Los Alamos
NATIONAL LABORATORY
EST.1943

*Associate Directorate for ESH&Q*
P.O. Box 1663, MS K491
Los Alamos, New Mexico 87545
505-667-4218/Fax 505-665-3811




*Date:* February 9, 2010
*Ref:* ESH&Q-10-004

Manager, Compliance and Enforcement Section
New Mexico Environment Department
Air Quality Bureau
1301 Siler Road, Building B
Santa Fe, New Mexico 87507

Dear Compliance and Enforcement Manager:

**SUBJECT: SEMI-ANNUAL MONITORING REPORT FOR JULY – DECEMBER 2009**
**AIR QUALITY TITLE V OPERATING PERMIT P100R1**
**AI NO. 856 – LOS ALAMOS NATIONAL LABORATORY (LANL)**

Enclosed is Los Alamos National Laboratory's Title V Operating Permit Semi-Annual Monitoring Report for the period **July 1 – December 31, 2009** (Enclosure 1). This submission is required by permit condition 4.2 of Operating Permit P100R1 and is being submitted within the allowed 45 days after the end of the reporting period as specified in permit condition 4.3.

One permit deviation occurred during this reporting period and is described in this report. The deviation is with permit condition 2.1.4.3, a monitoring condition at the LANL Asphalt Plant. Details on this deviation can be found in part 2 of this report, the Deviation Summary, on page 62.

If you have any questions or comments regarding this submittal or would like to discuss this submittal in greater detail, please contact Steve Story at 665-2169 or David Paulson at 665-8884.

Sincerely,

J. Chris Cantwell
Associate Director
Environment, Safety, Health & Quality

Los Alamos
NATIONAL LABORATORY
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*Associate Directorate for ESH&Q*
P.O. Box 1663, MS K491
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Sincerely,

J. Chris Cantwell
Associate Director
Environment, Safety, Health & Quality

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Enc: a/s

Cy: I.E. Richardson, III, w/o enc., DIR, A100
M. Mallory, w/o enc., PADOPS, A102
S. Fong, w/o enc., DOE-LA-AO, E550
D. Hjeresen, w/o enc., ENV-DO, K404
P. Wardwell, w/o enc., LC-ESH, A187
C. Blackwell, w/o enc., LC-ESH, A187
D. Janecky, w/o enc., ENV-EAQ, J978
S. Story, w/o enc., ENV-EAQ, J978
IRM-RMSSO, w/o enc., A150
ENV-EAQ Title V Monitoring Report File
ADESH&Q File

New Mexico Environment Department
Air Quality Bureau
Compliance and Enforcement Section
1301 Siler Road Building B
Santa Fe, NM 87507
Phone (505) 476-4300 Fax (505) 476-4375

Version 07.03.08

| NMED USE ONLY | |
|---|---|
| DTS | |
| TEMPO | |

# REPORTING SUBMITTAL FORM

| NMED USE ONLY | |
|---|---|
| Staff | |
| Admin | |

**PLEASE NOTE: ® - Indicates required field**

## SECTION I - GENERAL COMPANY AND FACILITY INFORMATION

| | | | | | |
|---|---|---|---|---|---|
| **A. ® Company Name:** Los Alamos National Security | | | **D. ® Facility Name:** Los Alamos National Laboratory | | |
| **B.1 ® Company Address:** P.O. Box 1663 MS J978 | | | **E.1 ® Facility Address:** Same as Company | | |
| **B.2 ® City:** Los Alamos | **B.3 ® State:** NM | **B.4 ® Zip:** 87545 | **E.2 ® City:** | **E.3 ® State:** | **E.4 ® Zip:** |
| **C.1 ® Company Environmental Contact:** David Janecky | **C.2 ® Title:** EAQ Deputy Group Leader | | **F.1 ® Facility Contact:** Steve Story | **F.2 ® Title:** Air Compliance Manager | |
| **C.3 ® Phone Number:** (505) 667-6952 | **C.4 ® Fax Number:** (505) 665-8858 | | **F.3 ® Phone Number:** (505) 665-2169 | **F.4 ® Fax Number:** (505) 665-8858 | |
| **C.5 ® Email Address:** janecky@lanl.gov | | | **F.5 ® Email Address:** story@lanl.gov | | |
| **G. Responsible Official: (Title V only):** J. Chris Cantwell | **H. Title:** Associate Director ESH&Q | | **I. Phone Number:** (505) 667-4218 | **J. Fax Number:** (505) 665-3811 | |

| | | | | |
|---|---|---|---|---|
| **K. ® AI Number:** 856 | **L. Title V Permit Number:** P100R1 | **M. Title V Permit Issue Date:** 8/7/2009 | **N. NSR Permit Number:** 2195 | **O. NSR Permit Issue Date:** various |

| | | | | |
|---|---|---|---|---|
| **P. Reporting Period:** From: 7/1/2009 To: 12-31-2009 | **OR** | **Q. Proposed Test Date:** | **OR** | **R. Actual Test Date:** |

## 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):** All Monitoring | **Description:** LANL Semi-annual Monitoring Report for July-December 2009 | |
| 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 – PERIODIC EMISSIONS TEST NOTIFICATIONS, TEST PROTOCOLS AND TEST REPORTS (if applicable)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| T. ☐ | A. Test Report ☐ CMT:____ | B. Test Protocol ☐ | C. Notification ☐ CMT:____ | | | | **Description: (Emission Units to be Tested)** |
| | D. Initial Compliance Test (EPA Methods) ☐ | E. Periodic Test (EPA Methods) ☐ | F. RATA Test ☐ | G. Opacity Test ☐ | H Portable Analyzer (Periodic Test) ☐ | | |

## SECTION IV - CERTIFICATION

**After reasonable inquiry, I** J. Chris Cantwell **certify that the information in this submittal is true, accurate and complete.**
(name of reporting official)

| ® Signature of Reporting Official: | ® Title: | ® Date | ® Responsible Official for Title V? |
|---|---|---|---|
| J. C. Cantwell | Associate Director ESH&Q | 2/9/10 | ☒ 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, Los Alamos | State: NM | Zip: 87545 |
| Responsible Official (RO): J. Chris Cantwell | Phone: 505-667-4218 | Fax: 505-665-3811 |
| RO Title: Assoc. Director Environmental, Safety, Health, and Quality | RO e-mail: cantwe@lanl.gov | |
| Permit No.: P100R1 | Date Permit Issued: August 7, 2009 | |
| Report Due Date (as required by the permit): 02/14/2010 | Permit AI number: 856 | |
| Time period covered by this Report: From: July 1, 2009 | To: December 31, 2009 | |

## III. Certification of Truth, Accuracy, and Completeness

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

Signature _____ Date: 2/9/2010 .

LA-UR-10-00624

*Approved for public release; distribution is unlimited.*

| | |
|---|---|
| *Title:* | Title V Semi-Annual Monitoring Report for Permit P100-R1 |
| *Author(s):* | David L. Paulson |
| *Intended for:* | Manager, Compliance & Enforcement Section<br>New Mexico Environment Department-Air Quality Bureau<br>1301 Siler Road, Building B<br>Santa Fe, New Mexico 87507-3113 |

Los Alamos
NATIONAL LABORATORY
EST.1943

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Form 836 (7/06)

# Enclosure - 1

Los Alamos National Laboratory's
Title V Operating Permit
Monitoring Report for the period
**July 1 – December 31, 2009**

# Title V Semi - Annual Monitoring Report for Permit P100-R1

# Part 1 – Monitoring Activity Reporting Requirements

**4.0 REPORTING**
Conditions of 4.0 are pursuant to 20.2.70.302.E NMAC.

4.1 Reports of actual emissions from permitted sources in Section 2.0 shall be submitted on a 6-month basis. Reports shall not include emissions from insignificant activities. Emission estimates of criteria pollutants NOx, CO, $SO_2$, PM, and VOCs shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.11 of this permit.

4.2 Reports of all required monitoring activities shall be submitted on a semiannual basis. All instances of deviation from permit requirements, including those that occur during emergencies, shall be clearly identified in these reports. The conditions of 4.1 and 4.2 are pursuant to 20.2.70.302.E.1 NMAC.

4.3 The report required by Condition 4.1 shall be submitted within 90 days from the end of the reporting period. **The semiannual report required by Condition 4.2 shall be submitted within 45 days from the end of the reporting period. The reporting periods are January 1st to June 30th and July 1st to December 31st. This condition is pursuant to 20.2.70.302.E.1 NMAC.**

4.4 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 contained in the semi-annual reports required by Condition 4.2. This condition is pursuant to 20.2.70.302.E.2 NMAC.

4.5 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. Reported numerical values shall not be truncated or rounded, and shall be recorded and reported to the number of significant figures corresponding to the full accuracy inherent in the testing instrument or Method test used to obtain the data.

**Permitted Sources**:

**Monitoring Requirement**

2.1.4 Emissions Monitoring Requirements
Conditions of Section 2.1.4 are pursuant to 20.2.70.302.C NMAC.

2.1.4.1 To determine compliance with Condition 2.1.2.1, perform six (6) minute opacity readings on the rotary dryer/baghouse stack at least once per month using 40 CFR 60, Appendix A, Method 9.

2.1.4.2 To determine compliance with Condition 2.1.2.2, perform a Method 22 test at least once per month on all screens, conveyor drop points, and hoppers. There shall be no visible emissions for more than two (2) minutes during any ten (10) consecutive minutes of operation.

2.1.4.3 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 manufacturer's specifications.

2.1.2.1 Visible emissions from the rotary dryer/baghouse stack shall not exhibit an opacity of 20% or greater.

2.1.2.2 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 2 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.

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:**

2.1.4.1 See **Attachment 1** for monthly six minute opacity readings taken on the asphalt plant baghouse stack. 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.

2.1.4.2 EPA Method 22 is used at least monthly to observe visible emissions from the asphalt plant equipment. These observations have not identified visible emissions for more than two minutes during any ten minute period. See **Attachment 2** for the monthly method 22 visible observation readings.

2.1.4.3 A differential pressure gauge is in place to monitor the differential pressure across the baghouse. The differential pressure and the time period the rotary dryer drum operates are recorded using a datalogger. Records are available on-site for NMED inspection. A deviation from this permit

condition occurred during this reporting period. See Part 2 (Deviation Summary) of this report for details on this deviation.

2.1.2.1 Visible emissions from the rotary dryer/baghouse stack have not exhibited an opacity of 20% or greater during this reporting period. Records of observed opacity are included in **Attachment 1**.

2.1.2.2 Fugitive dust emissions from asphalt processing equipment, including the system used to recycle fabric filter fines, did not exhibit more than five (5) minutes of visible emissions in any 2 consecutive hours during this reporting period.

## Attachment 1

### Asphalt Plant Method 9 Opacity Reports

**Summary Table, Reports Attached**

| Month | Read Location | Date | Time | Average Opacity | EPA Method |
|---|---|---|---|---|---|
| July | Top of Baghouse Stack | 07/14/09 | 8:25 am | 0 | 9 [(a)] |
| August | Top of Baghouse Stack | 08/05/09 | 2:35 pm | 0 | 9 [(a)] |
| September | Top of Baghouse Stack | 09/09/09 | 9:05 am | 0 | 9 [(a)] |
| October | Top of Baghouse Stack | 10/27/09 | 10:27 am | 0 | 9 [(a)] |
| November | Top of Baghouse Stack | 11/04/09 | 9:03 am | 0 | 9 [(a)] |
| December | Top of Baghouse Stack | 12/18/09 | 9:37 am | 0 | 9 [(a)] |

(a) EPA Method 9 was used to determine average opacity. Average opacity for the Asphalt Plant is the sum of the highest consecutive 24 readings divided by 24 (6 minutes of readings). The method is in accordance with 20.2.61 NMAC and conditions 2.1.2.1 and 2.1.4.1 of the Los Alamos National Laboratory (LANL) Operating Permit P100R1.

ENV-EAQ-307, R4
Attachment 2, page 1 of 1

Ecology and Air Quality
Los Alamos National Laboratory

Los Alamos

# LOS ALAMOS NATIONAL LABORATORY (LANL)
# VISIBLE EMISSION OBSERVATION FORM (6 MINUTE)

Source Name: LANL ASPHALT Plant

Source Location: TA-60 Sigma Mesa

Type of Source: Asphalt Plant

Type of Control Equipment: Baghouse

Describe Emission Point (Top of stack, etc.): Top of Plant Stack

Height Above Ground Level: 33 Feet

Height Relative to Observer: 35 Feet

Distance From Observer: 70 Feet

Direction of Source From Observer: NNW

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☒No Plume Present

Emission Color: N/A

Plume Type ☒No Plume Present ☐Continuous ☐Fugitive ☐Intermittent

Water Droplets Present?
☒NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined? 1ft. above top of stack

Describe Background (i.e. blue sky, trees, etc.): Blue Sky

Background Color: Blue

Sky Conditions: Clear

Wind Speed: 3-5 mph

Wind Direction (provide from/to, i.e. from North to South): From SE

Ambient Temperature: 73 °F

Relative Humidity: 34%

Additional Comments/Information: All emission points clear

Observation Date: 7-14-09 Start Time: 0825 End Time: 0831

| Min \ Sec | 0 | 15 | 30 | 45 | Comments |
|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | |
| 2 | 0 | 0 | 0 | 0 | |
| 3 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 0 | 0 | 0 | |
| 5 | 0 | 0 | 0 | 0 | |
| 6 | 0 | 0 | 0 | 0 | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |

Average 6-Minute Opacity: 0%

Range of Opacity Readings: Min. 0% Max. 0%

OBSERVER (please print)

Name: Ron Stone Title: Engineer

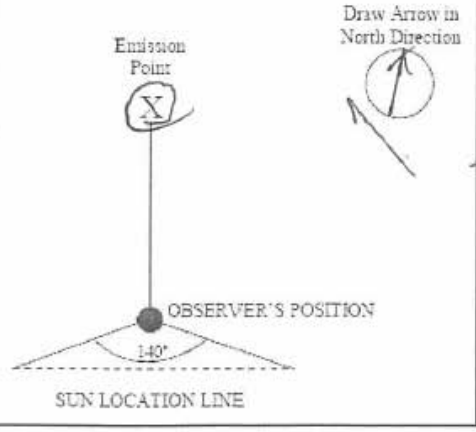
Signature: Ron Stone Date: 7-14-09

Observer Organization: ENV-EAQ

Certified by: ETA Certification Date: 2-25-09

SOURCE LAYOUT SKETCH

Stack with Plume
Sun
Wind




THIS FORM IS FROM EAQ-307, R4

| ENV-EAQ-307, R4<br>Attachment 2, page 1 of 1 | | Ecology and Air Quality<br>Los Alamos National Laboratory |
|---|---|---|

Los Alamos

# LOS ALAMOS NATIONAL LABORATORY (LANL)
## VISIBLE EMISSION OBSERVATION FORM (6 MINUTE)

Source Name: LANL ASPHALT Plant

Source Location: TA-60 Sigma Mesa

Type of Source: Asphalt Plant

Type of Control Equipment: Baghouse

Describe Emission Point (Top of stack, etc.): Top of Plant stack

Height Above Ground Level: 33 Feet

Height Relative to Observer: 40 Feet

Distance From Observer: 75 Feet

Direction of Source From Observer: E

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☒No Plume Present

Emission Color: N/A

Plume Type: ☒No Plume Present ☐Continuous ☐Fugitive ☐Intermittent

Water Droplets Present?
☒NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined?
Eff. above top of stack

Describe Background (i.e. blue sky, trees, etc.): Partly cloudy skies

Background Color: blue

Sky Conditions: scattered clouds

Wind Speed: 5-7 mph

Wind Direction (provide from-to, i.e. from North to South): From S

Ambient Temperature: 87 °F

Relative Humidity: 18 %

Additional Comments Information:
All emission points clear

Observation Date: 8-5-09

Start Time: 1435

End Time: 1441

| Min \ Sec | 0 | 15 | 30 | 45 | Comments |
|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | |
| 2 | 0 | 0 | 0 | 0 | |
| 3 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 0 | 0 | 0 | |
| 5 | 0 | 0 | 0 | 0 | |
| 6 | 0 | 0 | 0 | 0 | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |

Average 6-Minute Opacity: 0%

Range of Opacity Readings: Min. 0% Max. 0%

OBSERVER (please print)

Name: Don Stone

Title: Engineer

Signature: Don Stone

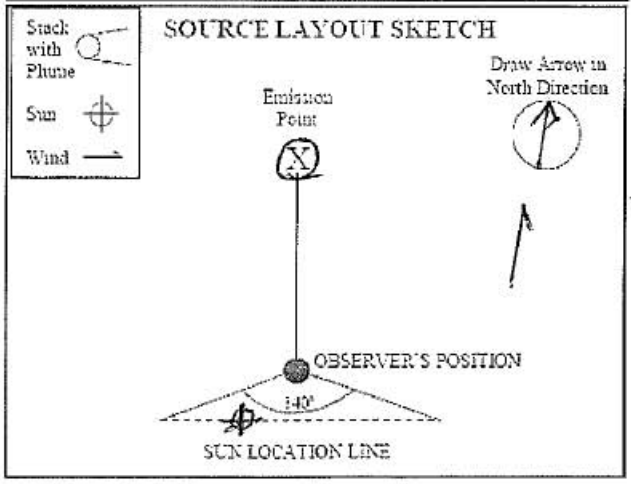
Date: 8-5-09

Observer Organization: ENV-EAQ

Certified by: ETA

Certification Date: 2-25-09

SOURCE LAYOUT SKETCH




*THIS FORM IS FROM EAQ-307, R4*

| ENV-EAQ-307, R4<br>Attachment 2, page 1 of 1 | | Ecology and Air Quality<br>Los Alamos National Laboratory |
|---|---|---|

Los Alamos

## LOS ALAMOS NATIONAL LABORATORY (LANL)
## VISIBLE EMISSION OBSERVATION FORM (6 MINUTE)

Source Name: LANL ASPHALT Plant

Source Location: TA-60 Sigma Mesa

Type of Source: Asphalt Plant

Type of Control Equipment: Baghouse

Describe Emission Point (Top of stack, etc.): Top of Plant Stack

Height Above Ground Level: 33 Feet

Height Relative to Observer: 40 Feet

Distance From Observer: 75 Feet

Direction of Source From Observer: N

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☒No Plume Present

Emission Color: N/A

Plume Type ☒No Plume Present ☐Continuous ☐Fugitive ☐Intermittent

Water Droplets Present?
☒NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined?
N/A ft. above top of stack

Describe Background (i.e. blue sky, trees, etc.): Blue sky

Background Color: Blue

Sky Conditions: Clear

Wind Speed: 5-8 mph

Wind Direction (provide from/to, i.e. from North to South): From NNE

Ambient Temperature: 65 °F

Relative Humidity: 42 %

Additional Comments/Information: All emission points clear

| Observation Date | Start Time | End Time |
|---|---|---|
| 9-9-09 | 0905 | 0911 |

| Min \ Sec | 0 | 15 | 30 | 45 | Comments |
|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | |
| 2 | 0 | 0 | 0 | 0 | |
| 3 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 0 | 0 | 0 | |
| 5 | 0 | 0 | 0 | 0 | |
| 6 | 0 | 0 | 0 | 0 | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
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| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |

