

## LA-UR-19-31640

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Title:	Emissions Inventory Report Summary for Los Alamos National Laboratory for Calendar Year 2018
Author(s):	Whetham, Walter Wiley
Intended for:	Environmental Regulatory Document
Issued:	2019-11-21 (rev.1)

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LA-UR-19-31640

November 2019

# **Emissions Inventory Report Summary for Los Alamos National Laboratory for Calendar Year 2018**

Prepared by the Environmental Protection Division

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**Acronyms and Terms**

AIRS	Aerometric Information Retrieval System
AQB	Air Quality Bureau
CAS	Chemical Abstracts Service
CFR	Code of Federal Regulations
CMRR	Chemistry and Metallurgy Research Replacement (Facility)
CO	carbon monoxide
EPA	United States Environmental Protection Agency
FGR	flue gas recirculation
gal.	gallon
HAP	hazardous air pollutant
LANL	Los Alamos National Laboratory
lb	pound
MMBTU/hr	1,000,000 British thermal units per hour
mmHg	millimeter of mercury
MSDS	material safety data sheet
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NO <sub>x</sub>	nitrogen oxides
oz.	ounce
PM	particulate matter
PM <sub>2.5</sub>	particulate matter with diameter less than 2.5 micrometers
PM <sub>10</sub>	particulate matter with diameter less than 10 micrometers
PSD	Prevention of Significant Deterioration
R&D	research and development
RLUOB	Radiological Laboratory/Utility/Office Building
SO <sub>x</sub>	sulfur oxides
SO <sub>2</sub>	sulfur dioxide
TA	Technical Area
TSP	total suspended particulates
µm	micrometer
VOC	volatile organic compound
yr	year

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# **EMISSIONS INVENTORY REPORT SUMMARY FOR LOS ALAMOS NATIONAL LABORATORY FOR CALENDAR YEAR 2018**

by  
**Environmental Compliance Programs Group**

## **ABSTRACT**

Los Alamos National Laboratory (LANL) is subject to annual emissions reporting requirements for regulated air pollutants under Title 20 of the New Mexico Administrative Code, Chapter 2, Part 73 (20.2.73 NMAC), Notice of Intent and Emissions Inventory Requirements. The applicability of the requirements is based on LANL's potential to emit 100 tons per year of suspended particulate matter, nitrogen oxides, carbon monoxide, sulfur oxides, or volatile organic compounds. Additionally, on April 30, 2004, LANL was issued a Title V Operating Permit from the New Mexico Environment Department/Air Quality Bureau, under 20.2.70 NMAC and the permit was revised on October 17, 2018. This Title V Operating Permit (Permit No. P100-R2M3) includes emission limits and operating limits for all regulated sources of air pollution at LANL. The Title V Operating Permit also requires semi-annual emissions reporting for all sources included in the permit. This report summarizes both the annual emissions inventory reporting and the semi-annual emissions reporting for LANL for calendar year 2018. LANL's 2018 emissions are well below the emission limits in the Title V Operating Permit.

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## **1.0 INTRODUCTION**

### **1.1 Regulatory Basis**

Los Alamos National Laboratory (LANL or the Laboratory) has reported on air pollutants generated from its operations since the 1970s when Air Quality Control Regulation 703, Registration of Air Contaminant Sources, was promulgated. According to the regulation, the Laboratory was required to register air pollutant sources that emitted more than 2,000 lbs per year of any air contaminant. This regulatory requirement later evolved into Title 20 of the New Mexico Administrative Code, Chapter 2, Part 73 (20.2.73 NMAC), Notice of Intent and Emissions Inventory Requirements. The objective of the reporting requirement is to provide emissions data to the New Mexico Environment Department (NMED)/Air Quality Bureau (AQB) so its staff can determine whether LANL meets state and federal air pollutant standards.

Annual emissions inventory reporting requirements under 20.2.73 NMAC apply to any stationary source that

- has been issued a construction permit under 20.2.72 NMAC;
- has been required to file a Notice of Intent under 20.2.73.200 NMAC; or
- emits in excess of
  - 1 ton per year of lead or
  - 10 tons per year of

- total suspended particulates (TSP),
- particulate matter (PM) with diameter less than 10 micrometers (PM<sub>10</sub>),
- PM with diameter less than 2.5 micrometers (PM<sub>2.5</sub>),
- sulfur dioxide (SO<sub>2</sub>),
- nitrogen oxides (NO<sub>x</sub>),
- carbon monoxide (CO), or
- volatile organic compounds (VOCs).

The annual emissions inventory must be submitted to NMED/AQB by April 1 of each year. The NMED/AQB enters the data into the Aerometric Information Retrieval System (AIRS). This nationwide system, administered by the United States Environmental Protection Agency (EPA), is used to help ensure that ambient air quality standards are maintained and to track the state's air pollutant emissions. AIRS is a large air pollution database that contains information, requirements, and data on air pollution and air quality in the United States and various World Health Organization member countries. The program is operated by the EPA and state/local air pollution control agencies. The AIRS database tracks each state's progress towards achieving and maintaining National Ambient Air Quality Standards for criteria pollutants. The database is also used as a tool to help improve each state's air quality programs by enabling program members to access and compare past data and view data from other states.

Additionally, on April 30, 2004, LANL was issued a Title V Operating Permit from the NMED/AQB, under 20.2.70 NMAC. The NMED/ABQ issued a revised permit (P100-R2M3; NMED 2018) on October 17, 2018 (NMED 2018a). A condition of the Title V Operating Permit is that LANL must submit semi-annual emissions reports to NMED documenting that emissions from all permitted sources are below permitted emission levels. Section A109.B of the permit states:

“A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emissions estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table106.B.”

In 2004, the Laboratory began submitting the semi-annual emissions reports as well as the annual emissions inventory. There are a few differences in which sources are included in the two emissions reports. These differences are explained in the following sections.

## **1.2 Contents of Annual Emissions Inventory Submittal**

NMED requested that LANL submit annual emissions inventory data for 2018 via online reporting tool, AEIR, for entry into AIRS. The information required for submittal includes the following:

- facility name, organization name, and agency ID;
- facility contact information;
- signed certification statement by a responsible facility official; and
- specific information for each emission unit such as fuel type, materials processed, materials consumed, fuel heating value, percent sulfur of fuel, percent ash of fuel, percent carbon content, and details of operating schedule.

This annual emissions inventory submittal includes air pollutant data for PM, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, NO<sub>x</sub>, sulfur oxides (SO<sub>x</sub>), VOCs, and hazardous air pollutants (HAPs).

### 1.3 Contents of the Semi-annual Title V Operating Permit Emissions Reports

The semi-annual Title V Operating Permit emissions reports include actual estimated emissions for the reporting period for each emission source or source category included in the Title V Operating Permit. For each source category, the actual emissions are compared with emission limits listed in the permit.

The emissions are calculated using operating data from logbooks and records maintained on site.

All emission calculations are consistent with calculation methods used for the annual emissions inventory.

The semi-annual emissions reports include a few source categories not included in the annual emissions inventory. For the first Title V permit, the Laboratory requested emission limits in their Title V Operating Permit for two source categories that are considered insignificant sources for the annual emissions inventory. These source categories are 1) small boilers and heaters and 2) stationary standby generators. LANL requested emission limits for these source categories to obtain federally enforceable limits that would keep the Laboratory under the major source threshold for Prevention of Significant Deterioration (PSD) applicability (20.2.74 NMAC). LANL's actual emissions from these insignificant sources have historically been very low; however, without federally enforceable limits on their operation, the potential to emit from these sources was quite high. To demonstrate that LANL is below the PSD applicability and is in compliance with the emission limits placed on these emission sources for the original Title V Operating Permit, LANL included these emissions in the semi-annual emissions reports. NMED removed the stationary standby generators starting with the P100-R2 permit.

## 2.0 REPORTED EMISSION SOURCES

Table 2.0-1 shows the emission sources included in the Laboratory's 2018 annual emissions inventory (LANL 2018a) and the 2018 semi-annual emissions reports (LANL 2018b and 2018c). The source categories and the methodology used to calculate emissions are described in the following sections.

The following subsections describe emission sources included in the 2018 emissions inventory and semi-annual emissions reports and emission calculation methodology for each source type. A summary table of actual reported emissions by source is included in Section 2.12. Attachment A includes worksheets showing detailed emission calculations for individual emissions sources. A copy of the 2018 emissions inventory as submitted to NMED is presented in Attachment B. The 2018 semi-annual emissions reports are included as Attachment C.

**Table 2.0-1. Sources Included in LANL's 2018 Annual Emissions Inventory and Semi-annual Emissions Reports**

Included in Annual Emissions Inventory	Included in Semi-annual Emissions Reports	Comment
Power Plant (TA-3)	Power Plant (TA-3)	n/a <sup>a</sup>
Boilers greater than 5 MMBTU/hr <sup>b</sup> (14 units)	All small and large boilers and heaters (approximately 175 units)	Small boilers less than 5 MMBTU/hr are exempt from annual emissions inventory requirements (see Section 3.1).
Asphalt Plant	Asphalt Plant	n/a
Degreasers	Degreasers	n/a
Data Disintegrator	Data Disintegrator	n/a
Permitted Beryllium Sources	Permitted Beryllium Sources	n/a
Facility-wide Chemical Use	Facility-wide Chemical Use	The semi-annual emissions reports also include separate emission data for the CMRR-RLUOB building.
Process Generators and Stationary Standby Generators	Process Generators	n/a
TA-3 Turbine	TA-3 Turbine	n/a
Evaporative Sprayers	Evaporative Sprayers	n/a

<sup>a</sup> n/a = not applicable.

<sup>b</sup> one million British thermals units per hour.

## 2.1 Power Plant

The Laboratory operates a power plant at Technical Area (TA) 3. The power plant produces steam for heating and electricity for much of the Laboratory when sufficient power from outside sources is not available. The heat produced from the power plant is used for comfort heat and hot water and to support facility processes. The power plant has three boilers that are fueled primarily with natural gas with No. 2 fuel oil as a backup.

For the 2018 emissions inventory, NMED requested that emissions from natural gas and No. 2 fuel oil be reported separately for the boilers located at each of the power plants. The TA-3 power plant was originally included in LANL's emissions inventory as a single unit. When a modification to the plant was made in 2001, the TA-3 power plant was separated into three separate units for emissions reporting purposes. Because each of the three boilers has the capability of burning either natural gas or No. 2 fuel oil, the TA-3 power plant is now reported as six units (EQPT-24, EQPT-25, and EQPT-26 for the natural gas and EQPT-137, EQPT-138, and EQPT-141 for the No. 2 fuel oil).

Actual estimated emissions are calculated on the basis of metered fuel consumption and emission factors. The primary source of emission factors is AP-42, the EPA's Compilation of Air Pollutant Emission Factors (EPA 1998). However, emission factors from stack tests conducted at the TA-3 power plant when burning natural gas were also used, as appropriate.

The TA-3 power plant has historically been the largest source of NO<sub>x</sub> emissions at the Laboratory. In 2002, a voluntary project to install pollution control equipment on the three boilers at the TA-3 power plant was completed. The three boilers were fitted with flue gas recirculation (FGR) equipment to reduce NO<sub>x</sub> emissions. Stack testing for NO<sub>x</sub> and CO was conducted before FGR equipment was installed and again after it was operational. Based on these stack test results, FGR reduced NO<sub>x</sub> emissions by approximately 64%. Figure 2.1-1 shows a picture of the TA-3 power plant building and stacks.



**Figure 2.1-1. TA-3 power plant**

## **2.2 Small Boilers and Heaters**

The Laboratory operates approximately 200 small boilers and heaters, used primarily for seasonal comfort heat. Most of the boilers are exempt from permitting requirements because of their small size and use as comfort boilers and are not included in the annual emissions inventory. The exemption analysis applied to boilers is discussed in Section 3.1 of this report.

The boilers that are not exempt and reported in the 2018 annual emissions inventory include:

- two boilers at TA-53 (EQPT-11 and EQPT-12),
- two boilers at TA-55 (EQPT-29 and EQPT-30),
- five boilers at the Chemistry and Metallurgy Research Replacement (CMRR) Facility (EQPT-90, EQPT-104, EQPT-105, EQPT-106, and EQPT-107), and
- two boilers at TA-16 (EQPT-53 and EQPT-134).

All of the reported boilers burn natural gas. Operating logs of actual fuel used for the TA-55 and the CMRR boilers were used to quantify emissions from these units. Fuel use for all other boilers was estimated based on the total amount of natural gas used by the Laboratory minus the amount supplied to metered sources. The amount of natural gas left after subtracting out metered sources was apportioned to the various boilers based on their size. Since virtually all of the small boilers are seasonal boilers used for building heating, it was assumed they would all operate approximately the same amount of time over the course of the year. Some emission factors were available from stack tests (TA-55), some were provided by the boiler manufacturer (Sellers Engineering Company), and the rest were taken from AP-42

(EPA 1998). Copies of spreadsheets showing fuel use and emission factors for each boiler are included in Attachment A.

For the semi-annual emissions reports, emissions from small boilers are included as a source category. These boilers include TA-16-1484-BS-1, TA-16-1484-BS-2, TA-53-365-BHW-1, TA-53-365-BHW-2, TA-55-6-BHW-1, TA-55-6-BHW-2, CMRR-BWH-1, CMRR-BWH-2, CMRR-BWH-3, and CMRR-BWH-4. Additionally, emissions from each of the CMRR boilers are included as separate source categories. To estimate emissions, all unmetered fuel use was multiplied by AP-42 emission factors for small boilers burning natural gas (EPA 1998). Total emissions of each pollutant from all boilers and heaters in this source category were then summed and reported on the semi-annual emissions reports.

## **2.3 Asphalt Plant**

The TA-60 asphalt plant (EQPT-116) began operations in July 2005. This unit replaced the TA-3 asphalt plant, which was dismantled and removed in September 2003. Information on the amount of asphalt produced and the duration of daily operation at the TA-60 asphalt plant was provided as part of a monthly site support contractor data deliverable. The total asphalt produced in 2018 was 785 tons.

The emissions from the asphalt plant include criteria pollutants, NO<sub>x</sub>, and CO. None of the emissions were significant in regard to the overall Laboratory emissions. The largest pollutant emitted from the asphalt plant was CO at 0.17 tons per year.

## **2.4 Data Disintegrator**

The data disintegrator is included in the 2018 emissions inventory as EQPT-89. Operation of this source started in August 2004. Emissions are calculated using the methodology described in the original permit application dated June 23, 2003. Emissions of PM, PM<sub>10</sub>, and PM<sub>2.5</sub> are calculated based on the number of boxes shredded, the amount of dust estimated to enter the exhaust (provided by the manufacturer), and the control efficiency of the cyclone and baghouse (also provided by the manufacturer). The permit application included PM<sub>2.5</sub> emission estimates. Therefore, an emission methodology had to be developed for the emission inventory reporting. No specific PM size distribution data were available. However, the manufacturer reported that dust into the exhaust would be in the size range of 5 to 20 μm. Based on visual observation and engineering judgment, a particle size distribution in the exhaust was estimated as follows:

- PM<sub>2.5</sub> 15%
- PM<sub>10</sub> 90%
- TSP 100%

The number of boxes of material shredded is provided in a monthly data deliverable from the site support contractor. The total number of boxes shredded at the data disintegrator in 2018 was 9,281.

## **2.5 Degreasers**

The halogenated solvent cleaning machine at TA-55 has a capacity of 18 liters and is registered with NMED/AQB as required under the National Emissions Standards for Hazardous Air Pollutants, 40 Code of Federal Regulations (CFR) 63 Subpart T, Halogenated Solvent Cleaning. The solvent used in the machine, trichloroethylene (Chemical Abstracts Service [CAS] No. 79-01-6), is a VOC and a HAP. This

emission unit is included in the annual emissions inventory as EQPT-21. LANL uses a mass balance approach to estimate emissions. Logbooks are kept on the amount of solvent added and removed from the machine. Additionally, solvent levels in the machine are logged monthly. LANL has two additional halogenated solvent cleaning machines registered with NMED which were not operational in 2018. The emissions from the TA-55 degreaser for this reporting period are 22.15 lbs or 0.011 tons per year. This source category is reported in both the annual emissions inventory and the semi-annual emissions reports.

## **2.6 Permitted Beryllium-Machining Operations**

The Laboratory operates five permitted beryllium-machining operations that are subject to 40 CFR 61, Subpart C, and National Emission Standards for Beryllium. Emissions reported for the Beryllium Test Facility (ACT-3) are from actual stack emissions measurements. Emissions for the Target Fabrication Facility (ACT-2) are from initial compliance stack testing and are reported as permitted emission levels. In addition, emissions from the Plutonium Facility (ACT-6) are reported at permitted emission levels. Foundry operations within the Plutonium Facility did not occur during this reporting period. The Sigma Facility (ACT-41) includes emissions from electroplating, chemical milling, and metallographic operations. Total emissions from all permitted beryllium operations are included in the semi-annual emissions reports.

## **2.7 Generators**

LANL has 11 permitted internal combustion engines including: four generators located at TA-33, three generators located at CMRR Radiological Laboratory/Utility/Office Building (RLUOB), three generators located at TA-55, and one generator located at TA-48. The original TA-33 generator was installed in May 2006 and replaced in December 2014 by a Cummins Portable Diesel Generator. The new generator (EQPT-146) operated for 17.7 hours in 2018. Permit No. 2195-P was issued in August 2007 for three more units at TA-33 (EQPT-119, EQPT-120, EQPT-135); the three units operated for a total of 21.1 hours in 2018.

