW **IWD Reqmt :** N/A LOW HZRD

Work Order Task

00706861 01

MASTER

Date: 09/13/2021

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 1M FGR Bearings Lubrication	***Completed (X)***
What permits, permissions, or support are required to safely start this work?	
What is the most likely thing that could go wrong (not the worst thing) and what, specifically, will prevent it?	
What can cause us to go beyond the scope of the work?	
What hazards in the work area may not have been considered during planning of this job	

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 #: _____

The 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 specific activity location.

FOD	TA	Bldg.	Room	Other Location
8	03	22-24	N/A	Power Plant Bldg - Inside
FOD Designated Facility Point-of-Contact	Name Nicholas Nelson	Phone 505-655-5508	Pager N/A	Email nelson_n@lanl.gov

Entry and Coordination Requirements (*Check one or more of the following*)

- ☐ No Entry/Coordination Requirements
- ☐ FOD-designated facility Point-of-Contact must sign IWD Part 3
- ☒ Plan of the Day/Plan of the Week (POTD/POTW)
- ☒ Check in at Start of Work
- ☒ Work-Area Training Required
- ☒ Security Clearance Requirements
- ☒ Work must be Scheduled
- ☒ Check in Daily
- ☐ Co-located Hazards/Concerns
- ☐ Other Security Requirements (ex.: Cellphone, No Foreign Nationals, etc.)
- ☒ Check out at End of Work
- ☐ Quality Issues
- ☒ Check out Daily
- ☐ Escort Required
- ☐ Review under Authorization Basis (AB)/Safety Basis/Unreviewed Safety Question (USQ)
- ☒ Other Bounding Conditions: 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

All work must be approved by the Utilities FOD or OM or OS. POD/POTW – 1:30pm Mon. thru Friday. Evaluate outside ground conditions during cold or wet weather events, wear appropriate foot wear (spiky-plus) in snow and ice conditions. 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. All personnel entering any 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. 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. Avoid using the same Part 2, Form 2101 for multiple facilities. Ensure that work area hazards, specific to the facility or work location are identified and controlled. Specify the facility controls and preventive measures that must be implemented by the worker(s) to protect against the work area hazards, and also 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,	☐ Yes ☒ No			

or work on or near radiation producing devices. **Specify Hazard:**				

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:** Hot Piping, Potential Hot Water/Steam from pipe/fitting openings, Boiler Water Treatment Chemicals, Asbestos.	☒ 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 access. Call Serf Operators 667-8982 or by Radio Lanl for mitigation cleanup process. For after-hours contact the UI Duty Officer, 699-7452 to re-assess any abnormal situation	• P101-6 PPE •P101-23 Asbestos • P101-31Hearing Conservations/Noise Program	•LANL PPE or equivalent • Hearing protection • Site specific training • Asbestos awareness • Hazcom

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, hot pressurized water/steam lines .	☒ 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 LOTOs require independent verification and written specific procedure. If questions consult with UI system engineer, Operation Mgr. Designee, or Safety rep. .	P101-13 Electrical Safety P101-3 LOTO P101-34 Pressure, Vacuum, 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.	P101-27 Confined Space	Confined Space Traning
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.	P101-20.0	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. **Specify Hazards:**	☐ Yes ☒ No			
Security Requirements **Specify:**	☐ Yes ☒ No			
Other Hazards **Specify:**	☒ Yes ☐ No	Call pest control for clean-up if excessive rat droppings, dead rodents, wasp nest, etc in area of task activity.		

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** NICHOLAS NELSON (Affiliate) Digitally signed by NICHOLAS NELSON (Affiliate) Date: 2021.07.13 10:14:50 -06'00'

Date Approval Expires: 9-30-2022

ATTACHMENT A1307.H.

TA-03 Power Plant

Combustion Turbine Emission Stack Test Report

The most recent annual emission stack test for the TA-3 Combustion Turbine was conducted on December 8, 2021.

NEW MEXICO ENVIRONMENT DEPARTMENT
AIR QUALITY BUREAU
TITLE V PERMIT NUMBER P100-R2M3

COMPLIANCE TEST REPORT
ON:
EXHAUST EMISSIONS

FROM:
ROLLS-ROYCE RB211-6761 DLE
STATIONARY GAS TURBINE

LOCATED IN:
LOS ALAMOS, NM

PREPARED FOR:
LOS ALAMOS NATIONAL LABORATORY

TEST DATE:
DECEMBER 8, 2021

PROJECT NUMBER:
2328

COMPLIANCE SERVICES & TESTING

P.O. Box 94191-87199
7108 Washington St. NE
Suite A
Albuquerque, NM 87109
(505) 681-4909 Phone
www.comptesting.com

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- D: Quality Assurance/Control Activities
- E: Calibration Certifications
- F: Datalog Record

Introduction

Exhaust emissions testing was conducted on a natural gas-fired centrifugal internal combustion engine (turbine) in service at Los Alamos National Laboratory's TA-3 Power Plant. The purpose of this test was to demonstrate compliance with the requirements specified in the New Mexico Environment Department NMED-AQB Title V Permit Number P100-R2M4 annual testing requirements.

Testing on Unit #TA-3-22 was performed at the maximum load available at the time of the test (91.1%). The testing followed the procedures set forth in the ASTM D6522-00. Oxides of nitrogen (NO_X defined as NO + NO_2) and carbon monoxide (CO) oxygen (O_2), and carbon dioxide (CO_2) were measured from the exhaust stack to derive the mass emission rates of the compounds of interest. NO_X and CO are the criteria pollutants of interest which are limited by the air permit. Compliance Services and Testing conducted all gaseous sampling on December 8, 2021.

Table 1: Background Data

Source Operator:	**Los Alamos National Laboratory (LANL)** Attn: Marjorie Stockton P.O. Box 1663, MS J978 Los Alamos, NM 87545 (505) 665-3289 Phone
Test Contractor:	**Compliance Services and Testing (CST)** Attn: Chris Spencer P.O. Box 94191 Albuquerque, New Mexico 87199 (505) 681-4909 Phone
Test Participants:	**CST** Chris Spencer - Director **LANL** Katelyn Mahoney - EHS Air Quality Joe Baughman - Technician Nicholas Nelson - Utilities Operations
Test Date:	December 8, 2021
Location:	TA-3 Power Station located within Los Alamos National Laboratory, Los Alamos, New Mexico
Test Methods:	ASTM 6522-00 Method 19 - Exhaust Flow Rate

Summary of Results

NO_X has a permitted emission limit of 23.8 pounds per hour (lbs/hr) and 59.4 tons per year (tpy). CO has a permit limit of 29.0 lbs/hr and 72.3 tpy. The tons per year mass emission rates are limited by annual fuel consumption of no more than 1400 MMSCF. The annual fuel consumption limit was divided by the average hourly fuel consumption during the test to calculate the maximum allowable annual hours of operation at full load (5882.35 hours per year). The average lb/hr emission values from the testing were then multiplied by these annual hours of operation number to calculate estimated ton per year emissions. NO_X also has a limit of 25 ppmvd (parts per million by volume on a dry basis) at 15% O2. The results show that NO_X and CO are below the permitted limits.

Table 2: Summarized Results

Unit #	SN	Load	NOx pph/*tpy	CO pph/*tpy
Limits	***---***	***≥90%***	***23.8/59.4***	***29.0/72.3***
TA-3-22	2011	91.1%	18.95/55.77	3.35/9.86

*tons per year are limited by annual fuel consumption of no more than 1400 MMSCF

Figure 1 shows the sample system diagram used for the testing and Table 3 lists the analytical analyzers and sensitivities. Appendix A contains the engine, compressor, and control equipment operating data and tabular results compared with the emission limits along with the field data sheets. The load, horsepower, and turbine/generator operating parameters along with the analytical results are listed on the Summary of Results (SOR) page produced for the turbine. Also included on the SOR is the date of the test, location of unit, serial number, and calculated mass emission rates compared to the permitted limits. Appendix B contains the example calculations. Appendix C contains the fuel analysis and CST's fuel calculations and the fuel meter calibration data. Appendix D contains the quality assurance and quality control documentation. Appendix E contains the calibration gas certificate and the datalog record is in Appendix F.

Process Description

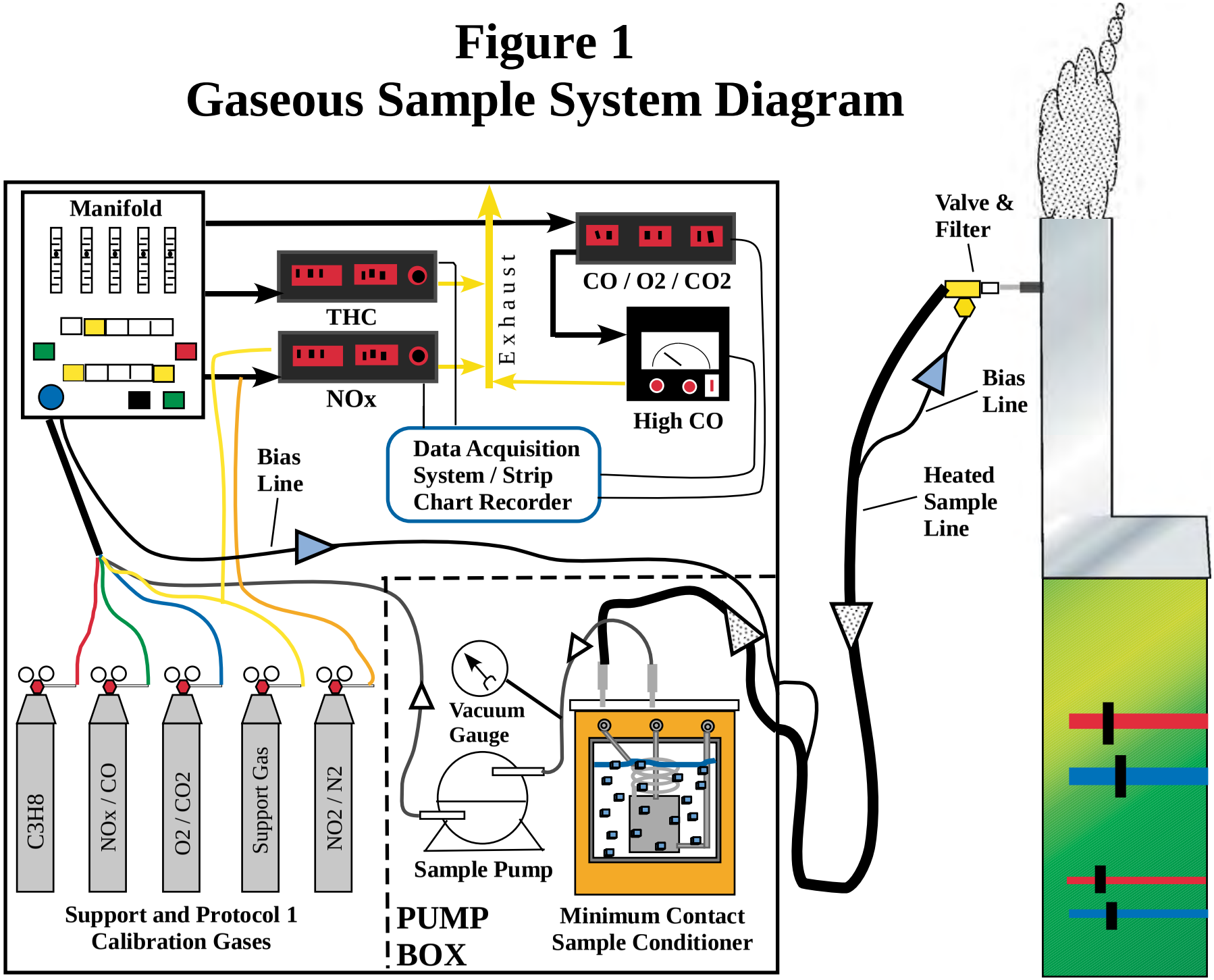
The turbine is a Rolls Royce RB211-6761 DLE centrifugal internal combustion engine that bears the serial number 2011. The turbine is rated for 27MW (36,207 Horsepower). The turbine is used to generate electricity for use at Los Alamos National Laboratory (LANL) or placing on the electrical grid for outside consumption.