Average 6-Minute Opacity: 0 %

Range of Opacity Readings: Min. 0 % Max. 0 %

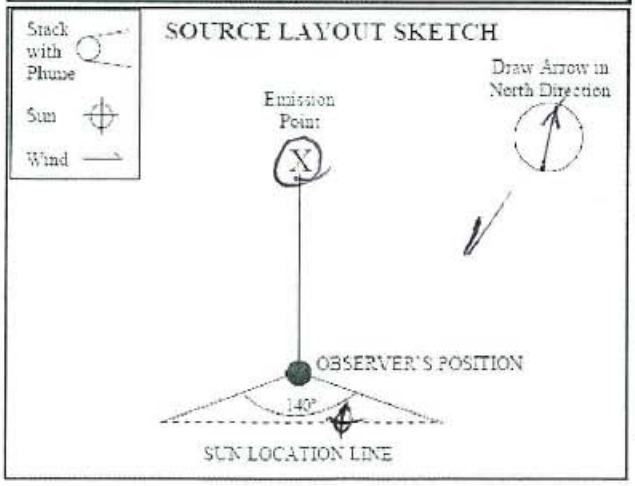
OBSERVER (please print)
Name: Don Stone Title: Engineer

Signature: Don Stone Date: 9-9-09

Observer Organization: ENV-EAQ

Certified by: ETA Certification Date: 8-26-09

SOURCE LAYOUT SKETCH




*THIS FORM IS FROM EAQ-307, R4*

| ENV-EAQ-307, R4<br>Attachment 2, page 1 of 1 | | Ecology and Air Quality<br>Los Alamos National Laboratory |
|---|---|---|

Los Alamos

# LOS ALAMOS NATIONAL LABORATORY (LANL)
# VISIBLE EMISSION OBSERVATION FORM (6 MINUTE)

Source Name: LANL Asphalt Plant

Source Location: TA-60 Sigma Mesa

Type of Source: Asphalt Plant

Type of Control Equipment: Baghouse

Describe Emission Point (Top of stack, etc.): Top of Plant stack

Height Above Ground Level: 33 Feet

Height Relative to Observer: 40 Feet

Distance From Observer: 75 Feet

Direction of Source From Observer: N

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☑No Plume Present

Emission Color: N/A

Plume Type ☑No Plume Present
☐Continuous ☐Fugitive ☐Intermittent

Water Droplets Present?
☑NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined? 5 ft. above top of stack

Describe Background (i.e. blue sky, trees, etc.): Blue sky

Background Color: Blue

Sky Conditions: Clear

Wind Speed: 5-8 mph

Wind Direction (provide from/to, i.e. from North to South): From SSE

Ambient Temperature: 39 °F

Relative Humidity: 60 %

Additional Comments/Information: All emission points clear

| Observation Date | Start Time | End Time |
|---|---|---|
| 10-27-09 | 1027 | 1033 |

| Min \ Sec | 0 | 15 | 30 | 45 | Comments |
|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | |
| 2 | 0 | 0 | 0 | 0 | |
| 3 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 0 | 0 | 0 | |
| 5 | 0 | 0 | 0 | 0 | |
| 6 | 0 | 0 | 0 | 0 | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |

Average 6-Minute Opacity: 0 %

Range of Opacity Readings: Min. 0 % Max. 0 %

OBSERVER (please print)

Name: Dan Stone

Title: Engineer

Signature: Dan Stone

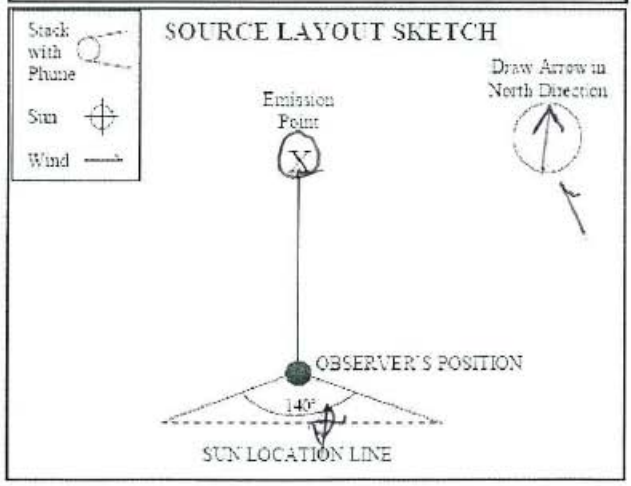
Date: 10-27-09

Observer Organization: ENV-EAQ

Certified by: ETA

Certification Date: 8-26-09

## SOURCE LAYOUT SKETCH




*THIS FORM IS FROM EAQ-307, R4*

| ENV-EAQ-307, R4<br>Attachment 2, page 1 of 1 | | Ecology and Air Quality<br>Los Alamos National Laboratory |
|---|---|---|

Los Alamos

# LOS ALAMOS NATIONAL LABORATORY (LANL)
# VISIBLE EMISSION OBSERVATION FORM (6 MINUTE)

Source Name: LANL Asphalt Plant

Source Location: TA-60 Sigma Mesa

Type of Source: Asphalt Plant

Type of Control Equipment: Baghouse Particulates

Describe Emission Point (Top of stack, etc.): Top of Plant Stack

Height Above Ground Level: 33 Feet

Height Relative to Observer: 40 Feet

Distance From Observer: 70 Feet

Direction of Source From Observer: N

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☒No Plume Present

Emission Color: N/A

Plume Type: ☒No Plume Present ☐Continuous ☐Fugitive ☐Intermittent

Water Droplets Present?
☒NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined?
4 ft above top of stack

Describe Background (i.e. blue sky, trees, etc.): Blue Sky

Background Color: Blue

Sky Conditions: Clear

Wind Speed: 0-3 mph

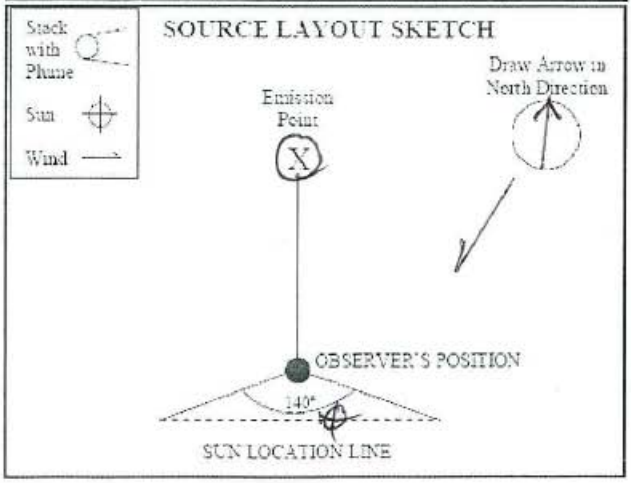
Wind Direction (provide from/to, i.e. from North to South): From NNE

Ambient Temperature: 53 °F

Relative Humidity: 25 %

Additional Comments/Information:
All emission points clear

SOURCE LAYOUT SKETCH




Observation Date: 11-4-09 Start Time: 0903 End Time: 0909

| Min \ Sec | 0 | 15 | 30 | 45 | Comments |
|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | |
| 2 | 0 | 0 | 0 | 0 | |
| 3 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 0 | 0 | 0 | |
| 5 | 0 | 0 | 0 | 0 | |
| 6 | 0 | 0 | 0 | 0 | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |

Average 6-Minute Opacity: 0 %

Range of Opacity Readings: Min 0 % Max 0 %

OBSERVER (please print)

Name: Don Stone Title: Engineer

Signature: Don Stone Date: 11-4-09

Observer Organization: ENV-EAQ

Certified by: ETA Certification Date: 8-26-09

*THIS FORM IS FROM EAQ-307, R4*

| ENV-EAQ-307, R4<br>Attachment 2, page 1 of 1 | | Ecology and Air Quality<br>Los Alamos National Laboratory |
|---|---|---|

Los Alamos

# LOS ALAMOS NATIONAL LABORATORY (LANL)
# VISIBLE EMISSION OBSERVATION FORM (6 MINUTE)

Source Name: LANL ASPHALT PLANT

Source Location: TA-60 Sigma Mesa

Type of Source: Asphalt Plant

Type of Control Equipment: Baghouse

Describe Emission Point (Top of stack, etc.): Top of Plant Stack

Height Above Ground Level: 33 Feet

Height Relative to Observer: 40 Feet

Distance From Observer: 70 Feet

Direction of Source From Observer: N

Description of Plume (stack exit only)
☐Looping ☐Trapping ☐Looping ☐Fanning ☐Coning
☒No Plume Present

Emission Color: N/A

Plume Type ☒No Plume Present ☐Continuous ☐Fugitive ☐Intermittent

Water Droplets Present?
☒NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined?
At 1 ft. above top of stack

Describe Background (i.e. blue sky, trees, etc.): Light gray sky

Background Color: Light gray

Sky Condition: partly overcast

Wind Speed: 5-10 mph

Wind Direction (provide from/to, i.e. from North to South): From NNE

Ambient Temperature: 33 °F

Relative Humidity: 47 %

Additional Comments/Information:
All emission points clear

| Observation Date | Start Time | End Time |
|---|---|---|
| 12-18-09 | 0937 | 0943 |

| Min \ Sec | 0 | 15 | 30 | 45 | Comments |
|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | |
| 2 | 0 | 0 | 0 | 0 | |
| 3 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 0 | 0 | 0 | |
| 5 | 0 | 0 | 0 | 0 | |
| 6 | 0 | 0 | 0 | 0 | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
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| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |

Average 6-Minute Opacity: 0%

Range of Opacity Readings: Min. 0% Max. 0%

OBSERVER (please print)

Name: Don Stone

Title: Engineer

Signature: Don Stone

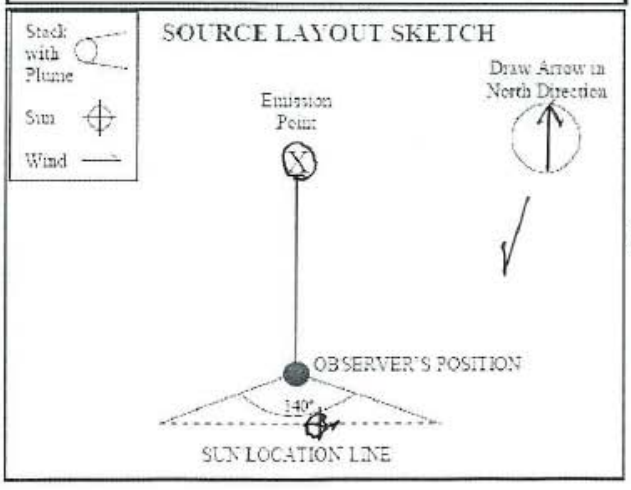
Date: 12-18-09

Observer Organization: ENV-EAQ

Certified by: ETA

Certification Date: 8-26-09

## SOURCE LAYOUT SKETCH




*THIS FORM IS FROM EAQ-307, R4*

## Attachment 2

### Asphalt Plant
### Monthly Method 22 Visible Emission Observations

**Summary Table, Reports Attached**

| Month | Read Location | Date | Time | VE Duration | EPA Method |
|---|---|---|---|---|---|
| July | N/A[(b)] | | | | |
| August | Asphalt Processing Equipment | 08/31/09 | 10:00 am | 0 | 22 [(a)] |
| September | Asphalt Processing Equipment | 09/09/09 | 9:17 am | 0 | 22 [(a)] |
| October | Asphalt Processing Equipment | 10/27/09 | 10:33 am | 0 | 22 [(a)] |
| November | Asphalt Processing Equipment | 11/04/09 | 9:10 am | 0 | 22 [(a)] |
| December | Asphalt Processing Equipment | 12/18/09 | 9:45 am | 0 | 22 [(a)] |

(a) EPA Method 22 was used. The total amount of time visible emissions (VE) were observed from all process equipment at the Asphalt Plant is recorded over a ten minute period. The method is in accordance with conditions 2.1.2.2 and 2.1.4.2 of the Los Alamos National Laboratory (LANL) Operating Permit P100R1.

(b) Observations started with the issuance of the renewed Operating Permit P100R1 on August 7, 2009.

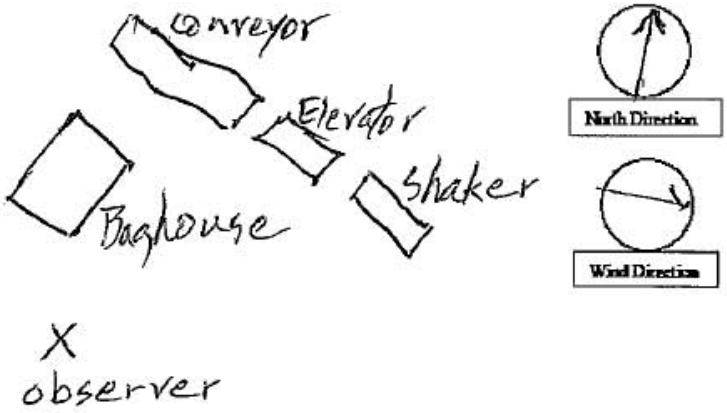
| ENV-EAQ-307, R4<br>Attachment 4, page 1 of 1 | | Ecology and Air Quality<br>Los Alamos National Laboratory |
|---|---|---|

# Los Alamos National Laboratory
## METHOD 22 Visual Determination of Fugitive Emissions Form

| | |
|---|---|
| **Location:** LANL Asphalt Plant | **Observer Affiliation:** ENV-EAQ |
| **Representative:** Don Stone | **Date of Inspection:** 8-31-09 |
| **Sky Conditions:** Clear | **Wind Direction:** From W |
| **Precipitation:** None | **Wind Speed:** 0-2 |
| **Industry:** National Defense | **Process Unit:** Potential fugitive sources |

**Sketch of Process Unit:**

Indicate:
* observer position relative to source
* potential emission and/or actual emission points
* sun location
* wind direction
* North direction




Observations:

| | Clock Time | Observation period duration (min:sec) | Accumulated Emission Time(min:sec) |
|---|---|---|---|
| Begin | 1000 | | |
| | | 10 min | 0 |
| End Observation | 1010 | 1010 | |

Notes: All emission points clear

This form is used to document fugitive visible emissions from outside air emission sources. If an emission is observed during the Method 22 inspection/observation period (which must be at least 6 minutes for the Asphalt Plant and 10 minutes for all other LANL sources), a Method 9 visible emission test may need to be performed.

SIGNATURE OF OBSERVER/INSPECTOR: Don Stone

DATE: 8-31-09

*THIS FORM IS FROM EAQ-307, R4*

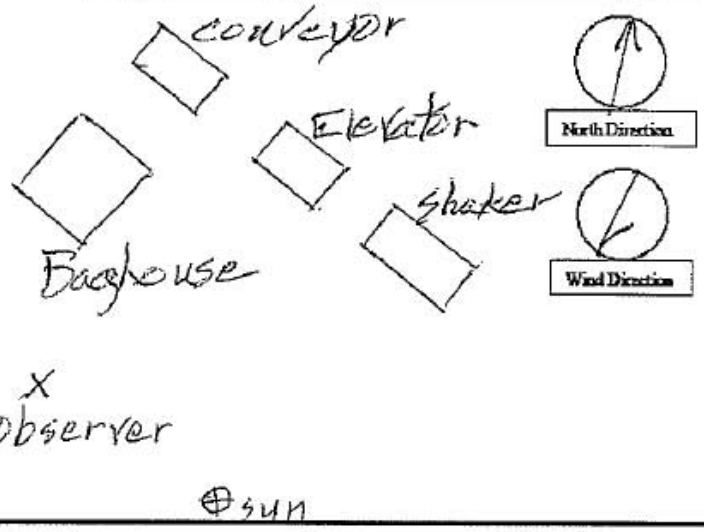
| ENV-EAQ-307, R4<br>Attachment 4, page 1 of 1 | | Ecology and Air Quality<br>Los Alamos National Laboratory |
|---|---|---|

## Los Alamos National Laboratory
## METHOD 22 Visual Determination of Fugitive Emissions Form

| | |
|---|---|
| **Location:** LANL Asphalt Plant | **Observer Affiliation:** ENV-EAQ |
| **Representative:** Don Stone | **Date of Inspection:** 9-9-09 |
| **Sky Conditions:** clear | **Wind Direction:** From NNE |
| **Precipitation:** none | **Wind Speed:** 5 - 8 |
| **Industry:** National Defense | **Process Unit:** Potential Fugitive Sources |

**Sketch of Process Unit:**

Indicate:
* observer position relative to source
* potential emission and/or actual emission points
* sun location
* wind direction
* North direction




Observations:

| | Clock Time | Observation period duration (min:sec) | Accumulated Emission Time(min:sec) |
|---|---|---|---|
| Begin | ~~0907~~ 0917 DS | | |
| End Observation | ~~0917~~ 0927 DS | 10 min | 0 |

Notes:

This form is used to document fugitive visible emissions from outside air emission sources. If an emission is observed during the Method 22 inspection/observation period (which must be at least 6 minutes for the Asphalt Plant and 10 minutes for all other LANL sources), a Method 9 visible emission test may need to be performed.

SIGNATURE OF OBSERVER/INSPECTOR: Don Stone DATE: 9-9-09

*THIS FORM IS FROM EAQ-307, R4*

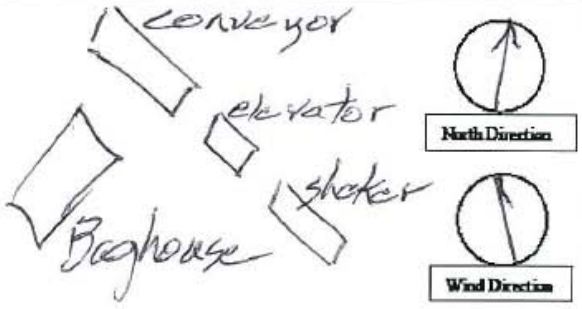
| ENV-EAQ-307, R4<br>Attachment 4, page 1 of 1 | | Ecology and Air Quality<br>Los Alamos National Laboratory |
|---|---|---|

# Los Alamos National Laboratory
## METHOD 22 Visual Determination of Fugitive Emissions Form

| | |
|---|---|
| **Location:** LANL Asphalt Plant | **Observer Affiliation:** ENV-EAQ |
| **Representative:** Don Stone | **Date of Inspection:** 10-27-09 |
| **Sky Conditions:** clear | **Wind Direction:** From SSE |
| **Precipitation:** none | **Wind Speed:** 5-8 mph |
| **Industry:** National Defense | **Process Unit:** Potential Fugitive Sources |

**Sketch of Process Unit:**

Indicate:
* observer position relative to source
* potential emission and/or actual emission points
* sun location
* wind direction
* North direction




**Observations:**

| | Clock Time | Observation period duration (min:sec) | Accumulated Emission Time(min:sec) |
|---|---|---|---|
| Begin | 1033 | | |
| | | 10 min | 0 |
| End Observation | 1043 | | |

**Notes:** All emission points clear

This form is used to document fugitive visible emissions from outside air emission sources. If an emission is observed during the Method 22 inspection/observation period (which must be at least 6 minutes for the Asphalt Plant and 10 minutes for all other LANL sources), a Method 9 visible emission test may need to be performed.