LANL has three permitted generators (EQPT-128, EQPT-153, EQPT-154) located at the RLUOB facility, which began operating in 2012. The generators were added to the newest Title V Operating Permit and included in both the semi-annual emissions report and emissions inventory report. The three generators operated for a total of 79.1 hours in 2018.

The other four permitted generators at LANL are located at TA-55 (EQPT-143, EQPT-155, EQPT-156) and TA-48 (EQPT-147). The TA-55 generators operated for a total of 11.1 hours in 2018 and the TA-48 generator did not operate.

The Laboratory maintains approximately 37 stationary standby generators that are considered exempt sources under the Construction Permit regulations (20.2.72.202.b NMAC). These sources are included in LANL's annual emissions inventory report, but not in the semi-annual emissions report. All stationary standby generators at LANL are tested on a routine schedule to ensure they are operational and will function properly if needed. All units are equipped with hour meters to document how many hours they are used. The Laboratory maintains records on a semi-annual basis to document hour meter readings. The number of hours each generator is used in a reporting period is multiplied by AP-42 emission factors for diesel-fired internal combustion engines or natural-gas-fired internal combustion engines (EPA 1996).

Emissions are then summed for each pollutant and reported on the semi-annual emissions reports for this source category.

## 2.8 Combustion Turbine

LANL has one combustion turbine located at the TA-3 power plant (EQPT-112). A revised construction permit was issued by NMED July 2004 to add the TA-3 combustion turbine as a new permitted source. This unit started operations in September 2007. Emission calculations are based on the initial stack compliance tests performed in 2007, AP-42 Tables 3.1-2a and 3.1-3, and information provided by the manufacturer. In 2018, this combustion turbine operated for 709.4 hours.

## 2.9 Emissions from Chemical Use Activities

A significant amount of the Laboratory's work is devoted to research and development (R&D) activities. Varying operating parameters, as well as amounts and types of chemicals, are used in these activities. R&D activities occur at virtually all technical areas within the Laboratory, typically in small quantities in laboratory settings. Figure 2.9-1 shows a typical laboratory at LANL where chemicals are used.



**Figure 2.9-1. Example of a laboratory fume hood at LANL**

For the purposes of annual emissions inventory reporting, one equipment number has been assigned for all R&D chemical use (ACT-7). Facility-wide chemical use emissions are reported on both the annual emissions inventory and the semi-annual emissions reports. The methods used to quantify emissions of VOC and HAPs from R&D activities are discussed below.

### 2.9.1 VOC Emissions

The Laboratory tracks chemical purchases through a facility-wide chemical tracking system called ChemDB. A download from the ChemDB inventory system was created that included all chemical containers added to LANL's inventory between January 1, 2018, and December 31, 2018. This dataset included 44,583 separate line items of chemicals purchased.



The dataset was reviewed electronically to identify all VOCs purchased and received at LANL in 2018. With the exception of specific listed chemicals, VOCs are any compounds of carbon that participate in atmospheric photochemical reactions. VOCs include commonly used chemicals such as ethanol, methanol, trichloroethylene, and isopropanol. The general assumption used in estimating VOC emissions from chemical use is

$$\text{Purchasing} = \text{Use} = \text{Emissions}$$

From the dataset of chemicals purchased in 2018, certain categories of chemicals were separated and eliminated from the analysis. The classifications assigned and corresponding reasons (noted in parentheses) for exclusion of chemicals from inventory records are noted below.

- Solid materials (not a significant source of air emissions based on their low vapor pressure)
- Non-VOC materials as defined by 40 CFR 51.100 (specific chemicals in 40 CFR 51.100 are listed as having negligible photochemical reactivity and are exempt from the definition of VOC)
- Paints (paints were evaluated separately—see Section 3.5)
- Inorganic chemicals (inorganics are not compounds of carbon)
- Oils (not a significant source of air emissions based on low vapor pressure and primarily used for maintenance)
- Fuels used for combustion purposes (emissions from fuel combustion are reported for each combustion unit)

The following categories of chemicals were eliminated based on guidance from NMED (NMED 2001).

- Container sizes of 1 lb or less
- Chemicals with vapor pressures less than 10 mmHg
- Chemicals used to calibrate equipment
- Maintenance chemicals
- Use of office equipment and products
- Chemicals used for boiler water treatment operations
- Chemicals used for oxygen scavenging (deaeration) of water
- Chemicals used in bench-scale chemical analysis<sup>1</sup>

After the elimination of chemicals and categories of chemicals listed above, the remaining chemical inventory records were matched with a list of known VOCs by CAS number. For mixtures (chemicals without CAS numbers), material safety data sheets (MSDSs) were reviewed to determine if any VOCs were present and, if so, to determine the associated percent volatile. As a conservative estimate, VOCs identified in ChemDB records were assumed to be 100% emitted to air. Estimated emissions of VOCs from chemical use in 2018 totaled 11.25 tons.

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<sup>1</sup> This exemption was applied only to biological research solutions. Otherwise, this exemption was not applied (see Table 3.3-1).

## 2.9.2 HAP Emissions

Section 112(b) of the 1990 Clean Air Act Amendments listed 188 unique HAPs identified for potential regulation by the EPA. In 1995, caprolactam was delisted as a HAP, and methyl ethyl ketone was delisted in 2005. Of the remaining 187 listed HAPs, 17 are classes of compounds (e.g., nickel compounds). Use of the 187 listed chemicals in activities at the Laboratory was evaluated and quantified for the annual emissions inventory submittal to NMED.

The ChemDB inventory system 2018 dataset was analyzed to identify HAPs. The identification process was similar to that used for VOCs. Pure chemicals (i.e., chemicals with CAS numbers), classes of compounds, and mixtures were evaluated to determine if the chemicals themselves were HAPs or if they contained HAP constituents. For mixtures, MSDSs were reviewed to determine if any HAPs were present and, if so, to determine the associated HAP percentages. Listed below are certain chemical types or categories that were identified and removed from this analysis (refer to Section 2.9.1 and Table 3.3-1 for explanations on removal of these chemicals).

- Paints
- Oils
- Maintenance chemicals
- Chemicals used to calibrate equipment
- Container sizes of 1 lb or less
- Chemicals used in bench-scale chemical analysis
- Use of office equipment and products
- Chemicals used for boiler water treatment operations
- Chemicals used for oxygen scavenging (deaeration) of water

Total HAP emissions were estimated by summing 1) pure HAP chemicals, 2) classes of compounds that are HAPs, and 3) the HAP constituents from mixtures. The resulting total amount of HAPs from chemical use reported for 2018 was 5.88 tons.

The HAP emissions reported generally reflect quantities procured in the calendar year. In a few cases, procurement values and operational processes were further evaluated so that actual air emissions could be reported instead of procurement quantities. Additional analyses for certain metals and acids were performed and are described below.

## 2.10 Evaporative Sprayers

The Laboratory is permitted to operate five spray evaporators at the Sanitary Effluent Treatment Facility or SERF. The spray evaporators are intended to reduce water volume in the existing Sigma Mesa evaporation basins. These synthetically-lined evaporation basins are located within TA-60. The basins are intended for use to evaporate a specific treated waste water discharge from SERF which processes treated sanitary wastewater effluent for beneficial reuse, and is intended to conserve potable water and reduce wastewater discharges to the environment. The stored treated waste water is a concentrated salt solution from reverse osmosis treatment at the SERF facility. Operation of the SERF facility is crucial in reducing water usage at LANL,

achieving compliance with discharges to an NPDES outfall, and providing clean water for cooling tower use at LANL.

Actual estimated emissions are calculated from hours of operation and emission factors based on analytical results from sampling the basin water.

## 2.11 Emissions Summary by Source

Table 2.10-1 provides a summary of LANL's 2018 actual emissions, as submitted for the annual emissions inventory. The table presents emissions by pollutant and by source, with a facility total at the bottom of the table. Attachment A provides detailed information on how emissions were calculated for each emission unit.

**Table 2.10-1. Summary of LANL 2018 Reported Emissions for Annual Emissions Inventory**

	NO <sub>x</sub> (tons/yr)	SO <sub>x</sub> (tons/yr)	PM <sub>10</sub> (tons/yr)	PM <sub>2.5</sub> (tons/yr)	CO (tons/yr)	VOC (tons/yr)	HAPs (tons/yr)
TA-3 Power Plant Boilers	10.13	0.11	1.33	1.33	6.99	0.96	0.33
TA-55-6 Boilers	1.43	0.006	0.15	0.15	0.39	0.063	0.019
TA-53 Boilers	1.01	0.006	0.077	0.077	0.85	0.056	0.019
TA-16 Boilers	0.34	0.005	0.069	0.069	0.34	0.050	0.17
RLUOB Boilers	0.032	0.001	0.006	0.006	0.040	0.028	0.002
Asphalt Plant	0.005	0.003	0.003	n/a	0.170	0.003	0.003
Data Disintegrator	n/a	n/a	0.39	n/a	n/a	n/a	n/a
Degreaser	n/a	n/a	n/a	n/a	n/a	0.011	0.011
R&D Chemical Use	n/a	n/a	n/a	n/a	n/a	11.25	5.88
TA-33 Generators	0.32	0.014	0.015	n/a	0.094	0.024	9.7E-05
RLUOB Generators	1.33	0.03	0.08	n/a	1.64	0.67	4.0E-04
TA-55 Generators	0.24	0.004	0.0074	n/a	0.052	0.0074	4.3E-05
TA-48 Generator	0	0	0	n/a	0	0	0
Stationary Standby Generators	3.20	0.11	0.14	n/a	0.73	0.14	0.002
TA-3 Turbine	4.34	0.30	0.59	0.59	0.59	0.19	0.19
Evaporative Sprayers	n/a	n/a	n/a	n/a	n/a	n/a	0.0009
<b>TOTAL</b>	<b>22.38</b>	<b>0.59</b>	<b>2.86</b>	<b>2.22</b>	<b>11.89</b>	<b>13.45</b>	<b>6.63</b>

\* n/a = not applicable.

Table 2.10-2 provides a summary of 2018 emissions as reported on the semi-annual emissions reports required by the Title V Operating Permit. Attachment A provides detailed information on how emissions were calculated for each emission source category.

**Table 2.10-2. Summary of LANL 2018 Semi-annual Emissions as Reported Under Title V Operating Permit Requirements**

	NO <sub>x</sub> (tons/yr)	SO <sub>x</sub> (tons/yr)	PM <sub>10</sub> (tons/yr)	PM <sub>2.5</sub> (tons/yr)	CO (tons/yr)	VOC (tons/yr)	HAPs (tons/yr)
TA-3 Power Plant Boilers	10.13	0.11	1.33	1.33	6.99	0.96	0.33
Small Boilers	20.30	0.12	1.63	n/a*	16.32	1.16	0.39
RLUOB Boilers	0.032	0.001	0.006	0.006	0.040	0.028	0.002
Asphalt Plant	0.005	0.003	0.003	n/a	0.170	0.003	0.003
Data Disintegrator	n/a	n/a	0.39	n/a	n/a	n/a	n/a
Degreaser	n/a	n/a	n/a	n/a	n/a	0.011	0.011
R&D Chemical Use	n/a	n/a	n/a	n/a	n/a	11.25	5.88
TA-33 Generators	0.32	0.014	0.015	n/a	0.094	0.024	9.7E-05
RLUOB Generators	1.33	0.03	0.08	n/a	1.64	0.67	4.0E-04
TA-55 Generators	0.24	0.004	0.0074	n/a	0.052	0.0074	4.3E-05
TA-48 Generator	0	0	0	n/a	0	0	0
TA-3 Turbine	4.34	0.30	0.59	0.59	0.59	0.19	0.19
Evaporative Sprayers	n/a	n/a	n/a	n/a	n/a	n/a	0.0009
<b>TOTAL</b>	<b>36.7</b>	<b>0.6</b>	<b>4.0</b>	<b>1.9</b>	<b>26.2</b>	<b>13.8</b>	<b>6.7</b>

\* n/a = not applicable.

### 3.0 REPORTING EXEMPTIONS

Specific activities that are determined to be insignificant under NMED's Operating Permit program (20.2.70 NMAC) are exempt from reporting under the emissions inventory requirements (20.2.73.300 NMAC). NMED has designated exempt sources, activities, or thresholds in the following lists:

- List of Insignificant Activities, March 25, 2005 (NMED 2005)
- List of Trivial Activities, January 10, 1996 (NMED 1996).

Laboratory sources and activities that qualify as insignificant or trivial as specified in these lists are not included in the annual emissions inventory. The following subsections of this report provide information and examples of the Laboratory's exempt activities as well as analyses performed to determine exempt status.

#### 3.1 Boilers

The Laboratory's boiler inventory was evaluated against the List of Insignificant Activities (NMED 2005). Specifically, boilers were exempted from emissions inventory reporting requirements if they met one of the following requirements:

- Fuel-burning equipment that uses gaseous fuel has a design rate less than or equal to 5 MMBTU/hr, and is used solely for heating buildings for personal comfort or for producing hot water for personal use, or
- Any emissions unit . . . that has the potential to emit no more than 1 ton/yr of any regulated pollutant . . . .

Any boiler that was not used exclusively for comfort heating or hot water was evaluated for the 1 ton per year exemption. For purposes of determining exemptions, boiler design ratings were used to estimate potential to emit. Any boiler not qualifying for one of these two exemptions is included in the annual emissions inventory with its own unique equipment number.

For the semi-annual emissions reports, emissions from all boilers and heaters were summed and reported for the entire source category.

### 3.2 Generators

The Laboratory maintains an inventory of approximately 73 portable generators. Portable generators are used at the Laboratory for temporary operations requiring remote power or to provide emergency backup power during power outages at various sites. The portable generators are fueled by gasoline and/or diesel fuel.

In addition to portable generators, the Laboratory maintains and operates approximately 45 stationary standby generators. Stationary generators are used on standby (emergency) status to provide power to critical systems at the Laboratory during power outages. The stationary generators are fueled by natural gas, propane, gasoline, or diesel.

The insignificant activity exemptions applicable to the Laboratory's generators are for:

- Portable engines and portable turbines that have a design capacity . . . less than or equal to a
  - 200-horsepower engine if fueled by diesel or natural gas and a
  - 500-horsepower engine if fueled by gasoline.
- Emergency generators that on a temporary basis replace equipment used in normal operation, and which either have an allowable emission rate or potential to emit for each pollutant that is equal to or less than the equipment replaced, or which do not operate for a period exceeding 500 hours per calendar year.

On the basis of size, portable generators used for temporary power at remote locations are exempt from emissions inventory reporting requirements. Further, LANL's small portable generators are considered trivial activities and are not included in the Title V Operating Permit or semi-annual emissions reports. All stationary generators are designated as standby equipment under the Operating Permit Program and are used solely to provide emergency backup power for less than 500 hours per year. Therefore, they are considered insignificant sources and are also exempt from annual emissions inventory reporting requirements. However, the stationary standby generators were voluntarily included as a source category in the Title V Operating Permit and are included in the semi-annual emissions reports.

### 3.3 VOC Emissions

A number of insignificant and trivial activities were applicable for exempting materials from the VOC chemical use total in the emissions inventory. The basis of the exemptions and corresponding insignificant or trivial activities are explained in Table 3.3-1.

Fuels such as propane, kerosene, and acetylene were analyzed separately and are not listed in Table 3.3-1. When fuels are burned in an open flame, almost all of the fuels are consumed and VOC emissions are

minimal. Emissions from fuel combustion are accounted for by using emission factors for each fuel-burning unit.

**Table 3.3-1. Exemptions Applied for Chemical Use Activities**

Basis of Exemption	Activity Type	Activity
Container sizes of 1 lb or less	Trivial	Paint or nonpaint materials dispensed from prepackaged aerosol cans of 16-oz. capacity or less.
Chemicals with vapor pressures less than 10 mmHg	Insignificant	Any emissions unit, operation, or activity that handles or stores a liquid with vapor pressure less than 10 mmHg or in quantities less than 500 gal.
Calibration chemicals	Trivial	Routine calibration and maintenance of laboratory equipment or other analytical instruments, including gases used as part of those processes.
Maintenance chemicals and oils	Trivial	Activities that occur strictly for maintenance of grounds or buildings, including lawn care; pest control; grinding; cutting; welding; painting; woodworking; sweeping; general repairs; janitorial activities; plumbing; re-tarring roofs; installing insulation; steam-cleaning and water-washing activities; and paving of roads, parking lots, and other areas.  Activities for maintenance and repair of equipment, pollution-control equipment, or motor vehicles either inside or outside of a building.
Use of office equipment and products	Trivial	Use of office equipment and products, not including printers or businesses primarily involved in photographic reproduction.
Chemicals used for boiler water treatment	Trivial	Boiler water treatment operations, not including cooling towers.
Chemicals used for oxygen scavenging	Trivial	Oxygen scavenging (deaeration of water).
Chemicals used in bench-scale chemical analysis	Trivial	Bench-scale laboratory equipment used for physical or chemical analysis but not lab fume hoods or vents. Note: This exemption was applied only to biological research solutions. Otherwise, this exemption was not applied.

### 3.4 HAP Emissions

The HAP chemical use exemption analysis, similar to the VOC chemical use exemption analysis, resulted in application of several of the same exemptions from NMED/AQB List of Insignificant Activities (NMED 2005) and List of Trivial Activities (NMED 1996) (refer to Table 3.3-1).

### 3.5 Paints

An analysis of VOC and HAP emissions resulting from painting activities at the Laboratory was performed to determine if certain exemptions apply. Paint information for 2018 was gathered from the ChemDB chemical inventory system. These records were evaluated for applicability of exemptions for trivial and insignificant activities.