Analytical Technique

Stack gas entered the instrumental sampling system through a stainless-steel probe placed into the stack with an in-line 90-micron filter and then was transported via 3/8-inch heat-traced Teflon® tubing to a specially designed stainless-steel minimum-contact condenser which dried the sample without removing the pollutants of interest. The sample was then passed to the gas manifold through 3/8" Teflon® tubing via a stainless steel/Teflon® diaphragm vacuum pump. The sample was partitioned to the analyzers through glass and stainless-steel rotameters that control the flow of the sample and did not allow a variance of more than 10% during the tests. The remaining gas was then vented outside of the climate-controlled laboratory. The gas manifold also allowed for the convenient introduction of calibration gases. Once the equipment was placed into the stack and hooked into the sampling manifold in the mobile laboratory, the desired ranges were selected by observing the stack effluents of interest. Each instrument was then calibrated, and the testing proceeded. Three 20-minute test runs were completed after a preliminary 3-point stratification test was performed. No stratification above 5% was observed between the three points located at 16.3%, 50%, and 86.6% of the sampling port travers plane. All testing was performed from the stack centroid, each being bracketed by a zero and upscale analyzer drift calibration check.

Each test consisted of three consecutive twenty-minute test runs and was completed on-site. The stack gas analysis for O_2/CO_2 diluent concentrations were monitored with a paramagnetic detector and a non-dispersive infrared (NDIR) detector, respectively. NO_X emissions were quantified using a chemiluminescence detector and CO emission concentrations were quantified with an NDIR analyzer. This analyzer was equipped with a gas correlation filter, which also eliminates any interference from moisture, CO_2, and other combustion products. All gaseous data from the continuous monitoring instruments were recorded on an Omega OMB-DAQ-56 data acquisition system and was recorded at one-minute intervals. Each instrument was calibrated per protocol procedures and none were operated outside the acceptable variance limits. The volumetric flow rate was determined by EPA Method 19 and validated with a current fuel gas composition analysis and a calibrated fuel consumption meter. The volumetric flow rate was factored with the observed stack concentration and species-specific weight factors to derive the calculated mass emission rates. Details of these calculations are found in the example calculation section of the report.

Figure 1
Gaseous Sample System Diagram



Testing Conducted by Compliance Services and Testing

Table 3: List of Instrumentation, Detection Principles and Data Recording Devices

Analytical Instrumentation

Parameter	Models and Manufacturers	Common Operating Ranges	Minimum Sensitivity	Typical Response Time (sec)	Detection Principle
Sample System 1					
NOx	**California Analytical Instruments Model 400 CLD SN: W01059**	30 ppm 100 ppm 300 ppm 1000 ppm 3000 ppm	0.1 ppm	5	Thermal reduction of NO2 to NO. Chemiluminescent reaction of NO with excess of ozone. Detection by Photo-multiplier or Photodiode. Inherently linear for ranges listed.
CO	**California Analytical Instruments Model ZRE SN: A8P9061T**	200 ppm 1000 ppm	0.1 ppm	5	Single beam non-dispersive infrared absorption.
O_2	**California Analytical Instruments Model ZRE SN: A8P9061T**	10% 25%	0.01%	2	Paramagnetic by magneto-dynamic type measuring. All detection principals are inherently linear over a wide range.
CO_2	**California Analytical Instruments Model ZRE SN: A8P9061T**	10% 20%	0.01%	5	Infrared absorption, analog linearization, solid state detector.
CO	**California Analytical Instruments Model ZRE SN: A8P9061T**	1000 ppm 10000 ppm	0.1%	5	Single beam non-dispersive infrared absorption.
THC	**California Analytical Instruments Model 600M HFID SN: Z10046**	10 ppm 100 ppm 1000 ppm 10000 ppm	0.1 ppm	5	Flame Ionization Detection to determine the total hydrocarbons.
Sample System 2					
NOx	**California Analytical Instruments Model 400 CLD SN: 6N07002**	30 ppm 100 ppm 300 ppm 1000 ppm 3000 ppm	0.1 ppm	5	Thermal reduction of NO2 to NO. Chemiluminescent reaction of NO with excess of ozone. Detection by Photo-multiplier or Photodiode. Inherently linear for ranges listed.
CO	**California Analytical Instruments Model 300 SN: 1N05011**	200 ppm 1000 ppm	0.2 ppm	5	Infrared absorption, gas filter correlation detector. Microprocessor based linearization.
O_2	**California Analytical Instruments Model 300 SN: 1N05011**	5% 10% 25%	0.1%	2	Paramagnetic by magneto-dynamic type measuring. All detection principals are inherently linear over a wide range.
CO_2	**California Analytical Instruments Model 300 SN: 1N05011**	10% 20%	0.02%	5	Infrared absorption, analog linearization, solid state detector.
THC	**California Analytical Instruments 100 SN: T11028**	1000 ppm 5000 ppm	0.2 ppm	5	Non-dispersive Infrared absorption. Correlation filter with a mass flow sensor.

Data Recorder

Parameter	Models and Manufacturers	Common Operating Speeds	Measuring Range	Detection Principle
20 channels	**Omega OMB-DAQ-56 SN: 271775**	625 ms to 6.25 secs	+/- 15 Volts	Voltage differential to a CPU.

CST reserves the right to substitute equivalent model analyzers that meet the specifications of the test methods.
Higher ranges available by sample dilution. Other ranges available via data logger/recorder signal attenuation.
Operating range is defined by the calibration gases used during the test (per EPA Methods 7e and 25b).

Quality Assurance Activities

Each instrument's response was checked and adjusted in the field prior to the collection of data via direct inject multi-point calibration. The instrument's linearity was checked by first adjusting the zero and span responses to zero (nitrogen) and an upscale calibration gas in the range of the expected concentrations. The instrument response was then challenged with other calibration gases of known concentration and accepted as being linear if the response of the other calibration gases agreed within ± 2% of span of the predicted values. Appendix D contains Instrumental Analysis Quality Assurance Worksheets, which summarize the results of these calibration error tests.

The sampling system's integrity was tested by comparing the responses of the analyzers to calibration gases introduced via two paths. The first path was into the analyzer via the zero/span calibration manifold. The second path was to introduce a calibration gas into the sample system at the sample probe. Any difference in the instrument responses by these two methods was attributed to sampling system bias or leakage. These bias checks were conducted before and after dismantling or setting up the sample system, and as required by the various methods. Examination of the datalog excerpt and Instrumental Analysis Quality Assurance Data worksheet in Appendix D show that the analyzer response via both sample paths agreed within acceptable limits in all cases.

Interference response tests on the NO_x, CO, CO_2, and O_2 instruments were conducted during the response time / bias check. The sum of the interference response for each analyzer is less than ± 5% of the applicable full-scale span value.

The efficiency of the NO_2 to NO converter in the NO_x analyzer was checked by introducing a certified mixture of NO_2 in N_2 standard gas into the analyzer. The criterion for acceptability is a demonstrated NO_x converter efficiency greater than 90%. The datalog excerpt that demonstrate the converter efficiency test are available in Appendix F. The above-mentioned quality assurance worksheets of Appendix D also summarize the results of the converter efficiency test.

The residence time of the sampling and measurement system was estimated using the pump flow rate and the sampling system volume. The pump's rated flow is 0.625 cfm at 10 psig. The sampling system volume is approximately 0.034 cf, therefore, the sample residence time is approximately 3.3 seconds. The sampling system purge time is twice of the longest response time, which is typically at or near 120 seconds.

Response time tests for individual instruments were conducted prior to sampling and noted in the Daily Assurance Worksheet of Appendix D and on the datalog record of Appendix F.

The control gases used to calibrate the instruments were analyzed and certified by the compressed gas vendors to ± 1% accuracy for the NO_x/CO, and O_2/CO_2 gases. EPA Protocol Number 1 was used, where applicable, to assign the concentration values traceable to the National Bureau of Standards, Standard Reference Materials (SRM's). The gas calibration sheets as prepared by the vendor are contained in Appendix E. The calibration certificate for the dry gas meter used is also contained in Appendix E.

Before and after each test run, the analyzers were checked for zero and span drift. This allowed each test run to be bracketed by calibrations and documents the precision of the data just collected. The criterion for acceptable data is that the instrument drift is no more than ± 3% of the full-scale response. The quality assurance worksheets in Appendix D summarize all multi-point calibration checks and zero to span checks performed during the tests. These worksheets (as prepared from the datalog records of Appendix F) show that no drifts more than the criteria specified by the respective methods existed.

CST collected and reported the enclosed test data in accordance with the procedures and quality assurance activities described in this test report. CST makes no warranty as to the suitability of the test methods and assumes no liability relating to the interpretation and use of the test data.