SIGNATURE OF OBSERVER/INSPECTOR: Don Stone — DATE: 10-27-09

*THIS FORM IS FROM EAQ-307, R4*

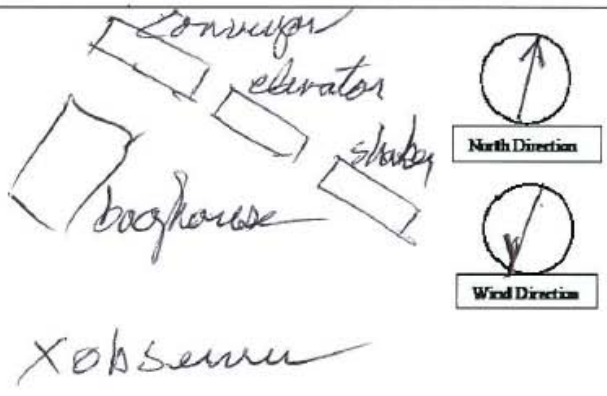
| ENV-EAQ-307, R4<br>Attachment 4, page 1 of 1 | | Ecology and Air Quality<br>Los Alamos National Laboratory |
|---|---|---|

## Los Alamos National Laboratory
## METHOD 22 Visual Determination of Fugitive Emissions Form

| | |
|---|---|
| **Location:** LANL Asphalt Plant | **Observer Affiliation:** ENV-EAQ |
| **Representative:** Don Stone | **Date of Inspection:** 11-4-09 |
| **Sky Conditions:** Clear | **Wind Direction:** From NNE |
| **Precipitation:** none | **Wind Speed:** 0-3 mph |
| **Industry:** National Defense | **Process Unit:** Potential Fugitive Sources |

**Sketch of Process Unit:**

Indicate:
* observer position relative to source
* potential emission and/or actual emission points
* sun location
* wind direction
* North direction




**Observations:**

| | Clock Time | Observation period duration (min:sec) | Accumulated Emission Time(min:sec) |
|---|---|---|---|
| Begin | 0910 | | |
| End Observation | 0920 | 10 min | 0 |

**Notes:**

This form is used to document fugitive visible emissions from outside air emission sources. If an emission is observed during the Method 22 inspection/observation period (which must be at least 6 minutes for the Asphalt Plant and 10 minutes for all other LANL sources), a Method 9 visible emission test may need to be performed.

SIGNATURE OF OBSERVER/INSPECTOR: Don Stone DATE: 11-4-09

*THIS FORM IS FROM EAQ-307, R4*

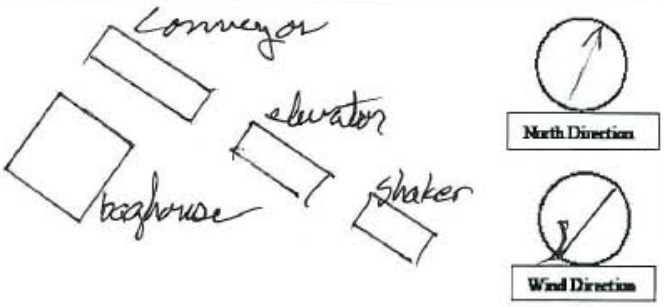
| ENV-EAQ-307, R4<br>Attachment 4, page 1 of 1 | | Ecology and Air Quality<br>Los Alamos National Laboratory |
|---|---|---|

## Los Alamos National Laboratory
## METHOD 22 Visual Determination of Fugitive Emissions Form

| | |
|---|---|
| **Location:** LANL ASPHALT Plant | **Observer Affiliation:** ENV-EAQ |
| **Representative:** Don Stone | **Date of Inspection:** 12-18-09 |
| **Sky Conditions:** overcast | **Wind Direction:** From NNE |
| **Precipitation:** none | **Wind Speed:** 5-10 mph |
| **Industry:** National Defense | **Process Unit:** Potential Fugitive Sources |

**Sketch of Process Unit:**

Indicate:
* observer position relative to source
* potential emission and/or actual emission points
* sun location
* wind direction
* North direction




**Observations:**

| | Clock Time | Observation period duration (min:sec) | Accumulated Emission Time(min:sec) |
|---|---|---|---|
| Begin | 0945 | | |
| End Observation | 0955 | 10 min | 0 |

**Notes:**

This form is used to document fugitive visible emissions from outside air emission sources. If an emission is observed during the Method 22 inspection/observation period (which must be at least 6 minutes for the Asphalt Plant and 10 minutes for all other LANL sources), a Method 9 visible emission test may need to be performed.

SIGNATURE OF OBSERVER/INSPECTOR: Don Stone — DATE: 12-18-09

*THIS FORM IS FROM EAQ-307, R4*

**Monitoring Requirement**

2.2.4 Emissions Monitoring Requirements
Conditions of Section 2.2.4 are pursuant to 20.2.70.302.C NMAC.

| Source | Monitoring Required |
|---|---|
| **Sigma Facility**<br>TA-3-66 | A log shall be maintained during operations, which shows the number of metallographic specimens used in the polishing operation and the weight or volume of Be samples processed in the electroplating/chemical milling, machining, and arc melting/casting operations. |
| Beryllium Technology Facility<br>TA-3-141 | Facility exhaust stack will be equipped with a continuous emission monitor used to measure beryllium emissions.<br><br>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. |
| Target Fabrication Facility<br>TA-35-213 | Records of the stack emission test results (see Condition 2 of NSR Permit No. 632) and other data needed to determine total emissions shall be retained at the source and made available for inspection by the Department. |
| Plutonium Facility<br>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.<br><br>Control efficiency shall be verified by daily HEPA filter pressure drop tests and annual HEPA filter challenge tests of accessible filters.<br><br>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. |

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

☒ **Yes** **Date report submitted:** 8/14 & 11/20 **Tracking Number:** SBR20090008 *see comments

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

**Comments:**

Sigma Facility (TA-3-66) - A log is maintained showing the number of metallographic specimens used in the polishing operation. Logs are maintained showing the weight of Be samples processed in the electroplating/chemical milling, machining, and arc melting/casting operations. Logs are available on-site for NMED inspection.

Beryllium Technology Facility (TA-3-141) - The BTF is equipped with a continuous emissions monitor to measure beryllium emissions. The monitoring system is operated in accordance with LANL Quality Assurance Project Plans and emission results are provided to NMED quarterly. Submissions for this

period were provided to NMED in reports dated August 13, 2009 and November 3, 2009. Cartridge and HEPA filters are equipped with differential pressure gauges that measure the differential pressure across the cartridge and HEPA filters while the exhaust fans are in operation. No new or modified emission sources were added during this reporting period.

Target Fabrication Facility (TA-35-213) - Records of stack emission test results are maintained on-site and are available for NMED inspection. Stack emission test results are used to determine total emissions from this facility.

Plutonium Facility (TA-55-PF4) - The HEPA filtration systems are equipped with differential pressure gauges that measure the differential pressure across the HEPA filters while the exhaust fans are in operation. Control efficiency is verified by daily HEPA filter pressure drop readings. Readings are recorded in the TA-55 Operations Center. Annual HEPA filter challenge tests of accessible filters are performed. Challenge tests were performed on September 21, 2009 and November 19, 2009. See **Attachment 3** for the record of these tests.

* No tracking number was received for the third quarter BTF beryllium report (submitted to NMED on November 20, 2009) as of the submittal date of this report.

# Attachment 3

## HEPA Filter Challenge Tests



**Attachment B: 100 Area Glovebox Exhaust FF-852 Data Sheet**
(Page 1 of 3)

FOR INFORMATION ONLY

| 3.1[2] Obtain Permission to conduct STP from OC. | INITIALS | 3.1[3] Obtain newest copy of STP from OC. | INITIALS |
|---|---|---|---|
| | | | |

Date: 9/30/09 5.1.[3].[a] Photometer Cal. Expiration Date: 10/4/09 5.1.[3].[b] Photometer Serial # 1869 5.1.[3].[c]

| Step Number | Item | FF-852 |
|---|---|---|
| 5.2.[1].[b] | First-stage HEPA Filter ΔP | .45 "wc |
| 5.2.[1].[c] | Second-Stage HEPA Filter ΔP | .39 "wc |
| 5.2.[1].[d] | Third-Stage HEPA Filter ΔP | .45 "wc |

$ **PLENUM EFFICIENCY TEST [SR #4.1.3.1.A , . #4.1.3.1.B]**

**Follow the HEPA test procedure**

Cu = 40 % Final Stable Upstream Meter reading

**Acceptance: ≥30% to ≤50% meter reading**

Stable Downstream Meter reading = 1 (%)

**%p = downstream meter reading (decimal form)** .01 **X 0.1 =** .001 **% penetration (%p)**

Removal Efficiency (%) = $\left[1 - \frac{.001\ (\%p)}{100}\right] \times 100 =$ 99.999 %

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

**FIRST STAGE TEST [defense-in-depth]**

**Follow the HEPA test procedure**

Cu = 35 % Final Stable Upstream Meter reading

**Acceptance: ≥30% to ≤50% meter reading**

Stable Downstream Meter reading = 5 (%)

**%p = downstream meter reading (decimal form)** .05 **X 0.1 =** .005 **% penetration (%p)**

Removal Efficiency (%) = $\left[1 - \frac{.005\ (\%p)}{100}\right] \times 100 =$ 99.995 %

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

FOR INFORMATION ONLY

**Attachment B: 100 Area Glovebox Exhaust FF-852 Data Sheet**
(Page 2 of 3)

| SECOND AND THIRD STAGE COMBINED TEST [defense in depth] |
|---|
| **Follow the HEPA test procedure** |
| Cu = 110 % Final Stable Upstream Meter reading **Acceptance: ≥30% to ≤50% meter reading** |
| Stable Downstream Meter reading = 01 (%) |
| **%p = downstream meter reading (decimal form)** .01 **X 0.1 =** .001 **% penetration (%p)** |
| Removal Efficiency (%) = $\left[1 - \frac{.001\ (\%p)}{100}\right] X\ 100 =$ 99.999 % |
| **Acceptance: ≥ 99.95%** **Acceptable? (circle one)** (YES) NO |

| Valve | Required Position | Initials | Independent Verification |
|---|---|---|---|
| HV-852-H | Closed and Locked | | |
| HV-852-G | Closed | | |
| HV-852-F | Closed | | |
| HV-852-D | Closed | | |
| HV-852-C | Closed | | |
| HV-852-B | Closed | | |
| HV-852-A | Closed | | |
| HV-852-AA | Closed | | |
| Ensure that all test ports are closed and capped. | | | |
| **6.1.1 ISI 4** | | | |
| Ensure 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 |

$

FOR INFORMATION ONLY

## Attachment C: 100 Area Glovebox Exhaust FF-853 Data Sheet
(Page 1 of 3)

| 3.1[2] Obtain Permission to conduct STP from OC. | INITIALS | 3.1[3] Obtain newest copy of STP from OC. |
|---|---|---|

Date: 9/24/09 5.1.[3].[a] Photometer Cal. Expiration Date: 10/24/09 5.1.[3].[b] Photometer Serial # 18519 5.1.[3].[c]

| Step Number | Item | FF-853 |
|---|---|---|
| 5.3.[1].[b] | First-stage HEPA Filter ΔP | .50 "wc |
| 5.3.[1].[c] | Second-Stage HEPA Filter ΔP | .41 "wc |
| 5.3.[1].[d] | Third-Stage HEPA Filter ΔP | .45 "wc |

**PLENUM EFFICIENCY TEST [SR #4.1.3.1.A . .#4.1.3.1.B]**

**Follow the HEPA test procedure**

$ Initial 9/24/09

Cu = 43.5 % Final Stable Upstream Meter reading

**Acceptance: ≥30% to ≤50% meter reading**

Stable Downstream Meter reading = 1 (%)

**%p = downstream meter reading (decimal form)** .01 **X 0.1 =** .001 **% penetration (%p)**

Removal Efficiency (%) = $\left[1 - \frac{.001\ (\%p)}{100}\right] X\ 100 =$ 99.999 %

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

**FIRST STAGE TEST [defense in depth]**

**Follow the HEPA test procedure**

Cu = 40 % Final Stable Upstream Meter reading

**Acceptance: ≥30% to ≤50% meter reading**

Stable Downstream Meter reading = 24 (%)

**%p = downstream meter reading (decimal form)** .24 **X 0.1 =** 0.024 **% penetration (%p)**

Removal Efficiency (%) = $\left[1 - \frac{0.024\ (\%p)}{100}\right] X\ 100 =$ 99.976 %

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

FOR INFORMATION ONLY

**Attachment C: 100 Area Glovebox Exhaust FF-853 Data Sheet**
(Page 2 of 3)

| SECOND AND THIRD STAGE COMBINED TEST [defense in depth] |
|---|
| **Follow the HEPA test procedure** |
| Cu = 40 % Final Stable Upstream Meter reading<br>**Acceptance: ≥30% to ≤50% meter reading** |
| Stable Downstream Meter reading = 2 (%) |
| **%p = downstream meter reading (decimal form)** .002 **X 0.1 =** .002 **% penetration (%p)** |
| Removal Efficiency (%) = $\left[1 - \frac{.002\ (\%p)}{100}\right] X\ 100 =$ 99.998 Rebaseline % |
| **Acceptance: ≥ 99.95%** **Acceptable? (circle one)** **YES** **NO** |

| Valve | Required Position | Initials | Independent Verification |
|---|---|---|---|
| HV-853-H | Closed and Locked | | |
| HV-853-G | Closed | | |
| HV-853-F | Closed | | |
| HV-853-D | Closed | | |
| HV-853-C | Closed | | |
| HV-853-B | Closed | | |
| HV-853-A | Closed | | |
| HV-852-AA | Closed | | |
| Ensure that all test ports are closed and capped. | | | |
| **6.1.1 ISI 4** | | | |
| Ensure 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 | 7/22/09 | N/A |

$

## ATTACHMENT B: 300 Area glovebox exhaust HEPA filter plenum FF-854 Data Sheet

(Page 1 of 3)

| 3.1[2] Obtain Permission to conduct STP from OC and obtain latest copy of STP from OC. | INITIALS |
|---|---|
| | |

Date: 11/17/09 (5.1.[3].[a])  Photometer Cal. Expiration Date: 11/24/09 (5.1.[3].[b])  Photometer Serial # 036305 (5.1.[3].[c])

| Step Number | Item | FF-854 |
|---|---|---|
| 5.2.[2] | First-stage HEPA Filter ΔP | .30 "wc |
| 5.2.[3] | Second-Stage HEPA Filter ΔP | .31 "wc |
| 5.2.[4] | Third-Stage HEPA Filter ΔP | .31 "wc |

FOR INFORMATION ONLY

**$ PLENUM EFFICIENCY TEST [SR #4.1.3.1.A , , #4.1.3.1.B]**

**Follow the HEPA test procedure**

Cu = 40 % Final Stable Upstream Meter reading

**Acceptance: ≥30% to ≤50% meter reading**

Stable Downstream Meter reading = 3 (%)

**%p = downstream meter reading (decimal form)** .03 **X 0.1 =** .003 **% penetration (%p)**

Removal Efficiency (%) = $\left[1 - \frac{.003\ (\%p)}{100}\right] \times 100 =$ 99.997 %

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

**FIRST STAGE TEST [defense in depth]**

**Follow the HEPA test procedure**

Cu = 50 % Final Stable Upstream Meter reading

**Acceptance: ≥30% to ≤50% meter reading**

Stable Downstream Meter reading = ~~50~~ 1 (%)

**%p = downstream meter reading (decimal form)** .01 **X 0.1 =** .001 **% penetration (%p)**

Removal Efficiency (%) = $\left[1 - \frac{.001\ (\%p)}{100}\right] \times 100 =$ 99.999 %

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

## ATTACHMENT B: 300 Area glovebox exhaust HEPA filter plenum FF-854 Data Sheet

(Page 2 of 3)

| SECOND AND THIRD STAGE COMBINED TEST [defense in depth] |
|---|
| **Follow the HEPA test procedure** |
| Cu = 50 % Final Stable Upstream Meter reading<br>**Acceptance: ≥30% to ≤50% meter reading** |
| Stable Downstream Meter reading = 1 (%)<br>**%p = downstream meter reading (decimal form)** .01 **X 0.1 =** .001 **% penetration (%p)** |
| Removal Efficiency (%) = $\left[1 - \frac{.001\ (\%p)}{100}\right] X\ 100 =$ 99.999 % |
| **Acceptance : ≥ 99.95%** **Acceptable? (circle one)** (YES) NO |

| Valve | Required Position | Initials | Independent Verification |
|---|---|---|---|
| HV-854-J | Closed and Locked | MVT | PT |
| HV-854-G | Closed | MVT Closed | PT |
| HV-854-H | Closed | MVT Closed | PT |
| HV-854-D | Closed | MVT | PT |
| HV-854-C | Closed | MVT | PT |
| HV-854-B | Closed | MVT | PT |
| HV-854-A | Closed | MVT Closed | PT |
| HV-854-AA | Closed | MVT Closed | PT |
| HV-870A | Open | MVT Open | PT |
| HV-890 | Open | MVT Open | PT |
| **6.1.1 ISI 4** | | | |
| Ensure 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~~ | 11/19/09 MVT | N/A |

FOR INFORMATION ONLY

$

## ATTACHMENT D: 300 Area glovebox exhaust HEPA filter plenum FF-855 Data Sheet

(Page 1 of 3)

| 3.1[2] Obtain Permission to conduct STP from OC and obtain latest copy of STP from OC. | INITIALS |
|---|---|

Date: 11/10/09 (5.5.[3].[a]) Photometer Cal. Expiration Date: 11/24/09 (5.5.[3].[b]) Photometer Serial # 03E305 (5.5.[3].[c])

| Step Number | Item | FF-855 |
|---|---|---|
| 5.6.[2] | First-stage HEPA Filter ΔP | .48 "wc |
| 5.6.[3] | Second-Stage HEPA Filter ΔP | .48 "wc |
| 5.6.[4] | Third-Stage HEPA Filter ΔP | .35 "wc |

**$ PLENUM EFFICIENCY TEST [SR #4.1.3.1.A , , #4.1.3.1.B]**

**Follow the HEPA test procedure**

Cu = 50 % Final Stable Upstream Meter reading

**Acceptance: ≥30% to ≤50% meter reading**

Stable Downstream Meter reading = [illegible] (%)

**%p = downstream meter reading (decimal form)** [illegible] **X 0.1 =** .005 **% penetration (%p)**

Removal Efficiency (%) = $\left[1 - \frac{.005\ (\%p)}{100}\right] \times 100 =$ 99.995 %

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

FOR INFORMATION ONLY

**FIRST STAGE TEST [defense in depth]**

**Follow the HEPA test procedure**

Cu = 51% Final Stable Upstream Meter reading

**Acceptance: ≥30% to ≤50% meter reading**

Stable Downstream Meter reading = 6 (%)

**%p = downstream meter reading (decimal form)** .06 **X 0.1 =** .006 **% penetration (%p)**

Removal Efficiency (%) = $\left[1 - \frac{.006\ (\%p)}{100}\right] \times 100 =$ 99.994 %

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

## ATTACHMENT D: 300 Area glovebox exhaust HEPA filter plenum FF-855 Data Sheet

(Page 2 of 3)

| SECOND AND THIRD STAGE COMBINED TEST [defense in depth] |
|---|
| **Follow the HEPA test procedure** |
| Cu = 10 % Final Stable Upstream Meter reading **Acceptance: ≥30% to ≤50% meter reading** |
| Stable Downstream Meter reading = 1 (%) |
| **%p = downstream meter reading (decimal form)** .01 **X 0.1 =** .001 **% penetration (%p)** |
| Removal Efficiency (%) = $\left[1 - \frac{.001\ (\%p)}{100}\right] X\ 100 =$ 99.999 % |
| **Acceptance : ≥ 99.95%** **Acceptable? (circle one)** (YES) NO |

| Valve | Required Position | Initials | Independent Verification |
|---|---|---|---|
| HV-855-J | Closed and Locked | | PT |
| HV-855-G | Closed | | PT |
| HV-855-H | Closed | | PT |
| HV-855-D | Closed | | PT |
| HV-855-C | Closed | | PT |
| HV-855-B | Closed | | PT |
| HV-855-A | Closed | Closed | PT |
| HV-854-AA | Closed | Closed | PT |
| HV-870B | Open | | PT |
| HV-891 | Open | | PT |
| **6.1.1 ISI 4** | | | |
| Ensure 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 |

FOR INFORMATION ONLY

$

**Monitoring Requirement**

2.3.4 Emissions Monitoring Requirements
Conditions of Section 2.3.4 are pursuant to 20.2.70.302.C NMAC.

2.3.4.1 Emission units TA-55-6-BHW-1 and TA-55-6-BHW-2: A volumetric flow meter shall be utilized to measure the total amount of natural gas being used on a monthly basis.