The following exemptions from NMED/AQB Operating Permit Program List of Trivial Activities (NMED 1996) were used in the paint analysis:

- Activities that occur strictly for maintenance of grounds or buildings, including the following: lawn care; pest control; grinding; cutting; welding; painting; woodworking; sweeping; general repairs; janitorial activities; plumbing; re-tarring roofs; installing insulation; steam-cleaning and water-washing activities; and paving of roads, parking lots, and other areas.

- Activities for maintenance and repair of equipment, pollution control equipment, or motor vehicles either inside or outside of a building.
- Paint or nonpaint materials dispensed from prepackaged aerosol cans of 16 oz. or less capacity. The amount of paint that did not qualify for a Trivial Activity totaled to 3,545 lbs (1.77 tons), which is less than the 2-ton emission limit for insignificant activities.
- Surface coating of equipment, including spray painting and roll coating, for sources with facility-wide total cleanup solvent and coating actual emissions of less than 2 tons per year.

## 4.0 EMISSIONS SUMMARY

### 4.1 2018 Emissions Summary

Table 4.1-1 presents facility-wide estimated actual emissions of criteria pollutants for 2018 as reported in the annual emissions inventory and the semi-annual emissions reports. In addition, the Title V Operating Permit emissions limits are included. Table 4.1-2 presents estimated actual emissions for HAPs from chemical use. Emission unit information and detailed emissions calculations are included in Attachment A. The 2018 emissions inventory report as submitted to NMED is presented in Attachment B. Attachment C includes semi-annual emissions reports for 2018.

**Table 4.1-1. LANL Facility-Wide Criteria Pollutant Emissions for 2018**

Pollutant	Estimated actual Emissions for Annual Emissions Inventory Reporting (tons/yr)	Estimated actual Emissions for Semi-annual Title V Operating Permit Reporting (tons/yr)	Title V Operating Permit Facility-Wide Emission Limits (tons/yr)
NO <sub>x</sub>	22.38	36.7	245
SO <sub>x</sub>	0.59	0.6	150
CO	11.89	26.2	225
PM	2.86	4.0	120
PM <sub>10</sub>	2.86	4.0	120
PM <sub>2.5</sub>	2.22	1.9	120
VOC	11.89	13.8	200

**Table 4.1-2. LANL HAP Emissions from Top Five Chemicals Used in 2018**

Pollutant	Chemical Use HAP Emissions (tons/yr)
Hydrochloric Acid	1.23
Methanol	1.14
Methylene Chloride	0.85
Hexane	0.53
Ethylene Glycol	0.49
All other HAPs from Chemical Use	1.64
<b>Total HAPs</b>	<b>5.88</b>



HAP emissions from combustion sources are included in the emissions reports; however, they are negligible and do not contribute significantly to facility-wide HAP emissions.

Figure 4.1-1 shows criteria air pollutant emissions by source for 2018, excluding the very small emissions sources such as the data disintegrator, asphalt plant, degreasers, and evaporative sprayers. As the figure shows, the TA-3 power plant and the sum of emissions from small boilers and were the largest sources of CO and NO<sub>x</sub> emissions in 2018. R&D chemical use was the largest source of VOC emissions.

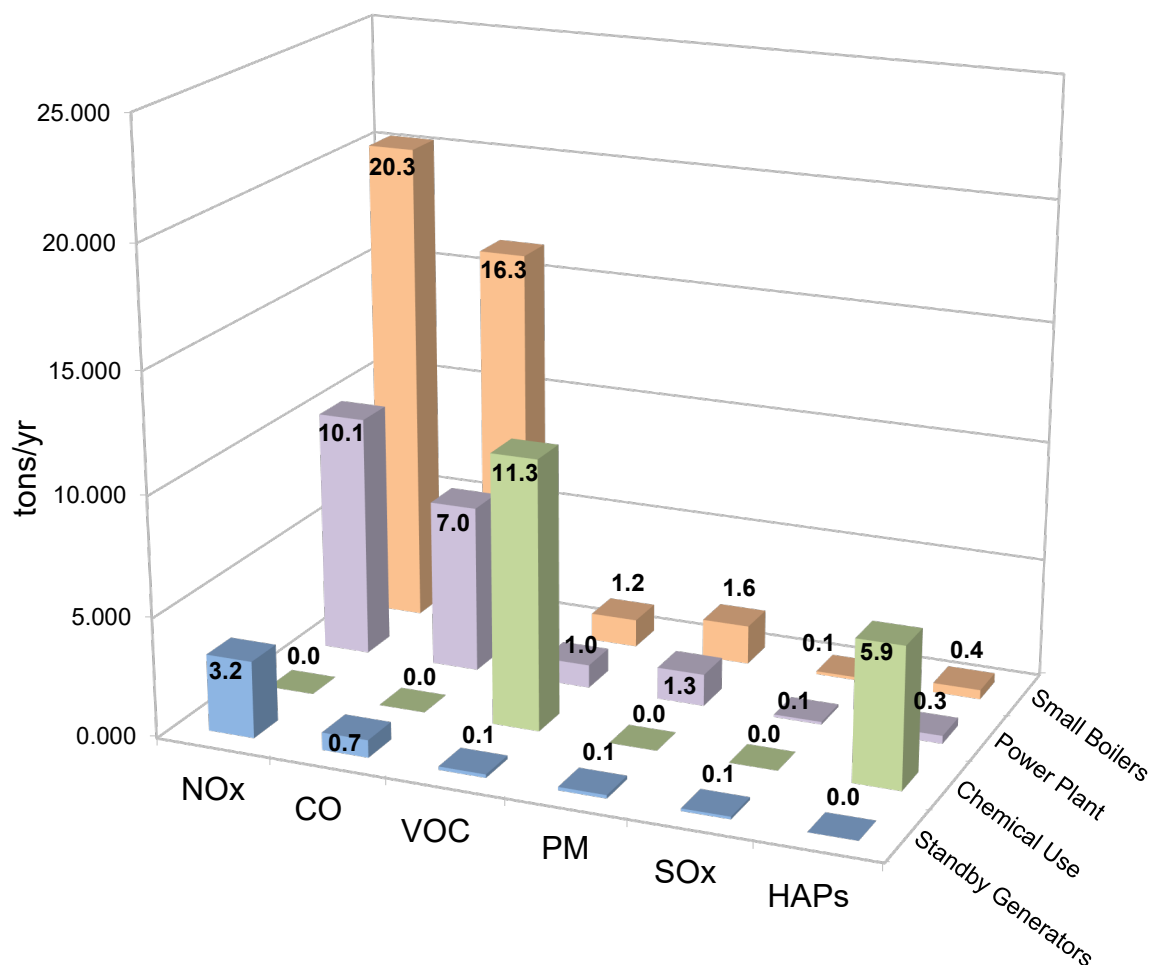
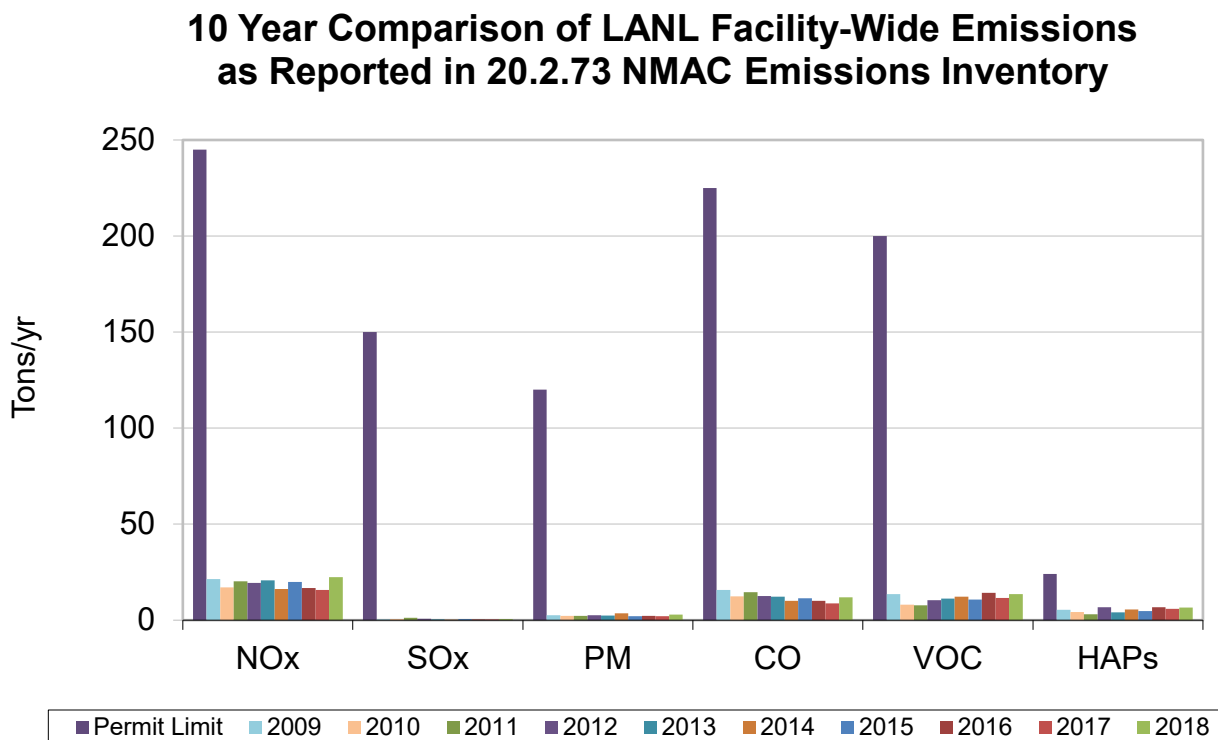


Figure 4.1-1. Emissions of criteria pollutants by source in 2018

### Emission Trends and Title V Permit Limits

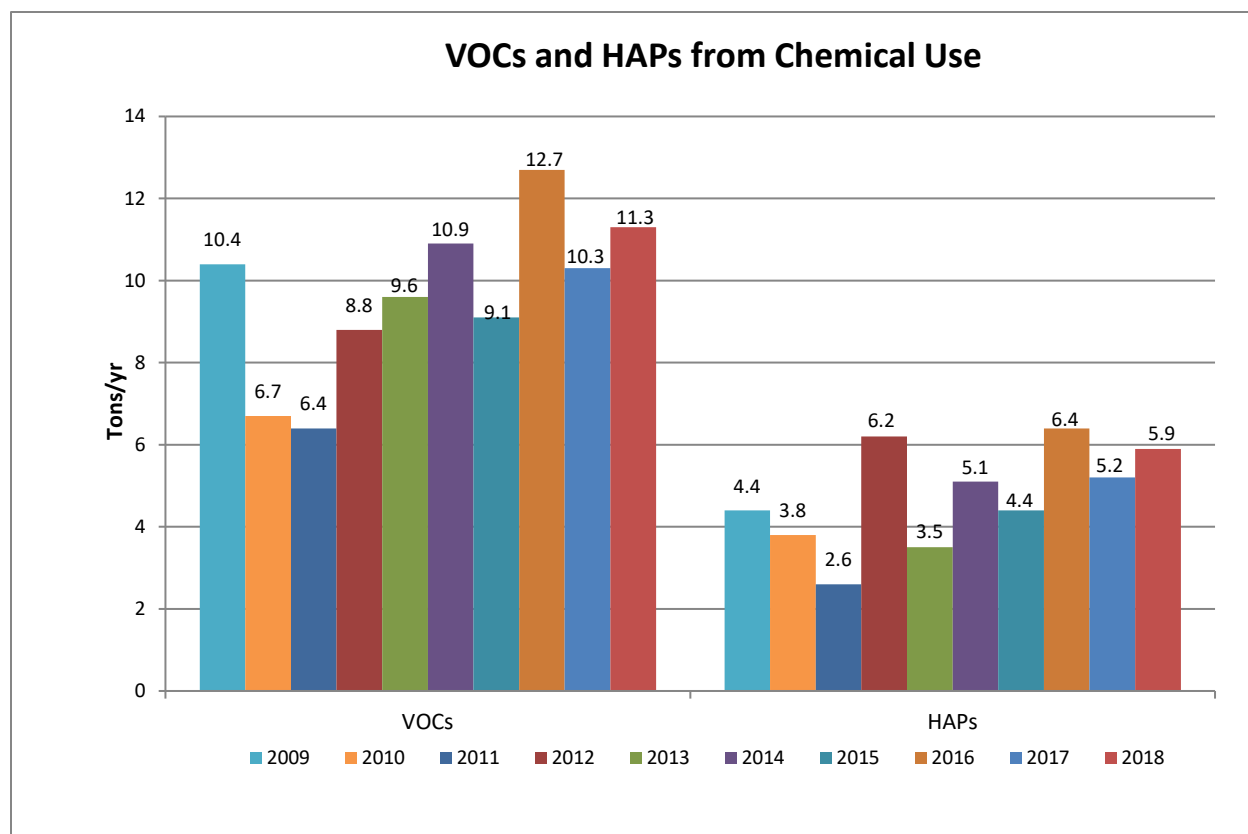
A comparison of historical emissions to the facility-wide emission limits in the Title V Operating Permit is provided in this section. It should be noted that the facility-wide emission limits in the Operating Permit include emissions from some sources that are not included in the annual emissions inventory, most notably small (insignificant) boilers and emergency standby generators. However, historical data are only available for emission sources that were included in the annual emissions inventory submittals.

Figure 4.1-2 provides a comparison of the past 10 years' facility-wide emissions for criteria air pollutants as reported to NMED in the annual emissions inventory submittal. The facility-wide emission limits included in LANL's Title V Operating Permit are also shown on the graph.



**Figure 4.1-2. Comparison of facility-wide annual reported emissions from 2009 to 2018**

Figure 4.1-3 presents VOC and HAP emissions from chemical use activities for the last 10 years. The continued fluctuation in both VOC and HAP emissions is due to both variations in actual chemical purchases and improvements the Laboratory has made to the chemical tracking system.



**Figure 4.1-3. VOC and HAP emissions from chemical use from 2009 to 2018**

## REFERENCES

- EPA (U.S. Environmental Protection Agency), 1998. "Compilation of Air Pollutant Emission Factors," AP-42, Fifth Edition, Section 1.4–Natural Gas Combustion, July 1998, and Section 1.3–Fuel Oil Combustion, <http://www.epa.gov/ttn/chief/ap42/> (September 1998).
- EPA (U.S. Environmental Protection Agency), 1996. "Compilation of Air Pollutant Emission Factors," AP-42, Fifth Edition, Section 3.3–Gasoline and Diesel Industrial Engines, and Section 3.4–Large Stationary Diesel and All Stationary Dual-Fuel Engines, <http://www.epa.gov/ttn/chief/ap42/> (October 1996).
- LANL (Los Alamos National Laboratory), 2018a. "2018 Emissions Inventory Report Submittal to the New Mexico Environment Department," Los Alamos National Laboratory document LA-UR-19-21065 (March 2019).
- LANL (Los Alamos National Laboratory), 2018b. "Semi-Annual Emissions Report, July–December 2018," submitted to the New Mexico Environment Department, Los Alamos National Laboratory document LA-UR-19-21018 (March 2019).
- LANL (Los Alamos National Laboratory), 2018c. "Semi-Annual Emissions Report, January–June 2018," submitted to the New Mexico Environment Department, Los Alamos National Laboratory document LA-UR-18-28268 (September 2018).
- NMED (New Mexico Environment Department, Air Quality Bureau, Operating Permit Program), 2005. "List of Insignificant Activities under Title V Operating Permits," <http://www.nmenv.state.nm.us/aqb/forms/InsignificantListTitleV.pdf> (March 2005).
- NMED (New Mexico Environment Department, Air Quality Bureau), 2001. Letter from Mary Uhl, NMED/AQB to LANL, dated January 30, 2001.
- NMED (New Mexico Environment Department, Air Quality Bureau, Operating Permit Program), 1996. "List of Trivial Activities under Title V Operating Permits," <http://www.nmenv.state.nm.us/aqb/forms/TrivialListTitleV.pdf> (January 1996).

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**ATTACHMENT A:**

***Emission Calculation Worksheets for Individual Emission Units***

## 2018 Emission Inventory | AI856 LANL - Asphalt Batch Plant Emissions Calculations

Year 2018  
 Type Asphalt Drum/Burner  
 NMED ID EQPT-116  
 Title V Designation TA-60-BDM  
 Description Asphalt Plant Dryer  
 Annual Asphalt Production 785.0 ton/year

### Equation for Calculations

Annual Emissions (ton/year) = Emission Factor (lb/ton) \* Annual Asphalt Production (tons/year) \* (1 ton/2000 lb)

Pollutant	Emission Factor (lb/ton)	Annual Emissions (tons/year)	Calculation Basis
NOx	0.012	0.0047	(b)
CO	0.434	0.1703	(b)
PM	0.007	0.0029	(b)
PM-10	0.006	0.0024	(c)
PM-2.5	0.006	0.0024	(c)
SOx	0.0046	0.0018	(a)
VOC	0.0082	0.0032	(a)
EthylBenzene	0.0022	0.0009	(d)
Formaldehyde	0.00074	0.0003	(d)
Xylene	0.0027	0.0011	(d)

Reference
(a) AP-42, Sec. 11.1, <i>Hot Mix Asphalt Plants</i> , Table 11.1-5 & 11.1-6, Updated 4/2004
(b) Calculated using stack test results performed on May 18, 2009 by TRC Air Measurements.
(c) PM-10 emission factor is calculated as 64% of the PM emission factor (from stack test), using the same ratio of PM to PM-10 as provided in AP-42 Table 11.1-1. No data provided for PM-2.5, assume same as PM-10.
(d) AP-42, Table 11.1-9, <i>Hot Mix Asphalt Plants</i> , Updated 4/2004

## 2018 Emission Inventory | AI856 LANL - Beryllium Emissions Calculations

Year	2018
Type	Beryllium Work
NMED ID	ACT-2
Title V Designation	TA-35-213
Description	Be Target Fabrication Facility - Machining TA-35-213

### Emission Calculation Description -

Emissions for the Target Fabrication Facility are from initial compliance testing of that source and calculated based on a conservative assumption of 8 hour work days. Log books were checked to verify that work days were much less than 8 hours.