Appendix A:
Tabular Results and Field Data

Summary of Results
Unit TA-3-22-CT-1

Company: Los Alamos National Laboratory
Location: TA-3 Power Station
Source: Rolls Royce RB211-6761 DLE SN: 2011
Engine Site Rating: 27 MW
Technician: CS

Test Run Number	**1**	**2**	**3**	
Unit Number	**TA-3-22**	**TA-3-22**	**TA-3-22**	
Equipment Number	**CT-1**	**CT-1**	**CT-1**	
Date	12/8/21	12/8/21	12/8/21	
Start Time	12:55	13:16	13:37	
Stop Time	13:15	13:36	13:57	
Turbine / Generator Operating Parameters				***Average***
Load (%)	91.5	91.1	90.7	**91.1**
Gas Generator Speed NL (RPM)	6382	6380	6380	**6380.7**
Gas Generator Speed NH (RPM)	9074	9078	9074	**9075.3**
Power Turbine Speed (RPM)	4847	4845	4848	**4846.7**
Engine Horsepower (HP)	33,123	32,989	32,855	**32,988.6**
Generator Wattage (MW)	24.7	24.6	24.5	**24.6**
Voltage (kV)	13.9	13.8	13.8	**13.8**
Amperage (A)	1067	1055	1060	**1060.7**
Frequency (Hz)	60.1	60.1	60.1	**60.1**
Power Factor (PF)	-0.7	-0.7	-0.7	**-0.7**
Inlet Temperature (T1) (°F)	44.8	45.7	46	**45.5**
Average Exhaust Temperature (T455) (°F)	1452	1452	1452	**1452.0**
Fuel Data				
Engine Compressor Discharge, PCD (psia)	172.6	172.7	172.2	**172.5**
Fuel Pressure (psia)	525.3	524.5	526.7	**525.5**
Fuel Temperature (°F)	76.3	77.2	77.5	**77.0**
Calculated Fuel Consumption (SCFH)	238,200	238,300	237,100	**237,866.7**
O2 F-Factor (DSCF/MMBtu, HHV basis)	8694	8694	8694	**8694**
Fuel Heating Value (Btu/SCF, HHV)	1069	1069	1069	**1069**
BHp Specific Fuel Rate (Btu/Hp-hr, HHV basis)	7689	7724	7716	**7710**
Ambient Conditions				
Pressure Altitude (MSL)	7295	7305	7320	**7307**
Atmospheric Pressure ("Hg)	22.85	22.84	22.83	**22.84**
Dry Bulb Temperature (°F)	46.8	47.8	45.1	**46.6**
Wet Bulb Temperature (°F)	39.0	39.4	37.8	**38.7**
Humidity (lb/lb air)	0.0047	0.0047	0.0045	**0.0046**
Measured Exhaust Emissions (Instrument Drift Corrected)				
NOx (ppmv)	21.19	21.11	21.08	**21.13**
NOx @ 15% O2 (ppmvd) {Permit Limit = 25.0}	**20.18**	**20.25**	**20.35**	**20.26**
CO (ppmv)	6.16	6.03	6.22	**6.14**
O2 (vol %)	14.70	14.75	14.79	**14.75**
CO2 (vol %)	3.32	3.36	3.40	**3.36**
Fo (Natural Gas)	1.87	1.83	1.80	**1.83**
Exhaust Flow Rates				
Dry Standard Cubic Feet per Minute	124,486.66	125,430.24	125,618.84	**125,178.58**
Dry Standard Cubic Feet per Hour	7,469,200	7,525,815	7,537,130	**7,510,715**
Calculated Mass Emission Rates				
NOx (lbs/hr) **{Permit Limit = 23.8}**	18.91	18.98	18.97	**18.95**
CO (lbs/hr) **{Permit Limit = 29.0}**	3.35	3.30	3.41	**3.35**
*NOx (tons/yr) **{Permit Limit = 59.4}**	55.64	55.85	55.83	**55.77**
*CO (tons/yr) **{Permit Limit = 72.3}**	9.85	9.71	10.03	**9.86**

***TPY based on 238.00 MSCF/Hr. Turbine limited to 1400 MMSCF of Fuel per 12 Month Period.**

Field Test Participants Sign In Sheet

Job Name: ~~23I~~ LANL

DATE(S): 12-08-2021

Job Number: 2328

PERMIT #: P100-R2M4

Plant Name/Location: TA-3 POWER PLANT

Emission Source(s): CGT ROLLS ROYCE

PARTICIPANTS:

Compliance Services and Testing — Test Contractor

LANL — Owner/Operator

NMED -AQB — Regulatory Agency

Regulation

Print Name:	Affiliation:	Position:	Phone Number:
CHRIS SPENCER	CST	DIR	505-681-4909
Joe Baughman	LANL	TECH	505-599-0207
Nicholas Nelson	LANL	WCPS	505-551-2833
Katelyn Mahoney	LANL	Air Quality	505-396-0619

Summary of Results
Unit TA-3-22-CT-1

24.3 MW = 90%
~25.0 MW ≈ 93%

Company: Los Alamos National Laboratory
Location: TA-3 Power Station
Source: Rolls Royce RB211-6761 DLE SN: 2011
Engine Site Rating: 27 MW
Technician: CS

CG TG

Test Run Number	1	2	3	
Unit Number	TA-3-22	TA-3-22	TA-3-22	
Equipment Number	CT-1	CT-1	CT-1	
Date	12/8/21	12/8/21	12/8/21	
Start Time	1255	~~10:55~~ 1314	~~11:23~~ 1337	
Stop Time	1311 0:20	1326 1:15	11:43 1357	
Turbine/Generator Data HRS	9402	9402	9403	*Average*
Load (%)	0.0	0.0	0.0	0.0
Gas Generator Speed NL (RPM)	6382	6380	6380	#DIV/0!
Gas Generator Speed NH (RPM)	9074	9078	9074	#DIV/0!
Power Turbine Speed (RPM)	4847	4845	4848	#DIV/0!
Engine Horsepower (HP) OALC →	0	0	0	0.0
Generator Wattage (MW)	~~26~~ 24.66	24.6	24.5	#DIV/0!
Voltage (kV)	13.85	13.84	13.82	#DIV/0!
Amperage (A)	1067	1055	1060	#DIV/0!
Frequency (Hz)	60.05	60.06	60.07	#DIV/0!
Power Factor (PF)	-0.7	-0.7	-0.7	#DIV/0!
Inlet Temperature (T1) (°F)	44.8	45.7	46.0	#DIV/0!
Average Exhaust Temperature (T455) (°F)	1452	1452	1452	#DIV/0!
Fuel Data				
Engine Compressor Discharge, PCD (psia)	172.6	172.7	172.2	#DIV/0!
Fuel Pressure (psia)	525.3	525.5	526.7	#DIV/0!
Fuel Temperature (°F)	76.3	77.2	77.5	#DIV/0!
Calculated Fuel Consumption (SCFH)	~~238200~~	~~238300~~	237100	#DIV/0!
O2 F-Factor (DSCF/MMBtu, HHV basis)	8672	8672	8672	**8672**
Fuel Heating Value (Btu/SCF, HHV)	1052	1052	1052	**1052**
BHp Specific Fuel Rate (Btu/Hp-hr, HHV basis)	#DIV/0!	#DIV/0!	#DIV/0!	**#DIV/0!**
Ambient Conditions				
Pressure Altitude (MSL)	7295	7305	~~7300~~	#DIV/0!
Atmospheric Pressure ("Hg)	29.92	29.92	29.92	**29.92**
Dry Bulb Temperature (°F)	46.8	47.8	45.1	#DIV/0!
Wet Bulb Temperature (°F)	39.0	39.4	37.5	#DIV/0!
Humidity (lb/lb air)	0.0009	0.0009	0.0009	**0.0009**
Measured Exhaust Emissions (Corrected)				
NOx (ppmv)	0.10	0.10	0.10	**0.10**
NOx @ 15% O2 (ppmvd) {Permit Limit = 25.0}	**0.03**	**0.03**	**0.03**	**0.03**
CO (ppmv)	-0.16	-0.16	-0.16	**-0.16**
O2 (vol %)	-0.12	-0.12	-0.12	**-0.12**
CO2 (vol %)	-0.05	-0.05	-0.05	**-0.05**
Fo (Natural Gas)	-418.23	-418.23	-418.23	**-418.23**
Exhaust Flow Rates (EPA Method 19 - Fuel Based)				
Dry SCFH (dry basis, calc. from Fuel Consumption)	0	0	0	**0**
Calculated Mass Emission Rates (EPA Method 19)				
NOx (lbs/hr) **{Permit Limit = 23.8}**	0.00	0.00	0.00	**0.00**
CO (lbs/hr) **{Permit Limit = 29.0}**	0.00	0.00	0.00	**0.00**
*NOx (tons/yr) **{Permit Limit = 59.4}**	#DIV/0!	#DIV/0!	#DIV/0!	**#DIV/0!**
*CO (tons/yr) **{Permit Limit = 72.3}**	#DIV/0!	#DIV/0!	#DIV/0!	**#DIV/0!**

***TPY based on 238.00 MSCF/Hr. Turbine limited to 1400 MMSCF of Fuel per 12 Month Period.**

Appendix B:
Example Calculations

Example Calculations

Drift Corrected Emission Concentrations

Formula

$$C_{GAS} = (Ç - Co) \times \frac{C_{MA}}{C_M - Co} \quad \textit{(eq. 7E-5)}$$

All Calculations Refer to Test Run 1, Unit # TA-3-22-CT-1

$Ç_{NOx}$ =	Raw Concentration of NOx	= 21.85 ppmv	
Co =	Avg. of Initial and Final Zero Checks	= 0.94 ppmv	
C_M =	Avg. of Initial and Final Span Checks	= 25.60 ppmv	
C_{MA} =	Certified Concentration of Span Gas	= 25.00 ppmv	
C_{NOx} =	**(21.85 - 0.94) x**	**25.00 / (25.60 - 0.94)**	**= 21.19 ppmv**

$Ç_{CO}$ =	Raw Concentration of CO	= 5.98 ppmv	
Co =	Avg. of Initial and Final Zero Checks	= -0.32 ppmv	
C_M =	Avg. of Initial and Final Span Checks	= 25.24 ppmv	
C_{MA} =	Certified Concentration of Span Gas	= 25.00 ppmv	
C_{CO} =	**(5.98 + 0.32) x**	**25.00 / (25.24 + 0.32)**	**= 6.16 ppmv**

$Ç_{O2}$ =	Raw Concentration of O2	= 14.77 %	
Co =	Avg. of initial and final zero bias checks	= 0.21%	
C_M =	Avg. of initial and final span bias checks	= 10.11%	
C_{MA} =	Actual concentration of span gas	= 10%	
C_{O2} =	**(14.77 - 0.21) x**	**10.00 / (10.11 - 0.21)**	**= 14.70%**

$Ç_{CO2}$ =	Raw Concentration of CO2	= 3.41%	
Co =	Avg. of initial and final zero bias checks	= 0.17%	
C_M =	Avg. of initial and final span bias checks	= 9.96%	
C_{MA} =	Actual concentration of span gas	= 10.00%	
C_{CO2} =	**(3.41 - 0.17) x**	**10.00 / (9.96 - 0.17)**	**= 3.32%**

Fo Calculation to Verify O2 / CO2 Measurements (Eq. 3b-1)

C_{O2} =	Corrected Concentration of O2	= 14.70%
C_{CO2} =	Corrected Concentration of CO2	= 3.32%
Th. Fo =	Theoretical Fo from FGA	= 1.74
Fo =	(20.9 - O2%) / CO2 %	
Fo =	(20.9 - 14.7) / 3.32	= **1.87**