2.3.4.2 40 CFR 60, Appendix A, Method 9 shall be used to determine compliance with the opacity limitation.

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:**

2.3.4.1 Volumetric flow meters are utilized to measure the total amount of natural gas being used by units TA-55-6-BHW-1 and TA-55-6-BHW-2 on a monthly basis. Natural gas usage is summarized in **Attachment 4**.

2.3.4.2 LANL uses 40 CFR Part 60, Appendix A, Method 9 to determine compliance with the opacity limitation.

# Attachment 4

## Boilers and Heaters Natural Gas Usage

2009 Small Boilers Data Entry / Gas Use

| | | Metered Boilers | | | Total Gas Use | | Non-Metered Gas Use | 12-Month Rolling Total for all Small Boilers (MMSCF) |
|---|---|---|---|---|---|---|---|---|
| | | TA-55 Boiler Gas Use (MSCF) | | TA-50-2 (MSCF) | | | | |
| | Month | BHW-1B (B-602) ID (B-0016) | BHW-2B (B-603) ID (B-0017) | BS-1 ID (B-0152) | (MSCF) | (MMSCF) | (MMSCF) | |
| Data Entry | January | 1863 | 1 | | 77,271 | 77.27 | 75.29 | 509.11 |
| | February | 1844 | 195 | | 65,307 | 65.31 | 63.15 | 508.61 |
| | March | 0 | 2255 | | 61,321 | 61.32 | 58.95 | 511.91 |
| | April | 3 | 1975 | | 49,735 | 49.74 | 47.64 | 520.70 |
| | May | 849 | 635 | | 10,253 | 10.25 | 8.66 | 502.62 |
| | June | 1449 | 1 | 683.6 | 19,302 | 19.30 | 17.74 | 504.52 |
| | July | 1393 | 1 | | 15,446 | 15.45 | 13.84 | 505.94 |
| | August | 1435 | 936 | | 14,149 | 14.15 | 11.57 | 505.05 |
| | September | 1774 | 925 | | 20,187 | 20.19 | 17.28 | 503.97 |
| | October | 1255 | 713 | | 41,872 | 41.87 | 39.69 | 507.99 |
| | November | 2 | 2395 | | 55,431 | 55.43 | 52.82 | 505.26 |
| | December | 9 | 3328 | 1270.4 | 83,272 | 83.27 | 79.72 | 513.55 |
| | TOTAL | 11876 | 13360 | 1954.0 | 513,546 | 513.55 | 486.36 | Permit Limit = **870** |

**Monitoring Requirement**

2.4.4 Emissions Monitoring Requirements

This condition is pursuant to 20.2.70.302.C NMAC.

2.4.4.1 The permittee shall maintain logs of the number of hours the carpenter shops are in operation.

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:**

2.4.4.1 A log is maintained of the hours of operation for each of the permitted carpenter shops. Hour readings are collected and recorded monthly from hour meters installed on each of the cyclone separators. Hours of operation are provided in **Attachment 5**.

# Attachment 5

## Carpenter Shop Hours of Operation

### 2009 TA-3 & TA-15 Carpenter Shops

NMED ID -- TA-3 (AREA 3) and TA-15 (AREA 4)

| TA-3 | Data Entry | TA-3 | Data Entry |
|---|---|---|---|
| | Hours of Operation | | Hours of Operation |
| Month | TA-3 | Month | TA-3 |
| January | 7.9 | July | 0.9 |
| February | 5.0 | August | 8.1 |
| March | 2.6 | September | 7.4 |
| April | 4.4 | October | 3.6 |
| May | 3.6 | November | 6.1 |
| June | 4.4 | December | 26.4 |
| 6 mo. Total | 27.9 | 6 mo. Total: | 52.5 |

| TA-15 | Data Entry | TA-15 | Data Entry |
|---|---|---|---|
| | Hours of Operation | | Hours of Operation |
| Month | TA-15 | Month | TA-15 |
| January | 4.0 | July | 8.8 |
| February | 8.1 | August | 7.1 |
| March | 12.9 | September | 13.8 |
| April | 9.5 | October | 8.2 |
| May | 9.4 | November | 5.9 |
| June | 6.7 | December | 6.4 |
| 6 mo. Total | 50.6 | 6 mo. Total: | 50.2 |

**Monitoring Requirement**

2.5.4 Emissions Monitoring/Recordkeeping Requirements

This condition is pursuant to 20.2.70.302.C NMAC.

2.5.4.1 Maintain records of chemical purchasing through facility-wide chemical tracking system, and use the data to calculate the emissions on a semiannual basis in accordance with Condition 4.1.

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:**

2.5.4.1 Records of chemical purchases are maintained through LANL's facility wide chemical tracking system (ChemLog). The data is used to calculate emissions which are submitted in the Semi-Annual Emission Reports in accordance with Condition 4.1. The Semi-Annual Emission Report for this reporting period was received in the NMED-AQB office on August 25, 2009.

**Monitoring Requirement**

2.6.4 Emissions Monitoring Requirements

Conditions of Section 2.6.4 are pursuant to 20.2.70.302.C NMAC.

2.6.4.1 Record the amount of solvent added to the degreaser and calculate the emissions on a semi-annual basis in accordance with Condition 4.1.

2.6.4.2 Complete checklist for work practice standards.

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:**

2.6.4.1 Records are maintained of the amount of solvent added to the degreaser. This data is used to calculate emissions on a semi-annual basis. The Semi-Annual Emissions Report, containing the degreaser emissions, will be submitted within 90 days from the end of the reporting period in accordance with condition 4.3 of the operating permit. The Semi-Annual Emission Report for this reporting period was received in the NMED-AQB office on August 25, 2009. LANL's "Historical Solvent Usage Data" report for July 1 through December 31, 2009 is provided in **Attachment 6**.

2.6.4.2 The degreaser operations staff completes checklists for work practice standards. The checklists are available on-site for NMED inspection.

# Attachment 6

## Degreaser Solvent Usage

**General Degreaser Information**

| Degreaser | Type | TA | Building | Solvent |
|---|---|---|---|---|
| TA-55-DG-1 | Cold Batch | 55 | | Trichloroethylene |

| Date Measured | Initial Solvent Level (inches) | Volume Added (liters) | Level Added (inches) | Volume Removed (liters) | Level Removed (inches) |
|---|---|---|---|---|---|
| Jul-22-2009 | 7.25 | 1.47 | 0.75 | 0.00 | 0.00 |
| Aug-22-2009 | 7.50 | 15.24 | 7.75 | 14.74 | 7.50 |
| Sep-16-2009 | 7.38 | 0.98 | 0.50 | 0.00 | 0.00 |
| Oct-28-2009 | 7.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| Nov-22-2009 | 6.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| Dec-21-2009 | 6.63 | 0.00 | 0.00 | 0.00 | 0.00 |

**Monitoring Requirement**

2.7.4 Emissions Monitoring Requirements
Conditions of Section 2.7.4 are pursuant to 20.2.70.302.C NMAC.

| Source | Monitoring Required |
|---|---|
| TA-33-G-1 | Record kilowatt-hours on a daily and monthly rolling 12-month total basis.<br><br>Record hours of operation and the time operation begins and ends each day. |
| TA-33-G-2<br>TA-33-G-3<br>TA-33-G-4 | During initial daily cold startup of each generator engine, the permittee shall determine compliance with Condition 2.7.2.1 using EPA Method 9 for a minimum of ten (10) minutes.<br>i) Corrective action shall be taken for all instances when visible emissions exceed 20% opacity.<br>ii) The monitoring requirement shall be reduced to one time per year for each generator engine demonstrating compliance with Condition 2.7.2.1 during four consecutive startups.<br><br>Record annual total hours of operation for each generator engine every calendar year.<br><br>Record opacity readings for each generator engine cold startup and corrective action to address visible emission exceedances.<br><br>For each generator engine, maintain a copy of the engine certification to the applicable non road emission standards in 40 CFR 89. |
| Stationary standby Generators | Track and record hours of operation for stationary standby generators on a semi-annual basis. |

2.7.4.1 40 CFR 60, Appendix A, Method 9 shall be used to determine compliance with the opacity limitation.

2.7.2.1 Visible emissions shall not equal or exceed an opacity of 20%.

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:**

2.7.4 Kilowatt-hours produced by unit TA-33-G-1 are recorded on a daily basis and on a monthly rolling 12-month total basis. A kWh tracking form is used for tracking generator start and stop times as well as daily total hours of operation. These daily readings are used in tracking the 12-month rolling kWh total. The hours of operation for all permitted generator units are included in **Attachment 7**.

2.7.4 Units TA-33-G-2, TA-33-G-3, and TA-33-G-4 were observed for 10 minutes using Method 9. Opacity readings were under 20% opacity during four consecutive startup tests performed in October 2007. The units are currently observed annually to verify opacity remains under the limit. Unit operators are aware that corrective actions must be taken if visible emissions exceed 20% opacity. The annual opacity readings are included in **Attachment 8**. Annual total hours of operation for each generator are included in **Attachment 7**. For each generator engine, a copy of the engine certification to the applicable non road emission standards in 40 CFR 89 is maintained and available on site for inspection.

2.7.4 Hours of operation for each stationary standby generator is tracked and evaluated on a semi-annual basis to verify that the average hour per year limit is not exceeded. Standby generator hours of operation for this reporting period are provided in **Attachment 7**.

2.7.4.1 LANL uses 40 CFR Part 60, Appendix A, Method 9 to determine opacity compliance.

2.7.2.1 Visible emissions did not equal or exceed an opacity of 20% during this reporting period.

# Attachment 7

## Internal Combustion Generator Hours of Operation

2009 Standby Generator Hours

| | | | | | | | | | First 6 Month Readings | | | Second 6 Month Readings | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | Bldg | ID # | Manufacturer | MODEL | KW | Fuel Type | Previous Reading Date | Previous Reading | 6 Month Reading Date | Reading | Hours Run | 12 Month Reading Date | Reading | Hours Run |
| 3 | 40 | G-0013 | Onan Sons | 1500DVE15R31374B | 150 | Diesel | Dec-08 | 12.8 | Jun-09 | 12.8 | 0.0 | Nov-09 | 17.2 | 4.4 |
| 3 | 440 | G-0019 | Cummins | 500FDR5051 | 260 | Diesel | Dec-08 | 121.8 | Jun-09 | 121.8 | 0.0 | Nov-09 | 121.8 | 0 |
| 3 | 440 | G-0020 | Cummins | DFGA-5005210 | 500 | Diesel | Dec-08 | 99.9 | Jun-09 | 107.5 | 7.6 | Nov-09 | 113 | 5.5 |
| 3 | 1076 | G-0022 | Cummins | DGBB-5601289 | 35 | Diesel | Dec-08 | 181.1 | Jun-09 | 195.1 | 14.0 | Nov-09 | 209.2 | 14.1 |
| 3 | 1400 | G-0024 | Cummins | DFEH-5699616 | 400 | Diesel | Dec-08 | 44 | Jun-09 | 63 | 19.0 | Nov-09 | 68 | 5 |
| 3 | 1404 | G-0023 | Cummins | DFLC-5554001 | 1250 | Diesel | Dec-08 | 393.5 | Jun-09 | 417.6 | 24.1 | Dec-09 | 440.4 | 22.8 |
| 3 | 1498 | G-0017 | Caterpillar | SR-4 | 600 | Diesel | Dec-08 | 337 | Jun-09 | 347.0 | 10.0 | Nov-09 | 354 | 7 |
| 3 | 2322 | G-0021 | Onan Sons | DGDA-5005757 | 80 | Diesel | Dec-08 | 358.6 | Jun-09 | 364.8 | 6.2 | Nov-09 | 373 | 8.2 |
| 16 | 980 | G-0033 | Cummins | KTA50-G2 | 1100 | Diesel | Dec-08 | 318.6 | Jun-09 | 321 | 2.4 | Dec-09 | 350.4 | 29.4 |
| 16 | 1374 | G-0032 | Onan Sons | 60ENA | 60 | Nat. Gas | Dec-08 | 1125 | Jun-09 | 1161 | 36.0 | Dec-09 | 1196 | 35 |
| 18 | yard | G-0061 | Onan Sons | 60DGCB | 60 | Diesel | N/R | | | N/R | | Dec-09 | 1090 | 0 |
| 35 | 2 | G-0034 | Onan Sons | 100DGDB | 100 | Diesel | Dec-08 | 115.5 | Jun-09 | 115.5 | 0.0 | Nov-09 | 115.5 | 0 |
| 35 | 402 | G-0037 | Cummins | DGCB-5674244 | 60 | Diesel | Dec-08 | 175 | Jun-09 | 216.0 | 41.0 | Dec-09 | 240 | 24 |
| 43 | 1 | G-0031 | Cummins | 4BT3.9-GC | 50 | Diesel | Dec-08 | 392.9 | Jun-09 | 401.3 | 8.4 | Nov-09 | 406.3 | 5 |
| 43 | 1 | G-0030 | Onan Sons | DVE | 150 | Diesel | Dec-08 | 671.9 | Jun-09 | 700.0 | 28.1 | Nov-09 | 727 | 27 |
| 46 | 335 | G-0036 | Onan Sons | 300DEFCB | 300 | Diesel | Dec-08 | 1020 | Jun-09 | 1063.1 | 43.1 | Nov-09 | 1063.1 | 0 |
| 48 | 45 | G-0043 | Onan Sons | DFCB-5740130 | 300 | Diesel | Dec-08 | 78.5 | Jun-09 | 103.6 | 25.1 | Nov-09 | 116.3 | 12.7 |
| 50 | 37 | G-0039 | Cummins | 680FDR5059FF | 500 | Diesel | Dec-08 | 502.8 | Jun-09 | 502.8 | 0.0 | Nov-09 | 502.8 | 0 |
| 50 | 69 | G-0040 | Onan | DGDB4487482 | 100 | Diesel | Dec-09 | 262.2 | Jun-09 | 282.1 | 19.9 | Dec-09 | 295.9 | 13.8 |
| 50 | 184 | G-0044 | Onan Sons | DGFA-568741 | 150 | Diesel | Dec-08 | 256 | Jun-09 | 291.0 | 35.0 | Nov-09 | 306 | 15 |
| 50 | 188 | G-0038 | Onan Sons | L940563879 | 1250 | Diesel | Dec-08 | 149 | Jun-09 | 149.0 | 0.0 | Nov-09 | 149 | 0 |
| 53 | 1 | G-0004 | Onan Sons | 60ENA | 60 | Nat. Gas | Dec-08 | 1271 | Jun-09 | 1289.0 | 18.0 | Nov-09 | 1495 | 206 |
| 53 | 2 | G-0005 | Kato Eng. | Kamag-14 | 50 | Diesel | Dec-08 | 194.6 | Jun-09 | 194.6 | 0.0 | Nov-09 | 194.6 | 0 |
| 53 | 3N | G-0011 | Onan | 15.0JC-18R | 15 | Propane | Dec-08 | 362.3 | Jun-09 | 362.6 | 0.3 | Nov-09 | 362.6 | 0 |
| 54 | 412 | G-0045 | Olympian | 95M-07874-F | 500 | Diesel | Dec-08 | 331.7 | Jun-09 | 342.4 | 10.7 | Nov-09 | 348.9 | 6.5 |
| 55 | 5 | G-0049 | Kohler | 100RZ71 | 100 | Propane | Dec-08 | 98.3 | Jun-09 | 115.0 | 16.7 | Dec-09 | 119 | 4 |
| 55 | 8 | G-0050 | Delco/Detroit | E7014DD | 600 | Diesel | Dec-08 | 840.6 | Jun-09 | 848.9 | 8.3 | Dec-09 | 856.9 | 8 |
| 55 | 364 | G-0051 | Onan Sons | 1250DFLC-4987 | 1250 | Diesel | Dec-08 | 134.3 | Jun-09 | 147.8 | 13.5 | Dec-09 | 165.8 | 18 |
| 55 | 28 | G-0047 | Onan Sons | 40DL6T | 40 | Diesel | Dec-08 | 84.6 | Jun-09 | 89.0 | 4.4 | Dec-09 | 94.8 | 5.8 |
| 55 | 47 | G-0048 | Onan Sons | 1465 | 200 | Diesel | Dec-08 | 569 | Jun-09 | 575.0 | 6.0 | Dec-09 | 592 | 17 |
| 55 | 142 | G-0046 | Cummins | DFEB-4963414 | 400 | Diesel | Dec-08 | 122.1 | Jun-09 | 137.0 | 14.9 | Dec-09 | 143.7 | 6.7 |
| 60 | yard | G-0053 | Cummins | DFHD-4964979 | 1000 | Diesel | Dec-08 | 650 | Jun-09 | 657 | 7.0 | Nov-09 | 659 | 2 |
| 63 | 93 | G-0054 | Murphy | 3166-0084 | 30 | Diesel | Dec-08 | 716 | Jun-09 | 716.0 | 0.0 | Nov-09 | 716 | 0 |
| 64 | 1 | G-0041 | Onan Sons | 250DVG | 250 | Diesel | Dec-08 | 178 | Jun-09 | 184.6 | 6.6 | Nov-09 | 191.4 | 6.8 |
| 69 | 33 | G-0055 | Cummins | DFLC-5568730 | 1250 | Diesel | Dec-08 | 85 | Jun-09 | 100.0 | 15.0 | Nov-09 | 112.9 | 12.9 |
| | 35 | | Generators in use | | | | | | | TOTAL | 441.3 | | TOTAL | 522.6 |

N/R = Not Read

| First half average hours per unit | 13.0 | Second half average hours per unit | 14.9 |
|---|---|---|---|

2009 Permitted Generator Hours

| Permitted Generators | | | | | | | | | First Half 2009 | | | Second Half 2009 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TA | Bldg | ID # | Manufacturer | Serial # | MODEL | KW | Fuel Type | Reading 2nd half of previous year | 6 Month Reading Date | Reading | Hours Run | 12 Month Reading Date | Reading | Hours Run | * Total Run Hours |
| 33 | 290 | G-0012 | Kohler | 375801 | 1600ROZD | 1600 | Diesel | Dec. 08 34.3 | Jun-09 | 35.4 | 1.1 | Dec-09 | 83.2 | 47.8 | 48.9 |
| 33 | 151 | G-0007 | Caterpillar | 6PK01065 | XQ225 | 225 | Diesel | Dec. 08 3307.0 | Jun-09 | 3365.0 | 58.0 | Dec-09 | 3378.0 | 13 | 71.0 |
| 33 | 209 | G-0008 | Kohler | 2025460 | 20EORZ | 20 | Diesel | Dec. 08 384.1 | Jul-09 | 384.1 | 0.0 | Dec-09 | 385.6 | 1.5 | 1.5 |
| 33 | 280 | G-0010 | Kohler | 2025461 | 20EORZ | 20 | Diesel | Dec. 08 175.9 | Jun-09 | 176.1 | 0.2 | Dec-09 | 176.7 | 0.6 | 0.8 |

* The 225 kW and the two 20 kW generators have a limit of 500 hours of operation per year. The 1600 kW unit is limited to 900 hours per year.