Year	2018
Type	Beryllium Work
NMED ID	ACT-3
Title V Designation	TA-3-141
Description	Be Test Facility - Machining TA-3-141

### Emission Calculation Description -

Emission values shown for the Beryllium Test Facility are from actual stack emission measurements which are submitted to NMED quarterly.

Year	2018
Type	Beryllium Work
NMED ID	ACT-6
Title V Designation	TA-55-PF-4
Description	Plutonium Facility Beryllium machining, weld cutting/dressing and metallography

### Emission Calculation Description -

Emissions for the Plutonium Facility are calculated based on permitted throughputs. Log books were checked to verify that throughputs were much less than permitted values. The Plutonium Facility foundry operations did not operate during 2018.

Year	2018
Type	Beryllium Work
NMED ID	ACT-41
Title V Designation	TA-3-66
Description	Sigma Facility - electroplating, metallography, and chemical milling

### Emission Calculation Description -

Emission Factors for the Sigma Facility are based on currently permitted similar processes (see Sections 4 and 6 of Sep 1997 application for permit 634-M2, and permit 1081-M1-R3).



## 2018 Emission Inventory | AI856 LANL - Boilers Emissions Calculations

Year 2018  
 Type Boilers except those at the power plant  
 NMED ID multiple (see emission table below)  
 Title V Designation EQPT 11, EQPT 12, EQPT 29, EQPT 30, EQPT 53, EQPT 90, EQPT 104, EQPT 105, EQPT 134  
 Description Boilers located at various locations not including the power plant

### Emission Factors (lb/MMscf)

Emission Sources	Small Uncontrolled Boilers <sup>1</sup>	TA-16 Low NOx Boilers <sup>4</sup>	TA-55-6 Boilers <sup>3</sup>	RLUOB Boilers
Pollutant				
NOx	100	37.08	138	29.9
SOx	0.6	0.6	0.6	0.6
PM <sup>2</sup>	7.6	7.6	14.2	4.9
PM-10 <sup>2</sup>	7.6	7.6	14.2	4.9
PM-2.5 <sup>2</sup>	7.6	7.6	14.2	4.9
CO	84	37.08	38.2	38.1
VOC	5.5	5.5	5.98	25.8
Formaldehyde <sup>5</sup>	0.075	0.075	0.075	0.075
Hexane <sup>5</sup>	1.8	1.8	1.8	1.8

### References for Emission Factors

(1) AP-42, 7/98, Section 1.4, Natural Gas Combustion, Small Boilers.

(2) Emission factors for natural gas of PM-10 and PM-2.5 are roughly equal to those of PM, Natural Gas Combustion, Table 1.4-2.

(3) AP-42, 7/98, Section 1.4, Natural Gas Combustion, Small Boilers for SOx. Stack test on 3/00 for NOx. Otherwise, Emission factors from Sellers Engineering Co.

(4) AP-42, 7/98, Section 1.4, Natural Gas Combustion, Small Boilers; Emission factors for NOx and CO from Sellers Engineering Co (low-NOx boilers).

(5) All HAP emission factors from AP-42 7/98, Section 1.4, Natural Gas Combustion, Tables 1.4-3, 1.4-4.

### 2018 Natural Gas Use

Permit Designation	TA-16-1484 BS-1	TA-16-1484 BS-2	TA-53-365 BHW-1	TA-53-365 BHW-2	TA-55-6 BHW-1	TA-55-6 BHW-2	B-1 CMRR	B-2 CMRR	B-3 CMRR
NG Use (MMscf/yr)	9.028	9.028	10.115	10.115	1.598	19.051	0.706	0.706	0.706

## 2018 Emission Inventory | AI856 LANL - Boilers Emissions Calculations

Year 2018  
Type Boilers except those at the power plant

### Equation for Emissions Calculation

Annual Emissions (tons/year) = Emission Factor (lb/MMscf) \* Annual natural gas consumption (MMscf/year) \* (1 ton/2000 lb)

### 2018 Boiler Emissions for Annual EI Reporting (tons/year)

NMED Unit ID	134	53	11	12	29	30	90	104	105
Pollutant	TA-16-1484-BS-1	TA-16-1484-BS-2	TA-53-365-BHW-1	TA-53-365-BHW-2	TA-55-6-BHW-1	TA-55-6-BHW-2	RLUOB-BHW-1	RLUOB-BHW-2	RLUOB-BHW-3
NOx	0.167	0.167	0.506	0.506	0.110	1.315	0.011	0.011	0.011
SOx	0.0027	0.0027	0.0030	0.0030	0.0005	0.0057	0.0002	0.0002	0.0002
PM	0.034	0.034	0.038	0.038	0.011	0.135	0.002	0.002	0.002
PM-10	0.034	0.034	0.038	0.038	0.011	0.135	0.002	0.002	0.002
PM-2.5	0.034	0.034	0.038	0.038	0.011	0.135	0.002	0.002	0.002
CO	0.167	0.167	0.425	0.425	0.031	0.364	0.013	0.013	0.013
VOC	0.025	0.025	0.028	0.028	0.005	0.057	0.009	0.009	0.009
Formaldehyde	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
Hexane	0.008	0.008	0.009	0.009	0.001	0.017	0.001	0.001	0.001

## 2018 Emission Inventory | AI856 LANL - Degreaser

Year 2018  
 Type Parts Washer  
 NMED ID EQPT-21  
 Title V Designation TA-55-DG-1  
 Description Degreaser - Ultrasonic Cold batch TA-55-4

### Solvent Trichloroethylene

Degreaser Emissions January-June 2018 (lbs)	
Jan-18	0.00
Feb-18	0.00
Mar-18	0.00
Apr-18	0.00
May-18	0.00
Jun-18	0.00
<b>Total lbs:</b>	<b>0</b>
<b>Total tons:</b>	<b>0</b>

Degreaser Emissions July-December 2018 (lbs)	
Jul-18	0.00
Aug-18	0.00
Sep-18	0.00
Oct-18	5.54
Nov-18	0.00
Dec-18	16.61
<b>Total lbs:</b>	<b>22.15</b>
<b>Total tons:</b>	<b>0.011075</b>

<b>Total lbs 2018:</b>	<b>22.15</b>
<b>Total tons 2018:</b>	<b>0.011075</b>

## 2018 Emission Inventory | AI856 LANL - Internal Combustion Engine

Year 2018  
 Type Internal Combustion Engine  
 NMED ID EQPT-119, EQPT-120, EQPT-128, EQPT-135, EQPT-143, EQPT-146, EQPT-147, EQPT-153, EQPT-154, EQPT-155, EQPT-156, EQPT-160, EQPT-161, EQPT-162  
 Title V Designation Four TA-33-Generators; Three RLUOB Generators; Three TA-55 Generators; One TA-48 Generator  
 Description Multiple genertors located at TA-33; 3 generators located at TA-55 CMRR; 5 generators TA-55, 1 at TA-50 and 1 at TA-48

EMISSION FACTORS (EF)	NO <sub>x</sub> lb/kw-hr	CO lb/kw-hr	SO <sub>x</sub> lb/kw-hr	PM lb/kw-hr	PM <sub>10</sub> lb/kw-hr	VOC lb/kw-hr	EF References
TA-33-G-1P	2.01E-02	2.01E-03	5.36E-04	6.17E-04	6.17E-04	1.48E-03	(a)
TA-33-G-2	4.17E-02	1.21E-02	2.87E-03	2.87E-03	2.87E-03	3.31E-03	(b)
TA-33-G-3	4.17E-02	1.21E-02	2.87E-03	2.87E-03	2.87E-03	3.31E-03	(b)
TA-33-G-4	4.17E-02	2.51E-02	2.87E-03	2.87E-03	2.87E-03	3.31E-03	(b)
RLUOB-GEN-1	2.03E-02	2.51E-02	5.29E-04	1.19E-03	9.92E-04	2.87E-03	(c)
RLUOB-GEN-2	2.03E-02	2.51E-02	5.29E-04	1.19E-03	9.92E-04	2.87E-03	(c)
RLUOB-GEN-3	2.03E-02	2.51E-02	5.29E-04	1.19E-03	9.92E-04	2.87E-03	(c)
TA-48-GEN-1	8.82E-03	7.72E-03	6.61E-06	4.41E-04	3.00E-03	8.82E-03	(d)
TA-55-GEN-1	4.20E-02	9.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	(e)
TA-55-GEN-2	4.20E-02	9.00E-03	3.00E-03	3.00E-03	3.00E-03	3.00E-03	(e)
TA-55-GEN-3	3.20E-02	7.00E-03	5.40E-04	1.00E-03	1.00E-03	1.00E-03	(e)
TA-50-184-GEN-1	3.20E-02	7.00E-03	5.40E-04	1.00E-03	1.00E-03	1.00E-03	(e)
TA-55-GEN-4	3.20E-02	7.00E-03	5.40E-04	1.00E-03	1.00E-03	1.00E-03	(e)
TA-55-GEN-5	3.20E-02	7.00E-03	5.40E-04	1.00E-03	1.00E-03	1.00E-03	(e)

### References:

447 kw is the size limit for determining large vs. small diesel fired generator. This information was taken from the operating permit application.
(a) TA-33-G-1P NO <sub>x</sub> , CO, PM, VOC emission rates are from manufacturer's data; the values were given in gm/HP-hr; The following conversion factors were used to obtain lb/kW-hr; 453.6 g/lb and 1.341 hp-hr/kWh to convert emission factor units to lb/kWh; total HC was used as VOC; actual VOC would be much lower; SO <sub>2</sub> from Table 3.4-1 AP-42 based on 0.05% S in fuel
(b) TA-33 G2, G3, G4 CO emission rate are from EPA Tier 1 nonroad standards; all others from AP-42, Section 3.3 (see TV permit renewal app calcs from 2013)

## 2018 Emission Inventory | AI856 LANL - Internal Combustion Engine

Year 2018  
Type Internal Combustion Engine

(c) RLUOB-GEN-1, GEN-2, GEN-3 emission rates for NOx, CO, PM and VOC from applicable Tier 1 standards (see TV renewal app 2013); Emission factors for SOx and PM10 from AP-42
(d) TA-48 NOx, CO, VOC and PM factors from Tier 3 engine standards (see TV renewal app); EF for SOx, PM10 and HAPs from AP-42.
(e) Emission factors for generators at TA-55 are from AP-42. Emission factors for small diesel fired engines were taken from AP-42 (fifth edition) Tables 3.3-1 and 3.3-2. Large generators emission factors were taken from AP-42 (fifth edition) Tables 3.4-1, 3.4-2, 3.4-3, and 3.4-4.

### Equation for Calculations

Emission Rate in tons/year = EF (lb/kW-hour) \* Equip. Rating (kW-hr) \* Number of hours (hour/year) / (1 ton/2000 lb)

Permit ID	NMED ID	kW rating	Total hrs/year	NOx tons/yr	CO tons/yr	SOx tons/yr	PM tons/yr	PM <sub>10</sub> tons/yr	VOC tons/yr
TA-33-G-1P	EQPT-146	1111.5	17.7	0.198	0.020	0.005	0.006	0.006	0.015
TA-33-G-2	EQPT-119	25	0.1	0.000	0.000	0.000	0.000	0.000	0.000
TA-33-G-3	EQPT-120	25	0.0	0.000	0.000	0.000	0.000	0.000	0.000
TA-33-G-4	EQPT-135	281.25	21.0	0.123	0.074	0.008	0.008	0.008	0.010
RLUOB-Gen-1	EQPT-128	1656.1	0.1	0.002	0.002	0.000	0.000	0.000	0.000
RLUOB-Gen-2	EQPT-153	1656.1	52.5	0.882	1.093	0.023	0.052	0.043	0.125
RLUOB-Gen-3	EQPT-154	1656.1	26.5	0.445	0.551	0.012	0.026	0.022	0.063
TA-48-Gen-1	EQPT-147	186	0.0	0.000	0.000	0.000	0.000	0.000	0.000
TA-55-Gen-1	EQPT-156	40.2	0.0	0.000	0.000	0.000	0.000	0.000	0.000
TA-55-Gen-2	EQPT-155	40.2	0.0	0.000	0.000	0.000	0.000	0.000	0.000
TA-55-Gen-3	EQPT-143	900	11.1	0.160	0.035	0.003	0.005	0.005	0.005
TA-50-184-GEN-1	EQPT-160	450	14.0	0.101	0.022	0.002	0.003	0.003	0.003
TA-55-GEN-4	EQPT-161	450	0.0	0.000	0.000	0.000	0.000	0.000	0.000
TA-55-GEN-5	EQPT-162	450	0.0	0.000	0.000	0.000	0.000	0.000	0.000
<b>Total Emission (tons/year)</b>				<b>1.809</b>	<b>1.740</b>	<b>0.048</b>	<b>0.093</b>	<b>0.080</b>	<b>0.212</b>

## 2018 Emission Inventory | AI856 LANL - Data Disintegrator

Year 2018  
 Type Shredder  
 NMED ID 89  
 Title V Designation TA-52-11  
 Description Data Disintegrator/Industrial Shredder

Total Boxes Shredded <sup>(c)</sup>	9,281
-------------------------------------	-------

### Emission Calculations

	Percent Material in Exhaust <sup>(b)</sup>	% in Exhaust <sup>(e)</sup>	Control Efficiency <sup>(d)</sup> (Cyclone)	Control Efficiency <sup>(d)</sup> (Baghouse)
PM 2.5	15%	15%	0%	95.0%
PM 10	15%	90%	75%	95.0%
TSP	15%	100%	75%	95.0%

Average Box Weight <sup>(a)</sup>
45 Pounds

TA-52-11	Amount Processed (pounds)	PM-2.5 Emissions (pounds)	PM-2.5 Emissions (tons)	PM-10 Emissions (pounds)	PM-10 Emissions (tons)	TSP Emissions (pounds)	TSP Emissions (tons)
CY Annual Total	417,645	469.9	0.23	704.8	0.35	783.1	0.39

Reference				
(a). Estimated maximum box weight is 45 pounds. Information provided by shredding operations. Full box weight of tightly packed paper.	(b). Emission Factor (percentage of material shredded that will enter into the exhaust) obtained from the manufacturer of the air handling system, AGET Manufacturing Co. 15% is also listed in the construction permit application.	(c). Information provided by the shredding operations personnel.	(d). Information on control equipment efficiencies was provided by the manufacturer (SEM) of the Data Disintegrator. Those values not given were extrapolated using manufacturer data. Efficiencies of 75% for the Cyclone and 95% for the bag house are listed in the construction permit application. (see cyclone efficiency tab for more info.)	(e). Manufacturer provided info that the dust into the exhaust would be in the size range of 5-20 um. Conservative assumption that 15% is PM2.5, and 90% is PM10.