Example Calculations

Mass Emission Rates via EPA Method 19

Measured Data and Constants from Test Run 1

C_{NOx} =	Corrected Concentration of NOx	=	21.19	ppmv	
C_{CO} =	Corrected Concentration of CO	=	6.16	ppmv	
Horsepower =	Observed Horsepower	=	33123	Hp	
lb / mole =	EPA STP for Ideal Gas	=	385.15	SCF	
lbs / hr to tpy =	Conversion Factor based on Fuel Usage	=	2.9428	hrs-tons / lbs-yr	
C_F =	PPMV Normalization	=	1.00E-06	1 / ppmv	
MW_{NOx} =	Molecular Weight of NOx	=	46	lb / lb-mol	
MW_{CO} =	Molecular Weight of CO	=	28	lb / lb-mol	

Stack Gas Flow Rate via Method 19 (eq. 19-1)

Q_F =	Fuel Flow (Measured)	=	238200	SCF/H	
F_{BTU} =	Fuel Higher Heating Value	=	1069	Btu/SCF	
F_{O2} =	O2 F-Factor	=	8694	DSCF/MMBtu	
C_{O2} =	Corrected Concentration of O2	=	14.70	%	
$Q_{S\ M19}$ =	$Q_F \times F_{BTU} \times F_{O2} \times 10\text{^}6 \times \frac{20.9}{(20.9 - \%O2)}$			DSCF/H	
$Q_{S\ M19}$ =	238200 x 1069 x 8694 x 3.37 x 1.00E-06				
$Q_{S\ M19}$ =	**7,469,200**	**DSCF/H**			

Formulas

Pounds per Hour (lbs/hr)

$$E_x\ (lb/hr) = C_x \times C_F \times Q_S \times \{ MW_x / (lb / mole) \}$$

Tons per Year (tpy)

$$E_x\ (tpy) = E_x\ (lb/hr) \times \{ \text{Fuel Usage (hr / yr)} / 2000\ (lb / ton) \}$$

Calculated Mass Emission Rates From Method 19 Exhaust Flow Rate

E_{NOx}

lbs/hr = 21.19 x 1.00E-06 x 7.47E+06 x $\frac{46}{385.15}$ = **18.91**

tpy = 18.91 lb/hr x 2.9428 $\frac{\text{hrs-ton}}{\text{lbs-yr}}$ = **55.64**

E_{CO}

lbs/hr = 6.16 x 1.00E-06 x 7.47E+06 x $\frac{28}{385.15}$ = **3.35**

tpy = 3.35 lb/hr x 2.9428 $\frac{\text{hrs-ton}}{\text{lbs-yr}}$ = **9.85**

Testing By CST, Albuquerque, New Mexico

Appendix C:
Fuel Analysis, F-Factor Calculations, and Fuel Meter Calibration Certificate

Source Daily Summary

October, 2021



Source #: 00001458
Name: LOS ALAMOS TECH 4

Pressure Base: 14.730

Temperature Base:

Contract Day:

Contract Hour:

Day	Relative Density	Heating Value Wet	Heating Value Dry	Heating Value As Del	CO2	N2	C1	C2	C3	IC4	NC4	IC5	NC5	C6	C7	C8	C9	C10	Wobbe	CCT
1	0.6286	1044.2	1062.7	1062.1	0.264	3.642	86.880	7.802	0.781	0.199	0.205	0.137	0.070	0.010					1340.10	
2	0.6288	1044.3	1062.8	1062.1	0.248	3.689	86.757	7.926	0.761	0.194	0.201	0.134	0.069	0.010					1339.87	
3	0.6352	1048.2	1066.8	1066.2	0.224	4.085	85.398	8.885	0.787	0.195	0.202	0.135	0.069	0.009					1338.20	
4	0.6269	1043.6	1062.1	1061.5	0.247	3.553	87.113	7.744	0.731	0.191	0.198	0.133	0.069	0.010					1341.03	
5	0.6244	1040.9	1059.3	1058.7	0.337	3.346	87.757	7.209	0.740	0.193	0.198	0.132	0.068	0.010					1340.27	
6	0.6176	1036.4	1054.7	1054.1	0.377	2.919	89.255	6.115	0.707	0.198	0.203	0.136	0.070	0.010					1341.74	
7	0.6196	1038.7	1057.1	1056.4	0.336	3.025	88.794	6.523	0.699	0.195	0.201	0.136	0.071	0.011					1342.58	
8	0.6129	1034.0	1052.3	1051.6	0.409	2.572	90.293	5.418	0.676	0.198	0.204	0.137	0.071	0.011					1343.73	
9	0.6194	1043.0	1061.5	1060.7	0.377	2.682	89.110	6.397	0.754	0.210	0.222	0.145	0.076	0.013					1348.25	
10	0.6213	1041.3	1059.7	1059.0	0.364	2.988	88.632	6.588	0.758	0.210	0.218	0.144	0.074	0.011					1343.99	
11	0.6289	1042.2	1060.7	1060.0	0.303	3.735	86.913	7.605	0.785	0.205	0.216	0.142	0.073	0.011					1337.17	
12	0.6348	1043.6	1062.1	1061.4	0.248	4.288	85.736	8.167	0.860	0.217	0.235	0.148	0.077	0.011					1332.73	
13	0.6301	1043.7	1062.2	1061.4	0.246	3.847	86.621	7.832	0.784	0.206	0.219	0.143	0.075	0.012					1337.75	
14	0.6399	1049.9	1068.5	1067.7	0.229	4.417	84.556	9.298	0.833	0.205	0.218	0.142	0.075	0.012					1335.29	
15	0.6399	1049.9	1068.5	1067.7	0.229	4.417	84.556	9.298	0.833	0.205	0.218	0.142	0.075	0.012					1335.29	
16	0.6399	1049.9	1068.5	1067.7	0.229	4.417	84.556	9.298	0.833	0.205	0.218	0.142	0.075	0.012					1335.29	
17	0.6399	1049.9	1068.5	1067.7	0.229	4.417	84.556	9.298	0.833	0.205	0.218	0.142	0.075	0.012					1335.29	
18	0.6399	1049.9	1068.5	1067.7	0.229	4.417	84.556	9.298	0.833	0.205	0.218	0.142	0.075	0.012					1335.29	
19	0.6399	1049.9	1068.5	1067.7	0.229	4.417	84.556	9.298	0.833	0.205	0.218	0.142	0.075	0.012					1335.29	
20	0.6395	1050.0	1068.5	1067.8	0.239	4.367	84.671	9.209	0.836	0.209	0.221	0.145	0.077	0.012					1335.70	
21	0.6374	1052.7	1071.3	1070.5	0.384	3.771	85.694	8.445	0.914	0.249	0.255	0.173	0.089	0.012					1341.47	
22	0.6349	1050.4	1069.0	1068.2	0.474	3.537	86.399	7.857	0.913	0.259	0.263	0.180	0.092	0.012					1341.18	
23	0.6330	1047.6	1066.2	1065.4	0.556	3.408	86.893	7.392	0.924	0.263	0.265	0.181	0.092	0.012					1339.61	
24	0.6384	1049.8	1068.4	1067.8	0.403	4.014	85.355	8.588	0.877	0.242	0.246	0.168	0.086	0.011					1336.84	
25	0.6399	1050.6	1069.2	1068.5	0.370	4.158	84.963	8.883	0.873	0.238	0.242	0.166	0.085	0.011					1336.24	
26	0.6399	1050.6	1069.2	1068.5	0.370	4.158	84.963	8.883	0.873	0.238	0.242	0.166	0.085	0.011					1336.24	
27	0.6399	1050.6	1069.2	1068.5	0.370	4.158	84.963	8.883	0.873	0.238	0.242	0.166	0.085	0.011					1336.24	
28	0.6399	1050.6	1069.2	1068.5	0.370	4.158	84.963	8.883	0.873	0.238	0.242	0.166	0.085	0.011					1336.24	
29	0.6399	1050.6	1069.2	1068.5	0.370	4.158	84.963	8.883	0.873	0.238	0.242	0.166	0.085	0.011					1336.24	
30	0.6399	1050.6	1069.2	1068.5	0.370	4.158	84.963	8.883	0.873	0.238	0.242	0.166	0.085	0.011					1336.24	
31	0.6399	1050.6	1069.2	1068.5	0.370	4.158	84.963	8.883	0.873	0.238	0.242	0.166	0.085	0.011					1336.24	
Avg	0.6332	1047.0	1065.3	1064.5	0.323	3.841	86.140	8.183	0.819	0.217	0.225	0.151	0.078	0.011					1338.31	

*** End of Report ***

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Fuel Analysis
Gas Fuel F Factor and Heating Value Calculation

Company: LANL
Sample ID: TA-3 Fuel - LANL Tech 4
Time: N/A
Date: 10/25/21

CALCULATION OF DENSITY AND HEATING VALUE @ 68°F and 29.92 in Hg

Component	% Volume	Molecular Wt.	Density (lb/ft3)	% volume x Density	weight %	Component Gross Btu/lb	Weight Fract. Btu	Gross Htng. Val. (Btu/SCF)	Volume Fract. Btu
Hydrogen		2.016	0.0052	0.00000	0.0000	61100	0.00	325.0	0.000
Oxygen		32.000	0.0831	0.00000	0.0000	0	0.00	0.0	0.000
Nitrogen	4.169	28.016	0.0731	0.00305	6.3301	0	0.00	0.0	0.000
CO2	0.370	44.010	0.1149	0.00043	0.8834	0	0.00	0.0	0.000
CO		28.010	0.0727	0.00000	0.0000	4347	0.00	322.0	0.000
Methane	84.963	16.041	0.0417	0.03539	73.5234	23879	17556.65	1013.0	860.675
Ethane	8.883	30.067	0.0789	0.00701	14.5563	22320	3248.97	1792.0	159.183
Ethylene		28.051	0.0733	0.00000	0.0000	21644	0.00	1614.0	0.000
Propane	0.873	44.092	0.1175	0.00103	2.1307	21661	461.53	2590.0	22.611
propylene		42.077	0.1090	0.00000	0.0000	21041	0.00	2336.0	0.000
Isobutane	0.238	58.118	0.1554	0.00037	0.7684	21308	163.73	3363.0	8.004
n-butane	0.242	58.118	0.1554	0.00038	0.7813	21257	166.08	3370.0	8.155
Isobutene		56.102	0.1454	0.00000	0.0000	20840	0.00	3068.0	0.000
Isopentane	0.166	72.144	0.1870	0.00031	0.6450	21091	136.04	4008.0	6.653
n-pentane	0.085	72.144	0.1870	0.00016	0.3303	21052	69.53	4016.0	3.414
n-hexane +	0.011	86.169	0.2234	0.00002	0.0510	20940	10.69	4762.0	0.524
H2S		34.076	0.0895	0.00000	0.0000	7100	0.00	647.0	0.000
Totals	**100.00**	**731.25**	**1.91**	**0.05**	**100.00**	**Gross Heating Value**			
Average Density:		**0.0481**	**Specific Gravity:**		**0.629**	**Btu/lb:**	**21813**	**Btu/SCF:**	**1069**