# Attachment 8

## Annual Opacity Readings for TA-33-G-2, TA-33-G-3 and TA-33-G-4

TA-33-G-2 (20kw Generator)

Los Alamos

LOS ALAMOS NATIONAL LABORATORY (LANL)
VISIBLE EMISSION OBSERVATION FORM (10 MINUTE)

Source Name: NSR Permit 2195-P Unit 1
Source Location: Los Alamos National Laboratory
Type of Source: Diesel Generator
Type of Control Equipment: N/A
Describe Emission Point (Top of stack, etc.): End of exhaust pipe
Height Above Ground Level: 0.5 Feet
Height Relative to Observer: -5.5 Feet
Distance From Observer: 6 Feet
Direction of Source From Observer: West
Description of Plume (stack exit only): ☒Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning ☐No Plume Present
Emission Color: Grey/White
Plume Type: ☐Continuous ☐Fugitive ☒Intermittent ☐No Plume Present
Water Droplets Present: ☒NO ☐YES If YES, droplet plume is ☐Attached ☐Detached
At what point in the plume was opacity determined: 6 inches from end of tailpipe exhaust
Describe Background (i.e. blue sky, trees, etc.): Dark colored Gravel
Background Color: Black
Sky Conditions: Clear
Wind Speed: 6 mph
Wind Direction (provide from/to, i.e. from North to South): West North West
Ambient Temperature: 51.3 °F
Relative Humidity: 59 %
Additional Comments/Information:

Observation Date: 9/25/09
Start Time: 10:45 am
End Time: 10:55 am

| Min \ Sec | 0 | 15 | 30 | 45 | Comments |
|---|---|---|---|---|---|
| 1 | 55 | 10 | 5 | 0 | |
| 2 | 0 | 0 | 0 | 0 | |
| 3 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 0 | 0 | 0 | |
| 5 | 0 | 0 | 0 | 0 | |
| 6 | 0 | 0 | 0 | 0 | |
| 7 | 0 | 0 | 0 | 0 | |
| 8 | 0 | 0 | 0 | 0 | |
| 9 | 0 | 0 | 0 | 0 | |
| 10 | 0 | 0 | 0 | 0 | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |

Average 10-Minute Opacity: 1.875
Range of Opacity Readings: Min. 0 Max. 55

OBSERVER (please print)
Name: Marc R. Gallegos
Title: Environmental Generalist
Signature: Marc R. Gallegos
Date: 9/25/09
Observer Organization: Los Alamos National Laboratory
Certified by: Eastern Technical Associates
Certification Date: 8/26/09

SOURCE LAYOUT SKETCH

Stack with Plume
Sun
Wind
Emission Point
Draw Arrow in North Direction
OBSERVER'S POSITION
140°
SUN LOCATION LINE

TA-33-G-3 (20kw Generator)

Los Alamos

LOS ALAMOS NATIONAL LABORATORY (LANL)
VISIBLE EMISSION OBSERVATION FORM (10 MINUTE)

Source Name: NSR Permit 2195-P Unit 2
Source Location: Los Alamos National Laboratory
Type of Source: Diesel Generator | Type of Control Equipment: N/A
Describe Emission Point (Top of stack, etc.): End of exhaust pipe
Height Above Ground Level: 0.5 Feet | Height Relative to Observer: -5.5 Feet
Distance From Observer: 5 Feet | Direction of Source From Observer: West
Description of Plume (stack exit only): ☒Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning ☐No Plume Present
Emission Color: | Plume Type: ☐Continuous ☐Fugitive ☒Intermittent ☐No Plume Present
Water Droplets Present: ☒NO ☐YES If YES, droplet plume is ☐Attached ☐Detached
At what point in the plume was opacity determined: 6 inches from end of tail pipe
Describe Background (i.e. blue sky, trees, etc.): Dark colored Gravel
Background Color: Black | Sky Conditions: Clear
Wind Speed: 6 mph | Wind Direction (provide from/to, i.e. from North to South): West North West
Ambient Temperature: 51.3 °F | Relative Humidity: 59 %
Additional Comments/Information:

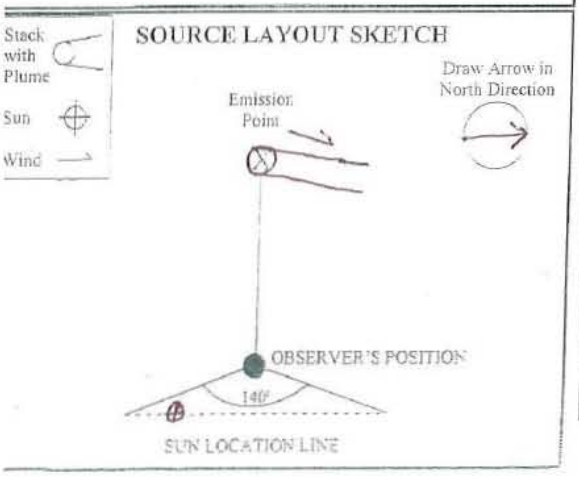
| Observation Date | Start Time | End Time |
|---|---|---|
| 9/25/09 | 11:00am | 11:10am |

| Min \ Sec | 0 | 15 | 30 | 45 | Comments |
|---|---|---|---|---|---|
| 1 | 50 | 0 | 0 | 0 | |
| 2 | 0 | 0 | 0 | 0 | |
| 3 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 0 | 0 | 0 | |
| 5 | 0 | 0 | 0 | 0 | |
| 6 | 0 | 0 | 0 | 0 | |
| 7 | 0 | 0 | 0 | 0 | |
| 8 | 0 | 0 | 0 | 0 | |
| 9 | 0 | 0 | 0 | 0 | |
| 10 | 0 | 0 | 0 | 0 | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |

Average 10-Minute Opacity: 1.25
Range of Opacity Readings: Min. 0 Max. 50

OBSERVER (please print)
Name: Marc R. Gallegos | Title: Environmental Generalist
Signature: Marc R. Gallegos | Date: 9/25/09
Observer Organization: Los Alamos National Laboratory
Certified by: Eastern Technical Associates | Certification Date: 8/26/09

SOURCE LAYOUT SKETCH



TA-33-G-4 (225kw generator)

Los Alamos

LOS ALAMOS NATIONAL LABORATORY (LANL)
VISIBLE EMISSION OBSERVATION FORM (10 MINUTE)

Source Name: NSR Permit 2195-P Unit 3
Source Location: Los Alamos National Laboratory
Type of Source: Diesel Generator
Type of Control Equipment: N/A
Describe Emission Point (Top of stack, etc.): Top of diesel generator
Height Above Ground Level: 9 Feet
Height Relative to Observer: 4 Feet
Distance From Observer: 18 Feet
Direction of Source From Observer: West
Description of Plume (stack exit only): ☒Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning ☐No Plume Present
Emission Color: Black
Plume Type: ☒Continuous ☐Fugitive ☒Intermittent
Water Droplets Present: ☒NO ☐YES If YES, droplet plume is ☐Attached ☐Detached
At what point in the plume was opacity determined? 6 inches from top of diesel generator
Describe Background (i.e. blue sky, trees, etc.): Blue sky
Background Color: Blue
Sky Conditions: Clear
Wind Speed: 5 mph
Wind Direction (provide from/to, i.e. from North to South): West North West
Ambient Temperature: 51.3 °F
Relative Humidity: 59 %
Additional Comments/Information:

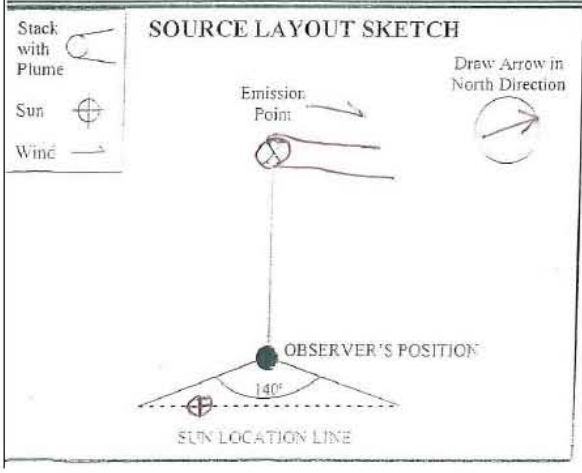
Observation Date: 9/25/09
Start Time: 10:30 am
End Time: 10:40 am

| Min \ Sec | 0 | 15 | 30 | 45 | Comments |
|---|---|---|---|---|---|
| 1 | 75 | 5 | 0 | 0 | |
| 2 | 0 | 0 | 0 | 0 | |
| 3 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 0 | 0 | 0 | |
| 5 | 0 | 0 | 0 | 0 | |
| 6 | 0 | 0 | 0 | 0 | |
| 7 | 0 | 0 | 0 | 0 | |
| 8 | 0 | 0 | 0 | 0 | |
| 9 | 0 | 0 | 0 | 0 | |
| 10 | 0 | 0 | 0 | 0 | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |

Average 10-Minute Opacity: 2.0
Range of Opacity Readings: Min. 0 Max. 75

OBSERVER (please print)
Name: Marc R. Gallegos
Title: Environmental Generalist
Signature: Marc R. Gallegos
Date: 9/25/09
Observer Organization: Los Alamos National Laboratory
Certified by: Eastern Technical Associates
Certification Date: 8/26/09

SOURCE LAYOUT SKETCH



**Monitoring Requirement**

2.8.4 Emissions Monitoring Requirements

2.8.4.1 The permittee shall maintain a log of the number of boxes of media that are destroyed and calculate the emissions on a semiannual basis in accordance with Condition 4.1. This condition is pursuant to 20.2.70.302.C NMAC.

2.8.4.2 The permittee shall perform regular maintenance and repair on the cyclone and cloth tube filter(s) per manufacturer's recommendations. This condition was brought forward from NSR Permit 2195H, Condition 1.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:**

2.8.4.1 LANL maintains a log of the number of boxes of media that are shredded and calculates the emissions on a semi-annual basis. The actual number of boxes shredded during this reporting period is included in **Attachment 9**.

2.8.4.2 The Data Disintegrator and associated pollution control devices are maintained under a preventative maintenance work order. LANL maintains documentation of maintenance and repairs performed on the cyclone and cloth tube filters. This documentation is available on-site for NMED inspection.

**Attachment 9**
**Data Disintegrator Box Throughput**

## 2009 TA-52 Data Disintegrator (EQPT 89)

| | Data Entry | | Data Entry |
|---|---|---|---|
| Month | Boxes Shredded | Month | Boxes Shredded |
| January | 92 | July | 85 |
| February | 55 | August | 65 |
| March | 116 | September | 49 |
| April | 87 | October | 119 |
| May | 157 | November | 14 |
| June | 117 | December | 112 |
| 6 mo. Total: | 624 | 6 mo. Total: | 444 |

| | |
|---|---|
| Annual Boxes: | 1,068 |

**Monitoring Requirement**

2.9.4 Emissions Monitoring Requirements
Conditions of Section 2.9.4 are pursuant to 20.2.70.302.C NMAC.

2.9.4.1 Use of natural gas fuel containing no more than 2 grains of total sulfur per 100 dry standard cubic feet 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, 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.

2.9.4.2 Fuel usage: The liquid fuel flow rate for each boiler (Units TA-3-22-1, TA-3-22-2 and TA-3-22-3) shall be continuously monitored whenever liquid fuel is combusted. The natural gas fuel flow rate for each boiler and turbine (Unit TA-3-22-CT-1) shall be continuously monitored whenever natural gas is combusted by that unit. This condition was brought forward from NSR Permit 2195B-M1R2, Condition 3.b and 3.c.

2.9.4.3 The flue gas recirculating fans (Units F-1, F-2, and F-3) shall be inspected for proper operation and maintenance once during each calendar month that the unit was operating. This condition was brought forward from NSR Permit 2195B-M1R2, Condition 3.d.

2.9.4.4 The operating load of Unit TA-3-22-CT-1 specified by Condition 2.9.3.7 shall be monitored once daily during normal operations of that unit. This condition was brought forward from NSR Permit 2195B-M1R2, Condition 3.e.

2.9.4.5 Periodic Emissions Tests for Unit TA-3-22-CT-1: The permittee shall test annually for NOx and CO emissions through use of a portable analyzer. The portable emissions analyzer shall be setup and operated in accordance with the manufacturer's instructions, with the current version of the Department's Standard Operating Procedure for Use of Portable Analyzers in Performance Tests, and with the following conditions:

1. Equipment shall be tested in the "as found" condition. Equipment may not be adjusted or tuned prior to any test for the purpose of lowering emissions, and then returned to previous settings or operating conditions after the test is complete.

2. During emissions tests the moisture content, $O_2$ concentration, flow rate and temperature of the exhaust gas shall be monitored (or calculated by an acceptable method) and recorded. This information shall be included with the test report.

3. After the time a correlation is established between emission rate and concentration of a pollutant, the periodic emission test may consist of measuring the pollutant concentration. Exhaust flow rate at the time of correlation (by 40 CFR 60-method 19, by manufacturer's correlation, or by initial testing) may be used to calculate emission rates at later tests.

4. Testing shall occur once during each calendar year. No two monitoring events shall occur closer together in time than 3 months. Monitoring shall be conducted during each monitoring period notwithstanding periods of operation less than 25%.

5. A protocol submittal is required if a significant change in the testing procedure has taken place since the previous test.

This condition was brought forward from NSR Permit 2195B-M1R2, Condition 3.f.

2.9.4.6 The permittee shall maintain a valid purchase contract, tariff sheet, or transportation contract which shows natural gas fuel sulfur content, to show compliance with the applicable monitoring requirements in 40 CFR 60.334(h) for the turbine (Unit TA-3-22-CT-1). This documentation shall also reflect that the facility natural gas fuel complies with the maximum fuel sulfur requirement of Conditions 2.9.3.2. and 2.9.3.3.

Note: In accordance with EPA document EMTIG—GD-009 (March 12, 1990), no daily monitoring for fuel bound nitrogen is required for the turbine (Unit TA-3-22-CT-1).

This condition was brought forward from NSR Permit 2195B-M1R2, Condition 3.g.

2.9.4.7 The hours of operation, including start-up and shut-down times of Units TA-3-22-1, TA-3-22-2 and TA-3-22-3 and TA-3-22-CT-1 shall be continuously monitored. This condition was brought forward from NSR Permit 2195B-M1R2, Condition 3.a.

2.9.3.7 Unit TA-3-22-CT-1 shall be operated at no less than 100% full load, 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. This condition was brought forward from NSR Permit No. 2195B-M1R2, Condition 1.g.

2.9.3.2 Units TA-3-22-1, TA-3-22-2 and TA-3-22-3 combined shall not use more than 2,000 MMscf of natural gas in any 12 month period or more than 500,000 gallons of No. 2 fuel oil in any 12 month period. Individually, they shall not use more than 1,200 MMscf of natural gas in any 12 month period or more than 170,000 gallons of No. 2 fuel oil in any 12 month period. This condition was brought forward and amended from NSR Permit 2195B-M1R2, Conditions 1.j.

2.9.3.3 Unit TA-3-22-CT-1 shall use natural gas containing no more than 2 grains of total sulfur per 100 standard cubic feet. Unit TA-3-22 CT-1 shall not use more than 646 MM standard cubic feet (SCF) of natural gas in any 12 month period. These conditions were brought forward from NSR Permit 2195B-M1R2, Conditions 1.h and 1.i.

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:**

2.9.4.1 The natural gas transportation contract states that gas provided to LANL will be pipeline quality and contain no more than 3/4 grains of total sulfur per 100 scf.

Opacity did not meet or exceed 20% over a 10-minute period during this reporting period. No visible emissions were observed during steady state operations during this reporting period. Opacity observations using EPA Method 9 were performed on the power plant boilers while starting boilers on fuel oil. These observations are included in **Attachment 12**.

2.9.4.2 Data on both fuel oil and natural gas flow rates to each boiler are continuously monitored. This data is electronically collected and monitored. **Attachment 10** contains a summary of monthly fuel oil and natural gas usage. Daily totals are available on-site for NMED inspection. Daily fuel

use totals and hours of operation for unit TA-3-22-CT-1 are included in **Attachment 11**.

2.9.4.3 The FGR fans are inspected for proper operation and maintenance each month a unit is operating. Monthly inspection logs are available on-site for NMED inspection.

2.9.4.4 The operating load of the combustion turbine is monitored each day of operation and is recorded on the unit operating log. The operating logs are available on-site for NMED inspection.

2.9.4.5 The first annual emissions test required by this condition was performed on October 23, 2009. The test was performed by an external testing company using their portable analyzer. The analyzer was setup and operated in accordance with the manufacturer's instructions and with the AQB Operating procedure for use of portable analyzers in performance tests.

In addition, all equipment was tested in a "as found" condition.

Oxygen concentrations, flow rate, and temperature of the exhaust gas were monitored and recorded.

The final report for the combustion turbine test is included as **Attachment 13**.

2.9.4.6 The natural gas transportation contract states that gas provided to LANL will be pipeline quality and contain no more than 3/4 grains of total sulfur per 100 scf.

2.9.4.7 An operator log book is used to identify when a boiler was brought on line or taken off line (or standby). Also recorded is the type of fuel the boiler is using. The plant computer monitoring system also monitors information on boiler start and stop times and duration of use. The combustion turbine hours of operation, including start and stop times, are monitored and recorded each day of turbine operation.

2.9.3.7 Unit TA-3-22-CT-1 operated at no less than 100% full load, except for minimal periods during startup and shutdown conditions, during this reporting period. The manufacturer’s recommended startup/shutdown procedures were followed in order to minimize the duration of these events.

2.9.3.2 Units TA-3-22-1, TA-3-22-2 and TA-3-22-3 combined used no more than 2,000 MMscf of natural gas or more than 500,000 gallons of No. 2 fuel oil in any 12 month period during this reporting period. Individually, they did not use more than 1,200 MMscf of natural gas in any 12 month period or more than 170,000 gallons of No. 2 fuel oil in any 12 month period during this reporting period.