**Maximum Annual emission rate is 9.9 tpy or 2.3 lb/hr of Total Suspended Particulate (TSP) per year.**  
**9.9 tpy or 2.3 lb/hr of Particulate Matter <10µm (PM-10) per year.**

## 2018 Emission Inventory | AI856 LANL - Power Plant Boilers

Year 2018  
 Type Boilers - Power Plant  
 NMED ID EQPT-24; EQPT-25; EQPT-26 (pph, Natural Gas); EQPT-137, EQPT-138, EQPT-141 (pph; No. 2 fuel oil)  
 Designation TA-3-22-1; TA3-22-2; TA-3-22-3  
 Description Power Plant Boiler (pph, Natural Gas)  
 Power Plant Boiler (pph, No. 2 fuel oil)

Pollutant	Emission Factor (EF)	
	Natural <sup>(a)</sup> Gas (lb/MMscf)	Fuel Oil <sup>(f)</sup> (lbs/ 1000 gal)
NOx <sup>(c)</sup>	58	8.64
SOx <sup>(g)</sup>	0.6	7.4
PM <sup>(d)</sup>	7.6	3.3
PM-10 <sup>(d)</sup>	7.6	2.3
PM-2.5 <sup>(d)</sup>	7.6	1.55
CO <sup>(e)</sup>	40	5.0
VOC	5.5	0.2
Formaldehyde	0.075	0.048
Hexane	1.8	-

Reference
(a) AP-42, 7/98, Section. 1.4, <i>Natural Gas Combustion</i> , Tables 1.4-1, 1.4-2
(b) Fuel usage obtained from utilities on a monthly basis
(c) Average of source tests conducted on all 3 boilers September 2002 burning natural gas after FGR installed. Assumed FGR resulted in similar Nox reduction for oil.
(d) All PM from natural gas is assumed <1μ, so PM-10, PM-2.5 and total PM have equal EFs, AP-42, Natural Gas Combustion, Table 1.4-2. The PM emission factor for fuel oil is the sum of filterable and condensable PM.
(e) AP-42, 1/95, Section. 1.4, <i>Natural Gas Combustion</i> , Table 1.4-2. Consistent with previous stack tests.
(f) AP-42, 9/98, Section. 1.3, <i>Fuel Oil Combustion</i> , Table 1.3-1 with Errata, Table 1.3-3, and Table 1.3-6.
(g) Boilers>100 MMBtu/hr: SOx Emission Factor (SO <sub>2</sub> {142S} + SO <sub>3</sub> {5.7S}) = 147.7 * S (from AP-42, Table 1.3-1 w/Errata) (S = weight % sulfur in oil)(Sulfur content per analysis on oil in tanks in August 01', no new oil delivered in 02/03')

Permit Designation	Boiler TA-3-22-1		Boiler TA-3-22-2		Boiler TA-3-22-3	
Boiler ID	EQPT-24	EQPT-141	EQPT-25	EQPT-137	EQPT-26	EQPT-138
Type of fuel	Natural Gas	#2 Fuel oil	Natural Gas	#2 Fuel oil	Natural Gas	#2 Fuel oil
Units	mscf	gallons	mscf	gallons	mscf	gallons
Annual Use	154,602	0	114,276	0	80,360	371

### Equations for Emissions Calculations

Annual Emissions for NG Use (ton/year) = NG Use (Mscf/year) / 1 MMscf/1000 Mscf \* EF (lb/MMscf) \* (1 ton/2000 lb)

Annual Emissions for FO Use (ton/year) = FO Use (gal/year) \* EF (lb/1000 gal) \* (1 ton/2000 lb)

Pollutant	Boiler TA-3-22-1		Boiler TA-3-22-2		Boiler TA-3-22-3	
	EQPT-24	EQPT-141	EQPT-25	EQPT-137	EQPT-26	EQPT-138
	Annual Emissions (NG) (tons/yr)	Annual Emissions Fuel Oil (tons/yr)	Annual Emissions (NG) (tons/yr)	Annual Emissions Fuel Oil (tons/yr)	Annual Emissions (NG) (tons/yr)	Annual Emissions Fuel Oil (tons/yr)
<b>NO<sub>x</sub></b> <sup>(c)</sup>	4.483	0.000	3.314	0.000	2.330	0.002
<b>SO<sub>x</sub></b> <sup>(g)</sup>	0.046	0.000	0.034	0.000	0.024	0.001
<b>PM</b> <sup>(d)</sup>	0.587	0.000	0.434	0.000	0.305	0.001
<b>PM-10</b> <sup>(d)</sup>	0.587	0.000	0.434	0.000	0.305	0.000
<b>PM-2.5</b> <sup>(d)</sup>	0.587	0.000	0.434	0.000	0.305	0.000
<b>CO</b> <sup>(e)</sup>	3.092	0.000	2.286	0.000	1.607	0.001
<b>VOC</b>	0.425	0.000	0.314	0.000	0.221	0.000
<b>Formaldehyde</b>	0.006	0.000	0.004	0.000	0.003	0.000
<b>Hexane</b>	0.139	0.000	0.103	0.000	0.072	0.000



## 2018 Emission Inventory | A1856 LANL - Power Plant Combustion Turbine

Year 2018  
 Type Turbine  
 NMED ID EQPT-112  
 Title V Designation TA-3-22-CT-1  
 Description Combustion Turbine  
 Annual Gas Use 172.0 MMscf

### Equations for Emissions Calculations

Annual Emissions (tons/year) = Annual Gas Use (MMscf) \* EF (lb/MMscf) \* (1 ton/2000 lb)

Pollutant Criteria	Emission Factors (lb/MMscf)	Annual Emissions (Tons)	Calculation Basis
		TA-3-22-CT-1 Turbine	
<b>NOx</b>	50.5	4.342	a
<b>SOx</b>	3.5	0.301	b
<b>PM</b>	6.8	0.585	c
<b>PM<sub>10</sub></b>	6.8	0.585	c
<b>PM<sub>2.5</sub></b>	6.8	0.585	c
<b>CO</b>	10.5	0.903	a
<b>VOC</b>	2.2	0.189	d
<b>Acetaldehyde</b>	4.12E-02	0.004	e, f, g
<b>Copper</b>	7.11E-02	0.006	f, h
<b>Ethylbenzene</b>	3.30E-02	0.003	e, f, g
<b>Formaldehyde</b>	7.31E-01	0.063	e, f, g
<b>Manganese</b>	8.24E-02	0.007	f, h
<b>Nickel</b>	1.18E-01	0.010	f, h
<b>Propylene Oxide</b>	2.99E-02	0.003	e, f, g
<b>Toluene</b>	1.34E-01	0.012	e, f, g
<b>Xylenes (isomers)</b>	6.59E-02	0.006	e, f, g

### References:

(a) Values are from the initial compliance test (TRC - October 22, 2007). Test shows average NOx as 11.29 lbs/hr and CO as 2.35 lbs/hr. These were divided by the gas flow rate of 0.223620 MMscf/hr to get 50.48 lb/MMscf (rounded to 50.5) for NOx and 10.5 lb/MMscf for CO. The SCFH value (fuel flow rate) from the compliance test report (223620 SCFH or 223.6 MSCFH)

(b) The SOx emission factor was taken from AP-42 Table 3.1-2a. The default value is used when percent sulfur is unknown (0.0034 lb/mmbtu). This is equivalent to converting the 2 grains per 100 scf to percent. The 0.0034 lb/mmbtu was converted to lb/mmcsf by multiplying by 1030 btu/scf (the heat value of natural gas), to provide 3.5 lb/mmcsf.

(c) PM was calculated by taking the AP-42, Table 3.1-2a, EF of 6.6E-3 lb/MMBtu and multiplying it by 1030 BTU/scf to get 6.8 lb/MMscf. PM10 was calculated the same as PM, as most PM from natural gas combustion is less than 1 micrometer.

(d) The VOC emission factor was taken from AP-42 Table 3.1-2a. The factor, 2.1 E-03 lb/mmbtu, was converted to lb/mmcsf by multiplying by 1030 giving 2.2 lbs/mmcsf.

(e) These chemicals are HAPs

(f) These chemicals are EPCRA 313 listed chemicals.

(g) Emission factor from AP-42, table 3.1-3 (lb/mmbtu). This was multiplied by 1030 Btu/scf to provide the lb./mmcsf factor.

(h) Emission factors from EPA FIRE database (SCC: 20300202 & 20200201). These values were also converted from lb/mmbtu to lb/mmcsf. Retrieved 4-14-08.

## 2018 Emission Inventory | AI856 LANL - Evaporative Sprayers

Year 2018  
 Type Fugitives  
 NMED ID RPNT-35, RPNT-36, RPNT-37, RPNT-38, RPNT-39  
 Title V Designation TA-60-EVAP-1, TA-60-EVAP-2, TA-60-EVAP-3, TA-60-EVAP-4, TA-60-EVAP-5  
 Description Water Spray Evaporators

### Emission Factors

HAPs	2015 Sampling		2018 Sampling	
	PPM <sup>1</sup>	Weight Fraction	PPM <sup>1</sup>	Weight Fraction
Total PCB	3.94E-07	3.94E-13	3.94E-07	3.94E-13
Chloroform	0.00181	1.81E-09	0.0024	2.40E-09
Chloromethane	0.00124	1.24E-09	0.0044	4.40E-09
Bromoform	0.0016	1.60E-09	0.0005	5.00E-10
Cyanide (Total)	0.00368	3.68E-09	0.0216	2.16E-08
Manganese	0.0133	1.33E-08	0.0094	9.40E-09
Antimony	0.00629	6.29E-09	0.00629	6.29E-09

References for Emission Factors
<sup>1</sup> Values from pond sampling laboratory results for GC Semivolatile Herbicide, GC Semivolatile Pesticide, GC/MS Semivolatile, GC/MS Volatile, General Chemistry, Metals and Radiochemistry, GEL Laboratories. Emission factors from the 2015 analysis were used up until the July 2018 Sampling was complete.
<sup>2</sup> Water Density = 8.34 lb/gallon
<sup>3</sup> Max Pump Rate Per Sprayer = 7.51 gallons/min.
<sup>4</sup> Evaporation Rate = 42.5 Percent

### 2018 Hours of Operation

Permit Designation	TA-60-EVAP-1	TA-60-EVAP-2	TA-60-EVAP-3	TA-60-EVAP-4	TA-60-EVAP-5
Hours Jan - June	3,256	1,969	0	0	0
Hours July - Dec.	2,971	1,820	0	241	2

### Equation for Emissions Calculation

Annual Emissions (tons/year) =  $\frac{\text{Water Density (lb/gal)} * \text{Max Pump Rate (g/min)} * (60 \text{ min/hr}) * \text{Hours of Operation}}{(\text{hr}) * \text{Evaporation Rate}/100 * \text{Weight Fraction} * (1 \text{ ton}/2000 \text{ lb})}$

### 2018 Evaporative Sprayers Emissions for Annual EI Reporting (tons/year)

Polutant	RPNT-35 TA-60-EVAP-1	RPNT-36 TA-60-EVAP-2	RPNT-37 TA-60-EVAP-3	RPNT-38 TA-60-EVAP-4	RPNT-39 TA-60-EVAP-5
Total PCB	1.96E-09	1.19E-09	0.00E+00	7.58E-11	4.72E-13
Chloroform	1.04E-05	6.33E-06	0.00E+00	4.62E-07	2.87E-09
Chloromethane	1.37E-05	8.34E-06	0.00E+00	8.47E-07	5.27E-09
Bromoform	5.35E-06	3.24E-06	0.00E+00	9.62E-08	5.99E-10
Cyanide (Total)	6.08E-05	3.72E-05	0.00E+00	4.16E-06	2.59E-08
Manganese	5.69E-05	3.46E-05	0.00E+00	1.81E-06	1.13E-08
Antimony	3.13E-05	1.90E-05	0.00E+00	1.21E-06	7.53E-09
<b>Total HAPs</b>	5.27E-04	3.21E-04	0.00E+00	2.21E-05	1.38E-07

**ATTACHMENT B:**

***2018 Annual Emissions Inventory Submittal to NMED***



***Environmental Protection & Compliance Division  
Environmental Compliance Programs (EPC-CP)***

PO Box 1663, K490  
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To/MS: 2018 Emissions Inventory File  
From/MS: Walt Whetham, EPC-CP, MS J978 *WW*  
Phone: 505-665-8885  
Symbol: EPC-DO: 19-084  
LA-UR: 19-21065  
Date: **MAR 19 2019**

**Subject: 2018 Emissions Inventory Electronic Submittal**

Los Alamos National Laboratory (LANL) submitted their 2018 Emissions Inventory Report to New Mexico Environmental Department (NMED) via online reporting tool, AEIR. This report is required by Title 20, Chapter 2, Part 73 of the New Mexico Administrative Code (20.2.73 NMAC), Notice of Intent and Emissions Inventory Requirements. The report was submitted on March 19, 2019, and meets New Mexico Environmental Department's deadline of April 1<sup>st</sup>.

Should you have any questions or comments regarding the information provided in this report, please contact Walt Whetham at (505) 665-8885 or [walt@lanl.gov](mailto:walt@lanl.gov).

WWW:jdm

Attachment(s): Attachment 1 2018 Emissions Inventory Report Electronic Submittal

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# **ATTACHMENT 1**

## **2018 Emissions Inventory Report Electronic Submittal**

**EPC-DO: 19-084**

**LA-UR-19-21065**

**Date: MAR 19 2019**



## Subject Item List

[Home](#)   [Admin Tools](#)   [About AEIR](#)
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### Facility Annual Emissions - Subject Item List

**Agency ID:** 856

**Facility Name:** Los Alamos National Laboratory

**Organization Name:** U.S. Department of Energy National Nuclear Security Administration

**Submittal Status:** 2018 Submittal (In Process)

#### Subject Item/Equipment (57 Subject Items)

Type	ID	Designation	Description	Status	Complete
Federal Agency	AI -856	2195BM3	Los Alamos National Laboratory	Active 06/12/17	
<input type="radio"/> Asphalt Drum/Burner	EQPT-116	TA-60-BDM	Asphalt Plant Dryer - Natural Gas	Active 07/19/05	<input checked="" type="checkbox"/>
<input type="radio"/> Beryllium Work	ACT -2	TA-35-213	Beryllium Activity-Be Target Fabrication Facility - Machining TA-35-213	Active 05/10/00	<input checked="" type="checkbox"/>
<input type="radio"/> Beryllium Work	ACT -3	TA-3-141	Beryllium Activity-Be Test Facility - Machining TA-3-141	Active 05/10/00	<input checked="" type="checkbox"/>
<input type="radio"/> Beryllium Work	ACT -6	TA-55-PF4 (a)	Beryllium Activity-Plutonium Facility Beryllium machining, weld cutting / dressing and metallography	Active 04/14/06	<input checked="" type="checkbox"/>
<input type="radio"/> Beryllium Work	ACT -41	TA-3-66	Beryllium Activity-Sigma Facility-electroplating/metallography	Active 05/24/10	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-11	TA-53-365-BHW-1	Boiler TA-53-365-BHW-1	Active 05/31/01	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-12	TA-53-365-BHW-2	Boiler TA-53-365-BHW-2	Active 05/31/01	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-24	TA-3-22-1 (gas)	Power Plant Boiler (pph, Natural Gas)	Active 07/26/18	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-25	TA-3-22-2 (gas)	Power Plant Boiler (pph, Natural Gas)	Active 07/26/18	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-26	TA-3-22-3 (gas)	Power Plant Boiler (pph, Natural Gas)	Active 07/26/18	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-29	TA-55-6-BHW-1	Sellers Boiler TA-55-6-BHW-1	Active 12/17/01	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-30	TA-55-6-BHW-2	Sellers Boiler TA-55-6-BHW-2	Active 12/17/01	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-53	TA-16-1484-BS-2	Low NOx Boiler TA-16-1484-BS-2	Active 11/27/96	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-90	RLUOB-BHW-1 (gas)	Boiler-CMRR-BHW-1	Active 03/01/05	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-104	RLUOB-BHW-2 (gas)	Boiler-CMRR-BHW-2	Active 03/01/05	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-105	RLUOB-BHW-3 (gas)	Boiler-CMRR-BHW-3	Active 03/01/05	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-106	RLUOB-BHW-4 (gas)	Boiler-CMRR-BHW-4	Active 03/01/05	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-107	B-5	Boiler-CMRR	Active 03/01/05	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-134	TA-16-1484-BS-1	Low NOx Boiler TA-16-1484-BS-1	Active 11/27/96	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-137	TA-3-22-2	Power Plant Boiler (pph, No. 2 fuel oil)	Active 07/26/18	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-138	TA-3-22-3	Power Plant Boiler (pph, No. 2 fuel oil)	Active 07/26/18	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-141	TA-3-22-1	Power Plant Boiler (pph, No. 2 fuel oil)	Active 07/26/18	<input checked="" type="checkbox"/>
<input type="radio"/> Boiler	EQPT-144	Boiler combined emissions	TA-16-1484-Bs-1,2; TA -53-365-BHW-1,2; TA-55-6-BHW-1,2; RLUOB-BHW-1,2,3,4	Active 03/05/09	<input checked="" type="checkbox"/>