CALCULATION OF F FACTORS

Component	Mol. Wt.	C Factor	H Factor	% volume	Fract. Wt.	Weight Percents				
						Carbon	Hydrogen	Nitrogen	Oxygen	Sulfur
Hydrogen	2.016	0.0000	1.0000	0.0000	0.0000		0.0000			
Oxygen	32.000	0.0000	0.0000	0.0000	0.0000				0.0000	
Nitrogen	28.016	0.0000	0.0000	4.1690	116.7987			6.3186		
CO2	44.010	0.2723	0.0000	0.3700	16.2837	0.2398			0.6404	
CO	28.010	0.4259	0.0000	0.0000	0.0000	0.0000			0.0000	
Methane	16.041	0.7500	0.2500	84.9630	1362.8915	55.2971	18.4324			
Ethane	30.067	0.8000	0.2000	8.8830	267.0852	11.5590	2.8897			
Ethylene	28.051	0.8571	0.1429	0.0000	0.0000	0.0000	0.0000			
Propane	44.092	0.8182	0.1818	0.8730	38.4923	1.7037	0.3786			
Propene	42.077	0.8571	0.1429	0.0000	0.0000	0.0000	0.0000			
Isobutane	58.118	0.8276	0.1725	0.2380	13.8321	0.6193	0.1291			
n-butane	58.118	0.8276	0.1725	0.2420	14.0646	0.6297	0.1312			
Isobutene	56.102	0.8571	0.1429	0.0000	0.0000	0.0000	0.0000			
Isopentane	72.144	0.8333	0.1667	0.1660	11.9759	0.5399	0.1080			
n-pentane	72.144	0.8333	0.1667	0.0850	6.1322	0.2764	0.0553			
n-hexane	86.169	0.8372	0.1628	0.0110	0.9479	0.0429	0.0083			
H2S	34.076	0.0000	0.0587	0.0000	0.0000	0.0000	0.0000			0.0000
Totals	**731.25**	**9.80**	**2.96**	**100.00**	**1848.504**	**70.908**	**22.133**	**6.319**	**0.640**	**0.000**

CALCULATED VALUES

O2 F Factor (dry)	**8694**	DSCF of Exhaust/MMBtu of Fuel Burned @ 0% excess air
O2 F Factor (wet)	**10652**	SCF of Exhaust/MMBtu of Fuel Burned @ 0% excess air
Moisture F Factor	**1958**	SCF of Water/MMBtu of Fuel Burned @ 0% excess air
Combust. Moisture	**18.38**	Volume % water in flue gas @ 0% excess air
CO2 F Factor	**1043**	DSCF of CO2/MMBtu of Fuel Burned @ 0% excess air
Carbon Dioxide	**12.00**	Volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	**1.74**	EPA Method 3b Fo value
Fuel VOC %	**20.64%**	Non-methane
Fuel VOC %	**5.09%**	Non-methane, non-ethane

UTILITIES CALIBRATION DATA SHEET (SAMPLE)

UTILITIES CALIBRATION DATA SHEET

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Section 1. EQUIPMENT INFORMATION

EQUIPMENT IDENTIFIER (Unit / Op System / Equipment Number)	ITEM NUMBER	JOB PACKAGE NUMBER
Unit -- Op System --NGC-- Equipment Number	SN 13041889	
EQUIPMENT / COMPONENT NAME: MINI-AT	MANUFACTURER NAME: Honeywell	MODEL NUMBER: MATUMB
CALIBRATION PROCEDURE NUMBER		FREQUENCY

Section 2. CONTACT / CUSTOMER INFORMATION

NAME	Z - NUMBER		PHONE NUMBER	CELL NUMBER	PAGER NUMBER

Section 3. CALIBRATION DATA (COMPLETED BY THE CALIBRATOR)

(Include measurements, examinations, and derived results, supported tables, graphs, sketches, etc., as appropriate. Use attachments for continuation; number all pages.)

CALIBRATION DUE DATE	CALIBRATION DATE	NEXT EXPIRATION DATE	PROCESS INSTRUMENT ACCURACY

Standard(s) Used: *(Accuracy must be 4 times better than M&TE being calibrated or explained in COMMENT Section)*

~~M~~ Bedmex FB150	~~Scale~~ 11/24/20	Accuracy	
~~M~~ SN B71548	~~Scale~~ 11/24/21	Accuracy	

CALIBRATION POINTS	°F	AS FOUND DATA		AS LEFT DATA	
		FB150	MINI-AT	FB15	MINI-AT
* 0%	0	0.0	0.07	0.0	0.50
25%	42.5	42.5	41.25	42.5	42.60
50%	85	85.0	83.15	85.0	85.90
75%	127.5	127.5	125.80	127.5	127.30
100%	170	170.0	166.20	170.0	166.20

AS FOUND Condition	AS LEFT Condition	AS LEFT Status
☑ In Tolerance ☐ Repair Required ☐ Out Of Tolerance	☑ In Tolerance ☐ Repair Required ☐ Out Of Tolerance	☑ Approved ☐ Rejected ☐ Limited Use Tolerance

CHARACTERIZATION & CONDITION OF ITEM *(Describe damage resulting from improper handling or storage and/or any communication from the customer regarding the condition of the item)*

LIMITATIONS OF USE * 0°F to 170°F

ADJUSTMENT REMARKS *(Include any non-standard method used or any unique information that would assist in future calibrations. Record any deviation from, addition to, or excursion from, the calibration method and any other information relevant to a specific calibration, such as significant environmental conditions.)*

COMMENTS ± 5% of 5psi

Section 4. SIGNATURES

	Z - NUMBER	DATE
CALIBRATOR	3545615	11/19/2021
QUALITY ASSURANCE VERIFICATION (Calibration Coordinator/Designee)	101408	11/19/21

60-10-110.2 Calibration Data Sheet

UTILITIES CALIBRATION DATA SHEET (SAMPLE)

UTILITIES CALIBRATION DATA SHEET

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Section 1. EQUIPMENT INFORMATION

EQUIPMENT IDENTIFIER (Unit / Op System / Equipment Number)	ITEM NUMBER	JOB PACKAGE NUMBER
-- NGC--	SN 13041889	
EQUIPMENT / COMPONENT NAME	**MANUFACTURER NAME**	**MODEL NUMBER**
MIDI-AT	Honeywell	MATUMB
CALIBRATION PROCEDURE NUMBER		**FREQUENCY**

Section 2. CONTACT / CUSTOMER INFORMATION

NAME	Z - NUMBER		PHONE NUMBER	CELL NUMBER	PAGER NUMBER

Section 3. CALIBRATION DATA (COMPLETED BY THE CALIBRATOR) — *(Include measurements, examinations, and derived results, supported tables, graphs, sketches, etc., as appropriate. Use attachments for continuation; number all pages.)*

CALIBRATION DUE DATE	CALIBRATION DATE	NEXT EXPIRATION DATE	PROCESS INSTRUMENT ACCURACY

Standard(s) Used: *(Accuracy must be 4 times better than M&TE being calibrated or explained in COMMENT Section)*

M Beamex MC5 Scale cal date: 9/20/21 Accuracy

M SN 25513922 Scale cal/due: 9/20/22 Accuracy

CALIBRATION POINTS	PSE	AS FOUND DATA		AS LEFT DATA	
		Beamex	MIDI-AT	Beamex	MIDI-AT
0%	0	0.001	0.0	0.00	0.0
25%	25	25.003	25.0	25.003	25.0
50%	50	50.002	50.0	50.004	50.0
75%	75	75.002	75.0	75.003	75.0
100%	100	100.002	100.0	100.02	100.0

AS FOUND Condition	AS LEFT Condition	AS LEFT Status
☑ In Tolerance ☐ Repair Required ☐ Out Of Tolerance	☑ In Tolerance ☐ Repair Required ☐ Out Of Tolerance	☑ Approved ☐ Rejected ☐ Limited Use Tolerance

CHARACTERIZATION & CONDITION OF ITEM *(Describe damage resulting from improper handling or storage and/or any communication from the customer regarding the condition of the item)*

LIMITATIONS OF USE N/A

ADJUSTMENT REMARKS *(Include any non-standard method used or any unique information that would assist in future calibrations. Record any deviation from, addition to, or excursion from, the calibration method and any other information relevant to a specific calibration, such as significant environmental conditions.)*

COMMENTS no adjustments needed.

Section 4. SIGNATURES

	Z - NUMBER	DATE
CALIBRATOR	101408	11/18/21
QUALITY ASSURANCE VERIFICATION (Calibration Coordinator/Designee)	101408	11/18/21

60-10-110.2 Calibration Data Sheet

Appendix D:
Quality Assurance Activities

Quality Assurance Report
NOx Converter Efficiency Test, Interference Test, Response Time and Bias Error Test

NOx Converter Effeciency Check

Method: *7E Section 8.2.4*
Frequency: *Before each field test*
Criteria: *Equal to or greater than 90% conversion efficiency*

Test Date: 12/8/21 Technician: CS

NO2	*Results*
Certified Value	50.00 ppmv
Observed Value	49.58 ppmv
Converter Effeciency	99%

Interference Response Checks

Method: *7E Section 8.2.7*
Frequency: *Prior to initial use in the field or after major alteration or modification*
Criteria: *Sum of responses < 2.5 % of calibration span*

Test Date: 12/8/21 Technician: CS

Interferrence Test Gases		**Analyzer Response (ppmv or % as applicable)**					
Type Gas	*Conc.*	*NOx*	*CO*	*SO2*	*THC*	*O2*	*CO2*
NOx in N2	25.0 ppm	---	N/A	---	---	0.48	0.20
CO in N2	25.0 ppm	N/A	---	---	---	0.48	0.20
SO2 in N2	---	---	---	---	---	---	---
THC in Air	---	---	---	---	---	---	---
O2 in N2	10.0 %	0.90	-0.43	---	---	---	N/A
CO2 in N2	10.0 %	0.90	-0.43	---	---	N/A	---

Gas Dilution Calibration - 2 Mass Flow Controllers

Method: *205*
Frequency: *Before each field test.*
Criteria: *Produce Calibration gases whose measured values are within ± 2% of predicted values.*

Manufacturer: Environics Cal Gas: NOx
Model Number: Series 4040 Test Date: 12/8/21
Serial Number: 8439 Technician: CS

	MFC 3			*MFC 2*		
	Direct Inject	**Diluted Conc.**	**Diluted Conc.**	**Direct Inject**	**Diluted Conc.**	**Diluted Conc.**
Certified Value:	253.6	2931	2931	253.6	2931	2931
Ex. Dilution:	---	250	500	---	1000	2000
Injection 1	253.35	246.11	490.81	253.31	986.74	1975.90
Injection 2	253.31	246.13	490.86	253.36	989.47	1976.80
Injection 3	253.32	246.12	490.80	253.31	989.43	1975.92
Average	**253.33**	**246.12**	**490.83**	**253.33**	**988.55**	**1976.21**
% Variation	**0.01%**	**0.00%**	**0.01%**	**0.01%**	**0.16%**	**0.03%**
% Difference	**0.11%**	**1.56%**	**1.85%**	**0.11%**	**1.15%**	**1.20%**