2.9.3.3 Unit TA-3-22-CT-1 used natural gas containing no more than 2 grains of total sulfur per 100 standard cubic feet. Unit TA-3-22 CT-1 did not use more than 646 MM standard cubic feet (SCF) of natural gas in any 12 month period during this reporting period.

# Attachment 10

## Power Plant Monthly Natural Gas and Fuel Oil Use with Rolling 12-Month Totals

TA-3 Power Plant Fuel Use Totals 2009 (Data Entry)

| | DATA ENTRY | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | TA-3-22 Power Plant Boiler # 1 (Edgemoor Iron Works, 210 MMBTU/hr) | | TA-3-22 Power Plant Boiler # 2 (Edgemoor Iron Works, 210 MMBTU/hr) | | TA-3-22 Power Plant Boiler # 3 (Union Iron Works, 210 MMBTU/hr) | | Monthly Totals | |
| Month | Natural Gas (MCF) | Fuel Oil (gallons) | Natural Gas (MCF) | Fuel Oil (gallons) | Natural Gas (MCF) | Fuel Oil (gallons) | Natural Gas (MMCF) | Fuel Oil (gallons) |
| January | 63,810 | 0 | 567 | 384 | 110 | 0 | 64.487 | 384 |
| February | 29,975 | 0 | 25,774 | 0 | 363 | 0 | 56.112 | 0 |
| March | 19,388 | 0 | 29,693 | 0 | 3,405 | 493 | 52.486 | 493 |
| April | 1,135 | 274 | 42,507 | 0 | 443 | 0 | 44.085 | 274 |
| May | 0 | 0 | 29,710 | 0 | 573 | 55 | 30.283 | 55 |
| June | 6,312 | 0 | 11,993 | 0 | 5,327 | 0 | 23.632 | 0 |
| July | 21,401 | 0 | 120 | 0 | 32 | 110 | 21.553 | 110 |
| August | 14,936 | 55 | 1,352 | 0 | 0 | 0 | 16.288 | 55 |
| September | 6,389 | 0 | 0 | 0 | 15,835 | 0 | 22.224 | 0 |
| October | 664 | 0 | 52 | 0 | 38,827 | 0 | 39.543 | 0 |
| November | 3,303 | 0 | 0 | 0 | 46,974 | 0 | 50.277 | 0 |
| December | 48,280 | 0 | 407 | 238 | 20,400 | 0 | 69.087 | 238 |
| Annual Totals: | 215,593 | 329 | 142,175 | 622 | 132,289 | 658 | 490.057 | 1609 |
| Jan. - June | 120,620 | 274 | 140,244 | 384 | 10,221 | 548 | 271.085 | 1206 |
| July - Dec. | 94,973 | 55 | 1,931 | 238 | 122,068 | 110 | 218.972 | 403 |

| Month | 12-Mo. Rolling Total Natural Gas (MMscf) | 12-Mo. Rolling Total Fuel Oil (gallons) |
|---|---|---|
| January | 477.9 | 2995 |
| February | 475.9 | 2502 |
| March | 476.3 | 2008 |
| April | 479.1 | 2063 |
| May | 478.4 | 1787 |
| June | 480.9 | 1732 |
| July | 480.2 | 1787 |
| August | 481.3 | 1842 |
| September | 482.1 | 1747 |
| October | 485.6 | 1583 |
| November | 487.9 | 1371 |
| December | 490.1 | 1609 |

| Permit Limits: | 2000 MMscf | 500,000 gallons |
|---|---|---|

# Attachment 11

## Combustion Turbine Daily and 12-Month Rolling Natural Gas Use

**2009 Daily Turbine Gas Use (MCF), 12 Month Rolling Total Gas Use, & Hours of Operation**

| | Jan | | Feb | | Mar | | Apr | | May | | Jun | | July | | Aug | | Sept | | Oct | | Nov | | Dec | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Day | 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 | 295 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1394 | 6.75 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | 13 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1872 | 7.75 | 0 | 0 | 0 | 0 |
| 6 | 3 | 0 | 127 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 | 81 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 210 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 501 | 2.5 | 0 | 0 |
| 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 325 | 2.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1919 | 6.5 | 0 | 0 |
| 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 104 | 1 | 0 | 0 | 0 | 0 | 18 | 0.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 21 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 | 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | 0 | 0 | 0 | 0 | 565 | 3 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | 62 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 69 | 0.2 | 999 | 4.3 | 0 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1549 | 8 | 0 | 0 | 0 | 0 |
| 23 | 0 | 0 | 0 | 0 | 0 | 0 | 103 | 0.2 | 0 | 0 | 0 | 0 | 25 | 0.5 | 0 | 0 | 1630 | 7.5 | 956 | 4.2 | 0 | 0 | 0 | 0 |
| 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 142 | 5 | 0 | 0 | 137 | 1.17 | 0 | 0 |
| 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | 0 | 0 | 80 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 | 0.5 | 47 | 1.1 | 0 | 0 | 0 | 0 |
| 29 | 0 | 0 | | | 0 | 0 | 75 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 258 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 | 0 | 0 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55 | 0.7 | 0 | 0 | 139 | 0.92 | 0 | 0 |
| 31 | 0 | 0 | | | 0 | 0 | | | 0 | 0 | | | 41 | 0.5 | 0 | 0 | | | 0 | 0 | | | 0 | 0 |
| SUM | 116 | 2.1 | 207 | 0.6 | 984 | 6.8 | 492 | 1.6 | 114 | 1 | 211 | 1 | 84 | 1.5 | 18 | 0.2 | 2201 | 15.9 | 5423 | 25.4 | 4090 | 17.84 | 3 | 0 |
| 12-Mo. Rolling Gas Use (MCF) | 17039 | | 17246 | | 18201 | | 18693 | | 18689 | | 18485 | | 18314 | | 18313 | | 20484 | | 9857 | | 13947 | | 13943 | |

First Half Gas Use: 2124 MCF | Second Half Gas Use: 11819 MCF | Annual Gas Use: 13,943 MCF

Permit Limit (12 mo rolling): 646 MMSCF or 646,000 MCF

# Attachment 12

## Power Plant Opacity Reports

**Summary Table, Reports Attached**

| Source | Date[b] | Time | Average Opacity [a] |
|---|---|---|---|
| TA-3 Power Plant | 07-07-09 | 10:50 am | 0% |
| | 07-23-09 | 12:03 pm | 0% |
| | 12-17-09 | 1:37 pm | 0% |

(a) Average opacity for the Power Plant is the sum of the highest consecutive 40 readings divided by 40 (10 minutes of readings). The method is in accordance with EPA Method 9 and 20.2.61 NMAC.

(b) There were no visible emission observations taken in September, October, or November. Fuel oil was not combusted during these months. In August, an attempt was made to light a boiler on fuel oil, but the attempt was unsuccessful. The opacity observer was in place and ready to read, but the process was cancelled prior to any readings being taken. Only 55 gallons of fuel oil were combusted during this attempt.

ENV-EAQ-307, R4
Attachment 3, page 1 of 1

Ecology and Air Quality
Los Alamos National Laboratory

Los Alamos

## LOS ALAMOS NATIONAL LABORATORY (LANL)
## VISIBLE EMISSION OBSERVATION FORM (10 MINUTE)

Source Name: LANL Power Plant

Source Location: TA-3-22

Type of Source: Power Plant

Type of Control Equipment: No Particulate Control

Describe Emission Point (Top of stack, etc.): Top of Boiler #1 Stack

Height Above Ground Level: 150 Feet

Height Relative to Observer: 150 Feet

Distance From Observer: 150 Feet

Direction of Source From Observer: NE

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☒No Plume Present

Emission Color: N/A

Plume Type: ☒No Plume Present ☐Continuous ☐Fugitive ☐Intermittent

Water Droplets Present?
☒NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined?
At 1ft. above top of stack

Describe Background (i.e. blue sky, trees, etc.): Blue sky

Background Color: Blue

Sky Conditions: Clear

Wind Speed: 4-6 mph

Wind Direction (provide from/to, i.e. from North to South): From E

Ambient Temperature: 78 °F

Relative Humidity: %

Additional Comments/Information: Fuel oil burn exercise

Observation Date: 7-7-09

Start Time: 1050

End Time: 1100

| Min \ Sec | 0 | 15 | 30 | 45 | Comments |
|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | |
| 2 | 0 | 0 | 0 | 0 | |
| 3 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 0 | 0 | 0 | |
| 5 | 0 | 0 | 0 | 0 | |
| 6 | 0 | 0 | 0 | 0 | |
| 7 | 0 | 0 | 0 | 0 | |
| 8 | 0 | 0 | 0 | 0 | |
| 9 | 0 | 0 | 0 | 0 | |
| 10 | 0 | 0 | 0 | 0 | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |

Average 10-Minute Opacity: 0%

Range of Opacity Readings: Min. 0% Max. 0%

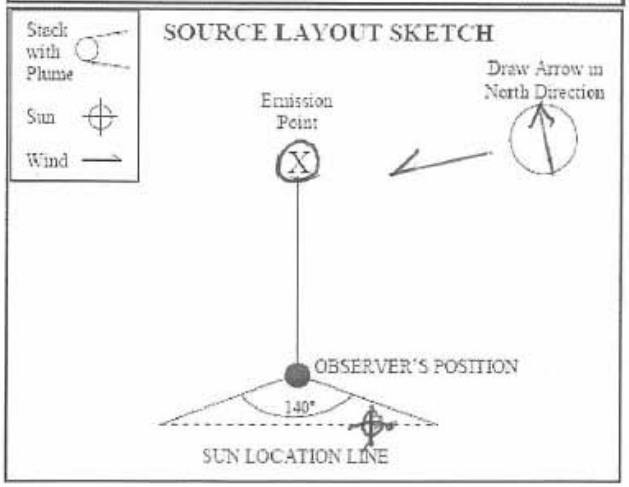
OBSERVER (please print)
Name: Don Stone Title: Engineer

Signature: Don Stone Date: 7-7-09

Observer Organization: ENV-EAQ

Certified by: ETA Certification Date: 2-25-09

SOURCE LAYOUT SKETCH




*THIS FORM IS FROM EAQ-307, R4*

ENV-EAQ-307, R4
Attachment 3, page 1 of 1

Ecology and Air Quality
Los Alamos National Laboratory

Los Alamos NATIONAL LABORATORY

## LOS ALAMOS NATIONAL LABORATORY (LANL) VISIBLE EMISSION OBSERVATION FORM (10 MINUTE)

Source Name: LANL Power Plant
Source Location: TA-3-22
Type of Source: Power Plant
Type of Control Equipment: No Particulate Control
Describe Emission Point (Top of stack, etc.): Top of Boiler #2 Stack
Height Above Ground Level: 150 Feet
Height Relative to Observer: 140 Feet
Distance From Observer: 200 Feet
Direction of Source From Observer: NE

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☒No Plume Present

Emission Color: N/A
Plume Type: ☒No Plume Present ☐Continuous ☐Fugitive ☐Intermittent

Water Droplets Present?
☒NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined?
5 ft above top of stack

Describe Background (i.e. blue sky, trees, etc.): Light grey skies
Background Color: Light grey
Sky Conditions: Cloudy
Wind Speed: 5-8 mph
Wind Direction (provide from/to, i.e. from North to South): From SSW
Ambient Temperature: 76 °F
Relative Humidity: 53 %

Additional Comments/Information: Fuel Oil burn exercise

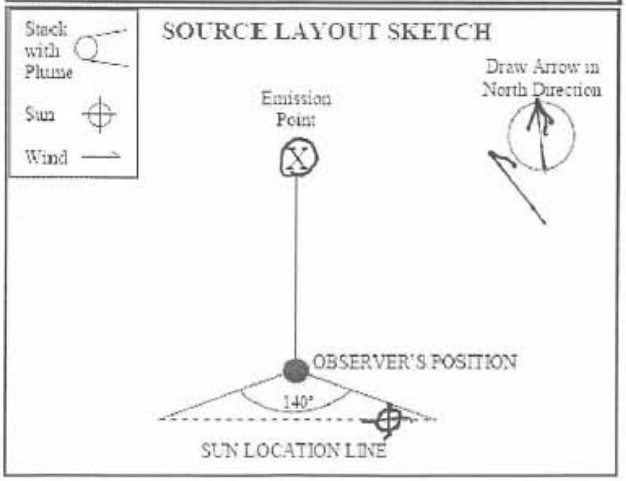
| Observation Date | Start Time | End Time |
|---|---|---|
| 7-23-09 | 1203 | 1213 |

| Min \ Sec | 0 | 15 | 30 | 45 | Comments |
|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | |
| 2 | 0 | 0 | 0 | 0 | |
| 3 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 0 | 0 | 0 | |
| 5 | 0 | 0 | 0 | 0 | |
| 6 | 0 | 0 | 0 | 0 | |
| 7 | 0 | 0 | 0 | 0 | |
| 8 | 0 | 0 | 0 | 0 | |
| 9 | 0 | 0 | 0 | 0 | |
| 10 | 0 | 0 | 0 | 0 | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |

Average 10-Minute Opacity: 0%
Range of Opacity Readings: Min. 0% Max. 0%

OBSERVER (please print)
Name: Don Stone
Title: Engineer
Signature: Don Stone
Date: 7-23-09
Observer Organization: ENV-EAQ
Certified by: ETA
Certification Date: 7-25-09

SOURCE LAYOUT SKETCH




*THIS FORM IS FROM EAQ-307, R4*

| ENV-EAQ-307, R4<br>Attachment 3, page 1 of 1 | | Ecology and Air Quality<br>Los Alamos National Laboratory |
|---|---|---|

Los Alamos

# LOS ALAMOS NATIONAL LABORATORY (LANL)
# VISIBLE EMISSION OBSERVATION FORM (10 MINUTE)

Source Name: LANL Power Plant

Source Location: TA-3-22

Type of Source: Power Plant

Type of Control Equipment: No Particulate Control

Describe Emission Point (Top of stack, etc.): Top of Boiler #2 stack

Height Above Ground Level: 150 Feet

Height Relative to Observer: 140 Feet

Distance From Observer: 200 Feet

Direction of Source From Observer: SE

Description of Plume (stack exit only)
☐Lofting ☐Trapping ☐Looping ☐Fanning ☐Coning
☒No Plume Present

Emission Color: N/A

Plume Type: ☒No Plume Present ☐Continuous ☐Fugitive ☐Intermittent

Water Droplets Present?
☒NO ☐YES If YES, droplet plume is ☐Attached ☐Detached

At what point in the plume was opacity determined? 2 ft. above top of stack

Describe Background (i.e. blue sky, trees, etc.): Blue Sky

Background Color: Blue

Sky Conditions: Clear

Wind Speed: 0-5 mph

Wind Direction (provide from/to, i.e. from North to South): From NE

Ambient Temperature: 42 °F

Relative Humidity: 37 %

Additional Comments/Information: Fuel Oil Burn Exercise

Observation Date: 12-17-09

Start Time: 1337

End Time: 1347

| Min \ Sec | 0 | 15 | 30 | 45 | Comments |
|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | |
| 2 | 0 | 0 | 0 | 0 | |
| 3 | 0 | 0 | 0 | 0 | |
| 4 | 0 | 0 | 0 | 0 | |
| 5 | 0 | 0 | 0 | 0 | |
| 6 | 0 | 0 | 0 | 0 | |
| 7 | 0 | 0 | 0 | 0 | |
| 8 | 0 | 0 | 0 | 0 | |
| 9 | 0 | 0 | 0 | 0 | |
| 10 | 0 | 0 | 0 | 0 | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |

Average 10-Minute Opacity: 0%

Range of Opacity Readings: Min. 0% Max. 0%

OBSERVER (please print)

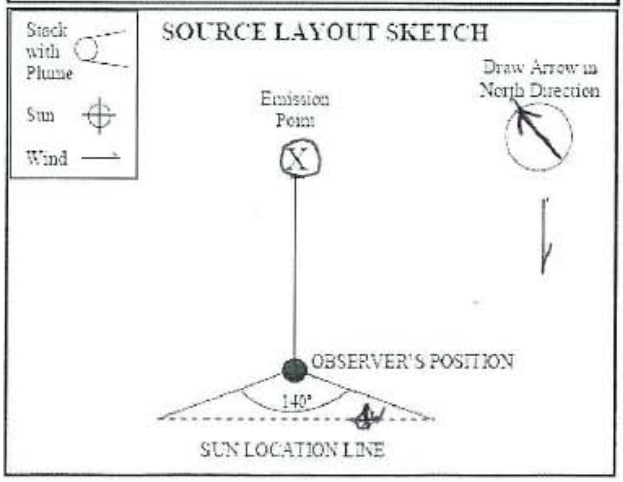
Name: Don Stone Title: Engineer

Signature: Don Stone Date: 12-17-09

Observer Organization: ENV-EAQ

Certified by: ETA Certification Date: 8-26-09

SOURCE LAYOUT SKETCH




*THIS FORM IS FROM EAQ-307, R4*

# Attachment 13

## Annual Combustion Turbine Emission Test Results
## (Universal Test Notification and Report Form – Section 1)

New Mexico Environment Department
Air Quality Bureau
1301 Siler Road Building B
Santa Fe, NM 87507
Phone (505) 476-4300 Fax (505) 476-4375

Version 1/1/2010

| NMED USE ONLY | |
|---|---|
| DTS | |
| TEMPO | |

**UNIVERSAL STACK TEST NOTIFICATION, PROTOCOL AND REPORT FORM**

| NMED USE ONLY | |
|---|---|
| Staff | |
| Admin | |

**Submit to: Stacktest.aqb@state.nm.us**

| I. DATABASE HEADER INFORMATION (drop down menus in bold) | | |
|---|---|---|
| a. AI# 856 | Test Report | Periodic Test (Portable Analyzer) |

| | |
|---|---|
| d. Company Name: Los Alamos National Security | e. Facility Name: Los Alamos National Laboratory |
| f. Emission Unit Numbers: TA-3-22-CT-1 | g. Emission Unit Description (boiler, Waukesha 7042, etc): Rolls-Royce Combustion Turbine |
| h. Reports - Tracking Number from notification response: CMT | i. Proposed Test Date: 10-19-2009 / j. Actual test date: 10-23-2009 |

k. Reason for test (name permit requirement, NSPS, MACT, consent decree, etc. Indicate here is this notification is a revised test date only)
**Operating permit condition 2.9.4.5. Annual portable anayzer test.**

| II. GENERAL COMPANY AND FACILITY INFORMATION | | | | | |
|---|---|---|---|---|---|
| a.Company Address: P.O. Box 1663, MS J978 | | | k.. Facility Address: Same as Company | | |
| b. City: Los Alamos | c. State: NM | d. Zip: 87545 | l. City: | m. State: | n. Zip: |
| e. Environmental Contact: David Janecky | f. Title: EAQ Deputy Group Ldr. | | o. Facility Contact: Steve Story | p. Title: Air Compliance Manager | |
| g. Phone Number: 505-665-0253 | h. Cell Number: 505-699-2151 | | q. Phone Number: 505-665-2169 | r. Cell Number: | |
| i. Email Address: janecky@lanl.gov | | | s. Email Address: story@lanl.gov | | |
| j. Title V Permit Number: P100R1 | | | t. NSR Permit Number: 2195B-M1-R2 | | |

u. Detailed driving directions from nearest New Mexico town:
**A visitors badge is required for each visitor when working on or visiting LANL property. Arrangements must be made with the LANL contact prior to the visit. Visitor badges will be provided at the TA-3-22 Power Plant (see map). The LANL contact will escort the visitors to the Compressed Gas Turbine Generator (CGTG).**
**From the intersection of Diamond Drive and Trinity Drive in Los Alamos, take Diamond Drive South across Omega Bridge, continue to the traffic light. At the light, turn right toward LANL TA-3 (toward West Jemez Road). Proceed through the Vehicle Access Portal/Security Post to the light at East Jemez and Diamond Drive. Turn left at the light and continue through LANL TA-3 to the Power Plant. The Power Plant is past the first light and is the first large building on the left. The CGTG is located behind the TA-3 Power Plant, but parking is in the Power Plant parking lot.**