<input type="radio"/>	Boiler	EQPT-149	RLUOB-BHW-1 (oil)	Boiler-CMRR-BHW-1	Active	03/01/05	<input checked="" type="checkbox"/>
<input type="radio"/>	Boiler	EQPT-150	RLUOB-BHW-2 (oil)	Boiler-CMRR-BHW-2	Active	03/01/05	<input checked="" type="checkbox"/>
<input type="radio"/>	Boiler	EQPT-151	RLUOB-BHW-3 (oil)	Boiler-CMRR-BHW-3	Active	03/01/05	<input checked="" type="checkbox"/>
<input type="radio"/>	Boiler	EQPT-152	RLUOB-BHW-4 (oil)	Boiler-CMRR-BHW-4	Active	03/01/05	<input checked="" type="checkbox"/>
<input type="radio"/>	Boiler	EQPT-169	TA-3-22-4&5 (Oil TPY)	Power Plant Boiler (TPY, No. 2 fuel oil)	Active	07/26/18	<input checked="" type="checkbox"/>
<input type="radio"/>	Boiler	EQPT-170	TA-3-22-4&5 (gas TPY)	Power Plant Boiler (TPY, Natural Gas)	Active	07/26/18	<input checked="" type="checkbox"/>
<input type="radio"/>	Fugitives	RPNT-34	Facilitywide Open Burning	Fugitives - Open Burning	Active	02/27/15	<input checked="" type="checkbox"/>
<input type="radio"/>	Fugitives	RPNT-35	TA-60-EVAP-1	Evaporative Sprayer for basin water	Active	02/03/17	<input checked="" type="checkbox"/>
<input type="radio"/>	Fugitives	RPNT-36	TA-60-EVAP-2	Evaporative Sprayer for basin water	Active	02/03/17	<input checked="" type="checkbox"/>
<input type="radio"/>	Fugitives	RPNT-37	TA-60-EVAP-3	Evaporative Sprayer for basin water	Active	02/03/17	<input checked="" type="checkbox"/>
<input type="radio"/>	Fugitives	RPNT-38	TA-60-EVAP-4	Evaporative Sprayer for basin water	Active	02/03/17	<input checked="" type="checkbox"/>
<input type="radio"/>	Fugitives	RPNT-39	TA-60-EVAP-5	Evaporative Sprayer for basin water	Active	02/03/17	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-96	Standby-Generators	Diesel Generators	Active	03/01/05	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-119	TA-33-G-2	Kohler Diesel Generator TA-33, TA-36, TA-39	Active	04/22/08	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-120	TA-33-G-3	Kohler Diesel Generator TA-33, TA-36, TA-39	Active	09/18/06	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-128	RLUOB-GEN 1	Cummins Diesel Powered Generator and Engine - CMRR	Active	12/11/07	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-135	TA-33-G-4	Caterpillar Diesel Generator TA-33, TA-36, TA-39	Active	04/22/08	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-143	TA-55-GEN-3	CI-RICE Stationary Generator - Caterpillar 1335 hp	Active	11/30/10	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-146	TA-33-G-1P	Cummins Portable Diesel Generator	Active	12/12/13	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-147	TA-48-GEN-1	Cummins Diesel Powered Generator and Engine	Active	02/27/15	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-153	RLUOB-GEN 2	Cummins Diesel Powered Generator and Engine - CMRR	Active	12/11/07	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-154	RLUOB-GEN 3	Cummins Diesel Powered Generator and Engine - CMRR	Active	12/11/07	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-155	TA-55-GEN-2	CI-RICE Stationary Generator - Whisper Watt 40.2 hp	Active	02/27/15	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-156	TA-55-GEN-1	CI-RICE Stationary Generator - Whisper Watt 40.2 hp	Active	02/27/15	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-160	TA-50-184-GEN-1	Cummins Diesel Generator and Engine, exempt	Active	07/18/18	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-161	TA-55-GEN-4	Cummins Diesel Generator and Engine, exempt	Active	07/18/18	<input checked="" type="checkbox"/>
<input type="radio"/>	Internal combustion engine	EQPT-162	TA-55-GEN-5	Cummins Diesel Generator and Engine, exempt	Active	07/18/18	<input checked="" type="checkbox"/>
<input type="radio"/>	Research/Testing	ACT -7	LANL-FW-CHEM	R & D Activities - Labwide (031)	Active	05/31/01	<input checked="" type="checkbox"/>
<input type="radio"/>	Research/Testing	ACT -42	RLUOB-CHEM	Chemical Usage, Bldg. TA-55-400 (lab portion of RLUOB Bldg.)	Active	05/31/01	<input checked="" type="checkbox"/>
<input type="radio"/>	Shredder	EQPT-89	TA-52-11	Data Disintegrator/Industrial Shredder	Active	10/22/03	<input checked="" type="checkbox"/>
<input type="radio"/>	Stack/Vent	RPNT-40	SSM from TA-3-22-CHP-1	Routine Start up Shut down Maintenance	Active	07/26/18	<input checked="" type="checkbox"/>
<input type="radio"/>	Turbine	EQPT-112	TA-3-22-CT-1	Combustion Turbine	Active	07/29/06	<input checked="" type="checkbox"/>
<input type="radio"/>	Turbine	EQPT-166	TA-3-22-CHP-1	Combustion Turbine + Heat recovery steam generator (HRSG)	Active	07/29/06	<input checked="" type="checkbox"/>

Add an unpermitted source for EPA GHG calculations



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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-116**Designation:** TA-60-BDM**Description:** Asphalt Plant Dryer - Natural Gas**Type:** Asphalt Drum/Burner**SCC:** Industrial Processes, Mineral Products, Asphalt Concrete, Drum Mix Plant: Rotary Drum Dryer / Mixer, Natural Gas - Fired**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters***

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Asphalt (INPUT)	
<b>Materials Consumed:</b>	2.96	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.0	percent

***Operating Detail***

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	8
<b>Operating Time in Days per Week:</b>	5
<b>Operating Time in Weeks per Year:</b>	26
<b>Operating Time in Hours per Year:</b>	71
<b>Percent of Operation During Winter:</b>	10
<b>Percent of Operation During Spring:</b>	30
<b>Percent of Operation During Summer:</b>	30
<b>Percent of Operation During Fall:</b>	30

***Actual Pollutants***

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.17	tons/y	EPA emission factors (e.g., AP-42)
<b>Ethylbenzene:</b>	0.001	tons/y	EPA emission factors (e.g., AP-42)
<b>Lead:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.005	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.003	tons/y	Manufacturer Specification
<b>Particulate Matter (2.5 microns or less):</b>	0.003	tons/y	Manufacturer Specification

**Sulfur Dioxide:** 0.002 tons/y EPA emission factors (e.g., AP-42)

**Volatile Organic Compounds (VOC):** 0.003 tons/y EPA emission factors (e.g., AP-42)

***Subject Item Comments***

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** ACT -2**Designation:** TA-35-213

Beryllium Activity-Be Target

**Description:** Fabrication Facility - Machining  
TA-35-213**Type:** Beryllium Work**SCC:** Industrial Processes, Fabricated  
Metal Products, Machining  
Operations, Specify Material\*\***GHG Reporting:** Reports GHG to EPA***Supplemental Parameters*****Input Materials Processed:** Metal (INPUT)***Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	5
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	1820
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Beryllium:</b>	0.0	tons/y	Estimate

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** ACT -3**Designation:** TA-3-141**Description:** Beryllium Activity-Be Test  
Facility - Machining TA-3-141**Type:** Beryllium Work**SCC:** Industrial Processes, Fabricated  
Metal Products, Machining  
Operations, Specify Material\*\***GHG Reporting:** Reports GHG to EPA***Supplemental Parameters*****Input Materials Processed:** Metal (INPUT)***Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Beryllium:</b>	0.0	tons/y	Field measurement

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** ACT -6**Designation:** TA-55-PF4 (a)

Beryllium Activity-Plutonium

**Description:** Facility Beryllium machining,  
weld cutting / dressing and  
metallography**Type:** Beryllium Work**SCC:** Industrial Processes, Fabricated  
Metal Products, Machining  
Operations, Specify Material\*\***GHG Reporting:** Reports GHG to EPA**Supplemental Parameters****Input Materials Processed:** Metal (INPUT)**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	5
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	1820
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Beryllium:</b>	0.0	tons/y	Estimate

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** ACT -41**Designation:** TA-3-66**Description:** Beryllium Activity-Sigma Facility-  
electroplating/metallography**Type:** Beryllium Work**SCC:** Industrial Processes, Fabricated  
Metal Products, Abrasive  
Cleaning of Metal Parts,  
Polishing**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters*****Input Materials Processed:** Metal (INPUT)***Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	8
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	2912
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Beryllium:</b>	0.0	tons/y	Estimate

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-11**Designation:** TA-53-365-BHW-1**Description:** Boiler TA-53-365-BHW-1**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Natural Gas,  
Boilers < 100 Million Btu/hr  
except Tangential**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters***

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	10.115	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	65.0	percent

***Operating Detail***

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	15
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	33
<b>Operating Time in Hours per Year:</b>	3465
<b>Percent of Operation During Winter:</b>	40
<b>Percent of Operation During Spring:</b>	20
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	40

***Actual Pollutants***

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.425	tons/y	EPA emission factors (e.g., AP-42)
<b>Formaldehyde:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Hexane:</b>	0.009	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.506	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.038	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.038	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.003	tons/y	EPA emission factors (e.g., AP-42)

**Volatile Organic Compounds (VOC):** 0.028 tons/y EPA emission factors (e.g., AP-42)

***Subject Item Comments***

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-12**Designation:** TA-53-365-BHW-2**Description:** Boiler TA-53-365-BHW-2**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Natural Gas,  
Boilers < 100 Million Btu/hr  
except Tangential**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	10.115	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	65.0	percent

**Operating Detail**

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	15
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	33
<b>Operating Time in Hours per Year:</b>	3465
<b>Percent of Operation During Winter:</b>	40
<b>Percent of Operation During Spring:</b>	20
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	40

**Actual Pollutants**

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.425	tons/y	EPA emission factors (e.g., AP-42)
<b>Formaldehyde:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Hexane:</b>	0.009	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.506	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.038	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.038	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.003	tons/y	EPA emission factors (e.g., AP-42)

**Volatile Organic Compounds (VOC):** 0.028 tons/y EPA emission factors (e.g., AP-42)

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-24**Designation:** TA-3-22-1 (gas)**Description:** Power Plant Boiler (pph, Natural Gas)**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Natural Gas,  
Boilers > 100 Million Btu/hr  
except Tangential**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	154.602	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	65.0	percent

**Operating Detail**

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	3.092	tons/y	EPA emission factors (e.g., AP-42)
<b>Formaldehyde:</b>	0.006	tons/y	EPA emission factors (e.g., AP-42)
<b>Hexane:</b>	0.139	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	4.483	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.587	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.587	tons/y	EPA emission factors (e.g., AP-42)

<b>Sulfur Dioxide:</b>	0.046	tons/y	EPA emission factors (e.g., AP-42)
<b>Toluene; (Methyl benzene):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.425	tons/y	EPA emission factors (e.g., AP-42)

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-25**Designation:** TA-3-22-2 (gas)**Description:** Power Plant Boiler (pph, Natural Gas)**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Natural Gas,  
Boilers > 100 Million Btu/hr  
except Tangential**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters***

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	114.276	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	65.0	percent

***Operating Detail***

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	2.286	tons/y	EPA emission factors (e.g., AP-42)
<b>Formaldehyde:</b>	0.004	tons/y	EPA emission factors (e.g., AP-42)
<b>Hexane:</b>	0.103	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	3.314	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.434	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.434	tons/y	EPA emission factors (e.g., AP-42)

**Sulfur Dioxide:** 0.034 tons/y EPA emission factors (e.g., AP-42)

**Volatile Organic Compounds (VOC):** 0.314 tons/y EPA emission factors (e.g., AP-42)

***Subject Item Comments***

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-26**Designation:** TA-3-22-3 (gas)**Description:** Power Plant Boiler (pph, Natural Gas)**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Natural Gas,  
Boilers > 100 Million Btu/hr  
except Tangential**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	80.361	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	65.0	percent

**Operating Detail**

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	1.607	tons/y	EPA emission factors (e.g., AP-42)
<b>Formaldehyde:</b>	0.003	tons/y	EPA emission factors (e.g., AP-42)
<b>Hexane:</b>	0.072	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	2.33	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.305	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.305	tons/y	EPA emission factors (e.g., AP-42)

**Sulfur Dioxide:** 0.024 tons/y EPA emission factors (e.g., AP-42)

**Volatile Organic Compounds (VOC):** 0.221 tons/y EPA emission factors (e.g., AP-42)

***Subject Item Comments***

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-29**Designation:** TA-55-6-BHW-1**Description:** Sellers Boiler TA-55-6-BHW-1**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Natural Gas,  
Boilers < 100 Million Btu/hr  
except Tangential**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	1.598	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent

**Operating Detail**

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	15
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	33
<b>Operating Time in Hours per Year:</b>	3465
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.031	tons/y	EPA emission factors (e.g., AP-42)
<b>Formaldehyde:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Hexane:</b>	0.001	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.11	tons/y	Actual stack test
<b>Particulate Matter (10 microns or less):</b>	0.011	tons/y	Manufacturer Specification
<b>Particulate Matter (2.5 microns or less):</b>	0.011	tons/y	Manufacturer Specification
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.005	tons/y	Manufacturer Specification

**Subject Item Comments**

**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-30**Designation:** TA-55-6-BHW-2**Description:** Sellers Boiler TA-55-6-BHW-2**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Natural Gas,  
Boilers < 100 Million Btu/hr  
except Tangential**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	19.051	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Carbon Content:</b>	65.0	percent

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	15
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	33
<b>Operating Time in Hours per Year:</b>	3465
<b>Percent of Operation During Winter:</b>	40
<b>Percent of Operation During Spring:</b>	10
<b>Percent of Operation During Summer:</b>	10
<b>Percent of Operation During Fall:</b>	40

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.364	tons/y	EPA emission factors (e.g., AP-42)
<b>Formaldehyde:</b>	0.001	tons/y	EPA emission factors (e.g., AP-42)
<b>Hexane:</b>	0.017	tons/y	EPA emission factors (e.g., AP-42)
<b>Lead:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	1.315	tons/y	Actual stack test
<b>Particulate Matter (10 microns or less):</b>	0.135	tons/y	Manufacturer Specification
<b>Particulate Matter (2.5 microns or less):</b>	0.135	tons/y	Manufacturer Specification
<b>Sulfur Dioxide:</b>	0.006	tons/y	EPA emission factors (e.g., AP-42)

**Volatile Organic Compounds (VOC):** 0.057 tons/y Manufacturer Specification

***Subject Item Comments***

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-53**Designation:** TA-16-1484-BS-2**Description:** Low NOx Boiler TA-16-1484-BS-2**Type:** Boiler**SCC:** External Combustion Boilers,  
Commercial/Institutional,  
Natural Gas, < 10 Million Btu/hr**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters***

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	9.028	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Ash of Fuel:</b>	0.0	percent

***Operating Detail***

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.167	tons/y	Design calculation
<b>Hexane:</b>	0.008	tons/y	Design calculation
<b>Lead:</b>	0.0	tons/y	Design calculation
<b>Nitrogen Dioxide:</b>	0.167	tons/y	Design calculation
<b>Particulate Matter (10 microns or less):</b>	0.034	tons/y	Design calculation
<b>Particulate Matter (2.5 microns or less):</b>	0.034	tons/y	Design calculation
<b>Sulfur Dioxide:</b>	0.003	tons/y	Design calculation
<b>Volatile Organic Compounds (VOC):</b>	0.025	tons/y	Design calculation

***Subject Item Comments***

**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-90**Designation:** RLUOB-BHW-1 (gas)**Description:** Boiler-CMRR-BHW-1**Type:** Boiler**SCC:** External Combustion Boilers,  
Commercial/Institutional,  
Natural Gas, < 10 Million Btu/hr**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters***

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	0.706	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	65.0	percent

***Operating Detail***

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.013	tons/y	EPA emission factors (e.g., AP-42)
<b>Hexane:</b>	0.001	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.011	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.002	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.002	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.009	tons/y	EPA emission factors (e.g., AP-42)

***Subject Item Comments***

**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-104**Designation:** RLUOB-BHW-2 (gas)**Description:** Boiler-CMRR-BHW-2**Type:** Boiler**SCC:** External Combustion Boilers,  
Commercial/Institutional,  
Natural Gas, < 10 Million Btu/hr**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	0.706	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	65.0	percent

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.013	tons/y	EPA emission factors (e.g., AP-42)
<b>Hexane:</b>	0.001	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.011	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.002	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.002	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.009	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**

**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-105**Designation:** RLUOB-BHW-3 (gas)**Description:** Boiler-CMRR-BHW-3**Type:** Boiler**SCC:** External Combustion Boilers,  
Commercial/Institutional,  
Natural Gas, < 10 Million Btu/hr**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	0.706	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	65.0	percent

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.013	tons/y	EPA emission factors (e.g., AP-42)
<b>Hexane:</b>	0.001	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.011	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.002	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.002	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.009	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**

**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-106**Designation:** RLUOB-BHW-4 (gas)**Description:** Boiler-CMRR-BHW-4**Type:** Boiler**SCC:** External Combustion Boilers,  
Commercial/Institutional,  
Natural Gas, < 10 Million Btu/hr**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters***

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	0.0	MM SCF
<b>Fuel Heating Value:</b>	0.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.0	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	0.0	percent

***Operating Detail***

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

***Actual Pollutants***

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

***Subject Item Comments***



This unit has not been built.

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-107**Designation:** B-5**Description:** Boiler-CMRR**Type:** Boiler**SCC:** External Combustion Boilers,  
Commercial/Institutional,  
Natural Gas, < 10 Million Btu/hr**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	0.0	MM SCF
<b>Fuel Heating Value:</b>	0.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.0	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	0.0	percent

**Operating Detail**

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

**Actual Pollutants**

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**

This unit has not been built.

**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-134**Designation:** TA-16-1484-BS-1**Description:** Low NOx Boiler TA-16-1484-BS-1**Type:** Boiler**SCC:** External Combustion Boilers,  
Commercial/Institutional,  
Natural Gas, < 10 Million Btu/hr**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	9.028	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	65.0	percent

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.167	tons/y	Design calculation
<b>Hexane:</b>	0.008	tons/y	Design calculation
<b>Lead:</b>	0.0	tons/y	Design calculation
<b>Nitrogen Dioxide:</b>	0.167	tons/y	Design calculation
<b>Particulate Matter (10 microns or less):</b>	0.034	tons/y	Design calculation
<b>Particulate Matter (2.5 microns or less):</b>	0.034	tons/y	Design calculation
<b>Sulfur Dioxide:</b>	0.003	tons/y	Design calculation

**Volatile Organic Compounds (VOC):**

0.025

tons/y

Design calculation

***Subject Item Comments***

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**Facility Annual Emissions - Subject Item Submittal Review**

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-137**Designation:** TA-3-22-2**Description:** Power Plant Boiler (pph, No. 2  
fuel oil)**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Distillate Oil,  
Grades 1 and 2 Oil**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters***

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Diesel	
<b>Materials Consumed:</b>	0.0	gal
<b>Fuel Heating Value:</b>	0.138	MM BTU/M gal
<b>Percent Sulfur of Fuel:</b>	0.05	percent

***Operating Detail***

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

***Actual Pollutants***

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Formaldehyde:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Hexane:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

***Subject Item Comments***

This unit did not run on diesel in 2018.