Sample System Bias & Response Time Check

Method: *7E Section 8.2.5-6*
Frequency: *Before sampling begins*
Criteria: *5% of calibration span*
Criteria: *Note the longer of the two times as the response time*

Test Date: 12/8/21 Technician: CS

Sample System Bias Check

Introduction Technique	**NOx (ppmv)**	**CO (ppmv)**	**SO2 (ppmv)**	**THC (ppmv)**	**O2 (%)**	**CO2 (%)**
Direct Zero Input	0.06	0.01	---	---	0.03	0.04
Bias Input	1.00	-0.12	---	---	0.14	0.11
Zero Bias	1.9%	-0.3%			0.6%	0.007
Direct Span Input	24.99	24.97	---	---	10.00	10.00
Bias Input	25.57	24.91	---	---	10.11	9.96
Span Bias	1.2%	-0.1%			0.5%	-0.004

Sample System Response Time

Parameter	**NOx (ppmv)**	**CO (ppmv)**	**SO2 (ppmv)**	**THC (ppmv)**	**O2 (%)**	**CO2 (%)**
Upscale Response	65	70			75	75
Downscale Response	65	70			75	75
Purge Time	150 seconds					

Quality Assurance Worksheet
Instrument Calibration and Drift Correction

Company: Los Alamos National Laboratory
Location: TA-3 Power Station
Source: Rolls Royce RB211-6761 DLE SN: 2011
Engine Site Rating: 27 MW
Test Date: Wednesday, December 8, 2021

UNIT TA-3-22					TEST RUN 1					TEST RUN 2					TEST RUN 3				
GAS LEVELS PER METHOD	CALIBRATION GAS CONCENTRATIONS		INITIAL CALIBRATION & LINEARITY CHECK		Start Run 12:55	ZERO and SPAN CALIBRATION CHECK				Start Run 13:16	ZERO and SPAN CALIBRATION CHECK				Start Run 13:37	ZERO and SPAN CALIBRATION CHECK			
	Certified Concentration	Target (% Span)	Analyzer Response	Calibration Error < 2%	Stop Run 13:15	Initial Response	Final Response	Drift < 3%	Bias < 5%	Stop Run 13:36	Initial Response	Final Response	Drift < 3%	Bias < 5%	Stop Run 13:57	Initial Response	Final Response	Drift < 3%	Bias < 5%
NOx					Avg. ppmv					Avg. ppmv					Avg. ppmv				
Zero	0.0 ppmv	0.0	0.06 ppmv	0.1%	**21.85**	1.00 ppmv	0.88 ppmv	0.2%	1.8%	**21.77**	1.00 ppmv	0.88 ppmv	0.2%	1.8%	**21.73**	1.00 ppmv	0.88 ppmv	0.2%	1.8%
					Corr. ppmv					Corr. ppmv					Corr. ppmv				
Mid	25.0 ppmv	50.0	24.99 ppmv	0.0%	**21.19**	25.57 ppmv	25.63 ppmv	0.2%	1.3%	**21.11**	25.57 ppmv	25.63 ppmv	0.2%	1.3%	**21.08**	25.57 ppmv	25.63 ppmv	0.2%	1.3%
High	50.0 ppmv	100.0	49.56 ppmv	-0.9%	Cal. Span					Cal. Span					Cal. Span				
Analyzer Range = 100 ppmv			**Span = 50.0**		**50.0**					**50.0**					**50.0**				
CO					Avg. ppmv					Avg. ppmv					Avg. ppmv				
Zero	0.0 ppmv	0.0	0.01 ppmv	0.0%	**5.98**	-0.12 ppmv	-0.51 ppmv	0.8%	1.0%	**5.85**	-0.12 ppmv	-0.51 ppmv	0.8%	1.0%	**6.05**	-0.12 ppmv	-0.51 ppmv	0.8%	1.0%
					Corr. ppmv					Corr. ppmv					Corr. ppmv				
Mid	25.0 ppmv	50.0	24.97 ppmv	-0.1%	**6.16**	24.91 ppmv	25.56 ppmv	2.6%	1.1%	**6.03**	24.91 ppmv	25.56 ppmv	2.6%	1.1%	**6.22**	25.56 ppmv	25.00 ppmv	2.2%	0.0%
High	50.0 ppmv	100.0	49.47 ppmv	-1.1%	Cal. Span					Cal. Span					Cal. Span				
Analyzer Range = 100 ppmv			**Span = 50.0**		**50.0**					**50.0**					**50.0**				
O2					Avg.%					Avg.%					Avg.%				
Zero	0.0%	0.0	0.03%	0.2%	**14.77**	0.14%	0.27%	0.7%	1.4%	**14.81**	0.14%	0.27%	0.7%	1.4%	**14.85**	0.14%	0.27%	0.7%	1.4%
					Corr. %					Corr. %					Corr. %				
Mid	10.0%	50.0	10.00%	0.0%	**14.70**	10.11%	10.11%	0.0%	0.5%	**14.75**	10.11%	10.11%	0.0%	0.5%	**14.79**	10.11%	10.11%	0.0%	0.5%
High	20.0%	100.0	19.96%	-0.2%	Cal. Span					Cal. Span					Cal. Span				
Analyzer Range = 25.0%			**Span = 20.0**		**20.0**					**20.0**					**20.0**				
CO2					Avg.%					Avg.%					Avg.%				
Zero	0.0%	0.0	0.04%	0.4%	**3.41**	0.11%	0.22%	1.1%	2.2%	**3.46**	0.11%	0.22%	1.1%	2.2%	**3.49**	0.11%	0.22%	1.1%	2.2%
					Corr. %					Corr. %					Corr. %				
Mid	5.0%	50.0	5.03%	0.3%	**3.32**					**3.36**					**3.40**				
High	10.0%	100.0	10.00%	0.0%	Cal. Span	9.96%	9.96%	0.0%	0.4%	Cal. Span	9.96%	9.96%	0.0%	0.4%	Cal. Span	9.96%	9.96%	0.0%	0.4%
Analyzer Range = 10.0%			**Span = 10.0**		**10.0**					**10.0**					**10.0**				

Appendix E:
Calibration Certifications

Mass Flow Controller Annual Calibration

Make: Environics
Model: 4040
Serial Number: 8439

Calibration Date: 3/29/21
Next Calibration Date: 3/29/22
Technician: CS

The mass flow controllers (MFC) in use with this gas dilution system was calibrated with a Bios Defender Model 530 High Flow. This calibration was performed with nitrogen and was corrected to standard reference temperature (68° F) and pressure (29.92" Hg). The data shown is performance data taken after the calibration of the gas dilution system. Acceptable criteria for pass/fail is a true flow value +/- 10% within the set flow.

MFC 1	*% Flow*	*Set Flow*	*True Flow*	*% Difference*
SN: 0604713001	5	1500	1526.0	-1.73
Size: 30,000 SCCM	10	3000	3006.2	-0.21
	20	6000	5946.4	0.89
	30	9000	8892.7	1.19
	40	12000	11794.2	1.72
	50	15000	14702.6	1.98
	60	18000	17605.2	2.19
	70	21000	20780.6	1.04
	80	24000	23737.2	1.10
	90	27000	27152.5	-0.56
	100	30000	29248.7	2.50

MFC 2	*% Flow*	*Set Flow*	*True Flow*	*% Difference*
SN: 0604713002	5	1500	1466.0	2.27
Size: 30,000 SCCM	10	3000	2992.1	0.26
	20	6000	6093.0	-1.55
	30	9000	9191.1	-2.12
	40	12000	12278.4	-2.32
	50	15000	15370.0	-2.47
	60	18000	18393.6	-2.19
	70	21000	21368.0	-1.75
	80	24000	24382.1	-1.59
	90	27000	27368.9	-1.37
	100	30000	29978.6	0.07

MFC 3	*% Flow*	*Set Flow*	*True Flow*	*% Difference*
SN: 0604715001	5	150	148.63	0.91
Size: 3,000 SCCM	10	300	300.20	-0.07
	20	600	570.31	4.95
	30	900	862.74	4.14
	40	1200	1156.47	3.63
	50	1500	1441.47	3.90
	60	1800	1739.19	3.38
	70	2100	2091.81	0.39
	80	2400	2356.67	1.81
	90	2700	2708.52	-0.32
	100	3000	3003.38	-0.11

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1700 Scepter Rd
Waverly, TN 37185
931-296-3357

Certificate of Analysis - EPA Protocol Mixtures

Customer: Matheson
8200 Washington St NE
CST
Albuquerque, NM 87113

Customer PO #: 19550313-00

Part # G2687907

Protocol: G1

Reference #: 745163-03

Lot#: 9009425785

Cylinder Number: EB0124096

Cylinder Pressure: 2000 psig

Last Analysis Date: 3/27/2019

Expiration Date: 3/27/2022

DO NOT USE THIS CYLINDER WHEN THE PRESSURE FALLS BELOW 100 PSIG

Component: Nitrogen Dioxide

Certified Conc: 50.0 ppm +/- 0.9 ppm ABS

REPLICATE RESPONSES			
Date:	3/20/2019	Date:	3/27/2019
	49.9		49.8
	50.1		49.9
	50.1		50.2

BALANCE GAS: NITROGEN

REFERENCE STANDARDS:

Component: Nitrogen Dioxide
Reference Standard: PRM
Cylinder #: D562925
Concentration: 75.0 +/- 1.1 ppm ABS
Exp. Date: 2/2/2019
NIST Sample #: VSL PRIMARY

Reference Standard: GMIS
Cylinder #: EB0097397
Concentration: 47.8 +/- 0.8 ppm ABS
Exp. Date: 9/21/2021

CERTIFICATION INSTRUMENTS

Component: Nitrogen Dioxide
Make/Model: CAI / 600
Serial Number: Y09003
Measurement Principle: CHEMI
Last Calibration: 4/1/2019

Notes: **Basis of concentration: molar**

The certification was performed by Global Calibration Gases, LLC, Sarasota, FL and according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards May 2012, using procedure G1 and/or G2. U.S EPA PGVP Vendor ID Number: N22019.
The expanded uncertainty listed for each component was calculated at a coverage factor of k=2 and at a level of confidence of 95%.