NMED Air Quality Bureau

# UNIVERSAL STACK TEST NOTIFICATION, PROTOCOL AND REPORT FORM



## III. TESTING FIRM

| | | | | |
|---|---|---|---|---|
| a. Company: **TRC Environmental Company** | | | g. Contact: **Richard Stallings** | |
| b. Address 1: **4221-A Balloon Park Road NE** | | | h. Title: **Program Manager** | |
| c. Address 2: | | | i. Office Phone: **(505) 314-7072** | j. Cell Phone: **(505) 238-2088** |
| d. City: **Albuquerque** | e. State: **NM** | f. Zip: **87109** | k. Email Address: **rstallings@TRCSOLUTIONS.COM** | |

## IV. EMISSION UNIT

| | |
|---|---|
| a. Emission Unit Number: **TA-3-22-CT-1** | b. Make & Model Number **Rolls-Royce RB211-6761 DLE** |
| c. Serial Number: **2011** | d. Permitted Capacity: **24.6** |

e Exceptions: Explain if test is late, rescheduled, related to an enforcement action:

Test date was delayed due to testing company personnel returning from another project out of the country. Allan Morris of NMED-AQB was notified of this change by phone and e-mail on October 14, 2009.

g. Emission Unit Description and brief process name or description:

**The emission source is a natural gas fired combustion turbine generator rated at 24.6 MW. The CGTG is located behind the existing TA-3 Power Plant and was installed and started in September 2007. The CGTG is used primaily for back-up emergency power, but can be used to generate power if demand increases. The CGTG is equiped with dry low emission control technology to reduce NOx emissions. The CGTG has a single stack with ports and a platform used to sample exhaust gases.**

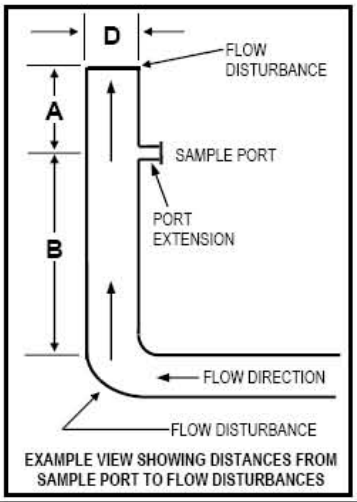
| h. Installation Date: | i. Startup Date: | k. Date Reached Max. Capacity: |
|---|---|---|
| **September 2007** | **9-23-2007** | **9-27-2007** |

l. Control Equipment Description as listed in permit (model, ser. # etc. if applicable):

**Dry Low Emission (DLE) Technology (NOx reduction)**

## STACK PARAMETERS

| | |
|---|---|
| m. Velocity (ft/sec): | **79.6** |
| n. Temperature (°C): | **494** |
| o. Stack Diameter, D (in.): | **120 x 120** |
| p. Distance to Stack Bends or Obstructions: | |
| Upstream, Distance A (in.): | **84** |
| Downstream, Distance B (in.): | **324** |




EXAMPLE VIEW SHOWING DISTANCES FROM SAMPLE PORT TO FLOW DISTURBANCES

**Attach an explanation or drawing to explain any difficult or unusual stack geometry or parameters.**

## V. POLLUTANTS AND PROPOSED TEST METHODS

| Pollutant or Parameter: | | Proposed Test Methods (Deviations from approved methods require supporting documentation and prior authorization) | Deviation to Test Method Requested |
|---|---|---|---|
| ☐ | **Portable Analyzer Methods for NOx, CO, $SO_2$** | | ☐ |
| ☒ | NOx | **EPA Method 7E** | ☐ |
| ☒ | CO | **EPA Method 10** | ☐ |
| ☐ | SO2 | **EPA Method 6** | ☐ |
| ☐ | VOCs | **(Specify)** | ☐ |
| ☐ | HAPs | **(Specify)** | ☐ |
| ☐ | PM (TSP) | **EPA Method 5** | ☐ |
| ☐ | PM10 | **EPA Method 201** | ☐ |
| ☐ | PM2.5 | **(Specify)** | ☐ |
| ☐ | Opacity | **EPA Method 9** | ☐ |

| | | | |
|---|---|---|---|
| ☐ | Visual E. | EPA Method 22 | ☐ |
| ☒ | Stack Flow | EPA Methods 1 - 3 | ☐ |
| ☒ | Moisture | EPA Method 4 | ☐ |
| ☐ | Other | (Specify) | ☐ |
| ☐ | Other | (Specify) | ☐ |
| List Specific VOC's and HAP's: | | | |

**VI. PROPOSED TEST RUN AND TEST LOAD INFORMATION**

| a. Number of Test Runs: | b. Run Duration | c. Required by (regulation or permit number): | d. Specific Condition or Section: |
|---|---|---|---|
| 3 | 20 Min. | Operating permit P100R1 | 2.9.4.5 & NMED Port. Analyzer SOP |

PLEASE NOTE – Default run duration is 60 minutes, unless otherwise specified by an applicable regulation.

| e. Expected Load: | f. Percent of Permitted Capacity: | g. Is this an opacity test? | h. If yes, no. of observation pts.: |
|---|---|---|---|
| 22 to 25 MW | 100 | Yes ☐ No ☒ | |

i. If expected load during test is less than 90% of capacity, explain:

NOTE – Failure to test at 90-100% of permitted load will limit unit operation to 110% of tested load until a new initial compliance test is conducted.

**PLANT OR UNIT OPERATING PARAMETERS TO BE MONITORED**

j. List and explain the plant operating parameters that will be monitored and applicable permit conditions or regulatory standards.

**Total natural gas volume and flow rate will be monitored during the test. The electrical output of the generator will be monitored.**

**VII. ADDITIONAL DETAILS (where applicable)**

**RATA and INSTRUMENTAL ANALYZER CALIBRATION PROCEDURES**

| a. Do any of the methods you are proposing utilize instrumental analyzers (i.e.; EPA Methods 3A, 6C, 7E, 10, 18, 25/25A, 320 etc.)? If yes, briefly describe analyzer calibration procedures and/or calibration standard procedures. Enter the highest pollutant concentration expected and the proposed concentrations of calibration gases. | ☒ Yes | ☐ No |
|---|---|---|

**The portable analyzer will be calibrated and maintained in accordance with the manufacturer's specifications.**

**Zero and span check will be performed before and after each test run.**

**Zero drift will be less than ± 6% of the span over the period of each run.**

**For CO and NOx measurements, the Portable Analyzer will have a calibration error less than ± 4% of the span for the zero, mid-range, and high-range calibration gases.**

**Sampling system bias will be less than ± 10% of the span for the zero, mid-range, and high-range calibration gases. Sample system bias checks ensure no sample degradation in the system.**

**Calibration drift will be less than ± 6% of the span over the period of each run.**

**Three calibration gases will be used. Ambient air may be used as the zero gas. The multi-point calibration of instuments ensures linear response (calibration error test).**

**The calibration gases used will be certified to ± 3% accuracy. All calibration gases will be used from their original containers. Calibration gases are certified by vendor to meet requirements of EPA Methods.**

**Interference response test documentation will be recorded.**

**Response time data will be recorded.**

**Correction of test data for NOx, CO, O2 and CO2 analyzers zero and calibration drift by equation 7e.1**

NMED Air Quality Bureau

**UNIVERSAL STACK TEST NOTIFICATION, PROTOCOL AND REPORT FORM**



| SAMPLING TRAIN LEAK CHECK PROCEDURES | | |
|---|---|---|
| b. Do any of the methods you are proposing utilize the EPA Method 5 sampling train (i.e.; EPA Methods 1-4, 5, 17, 26/26A, 29, etc.)? If yes, briefly describe sampling train and pitot tube leak check procedures: | ☐ Yes | ☒ No |
| Method 5 sampling train will not be used. For methods 1 through 4, the pitot tubes will be leak checked by assuring that either a positive or negative pressure (as appropriate to the + or - sides of the pitot) can be maintained for one minute with no leaks, as measured by the pressure on the manometer. | | |
| **EPA METHOD 19 IN LIEU OF EPA METHODS 1-4** | | |
| c. Are you proposing to utilize EPA Method 19 in lieu of EPA Methods 1-4? If yes, explain why you believe this proposal is justified: | ☐ Yes | ☒ No |
| | | |
| PLEASE NOTE – EPA Method 19 may be utilized in lieu of EPA Methods 1-4, subject to the approval of the Department. If you are proposing to utilize EPA Method 19 in lieu of EPA Methods 1-4, you MUST include a recent fuel gas heating value analysis as well as a recent fuel flow meter calibration certificate, preferably conducted on the day of the test, but no earlier than three months prior to the test date. If the analyses have been conducted prior to the test date, you MUST append the certificates to the protocol. If conducted on the day of the test, you MUST append the certificates to the final test report. | | |

NMED Air Quality Bureau

**UNIVERSAL STACK TEST NOTIFICATION, PROTOCOL AND REPORT FORM**



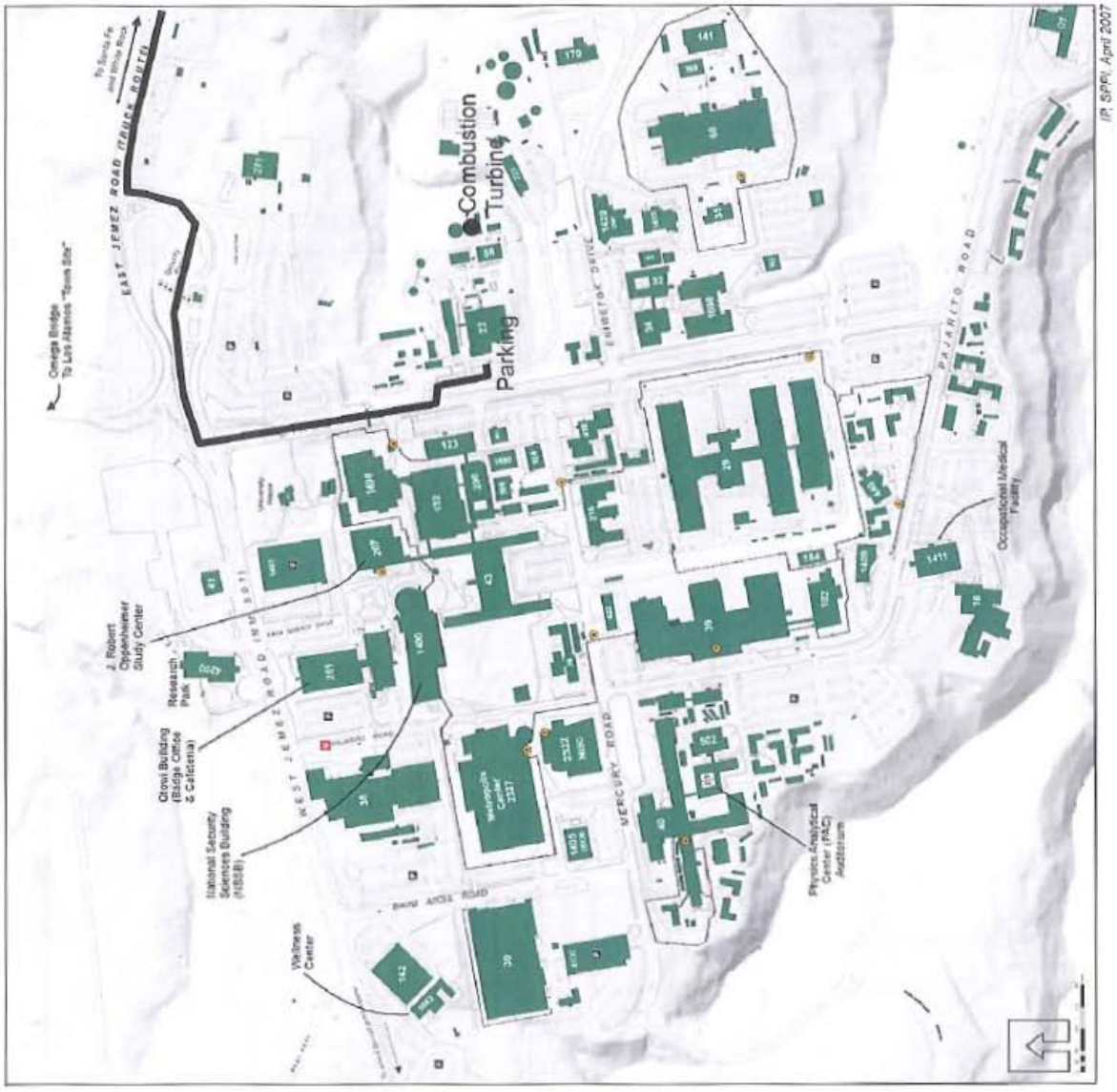
| VIII. ATTACHMENTS (as needed to support proposed test; check all that apply) | |
|---|---|
| **NOTIFICATION/PROTOCOL ATTACHMENTS** | |
| ☒ | Road Map Indicating Directions from Nearest New Mexico Town to Facility |
| ☒ | Schematic of process being tested showing emission points, sampling sites and stack cross-section |
| ☐ | Copy of proposed test methods (except for those promulgated test methods found in 40 CFR 51, 60, 61 and 63) |
| ☐ | Fuel Heating Value Analysis |
| ☐ | Fuel Flow Meter Calibration Certificate |
| ☐ | Other: |
| ☐ | Other: |
| **TEST REPORT ATTACHMENTS** | |
| ☒ | **Section 2. Tables of Results** |
| ☐ | **Supporting Documents (Specify)** |
| **Retain Report Section 3 - Test Procedures, Data, Calculations, Appendices – 2 years NSR permits, 5 years TV** | |

| IX. CERTIFICATION | | |
|---|---|---|
| **This document has been prepared under my supervision and is accurate and complete to the best of my knowledge. I understand that acceptance of this protocol does not waive the requirements of any permit or regulation. I understand that any procedural errors or omissions are the sole responsibility of the permit holder.** | | |
| Signature: | Print Name and Title: **David Janecky, Ecology and Air Quality Deputy Group Leader** | Date: **2-2-2010** |
| Responsible Official for Title V? ☐ Yes | ☒ No (R.O signature not required for routine periodic testing) | |

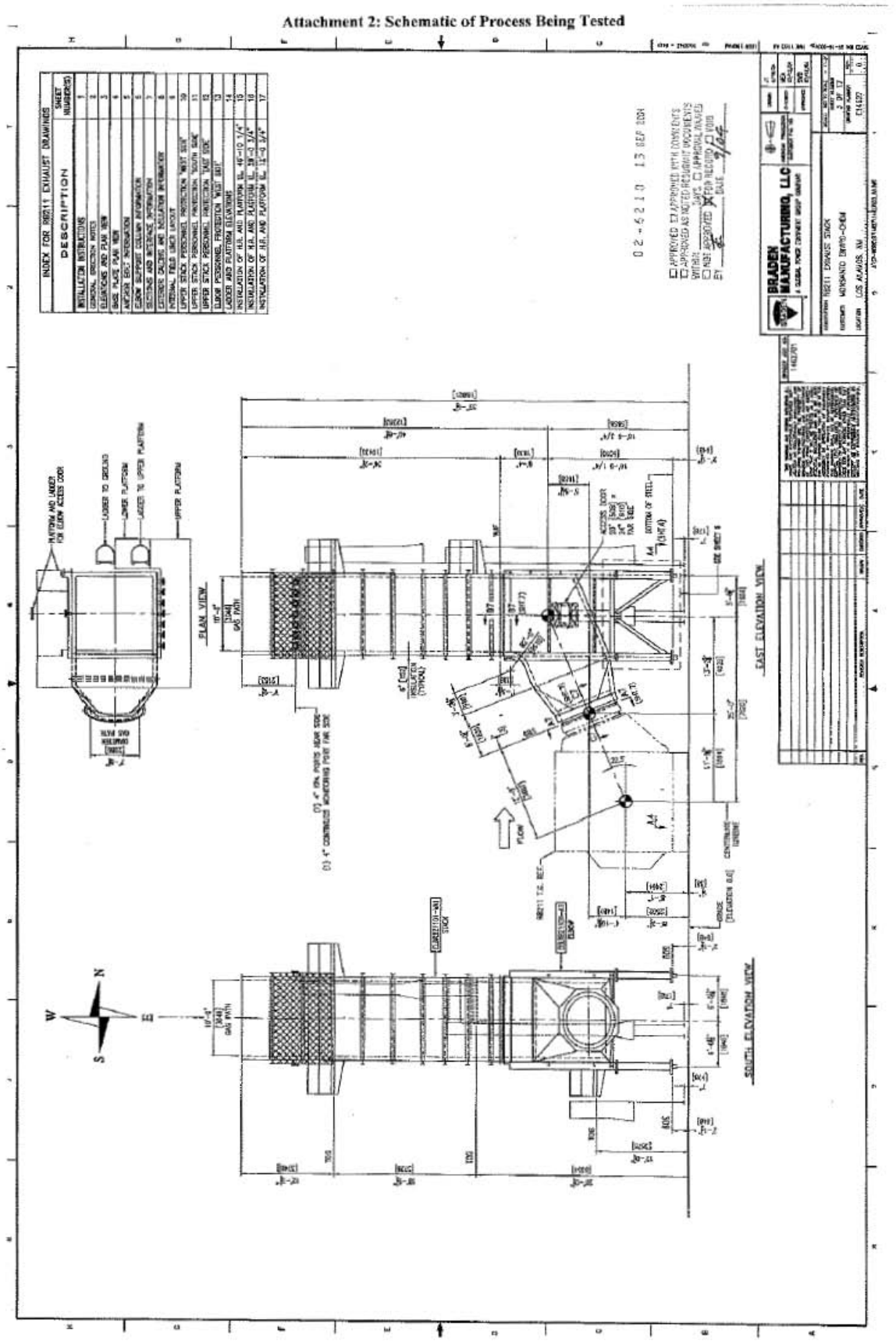
Universal Stack Test Notification, Protocol and Report Form
Attachments