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-138**Designation:** TA-3-22-3**Description:** Power Plant Boiler (pph, No. 2  
fuel oil)**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Distillate Oil,  
Grades 1 and 2 Oil**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters***

	Amount	Unit of Measure
<b>Fuel Type:</b>	Diesel	
<b>Materials Consumed:</b>	371.0	gal
<b>Fuel Heating Value:</b>	0.138	MM BTU/M gal
<b>Percent Sulfur of Fuel:</b>	0.05	percent

***Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	8
<b>Operating Time in Days per Week:</b>	2
<b>Operating Time in Weeks per Year:</b>	5
<b>Operating Time in Hours per Year:</b>	1
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.001	tons/y	EPA emission factors (e.g., AP-42)
<b>Formaldehyde:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Hexane:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.002	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.001	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

***Subject Item Comments***

**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-141**Designation:** TA-3-22-1**Description:** Power Plant Boiler (pph, No. 2  
fuel oil)**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Natural Gas,  
Boilers > 100 Million Btu/hr  
except Tangential**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Diesel	
<b>Materials Consumed:</b>	0.0	gal
<b>Fuel Heating Value:</b>	0.138	MM BTU/M gal

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**

This unit did not run on diesel in 2018.



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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-144**Designation:** Boiler combined emissions

TA-16-1484-Bs-1,2; TA -53-365-

**Description:** BHW-1,2; TA-55-6-BHW-1,2;  
RLUOB-BHW-1,2,3,4**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Natural Gas,  
Boilers > 100 Million Btu/hr  
except Tangential**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	0.0	MM SCF
<b>Fuel Heating Value:</b>	0.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.0	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	0.0	percent

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

**Volatile Organic Compounds (VOC):** 0.0 tons/y EPA emission factors (e.g., AP-42)

***Subject Item Comments***

This Facility ID represents the total from the two TA-16 boilers, the two TA-53 boilers, the two TA-55 boilers, and the four RLUOB boilers. However, these emissions are already captured in other facility IDs. In order to avoid counting the emissions twice, NMED has asked us to enter zeros for this facility ID.

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-149**Designation:** RLUOB-BHW-1 (oil)**Description:** Boiler-CMRR-BHW-1**Type:** Boiler**SCC:** External Combustion Boilers,  
Commercial/Institutional,  
Natural Gas, < 10 Million Btu/hr**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Diesel	
<b>Materials Consumed:</b>	0.0	gal
<b>Fuel Heating Value:</b>	0.0	MM BTU/M gal

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**

The RLUOB boilers did not operate on fuel oil in 2018.

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-150**Designation:** RLUOB-BHW-2 (oil)**Description:** Boiler-CMRR-BHW-2**Type:** Boiler**SCC:** External Combustion Boilers,  
Commercial/Institutional,  
Natural Gas, < 10 Million Btu/hr**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Diesel	
<b>Materials Consumed:</b>	0.0	gal
<b>Fuel Heating Value:</b>	0.0	MM BTU/M gal

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**

The RLUOB boilers did not operate on fuel oil in 2018.

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-151**Designation:** RLUOB-BHW-3 (oil)**Description:** Boiler-CMRR-BHW-3**Type:** Boiler**SCC:** External Combustion Boilers,  
Commercial/Institutional,  
Natural Gas, < 10 Million Btu/hr**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Diesel	
<b>Materials Consumed:</b>	0.0	gal
<b>Fuel Heating Value:</b>	0.0	MM BTU/M gal

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**

The RLUOB boilers did not operate on fuel oil in 2018.

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-152**Designation:** RLUOB-BHW-4 (oil)**Description:** Boiler-CMRR-BHW-4**Type:** Boiler**SCC:** External Combustion Boilers,  
Commercial/Institutional,  
Natural Gas, < 10 Million Btu/hr**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Diesel	
<b>Materials Consumed:</b>	0.0	MM gal
<b>Fuel Heating Value:</b>	0.0	MM BTU/MM SCF

**Operating Detail**

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

**Actual Pollutants**

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**

The RLUOB boilers did not operate on fuel oil in 2018.

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-169**Designation:** TA-3-22-4&5 (Oil TPY)**Description:** Power Plant Boiler (TPY, No. 2  
fuel oil)**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Distillate Oil,  
Grades 1 and 2 Oil**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Diesel	
<b>Materials Consumed:</b>	0.0	gal
<b>Fuel Heating Value:</b>	0.0	MM BTU/M gal

**Operating Detail**

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

**Actual Pollutants**

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.0	tons/y	Design calculation
<b>Nitrogen Dioxide:</b>	0.0	tons/y	Design calculation
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	Design calculation
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	Design calculation
<b>Sulfur Dioxide:</b>	0.0	tons/y	Design calculation
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	Design calculation

**Subject Item Comments**

Boilers 4 and 5 have not been built.

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-170**Designation:** TA-3-22-4&5 (gas TPY)**Description:** Power Plant Boiler (TPY, Natural Gas)**Type:** Boiler**SCC:** External Combustion Boilers,  
Electric Generation, Natural Gas,  
Boilers > 100 Million Btu/hr  
except Tangential**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Materials Consumed:</b>	0.0	MM SCF
<b>Fuel Heating Value:</b>	0.0	MM BTU/MM SCF

**Operating Detail**

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

**Actual Pollutants**

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.0	tons/y	Design calculation
<b>Nitrogen Dioxide:</b>	0.0	tons/y	Design calculation
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	Design calculation
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	Design calculation
<b>Sulfur Dioxide:</b>	0.0	tons/y	Design calculation
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	Design calculation

**Subject Item Comments**

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** RPNT-34**Designation:** Facilitywide Open Burning**Description:** Fugitives - Open Burning**Type:** Fugitives**SCC:** Industrial Processes, Oil and Gas  
Production, Fugitive Emissions,  
Fugitive Emissions**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters******Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Individual HAP:</b>	0.0	tons/y	Engineer Calculation
<b>Total HAP:</b>	0.0	tons/y	Engineer Calculation

***Subject Item Comments***

No open burning activities took place in 2018.

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** RPNT-35**Designation:** TA-60-EVAP-1**Description:** Evaporative Sprayer for basin water**Type:** Fugitives**SCC:** Industrial Processes, Oil and Gas Production, Fugitive Emissions, Fugitive Emissions**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters******Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Total HAP:</b>	0.001	tons/y	Design calculation

***Subject Item Comments***

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** RPNT-36**Designation:** TA-60-EVAP-2**Description:** Evaporative Sprayer for basin water**Type:** Fugitives**SCC:** Industrial Processes, Oil and Gas Production, Fugitive Emissions, Fugitive Emissions**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters******Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Total HAP:</b>	0.0	tons/y	Design calculation

***Subject Item Comments***

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** RPNT-37**Designation:** TA-60-EVAP-3**Description:** Evaporative Sprayer for basin water**Type:** Fugitives**SCC:** Industrial Processes, Oil and Gas Production, Fugitive Emissions, Fugitive Emissions**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters******Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Total HAP:</b>	0.0	tons/y	Design calculation

***Subject Item Comments***

The sprayer did not operate in 2018.

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** RPNT-38**Designation:** TA-60-EVAP-4**Description:** Evaporative Sprayer for basin water**Type:** Fugitives**SCC:** Industrial Processes, Oil and Gas Production, Fugitive Emissions, Fugitive Emissions**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters******Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Total HAP:</b>	0.0	tons/y	Design calculation

***Subject Item Comments***

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** RPNT-39**Designation:** TA-60-EVAP-5**Description:** Evaporative Sprayer for basin water**Type:** Fugitives**SCC:** Industrial Processes, Oil and Gas Production, Fugitive Emissions, Fugitive Emissions**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters****Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Total HAP:</b>	0.0	tons/y	Design calculation

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**Facility Annual Emissions - Subject Item Submittal Review**

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-96**Designation:** Standby-Generators**Description:** Diesel Generators**Type:** Internal combustion engine**SCC:** Internal Combustion Engines,  
Industrial, Natural Gas,  
Reciprocating**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Diesel	
<b>Fuel Heating Value:</b>	138.0	MM BTU/M gal

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.729	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	3.2	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.141	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.11	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.141	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-119**Designation:** TA-33-G-2**Description:** Kohler Diesel Generator TA-33,  
TA-36, TA-39**Type:** Internal combustion engine**SCC:** Internal Combustion Engines,  
Electric Generation, Distillate Oil  
(Diesel), Reciprocating**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Diesel	
<b>Input Materials Processed:</b>	Diesel (INPUT)	
<b>Materials Consumed:</b>	0.17	gal
<b>Fuel Heating Value:</b>	0.138	MM BTU/M gal
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.01	percent
<b>Percent Carbon Content:</b>	83.0	percent

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	2
<b>Operating Time in Days per Week:</b>	1
<b>Operating Time in Weeks per Year:</b>	2
<b>Operating Time in Hours per Year:</b>	1
<b>Percent of Operation During Winter:</b>	50
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	50

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.0	tons/y	Design calculation
<b>Nitrogen Dioxide:</b>	0.0	tons/y	Design calculation
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**



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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-120**Designation:** TA-33-G-3**Description:** Kohler Diesel Generator TA-33,  
TA-36, TA-39**Type:** Internal combustion engine**SCC:** Internal Combustion Engines,  
Industrial, Natural Gas,  
Reciprocating**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters***

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Diesel	
<b>Input Materials Processed:</b>	Diesel (INPUT)	
<b>Materials Consumed:</b>	0.0	gal
<b>Fuel Heating Value:</b>	0.138	MM BTU/M gal
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.01	percent
<b>Percent Carbon Content:</b>	83.0	percent

***Operating Detail***

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

***Actual Pollutants***

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.0	tons/y	Design calculation
<b>Nitrogen Dioxide:</b>	0.0	tons/y	Design calculation
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

***Subject Item Comments***

This unit did not operate in 2018.

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-128**Designation:** RLUOB-GEN 1**Description:** Cummins Diesel Powered  
Generator and Engine - CMRR**Type:** Internal combustion engine**SCC:** Internal Combustion Engines,  
Industrial, Distillate Oil (Diesel),  
Reciprocating: Cogeneration**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters***

	Amount	Unit of Measure
<b>Fuel Type:</b>	Diesel	
<b>Materials Consumed:</b>	10.36	gal
<b>Fuel Heating Value:</b>	0.138	MM BTU/M gal

***Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.002	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.002	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

***Subject Item Comments***

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-135**Designation:** TA-33-G-4**Description:** Caterpillar Diesel Generator  
TA-33, TA-36, TA-39**Type:** Internal combustion engine**SCC:** Internal Combustion Engines,  
Industrial, Natural Gas, 4-cycle  
Rich Burn**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters***

	Amount	Unit of Measure
<b>Fuel Type:</b>	Diesel	
<b>Input Materials Processed:</b>	Diesel (INPUT)	
<b>Materials Consumed:</b>	331.8	gal
<b>Fuel Heating Value:</b>	0.138	MM BTU/M gal
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.01	percent
<b>Percent Carbon Content:</b>	83.0	percent

***Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.074	tons/y	Design calculation
<b>Nitrogen Dioxide:</b>	0.123	tons/y	Design calculation
<b>Particulate Matter (10 microns or less):</b>	0.008	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.008	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.01	tons/y	EPA emission factors (e.g., AP-42)

***Subject Item Comments***

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-143**Designation:** TA-55-GEN-3**Description:** CI-RICE Stationary Generator -  
Caterpillar 1335 hp**Type:** Internal combustion engine**SCC:** Internal Combustion Engines,  
Industrial, Natural Gas,  
Reciprocating**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters******Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	8
<b>Operating Time in Days per Week:</b>	5
<b>Operating Time in Weeks per Year:</b>	20
<b>Operating Time in Hours per Year:</b>	200
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.052	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.237	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.007	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.004	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.007	tons/y	EPA emission factors (e.g., AP-42)

***Subject Item Comments***

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-146**Designation:** TA-33-G-1P**Description:** Cummins Portable Diesel  
Generator**Type:** Internal combustion engine**SCC:** Internal Combustion Engines,  
Electric Generation, Distillate Oil  
(Diesel), Reciprocating**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters******Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	2
<b>Operating Time in Days per Week:</b>	2
<b>Operating Time in Weeks per Year:</b>	8
<b>Operating Time in Hours per Year:</b>	20
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.02	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.198	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.006	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.006	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.005	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.015	tons/y	EPA emission factors (e.g., AP-42)

***Subject Item Comments***

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-147**Designation:** TA-48-GEN-1**Description:** Cummins Diesel Powered  
Generator and Engine**Type:** Internal combustion engine**SCC:** Internal Combustion Engines,  
Industrial, Natural Gas,  
Reciprocating**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Diesel	
<b>Materials Consumed:</b>	0.0	gal
<b>Fuel Heating Value:</b>	0.138	MM BTU/M gal

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
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**Subject Item Comments**

This unit did not operate in 2018.

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-153**Designation:** RLUOB-GEN 2**Description:** Cummins Diesel Powered  
Generator and Engine - CMRR**Type:** Internal combustion engine**SCC:** Internal Combustion Engines,  
Industrial, Distillate Oil (Diesel),  
Reciprocating: Cogeneration**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	Amount	Unit of Measure
<b>Fuel Type:</b>	Diesel	
<b>Materials Consumed:</b>	5439.0	gal
<b>Fuel Heating Value:</b>	0.138	MM BTU/M gal

**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	1.093	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.882	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.043	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.023	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.125	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-154**Designation:** RLUOB-GEN 3**Description:** Cummins Diesel Powered  
Generator and Engine - CMRR**Type:** Internal combustion engine**SCC:** Internal Combustion Engines,  
Industrial, Distillate Oil (Diesel),  
Reciprocating: Cogeneration**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Diesel	
<b>Materials Consumed:</b>	2745.4	gal
<b>Fuel Heating Value:</b>	0.138	MM BTU/M gal

**Operating Detail**

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.551	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.445	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.022	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.012	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.063	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-155**Designation:** TA-55-GEN-2**Description:** CI-RICE Stationary Generator -  
Whisper Watt 40.2 hp**Type:** Internal combustion engine**SCC:** Internal Combustion Engines,  
Industrial, Natural Gas,  
Reciprocating**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters****Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

**Subject Item Comments**

This unit did not operate in 2018.

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-156**Designation:** TA-55-GEN-1**Description:** CI-RICE Stationary Generator -  
Whisper Watt 40.2 hp**Type:** Internal combustion engine**SCC:** Internal Combustion Engines,  
Industrial, Natural Gas,  
Reciprocating**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters******Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)

***Subject Item Comments***

This unit did not operate in 2018.

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Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-160**Designation:** TA-50-184-GEN-1**Description:** Cummins Diesel Generator and Engine, exempt**Type:** Internal combustion engine**SCC:** Internal Combustion Engines, Industrial, Distillate Oil (Diesel), Reciprocating**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters****Fuel Type:** Diesel**Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	8
<b>Operating Time in Days per Week:</b>	5
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	40
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.022	tons/y	EPA emission factors (e.g., AP-42)
<b>Nitrogen Dioxide:</b>	0.101	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.003	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.002	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.003	tons/y	EPA emission factors (e.g., AP-42)

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**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-161**Designation:** TA-55-GEN-4**Description:** Cummins Diesel Generator and Engine, exempt**Type:** Internal combustion engine**SCC:** Internal Combustion Engines, Industrial, Distillate Oil (Diesel), Reciprocating**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters*****Fuel Type:** Diesel***Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
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***Subject Item Comments***

This generator did not operate in 2018.

Print Close

**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-162**Designation:** TA-55-GEN-5**Description:** Cummins Diesel Generator and Engine, exempt**Type:** Internal combustion engine**SCC:** Internal Combustion Engines, Industrial, Distillate Oil (Diesel), Reciprocating**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters*****Fuel Type:** Diesel***Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
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***Subject Item Comments***

This generator did not operate in 2018.