Analyst: Signature on File Date: 3/27/2019

QA: Ashley Smallwood Date: 4/8/2019

Ashley Smallwood

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1700 Scepter Rd
Waverly, TN 37185
931-296-3357

Certificate of Analysis - EPA Protocol Mixtures

Customer: Matheson
8200 Washington St NE
Compliance Service & Test
Albuquerque, NM 87113

Customer PO#: 14285831-00

Part # G2684826

Protocol:	Reference #:	Lot#:
G1	700151-01	9306622507

Cylinder Number: SX34318
Cylinder Pressure: 1900 psig
Last Analysis Date: 11/28/2016
Expiration Date: 11/28/2024

DO NOT USE THIS CYLINDER WHEN THE PRESSURE FALLS BELOW 100 PSIG

			REPLICATE RESPONSES		
Component:	Carbon Monoxide		Date:	11/18/2016	
				252.0	
Certified Conc:	251.9 ppm	+/- 0.6 ppm ABS		251.9	
				251.8	
Component:	Nitric Oxide		Date:	11/18/2016	Date: 11/28/2016
				252.8	252.6
Certified Conc:	253.6 ppm	+/- 1.0 ppm ABS		254.1	253.4
				254.8	253.9
NOx:	253.8 ppm	Reference Only			

BALANCE GAS: Nitrogen

REFERENCE STANDARDS:

Component:	Carbon Monoxide	Component:	Nitric Oxide
Reference Standard:	SRM	Reference Standard:	SRM
Cylinder #:	FF30844	Cylinder #:	FF20721
Concentration:	247.1 +/- 0.5 ppm ABS	Concentration:	251.5 +/- 0.8 ppm ABS
Exp. Date:	3/26/2018	Exp. Date:	6/29/2023
NIST Sample #:	57-F-29	NIST Sample #:	43-M-27

CERTIFICATION INSTRUMENTS

Component:	Carbon Monoxide	Component:	Nitric Oxide
Make/Model:	HORIBA VIA 510	Make/Model:	HORIBA CLA-510SS
Serial Number:	RL77YOOG	Serial Number:	FM1JMBMS
Measurement Principle:	NDIR	Measurement Principle:	CHEMI
Last Calibration:	11/7/2016	Last Calibration:	11/17/2016

Notes:

The certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards May 2012, using procedure G1 and/or G2. U.S EPA Vendor ID Number: D62016, PGVP Participation Date: 01/01/16, PGVP Renewal Date: 01/01/17
The expanded uncertainty listed for each component was calculated at a coverage factor of k=2 and at a level of confidence of 95%.

Analyst: Ashley Smallwood
Ashley Smallwood

Date: 11/30/2016

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1700 Scepter Rd
Waverly, TN 37185
931-296-3357

Certificate of Analysis - EPA Protocol Mixtures

Customer: Matheson Tri-Gas
(Other than Sandia)
8200 Washington St NE
Albuquerque, NM 87113

Customer PO#: 14285701-00

Part # G2694832

Protocol:	Reference #:	Lot#:
G1	700952-01	9306622721

Cylinder Number: CC172927
Cylinder Pressure: 1900 psig
Last Analysis Date: 12/27/2016
Expiration Date: 12/27/2024

DO NOT USE THIS CYLINDER WHEN THE PRESSURE FALLS BELOW 100 PSIG

				REPLICATE RESPONSES		
Component:	Carbon Monoxide			Date: 12/14/2016		
				2956		
Certified Conc:	2957 ppm	+/- 9 ppm	ABS	2957		
				2956		
Component:	Nitric Oxide			Date: 12/14/2016	Date:	12/27/2016
				2927		2932
Certified Conc:	2931 ppm	+/- 5 ppm	ABS	2927		2936
				2929		2935
NOx:	2935 ppm	Reference Only				

BALANCE GAS: Nitrogen

REFERENCE STANDARDS:

Component:	Carbon Monoxide	Component:	Nitric Oxide
Reference Standard:	SRM	Reference Standard:	SRM
Cylinder #:	FF30915	Cylinder #:	FF22219
Concentration:	4935 +/- 11 ppm ABS	Concentration:	2989.0 +/- 6.5 ppm ABS
Exp. Date:	4/7/2018	Exp. Date:	2/22/2022
NIST Sample #:	55-F-28	NIST Sample #:	47-G-22

CERTIFICATION INSTRUMENTS

Component:	Carbon Monoxide	Component:	Nitric Oxide
Make/Model:	HORIBA VIA 510	Make/Model:	HORIBA CLA-510SS
Serial Number:	RL77YOOG	Serial Number:	FM1JMBMS
Measurement Principle:	NDIR	Measurement Principle:	CHEMI
Last Calibration:	12/14/2016	Last Calibration:	12/27/2016

Notes:

The certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards May 2012, using procedure G1 and/or G2. U.S EPA Vendor ID Number: D62016, PGVP Participation Date: 01/01/16, PGVP Renewal Date: 01/01/17
The expanded uncertainty listed for each component was calculated at a coverage factor of k=2 and at a level of confidence of 95%.

Analyst: Ashley Smallwood
Ashley Smallwood

Date: 12/27/2016

1700 Scepter Rd
Waverly, TN 37185
931-296-3357

MATHESON

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Certificate of Analysis - EPA Protocol Mixtures

Customer:	MATHESON 8200 WASHINGTON ST NE ALBUQUERQUE, NM 87113	Customer PO# 19986363-00		Part # G2687073
		Protocol: G2=CO2	Reference #:	Lot#:
Cylinder Number:	CC177550	G2=O2	748803-001	9309637838
Cylinder Pressure:	1000 psig	DO NOT USE THIS CYLINDER WHEN THE PRESSURE FALLS BELOW 100 PSIG		
Last Analysis Date:	5/7/2019			
Expiration Date:	5/7/2027			

					REPLICATE RESPONSES
Component:	Carbon Dioxide			Date:	5/7/2019
					24.43
Certified Conc:	24.43%	+/- 0.06 %	ABS		24.43
					24.43
Component:	Oxygen			Date:	5/7/2019
					24.43
Certified Conc:	24.44 %	+/- 0.04 %	ABS		24.46
					24.43

BALANCE GAS: Nitrogen

REFERENCE STANDARDS:

Component:	Carbon Dioxide	Component:	Oxygen
Reference Standard:	NTRM	Reference Standard:	SRM
Cylinder #:	AM11350	Cylinder #:	CAL016956
Concentration:	19.405 +/- 0.58 % ABS	Concentration:	9.918 +/- 0.022 % ABS
Exp. Date:	12/9/2022	Exp. Date:	2/3/2024
SRM #:	NTRM	SRM #:	2658a
NIST Sample#	171101	NIST Sample#	72-D-41

CERTIFICATION INSTRUMENTS

Component:	Carbon Dioxide	Component:	Oxygen
Make/Model:	CAI 700	Make/Model:	HORIBA MPA 510
Serial Number:	1805006	Serial Number:	SGU27SC4
Measurement Principle:	NDIR	Measurement Principle:	PARAMAGNETIC
Last Calibration:	4/16/2019	Last Calibration:	4/16/2019

Notes: **Concentration based on Molar**

The certification was performed according to EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards May 2012, using procedure G1 and/or G2. U.S EPA Vendor ID Number: D62019, PGVP Participation Date: 01/01/19, PGVP Renewal Date: 01/01/20
The expanded uncertainty listed for each component was calculated at a coverage factor of k=2 and at a level of confidence of 95%.

Analyst: Cathy Swaw

Cathy Swaw

Date: 05/13/19

Appendix F:
Datalog Record

Data Log Record
Unit TA-3-22-CT-1

Time	Date	NOx-1 PPMV	CO-1 PPMV	O2-1 %VOL	CO2-1 %VOL	Event
7:06	12/8/21	253.35				MFC Check
7:07	12/8/21	246.11				MFC 3
7:08	12/8/21	490.81				
7:09	12/8/21	253.31				
7:10	12/8/21	246.13				
7:11	12/8/21	490.86				
7:12	12/8/21	253.32				
7:13	12/8/21	246.12				
7:14	12/8/21	490.80				
7:15	12/8/21	253.31				MFC 2
7:16	12/8/21	986.74				
7:17	12/8/21	1975.90				
7:18	12/8/21	253.36				
7:19	12/8/21	989.47				
7:20	12/8/21	1976.80				
7:21	12/8/21	253.31				
7:22	12/8/21	989.43				
7:23	12/8/21	1975.92				
7:28	12/8/21	0.06	0.01	0.03	0.04	Initial Linearity
7:29	12/8/21	24.99	24.97	0.03	0.04	
7:30	12/8/21	49.56	49.47	-0.02	0.03	
7:31	12/8/21	47.39	-0.52	3.60	5.03	NOx Converter
7:32	12/8/21	49.58	0.27	10.00	10.00	Efficiency Test
7:33	12/8/21	0.12	-0.32	19.96	19.76	
12:39	12/8/21	1.00	-0.12	0.14	0.11	Response Time /
12:40	12/8/21	0.90	-0.43	10.11	9.96	Bias Calibrtion /
12:41	12/8/21	25.57	24.91	0.48	0.20	Interference Test
12:42	12/8/21	0.87	-1.28	0.21	0.17	
12:43	12/8/21	21.14	5.06	14.05	3.21	Stratification Test
12:44	12/8/21	21.44	4.87	14.46	3.31	Point 1
12:45	12/8/21	21.65	4.67	14.62	3.35	
12:46	12/8/21	21.74	4.57	14.69	3.36	
12:47	12/8/21	21.83	4.28	14.71	3.38	Point 2
12:48	12/8/21	21.92	4.31	14.72	3.38	
12:49	12/8/21	21.92	3.88	14.73	3.38	
12:50	12/8/21	21.92	3.71	14.73	3.38	
12:51	12/8/21	21.98	3.72	14.73	3.38	Point 3
12:52	12/8/21	21.95	4.18	14.73	3.38	
12:53	12/8/21	21.89	4.31	14.73	3.38	
12:54	12/8/21	21.92	4.93	14.74	3.38	