## Attachment 1: Road Map and Directions

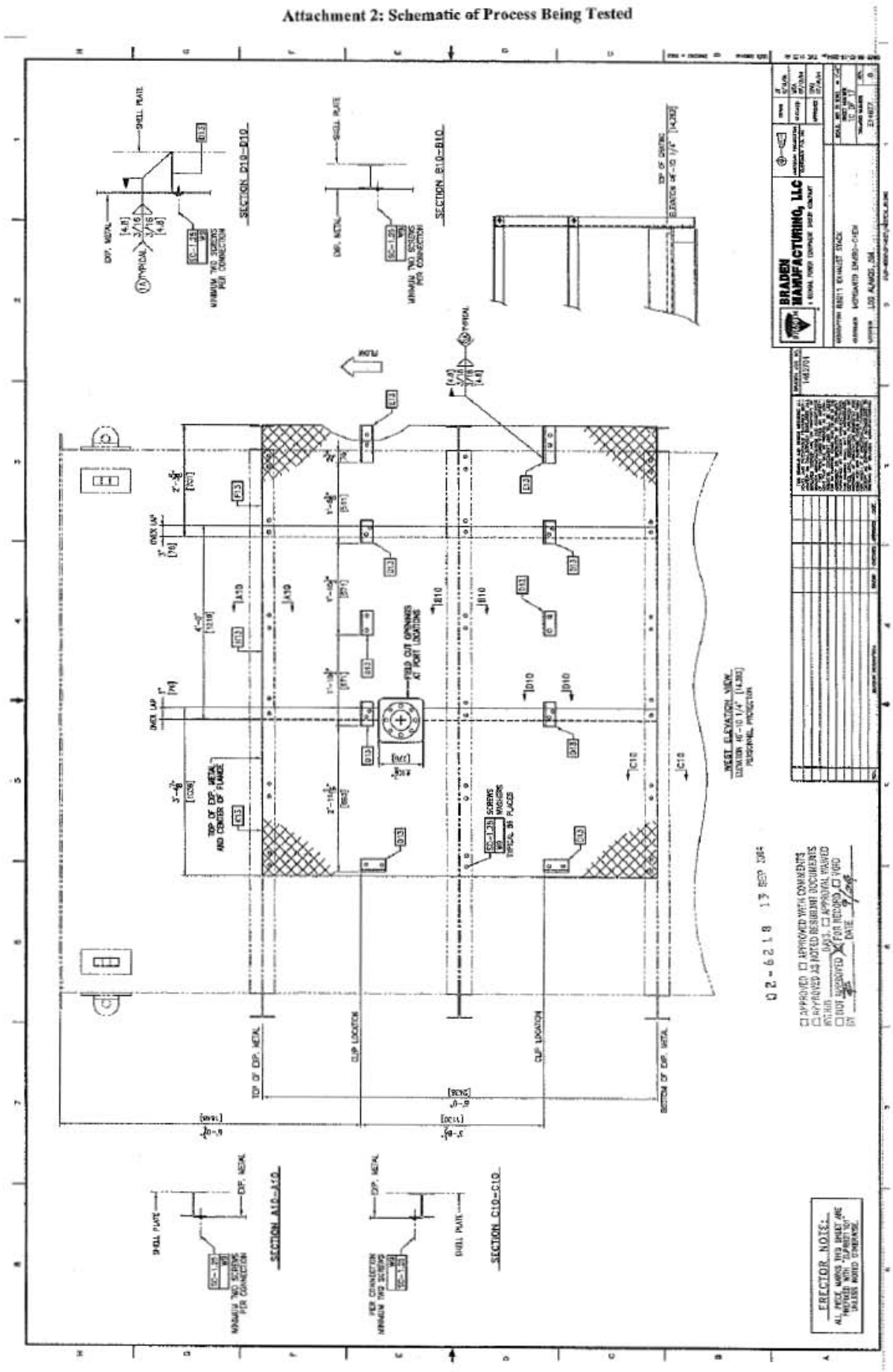
For additional information or directions call David Paulson at: (505) 665-8884



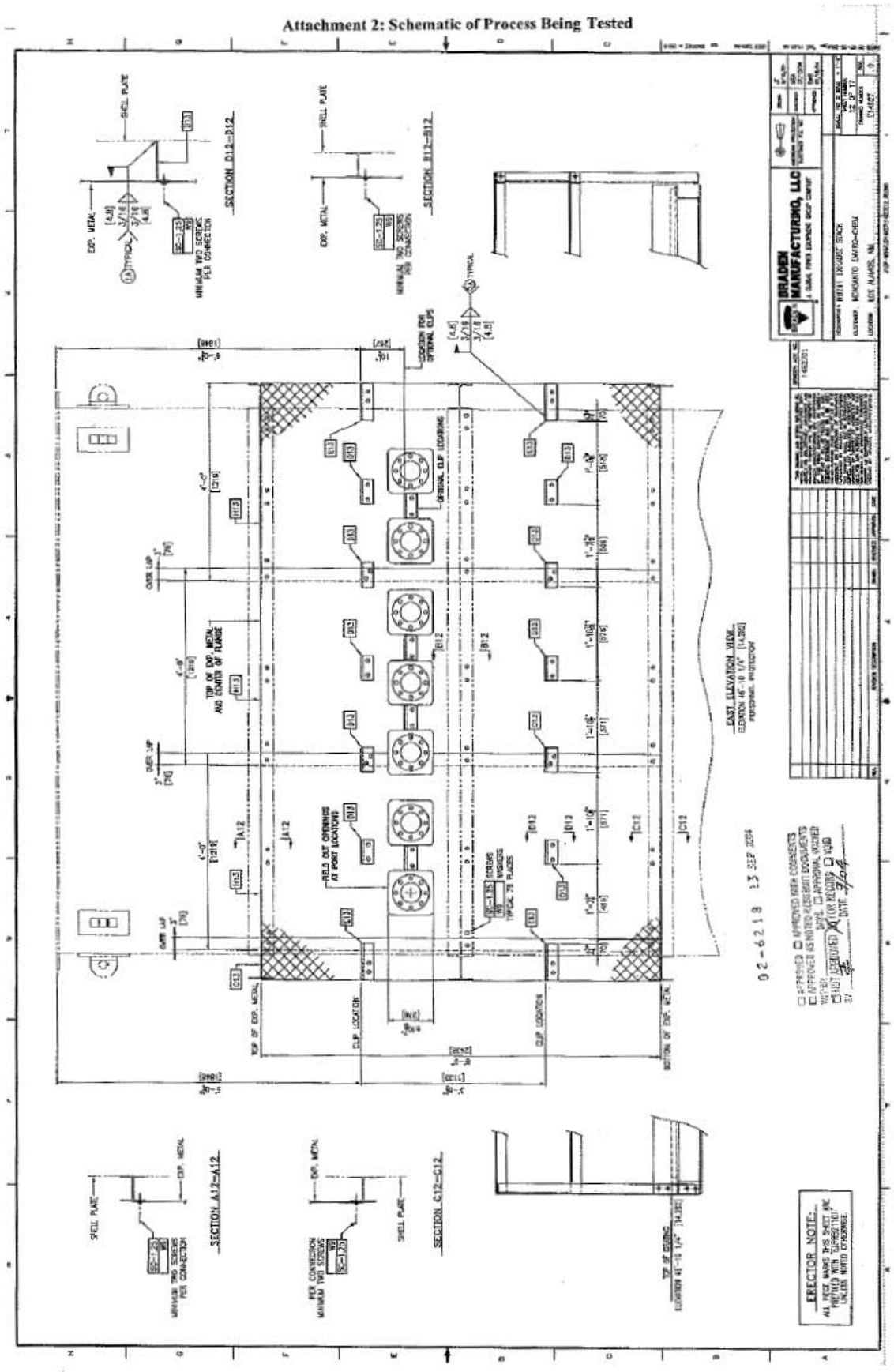
**Attachment 2: Schematic of Process Being Tested**



**Attachment 2: Schematic of Process Being Tested**



**Attachment 2: Schematic of Process Being Tested**



**Annual Combustion Turbine Emission Test Results**
**(Summary Tables of Results – Section 2)**

# Summary of Results
# LANL TA-3
# Annual Portable Analyzer Test

**Client: Los Alamos National Labs**
**Location: TA-3**
**NMED Operating permit P100R1**
**Source: Rolls-Royce Gas Turbine (Unit CT-1)**
**Turbine Site Rated: 24.6 MW**
**Technician: RS**

| **Test Run Number** | **1** | **2** | **3** | |
|---|---|---|---|---|
| **Unit Number** | **CT-1** | **CT-1** | **CT-1** | |
| Date | 10/23/2009 | 10/23/2009 | 10/23/2009 | |
| Start Time | 10:50 | 11:22 | 11:57 | |
| Stop Time | 11:10 | 11:42 | 12:17 | |
| **Engine/Compressor Operation** | | | | |
| Gas Producer Speed (%) | 100 | 100 | 100 | |
| Power Turbine Speed (%) | 100 | 100 | 100 | |
| Generator MW | 25.2 | 25.2 | 25.2 | |
| **Fuel Data** | | | | |
| Measured Fuel Consumption (MCFH) | 239 | 237 | 237 | |
| O2 F-Factor (DSCF/MMBtu, HHV basis, EPA Default) | 8650 | 8650 | 8650 | |
| Fuel Heating Value (Btu/SCF, HHV basis, EPA Default) | 1040 | 1040 | 1040 | |
| **Ambient Conditions** | | | | |
| Atmospheric Pressure ("Hg) | 23.06 | 23.06 | 23.06 | |
| Dry Bulb Temperature (°F) | 50 | 55 | 61 | |
| Wet Bulb Temperature (°F) | 38 | 39 | 39 | |
| Humidity (lb/lb air) | 0.0034 | 0.0028 | 0.0014 | |
| **Measured Exhaust Emissions (Corrected)** | | | | **Average** |
| NOx (ppmv) | 17.11 | 18.99 | 19.42 | **18.50** |
| NOx (ppmv @ 15% O2) | 16.71 | 18.26 | 19.23 | **18.06** |
| NOx (ppmv @15% O2, ISO Day) {**Permit Limit =25**} | 18.50 | 19.66 | 19.82 | **19.33** |
| CO (ppmv) | 4.12 | 4.01 | 6.55 | **4.90** |
| O2 (vol %) | 14.86 | 14.76 | 14.94 | **14.85** |
| CO2 (vol %) | 3.40 | 3.46 | 3.36 | **3.40** |
| **Exhaust Flow Rates** | | | | |
| Dry SCFH (calc. from fuel consumption by EPA Method 19 | 7.45E+06 | 7.25E+06 | 7.47E+06 | **7.39E+06** |
| Dry SCFH (Measured by EPA Methods 1-4) | 7.86E+06 | | | |
| **Calculated Mass Emission Rates (EPA Method 19)** | | | | |
| NOx (lbs/hr) {**Permit Limit = 23.8**} | 15.22 | 16.44 | 17.32 | **16.33** |
| CO (lbs/hr) {**Permit Limit = 170.9**} | 2.23 | 2.11 | 3.56 | **2.63** |

## Moisture and Molecular Weight Worksheet,

### Moisture, Molecular Weight, Velocity, and Vol

| Test Run No. | 1 |
|---|---|
| Date | 10/23/09 |
| Start Time | 10:50 |
| Stop Time | 11:20 |
| *Stack Moisture & Molecular Wt. via Stoichiometry* | |
| CO2 (%) | 3.44 |
| O2 (%) | 14.80 |
| Beginning Meter Reading (ft3) | 65.30 |
| Ending Meter Reading (ft3) | 95.55 |
| Beginning Impinger Wt (g) | 2881.9 |
| Ending Impinger Wt. (g) | 2923.8 |
| Dry Gas Meter Factor (Kd) | 1.018 |
| Dry Gas Meter Temperature (°F begin) | 48 |
| Dry Gas Meter Temperature (°F end) | 52 |
| Atmospheric Pressure (in Hg, abs.) | 23.06 |
| Stack Moisture (%) | 7.45 |
| Dry Gas Fraction | 0.9255 |
| Stack Gas Molecular Wt. (lbs/lb-mole) | 28.31 |
| *Stack Flow Rate via Pitot Tube* | |
| Pitot Tube Factor | 0.84 |
| ΔP #1 | 0.52 |
| ΔP #2 | 0.53 |
| ΔP #3 | 0.54 |
| ΔP #4 | 0.56 |
| ΔP #5 | 0.55 |
| ΔP #6 | 0.61 |
| ΔP #7 | 0.65 |
| ΔP #8 | 0.63 |
| ΔP #9 | 0.64 |
| ΔP #10 | 0.63 |
| ΔP #11 | 0.62 |
| ΔP #12 | 0.65 |
| ΔP #13 | 0.56 |
| ΔP #14 | 0.60 |
| ΔP #15 | 0.54 |
| ΔP #16 | 0.54 |
| Sum of Square Root of ΔP's | 12.2 |
| Number of Traverse Points | 16 |
| Average Square Root of ΔP's | 0.76 |
| Average Temperature (°F) | 913 |
| Static Pressure (in. H2O) | 0.1 |
| Stack Length, (inches) | 120 |
| Stack Width, (inches) | 120 |
| Stack Area (ft2) | 100.00 |
| Stack Velocity (ft/min) | 4777 |
| Stack Flow,wet (ACF/Sec.) | 7961 |
| Stack Flow,wet (ACFM) | 477671 |
| Stack Flow,dry (SCFH) | 7.86E+06 |

Testing By TRC Air Measurements, Albuquerque, New Mexico

## 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 2. | ☐ Yes | ☒ No |
|---|---|---|

**SUMMARY OF DEVIATIONS PREVIOUSLY REPORTED**

| Unit # and description | Date deviation reported | Tracking Number |
|---|---|---|
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|---|---|
| 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 | Title-V Permit P100-R1 Condition 2.1.4.3 | TA-60-BDM | A new permit condition in the Title-V Operating Permit (issued August 7, 2009) requires the use of a data logger to monitor the differential pressure across the baghouse filters and the time period the rotary dryer drum operates on the Asphalt Plant. The data logger was in the process of being installed when the permit was issued. Due to the need for custom chart paper and availability of electricians to install the unit, the data logger was not fully installed and operational until September 25, 2009. | The installation of the data logger was expedited. The existing manually entered log used to record the differential pressure and operation times of the rotary dryer drum continued to be used as required by the previous permit condition. When it was identified that the installation of the data logger would be delayed, asphalt production was halted until the unit was installed. |
| 2 | | | | |

## 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 | 8/7/2009 | 8:00 AM | 9/25/2009 | 5:00 PM | None | Data Logger | 0 | ☐ **Yes** ☒ **No** |
| 2 | | | | | | | | ☐ **Yes** ☐ **No** |

Los Alamos NATIONAL LABORATORY EST. 1943

## Signature/Review/Coordination Sheet

**This form is to accompany all documents requiring review, approval, or signature by the Laboratory Director or Designee.**

| Date | Deadline | Is this a response to an action item? |
|---|---|---|
| 02/09/10 | 02/12/10 (to NMED) | Yes ☐ No ☒ |

| From: | |
|---|---|
| Name: David L. Paulson MS: J978 | ☒ Call for Pick-up<br>Name: David L. Paulson Phone: 665-8884 |

**Title**: Identify document, briefly describing subject matter.

Semi-annual Monitoring Report (July - December 2009), Air Quality Operating Permit P100R1

☒ Action ☐ Information Only

**Background/Issues:**

Semi-Annual monitoring report required under Operating Permit Condition 4.2. This report is required to address all monitoring activities, and be submitted within 45 days from the end of the reporting period (period ends December 31, 2009, report due February 12, 2010 to NMED).

One permit deviation was identified during this reporting period. The deviation was with the Asphalt Plant and the installation of a data logger following the issuance of the renewed Title V permit.

**ACTION requested of Laboratory Director or Designee:**

Review and sign correspondence to NMED.

NMED-AQB requires the use of the "Reporting Submittal Form" with all correspondence. This is not an attachment.

**PAD Endorsement**

| Name (*print*) | Signature | Date |
|---|---|---|
| | | |

**AD Endorsement**

| Name (*print*) | Signature | Date |
|---|---|---|
| Chris Cantwell, ADESHQ | J C Cantwell | 2/9/10 |

**Coordinated with**

| | | |
|---|---|---|
| 1. Name (*print*)<br>Denny Hjeresen, ENV-DO | Signature | Date<br>2/9/10 |
| 2. Name (*print*)<br>Cindy Blackwell, LC-LESH | Signature<br>See attached e-mail | Date |
| 3. Name (*print*)<br>David Janecky, ENV-EAQ | Signature | Date<br>2/9/2010 |
| 4. Name (*print*) | Signature | Date |
| 5. Name (*print*) | Signature | Date |

Please ensure appropriate inter/intra Directorate/Divisional coordination and review prior to submittal to the Director's Office.

Form 1824 (1/07)

X-Sieve: CMU Sieve 2.3
X-NIE-2-Virus-Scanner: amavisd-new at mailrelay1.lanl.gov
To: Dave Paulson <dpaulson@lanl.gov>
Cc: Phil Wardwell <wardwell@lanl.gov>
Subject: Re: Monitoring Report for Review
X-Mailer: Lotus Notes Release 7.0.3 September 26, 2007
From: clblackwell@lanl.gov
Date: Thu, 4 Feb 2010 11:01:35 -0700
X-MIMETrack: Serialize by Router on WPCMail03P/LANL(Release 7.0.4|March 23, 2009) at 02/04/2010 11:01:37 AM

Dave,

I reviewed the document and only have one small question. On the page containing Monitoring Rqt. 2.5.4.1 for chemical purchases (pg 31), I see that we checked NO on whether there had been a separate report submitted. The comment section mentions that we submitted a semi-annual report in August. I just wondered if we should be checking YES there instead, but I am not terribly familiar with how you do these reports yet.

Other than that question, the document is sufficient and I approve the report.

Thanks for your patience while I come up to speed.

Cindy

Cindy Blackwell
Office of Laboratory Counsel
Los Alamos National Laboratory
Mailstop A187
Phone: (505) 667-7512
Fax: (505)665-4424
clblackwell@lanl.gov

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**Dave Paulson <dpaulson@lanl.gov>**

02/02/2010 05:00 PM

To: Phil Wardwell <wardwell@lanl.gov>, Cynthia Blackwell <clblackwell@lanl.gov>
cc:
Subject: Monitoring Report for Review

Phil and Cindy, attached is the draft monitoring report for the second half on 2009. This report is required by our Title V permit and is due to NMED by February 12, 2010. I am planning to have Chris Cantwell sign the report early next week and deliver it to the state shortly thereafter.

One deviation from a permit condition is reported. This is the deviation from the permit condition that requires a data logger on the Asphalt Plant. This is the same deviation that was reported in our Annual Compliance Certification that Phil reviewed in the last

couple of weeks. The deviation will be reported in both reports.

I would appreciate your review of this document (63 pages) by COB Monday, February 8th. The document includes several new monitoring requirements from the renewed Title V permit. Included in this report is a new condition to perform an annual stack test at the TA-3 Power Plant combustion turbine. The combustion turbine stack test report is included as an attachment to this monitoring report.

Please provide me with your comments and questions, and if the document is sufficient, please provide me an e-mail stating your approval for review/coordination documentation.

Thank you,
Dave

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David L. Paulson, CSP, CHMM
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Environmental Protection Division
Los Alamos National Laboratory
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Semi-Annual Monitoring Report 2nd half 2009 Rev-01.doc