Time	Date	NOx-1 PPMV	CO-1 PPMV	O2-1 %VOL	CO2-1 %VOL	Event
12:55	12/8/21	21.89	4.41	14.74	3.38	
12:56	12/8/21	21.92	3.82	14.74	3.39	
12:57	12/8/21	21.95	6.55	14.75	3.39	
12:58	12/8/21	21.95	6.46	14.75	3.40	
12:59	12/8/21	21.89	6.69	14.76	3.40	
13:00	12/8/21	21.80	6.66	14.76	3.40	
13:01	12/8/21	21.89	6.50	14.76	3.40	
13:02	12/8/21	21.83	5.83	14.77	3.40	
13:03	12/8/21	21.74	5.38	14.77	3.41	
13:04	12/8/21	21.77	5.78	14.77	3.41	
13:05	12/8/21	21.83	6.47	14.77	3.41	
13:06	12/8/21	21.89	6.56	14.77	3.41	
13:07	12/8/21	21.83	6.73	14.77	3.41	
13:08	12/8/21	21.86	6.65	14.77	3.42	
13:09	12/8/21	21.80	5.76	14.79	3.43	
13:10	12/8/21	21.89	5.28	14.79	3.43	
13:11	12/8/21	21.65	5.27	14.79	3.43	
13:12	12/8/21	21.89	6.13	14.79	3.43	
13:13	12/8/21	21.98	6.14	14.80	3.43	
13:14	12/8/21	21.74	6.37	14.79	3.43	
13:15	12/8/21	21.71	6.25	14.80	3.45	
Run 1 Average		**21.85**	**5.98**	**14.77**	**3.41**	
13:16	12/8/21	21.71	6.46	14.80	3.45	
13:17	12/8/21	21.77	6.13	14.80	3.45	
13:18	12/8/21	21.71	6.32	14.80	3.45	
13:19	12/8/21	21.77	6.61	14.80	3.45	
13:20	12/8/21	21.83	6.63	14.80	3.45	
13:21	12/8/21	21.83	6.51	14.81	3.45	
13:22	12/8/21	21.80	5.65	14.81	3.45	
13:23	12/8/21	21.80	5.19	14.81	3.45	
13:24	12/8/21	22.01	5.97	14.81	3.46	
13:25	12/8/21	21.86	6.07	14.81	3.46	
13:26	12/8/21	21.80	6.24	14.81	3.46	
13:27	12/8/21	21.71	5.66	14.81	3.46	
13:28	12/8/21	21.65	5.95	14.81	3.46	
13:29	12/8/21	21.65	5.60	14.82	3.47	
13:30	12/8/21	21.62	4.89	14.82	3.46	
13:31	12/8/21	21.77	4.90	14.82	3.47	
13:32	12/8/21	21.80	5.68	14.82	3.47	
13:33	12/8/21	21.83	5.59	14.82	3.48	
13:34	12/8/21	21.80	5.54	14.83	3.47	
13:35	12/8/21	21.44	5.19	14.83	3.47	
13:36	12/8/21	21.86	5.97	14.84	3.48	
Run 2 Average		**21.77**	**5.85**	**14.81**	**3.46**	

Time	Date	NOx-1 PPMV	CO-1 PPMV	O2-1 %VOL	CO2-1 %VOL	Event
13:37	12/8/21	22.01	6.53	14.83	3.48	Start Run 3
13:38	12/8/21	21.89	6.63	14.83	3.48	
13:39	12/8/21	21.74	6.35	14.84	3.48	
13:40	12/8/21	21.74	6.31	14.84	3.48	
13:41	12/8/21	21.65	6.03	14.84	3.48	
13:42	12/8/21	21.68	5.74	14.84	3.48	
13:43	12/8/21	21.62	5.34	14.84	3.49	
13:44	12/8/21	21.68	5.58	14.84	3.48	
13:45	12/8/21	21.59	5.95	14.84	3.49	
13:46	12/8/21	21.65	5.74	14.85	3.49	
13:47	12/8/21	21.71	6.00	14.86	3.49	
13:48	12/8/21	21.77	6.00	14.86	3.50	
13:49	12/8/21	21.74	6.29	14.86	3.50	
13:50	12/8/21	21.80	6.34	14.86	3.50	
13:51	12/8/21	21.71	5.89	14.86	3.51	
13:52	12/8/21	21.65	5.93	14.86	3.51	
13:53	12/8/21	21.74	6.09	14.87	3.51	
13:54	12/8/21	21.71	6.11	14.87	3.51	
13:55	12/8/21	21.74	6.25	14.87	3.51	
13:56	12/8/21	21.74	6.08	14.88	3.51	
13:57	12/8/21	21.71	5.93	14.88	3.51	
Run 3 Average		**21.73**	**6.05**	**14.85**	**3.49**	
13:58	12/8/21	0.88	-0.51	0.27	0.22	
13:59	12/8/21	25.63	25.56	0.24	0.14	
14:00	12/8/21	0.93	-0.79	10.11	9.96	

Start Run 1

Start Run 2

ATTACHMENT A1407.A.

Open Burning

There was no open burning conducted during this reporting period.

ATTACHMENT A1507.A.a

Evaporative Sprayers

The monitoring requirement for analysis of the evaporative sprayer basin water is required to be completed every two years beginning in 2018. The basin was tested in June of 2018 and in November/ December of 2020, therefore no additional analysis of the basin water was conducted during this reporting period

ATTACHMENT A1507.A.b

Evaporative Sprayers

Hours of Operation

The Evaporative Sprayers did not operate during this reporting period.

2021 Operational Data for SERF Spray Evaporators - Data entry

Month	Evap Sprayer #1 (SN 0053)		Evap Sprayer #2 (SN 0054)		Evap Sprayer #3 (SN 0055)		Evap Sprayer #4 (SN 0006)		Evap Sprayer #5 (SN 0008)		Evap Sprayer #6 (SN 9360)[1]	
	Hours	Gallons	Hours	Gallons	Hours	Gallons	Hours	Gallons	Hours	Gallons	Hours	Gallons
January	-	-	-	-	-	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-	-	-	-	-	-
March	-	-	-	-	-	-	-	-	-	-	-	-
April	526	220,732	-	-	-	-	-	-	-	-	-	-
May	627	263,361	-	-	-	-	-	-	-	-	-	-
June	601	248,992	-	-	-	-	-	-	-	-	-	-
July	-	-	-	-	-	-	-	-	-	-	-	-
August	-	-	-	-	-	-	-	-	-	-	-	-
September	-	-	-	-	-	-	-	-	-	-	-	-
October	-	-	-	-	-	-	-	-	-	-	-	-
November	-	-	-	-	-	-	-	-	-	-	-	-
December	-	-	-	-	-	-	-	-	-	-	-	-
Annual Totals	1,754	733,085	-	-	-	-	-	-	-	-	-	-

[1] Big Evaporative Sprayer #6 is offline and to be decomissioned, has been removed from pond.

Reviewed by: V. Carretti, 1/10/2022 (July-Dec)

ATTACHMENT A1507.B.

Evaporative Sprayers

Work Practice Standards

Maintenance and Repair Requirements and Records

SERF SIGMA BASINS EVAPORATOR PM LOG

UI-PROC-81-00-027-LOG

Date	Evaporator Number	Pond Number	Inspection		Cleaning	Performed By	Z#	Comments
			Damage? (Y/N)	Wear? (Y/N)				
1/15/2021	SN 0053	Land	N	N	No	CB	280633	No Operations / Inspection Only
1/15/2021	SN 0054	Land	N	N	No	CB	280633	No Operations / Inspection Only
1/15/2021	SN 0008	Land	N	N	No	CB	280633	No Operations / Inspection Only
2/12/2021	SN 0053	Land	N	N	No	CB	280633	No Operations / Inspection Only
2/12/2021	SN 0054	Land	N	N	No	CB	280633	No Operations / Inspection Only
2/12/2021	SN 0008	Land	N	N	No	CB	280633	No Operations / Inspection Only
3/19/2021	SN 0053	Land	N	N	No	CB	280633	No Operations / Inspection Only
3/19/2021	SN 0054	Land	N	N	No	CB	280633	No Operations / Inspection Only
3/19/2021	SN 0008	Land	N	N	No	CB	280633	No Operations / Inspection Only
4/7/2021	SN 0053	Land	N	N	No	CB	280633	Replaced electrical control panel
4/7/2021	SN 0054	Land	N	N	No	CB	280633	Replaced electrical control panel
4/7/2021	SN 0008	Land	N	N	No	CB	280633	Replaced electrical control panel
4/13/2021	SN 0053	Land	N	N	No	CB	280633	Unit placed online.
4/29/2021	SN 0053	Land	N	N	Yes	CB	280633	Regular cleaning.
5/6/2021	SN 0053	Land	N	N	Yes	CB	280633	Regular cleaning.
6/8/2021	SN 0053	Land	N	N	Yes	CB	280633	Regular cleaning.
7/12/2021	SN 053	Land	N	Y	No	CB	280633	Inspeciton. Taken offline due to wear.
8/15/2021	SN 053	Land	N	Y	No	CB	280633	Normal Inspection. Waiting for components associated with CM work.
9/17/2021	SN 053	Land	N	Y	No	CB	280633	Normal Inspection. Waiting for components associated with CM work.

10/12/2021	SN 053	Land	N	Y	No	CB	280633	Normal Inspection. Waiting for components associated with CM work.
11/22/2021	SN 053	Land	N	Y	No	CB	280633	Normal Inspection. Waiting for components associated with CM work.
12/13/2021	SN 053	Land	N	Y	No	CB	280633	Normal Inspection. Waiting for components associated with CM work.

Utilities and Infrastructure	UIDO-PROC-81-00-027-R0

Operations Procedure

SERF Sigma Basin SMI 120F Evaporator Inspections

Review frequency 1 yr ☐ 2 yr ☐ 3 yr ☑

Issue date 08/23/21 **Next review** 08/23/24

Process Owner

Jared Hornberger	SERF Lead Operator	
Jared Hornberger	Digitally signed by Jared Hornberger Date: 2021.08.18 13:02:17 -06'00'	Z# 281223

Reviewed by

Randy Vigil	Water/Wastewater/Gas Operations Manager	
RANDY VIGIL (Affiliate)	Digitally signed by RANDY VIGIL (Affiliate) Date: 2021.08.23 13:25:04 -06'00'	Z# 210082

Reviewed by

Joshua Begay	SWWS/WWTF/SERF System Engineer	
JOSHUA BEGAY (Affiliate)	Digitally signed by JOSHUA BEGAY (Affiliate) Date: 2021.08.19 14:51:25 -06'00'	Z# 304395

ESH Review

Dianne Wilburn	ESHQSS-INT	
DIANNE WILBURN (Affiliate)	Digitally signed by DIANNE WILBURN (Affiliate) Date: 2021.08.20 13:53:56 -06'00'	Z# 121975

Approved by

Phillip Ulibarri	UI Operations Manager	
Phillip Ulibarri	Digitally signed by Phillip Ulibarri Date: 2021.08.23 08:29:48 -06'00'	Z# 152736

Derivative Classifier Review

James Liljenwall	Classification: VERIFIED UNCLASSIFIED	
James Liljenwall	Digitally signed by James Liljenwall Date: 2021.08.12 09:04:03 -06'00'	Z# 206614

History of Revisions

Document Number	Issue Date	Action
UIDO-PROC-81-00-027-R0	08/23/21	Review and reissue as Utilities & Infrastructure procedure. No changes.
UI-PROC-81-00-027-R1	06/18/18	Review and reissue. Minor changes.
UI-PROC-81-00-027-R0	06/01/18	New procedure.

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Utilities & Infrastructure
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 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 & Infrastructure (UIDO) procedures and work control processes
    b. 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 UDO 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-DO records program.

9 Abbreviations, Acronyms, and Terms

Abbreviation, Acronym, or Term	Definition
ESH	Environment, Safety, and Health
IFDO, IF-DO	Institutional Facilities
IWD	Integrated Work Document
LO/TO	Lockout/tagout
PPE	Personal Protective Equipment
SERF	Sanitary Effluent Reclamation Facility
UIDO, UI-DO	Utilities & Infrastructure

10 References

P101-3, Lockout/Tagout for Hazardous Energy Control

11 Appendices and Attachments

None