Print Close

**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** ACT -7**Designation:** LANL-FW-CHEM**Description:** R & D Activities - Labwide (031)**Type:** Research/Testing**SCC:** Industrial Processes,  
Photographic Equipment/Health  
Care/Laboratories, Laboratories,  
Bench Scale Reagents: Research**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters****Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Acetaldehyde; (Ethyl aldehyde):</b>	0.0	tons/y	Material balance
<b>Acetonitrile; (Methyl cyanide):</b>	0.272	tons/y	Material balance
<b>Acetophenone:</b>	0.003	tons/y	Material balance
<b>Acrylamide:</b>	0.0	tons/y	Material balance
<b>Acrylic acid:</b>	0.004	tons/y	Material balance
<b>Acrylonitrile:</b>	0.0	tons/y	Material balance
<b>Ammonia:</b>	0.0	tons/y	Material balance
<b>Aniline:</b>	0.001	tons/y	Material balance
<b>Antimony:</b>	0.0	tons/y	Material balance
<b>Antimony compounds:</b>	0.0	tons/y	Material balance
<b>Arsenic Compounds:</b>	0.001	tons/y	Material balance
<b>Benzene:</b>	0.021	tons/y	Material balance
<b>Benzyl Chloride:</b>	0.0	tons/y	Material balance
<b>Beryllium Compounds:</b>	0.006	tons/y	Material balance
<b>Biphenyl:</b>	0.0	tons/y	Material balance
<b>Bromoform; (Tribromomethane):</b>	0.0	tons/y	Material balance
<b>Butadiene(1,3-):</b>	0.0	tons/y	Material balance
<b>Cadmium:</b>	0.0	tons/y	Material balance

<b>Cadmium compounds:</b>	0.002	tons/y	Material balance
<b>Carbon Disulfide:</b>	0.0	tons/y	Material balance
<b>Carbon tetrachloride; (Tetrachloromethane):</b>	0.004	tons/y	Material balance
<b>Carbonyl sulfide:</b>	0.0	tons/y	Material balance
<b>Catechol (Pyrocatechol):</b>	0.0	tons/y	Material balance
<b>Chlorine:</b>	0.0	tons/y	Material balance
<b>Chloroacetic Acid:</b>	0.0	tons/y	Material balance
<b>Chlorobenzene(Phenyl Chloride):</b>	0.005	tons/y	Material balance
<b>Chloroform; (Trichloromethane):</b>	0.108	tons/y	Material balance
<b>Chromium:</b>	0.0	tons/y	Material balance
<b>Chromium VI compounds:</b>	0.015	tons/y	Material balance
<b>Cobalt Compounds:</b>	0.003	tons/y	Material balance
<b>Cresol(m-); (Methylphenol, 3-):</b>	0.001	tons/y	Material balance
<b>Cumene:</b>	0.0	tons/y	Material balance
<b>Cyanide compounds:</b>	0.011	tons/y	Material balance
<b>Dibutylphthalate; (Di-n-butyl phthalate):</b>	0.014	tons/y	Material balance
<b>Dichloroethane (1,2-); (EDC); (Ethylene dichloride):</b>	0.01	tons/y	Material balance
<b>Dichlorofluoromethane:</b>	0.0	tons/y	Material balance
<b>Diethanolamine:</b>	0.0	tons/y	Material balance
<b>Dimethyl Sulfate:</b>	0.0	tons/y	Material balance
<b>Dimethyl formamide:</b>	0.328	tons/y	Material balance
<b>Dimethylhydrazine(1,1-):</b>	0.0	tons/y	Material balance
<b>Dioxane(1,4-) (1,4-Diethyleneoxide):</b>	0.029	tons/y	Material balance
<b>Epichlorohydrin; (1-Chloro-2,3-epoxypropane):</b>	0.001	tons/y	Material balance
<b>Epoxybutane(1,2-) (1,2-Butylene oxide):</b>	0.0	tons/y	Material balance
<b>Ethyl Acrylate:</b>	0.001	tons/y	Material balance
<b>Ethyl chloride; (Chloroethane):</b>	0.0	tons/y	Material balance
<b>Ethylbenzene:</b>	0.004	tons/y	Material balance
<b>Ethylene Glycol:</b>	0.487	tons/y	Material balance
<b>Ethylene dibromide; (EDB); (1,2-Dibromoethane):</b>	0.0	tons/y	Material balance
<b>Formaldehyde:</b>	0.01	tons/y	Material balance
<b>Glycol Ethers:</b>	0.127	tons/y	Material balance
<b>Hexachlorocyclopentadiene:</b>	0.0	tons/y	Material balance
<b>Hexamethylphosphoramide:</b>	0.0	tons/y	Material balance
<b>Hexane:</b>	0.533	tons/y	Material balance
<b>Hydrazine:</b>	0.0	tons/y	Material balance
<b>Hydrochloric acid (HCl):</b>	1.234	tons/y	Material balance
<b>Hydrofluoric Acid; (Hydrogen fluoride):</b>	0.048	tons/y	Material balance
<b>Hydroquinone:</b>	0.076	tons/y	Material balance
<b>Iodomethane (Methyl iodide):</b>	0.0	tons/y	Material balance
<b>Isophorone:</b>	0.001	tons/y	Material balance
<b>Lead Compounds:</b>	0.005	tons/y	Material balance
<b>Maleic anhydride:</b>	0.0	tons/y	Material balance
<b>Manganese:</b>	0.0	tons/y	Material balance
<b>Manganese compounds:</b>	0.003	tons/y	Material balance
<b>Mercury compounds:</b>	0.005	tons/y	Material balance
<b>Methanol; (Methyl alcohol):</b>	1.139	tons/y	Material balance
<b>Methyl Ethyl Ketone; (MEK); (2-Butanone):</b>	0.0	tons/y	Material balance

<b>Methyl Methacrylate:</b>	0.005	tons/y	Material balance
<b>Methyl bromide; (Bromomethane):</b>	0.0	tons/y	Material balance
<b>Methyl chloride; (Chloromethane):</b>	0.0	tons/y	Material balance
<b>Methyl isobutyl ketone; (Hexone); (4-Methyl-2-pentanone):</b>	0.006	tons/y	Material balance
<b>Methyl tert butyl ether:</b>	0.0	tons/y	Material balance
<b>Methylene chloride; (Dichloromethane):</b>	0.848	tons/y	Material balance
<b>Methylenebiphenyl isocyanate; (MDI); (Diphenylmethane diisocyanate):</b>	0.135	tons/y	Material balance
<b>Mineral Fibers:</b>	0.031	tons/y	Material balance
<b>Naphthalene:</b>	0.0	tons/y	Material balance
<b>Nickel:</b>	0.0	tons/y	Material balance
<b>Nickel compounds:</b>	0.001	tons/y	Material balance
<b>Nitrobenzene; (nitro-Benzene):</b>	0.004	tons/y	Material balance
<b>Nitrophenol(4-); (p-Nitrophenol):</b>	0.0	tons/y	Material balance
<b>PCE; (Perchloroethylene); (Tetrachloroethylene); (Tetrachloroethene):</b>	0.0	tons/y	Material balance
<b>Phenol:</b>	0.0	tons/y	Material balance
<b>Phenylenediamine(p-); (Phenylenediamine):</b>	0.0	tons/y	Material balance
<b>Phosphine:</b>	0.0	tons/y	Material balance
<b>Phosphorus:</b>	0.0	tons/y	Material balance
<b>Phthalic anhydride:</b>	0.001	tons/y	Material balance
<b>Polycyclic Organic Matter:</b>	0.012	tons/y	Material balance
<b>Propylene Dichloride (1,2-Dichloropropane):</b>	0.0	tons/y	Material balance
<b>Propylene oxide:</b>	0.0	tons/y	Material balance
<b>Selenium:</b>	0.0	tons/y	Material balance
<b>Selenium compounds:</b>	0.0	tons/y	Material balance
<b>Styrene:</b>	0.004	tons/y	Material balance
<b>TCE; (Trichloroethylene); (Trichloroethene):</b>	0.009	tons/y	Material balance
<b>Tetrachloroethane(1,1,2,2-):</b>	0.0	tons/y	Material balance
<b>Titanium tetrachloride:</b>	0.0	tons/y	Material balance
<b>Toluene diisocyanate(2,4-):</b>	0.002	tons/y	Material balance
<b>Toluene; (Methyl benzene):</b>	0.136	tons/y	Material balance
<b>Total HAP:</b>	5.87	tons/y	Material balance
<b>Trichloroethane(1,1,1-) (Methyl Chloroform):</b>	0.01	tons/y	Material balance
<b>Trichloroethane(1,1,2-):</b>	0.004	tons/y	Material balance
<b>Triethylamine:</b>	0.004	tons/y	Material balance
<b>Trimethylpentane(2,2,4-):</b>	0.0	tons/y	Material balance
<b>Urethane; (Ethyl carbamate):</b>	0.0	tons/y	Material balance
<b>Vinyl acetate; (Vinyl acetate monomer):</b>	0.0	tons/y	Material balance
<b>Volatile Organic Compounds (VOC):</b>	11.25	tons/y	Material balance
<b>Xylene(m-); (1,3-Dimethylbenzene); (meta-Xylene):</b>	0.0	tons/y	Material balance
<b>Xylene(o-); (1,2-Dimethylbenzene); (ortho-Xylene):</b>	0.0	tons/y	Material balance
<b>Xylene(p-); (1,4-Dimethylbenzene); (para-Xylene):</b>	0.0	tons/y	Material balance
<b>Xylenes (total); (Xylol):</b>	0.142	tons/y	Material balance
<b>bis(2-ethylhexyl) phthalate; (Di-2-ethylhexyl phthalate); (DEHP):</b>	0.0	tons/y	Material balance

*Subject Item Comments*

Print Close



**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** ACT -42**Designation:** RLUOB-CHEM

Chemical Usage, Bldg.

**Description:** TA-55-400 (lab portion of RLUOB Bldg.)**Type:** Research/Testing**SCC:** Industrial Processes,  
Photographic Equipment/Health  
Care/Laboratories, Laboratories,  
Bench Scale Reagents: Research**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters****Operating Detail**

	Value
<b>Operating Time in Hours per Day:</b>	24
<b>Operating Time in Days per Week:</b>	7
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	8760
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

**Actual Pollutants**

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Total HAP:</b>	0.012	tons/y	Material balance
<b>Volatile Organic Compounds (VOC):</b>	0.003	tons/y	Material balance

**Subject Item Comments**

Print Close

**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-89**Designation:** TA-52-11**Description:** Data Disintegrator/Industrial  
Shredder**Type:** Shredder**SCC:** Industrial Processes, Pulp and  
Paper and Wood Products,  
Miscellaneous Paper Products,  
Other Not Classified**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters*****Input Materials Processed:** Paper (INPUT)***Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	7
<b>Operating Time in Days per Week:</b>	5
<b>Operating Time in Weeks per Year:</b>	52
<b>Operating Time in Hours per Year:</b>	1820
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Particulate Matter (10 microns or less):</b>	0.35	tons/y	Manufacturer Specification
<b>Particulate Matter (2.5 microns or less):</b>	0.23	tons/y	Manufacturer Specification

***Subject Item Comments***

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** RPNT-40**Designation:** SSM from TA-3-22-CHP-1**Description:** Routine Start up Shut down  
Maintenance**Type:** Stack/Vent**SCC:** Industrial Processes, Oil and Gas  
Production, Fugitive Emissions,  
Fugitive Emissions**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters******Operating Detail***

	Value
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

***Actual Pollutants***

Pollutant	Amount	Unit of Measure	Calculation Method
<b>Carbon Monoxide:</b>	0.0	tons/y	Design calculation
<b>Nitrogen Dioxide:</b>	0.0	tons/y	Design calculation
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	Design calculation
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	Design calculation
<b>Sulfur Dioxide:</b>	0.0	tons/y	Design calculation
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	Design calculation

***Subject Item Comments***

Unit has not been installed.

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-112**Designation:** TA-3-22-CT-1**Description:** Combustion Turbine**Type:** Turbine**SCC:** Internal Combustion Engines,  
Electric Generation, Natural Gas,  
Turbine**GHG Reporting:** Reports GHG to EPA***Supplemental Parameters***

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Input Materials Processed:</b>	Natural Gas (INPUT)	
<b>Materials Consumed:</b>	171.98	MM SCF
<b>Fuel Heating Value:</b>	1030.0	MM BTU/MM SCF
<b>Percent Sulfur of Fuel:</b>	0.001	percent
<b>Percent Ash of Fuel:</b>	0.0	percent
<b>Percent Carbon Content:</b>	65.0	percent

***Operating Detail***

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	7
<b>Operating Time in Days per Week:</b>	4
<b>Operating Time in Weeks per Year:</b>	12
<b>Operating Time in Hours per Year:</b>	709
<b>Percent of Operation During Winter:</b>	25
<b>Percent of Operation During Spring:</b>	25
<b>Percent of Operation During Summer:</b>	25
<b>Percent of Operation During Fall:</b>	25

***Actual Pollutants***

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Acetaldehyde; (Ethyl aldehyde):</b>	0.004	tons/y	EPA emission factors (e.g., AP-42)
<b>Carbon Monoxide:</b>	0.903	tons/y	EPA emission factors (e.g., AP-42)
<b>Copper:</b>	0.006	tons/y	EPA emission factors (e.g., AP-42)
<b>Ethylbenzene:</b>	0.003	tons/y	EPA emission factors (e.g., AP-42)
<b>Formaldehyde:</b>	0.063	tons/y	EPA emission factors (e.g., AP-42)
<b>Lead:</b>	0.0	tons/y	EPA emission factors (e.g., AP-42)
<b>Manganese:</b>	0.007	tons/y	EPA emission factors (e.g., AP-42)
<b>Nickel:</b>	0.01	tons/y	EPA emission factors (e.g., AP-42)

<b>Nitrogen Dioxide:</b>	4.342	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (10 microns or less):</b>	0.585	tons/y	EPA emission factors (e.g., AP-42)
<b>Particulate Matter (2.5 microns or less):</b>	0.585	tons/y	EPA emission factors (e.g., AP-42)
<b>Propylene oxide:</b>	0.003	tons/y	EPA emission factors (e.g., AP-42)
<b>Sulfur Dioxide:</b>	0.301	tons/y	EPA emission factors (e.g., AP-42)
<b>Toluene; (Methyl benzene):</b>	0.012	tons/y	EPA emission factors (e.g., AP-42)
<b>Volatile Organic Compounds (VOC):</b>	0.189	tons/y	EPA emission factors (e.g., AP-42)
<b>Xylenes (total); (Xylol):</b>	0.006	tons/y	EPA emission factors (e.g., AP-42)

***Subject Item Comments***

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**Facility Annual Emissions - Subject Item Submittal Review**

Monday, March 18, 2019

**Agency ID:** 856**Facility Name:** Los Alamos National Laboratory**Organization Name:** U.S. Department of Energy National Nuclear Security Administration**Submittal Status:** 2018 Submittal (In Process)**Subject Item ID:** EQPT-166**Designation:** TA-3-22-CHP-1

Combustion Turbine + Heat

**Description:** recovery steam generator  
(HRSG)**Type:** Turbine**SCC:** Internal Combustion Engines,  
Electric Generation, Natural Gas,  
Turbine**GHG Reporting:** Reports GHG to EPA**Supplemental Parameters**

	<b>Amount</b>	<b>Unit of Measure</b>
<b>Fuel Type:</b>	Natural Gas	
<b>Materials Consumed:</b>	0.0	MM SCF
<b>Fuel Heating Value:</b>	0.0	MM BTU/MM SCF

**Operating Detail**

	<b>Value</b>
<b>Operating Time in Hours per Day:</b>	0
<b>Operating Time in Days per Week:</b>	0
<b>Operating Time in Weeks per Year:</b>	0
<b>Operating Time in Hours per Year:</b>	0
<b>Percent of Operation During Winter:</b>	0
<b>Percent of Operation During Spring:</b>	0
<b>Percent of Operation During Summer:</b>	0
<b>Percent of Operation During Fall:</b>	0

**Actual Pollutants**

<b>Pollutant</b>	<b>Amount</b>	<b>Unit of Measure</b>	<b>Calculation Method</b>
<b>Carbon Monoxide:</b>	0.0	tons/y	Design calculation
<b>Nitrogen Dioxide:</b>	0.0	tons/y	Design calculation
<b>Particulate Matter (10 microns or less):</b>	0.0	tons/y	Design calculation
<b>Particulate Matter (2.5 microns or less):</b>	0.0	tons/y	Design calculation
<b>Sulfur Dioxide:</b>	0.0	tons/y	Design calculation
<b>Volatile Organic Compounds (VOC):</b>	0.0	tons/y	Design calculation

**Subject Item Comments**

Unit has not been installed.



**ATTACHMENT C:**

***2018 Semi-annual Emissions Reports***

***Submitted Under Title V Operating Permit Requirements***





**Environment Safety & Health Directorate**  
**Los Alamos National Laboratory**  
PO Box 1663, K491  
Los Alamos, New Mexico 87545  
(505) 667-4218

**National Nuclear Security Administration**  
**Los Alamos Field Office**  
3747 West Jemez Road, A316  
Los Alamos, New Mexico, 87545  
(505) 667-5105/Fax (505) 667-5948

*Date:* **SEP 12 2018**  
*Symbol:* ADESH: 18-061  
*LA-UR:* 18-28268  
*Locates Action No.:* NA

Mr. Ralph Gruebel  
Manager, Compliance and Enforcement Section  
New Mexico Environment Department, Air Quality Bureau  
525 Camino de los Marquez, Suite 1  
Santa Fe, NM 87505-1816

**Subject: Semi-Annual Emissions Report for Los Alamos National Laboratory, AI No. 856, Title V Operating Permit P100-R2M1 and P100-R2M2 for January 1 – June 30, 2018**

Dear Mr. Gruebel:

Enclosed is Los Alamos National Laboratory's Semi-Annual Emissions Report for the first half of 2018 for Operating Permit P100-R2M1 which became effective February 3, 2017, and P100-R2M2, which consisted of an administrative change to the Owner and Operator, effective May 7, 2018. This Semi-Annual Emissions Report covers the January 1 – June 30, 2018 reporting period. We are submitting one Semi-Annual Emissions Report for the six month period, and two Report Certifications, and Report Submittal Forms. One Report Certification and Report Submittal Form for the period January 1 – May 6, 2018 (P100-R2M1) signed by the Los Alamos National Security, LLC (LANS) Responsible Official, and separate Report Certification and Report Submittal Forms for the period May 7 – June 30, 2018 (P100-R2M2) signed by the National Nuclear Security Administration, Los Alamos Site Office (NNSA-LASO) Responsible Official.

This submission is required by permit condition A109.B. of the Title V Operating Permit P100-R2M1/M2, and is submitted within 90 days following June 30, 2018, the end of the six month reporting period.

The Semi-Annual Emissions report includes actual emissions from permitted sources included in LANL's Operating Permit. In this report, the actual emissions are listed along with the emission limits for ease in comparing and verifying compliance. No annual emission limits were exceeded during this reporting period.

SEP 12 2018

If you have questions or comments regarding this submittal or would like to discuss this submittal in greater detail, please contact Steven L. Story at (505) 665-2169 or Adrienne Nash, NA-LA at (505) 665-5026.

Sincerely,



William R. Mairson  
Associate Director

Sincerely,



William S. Goodrum  
Manager

WRM/WSG/SLS/WWW:jdm

Enclosure: 1) LANL Title V Semi-Annual Emissions Report for AI 856/P100-R2M1 and P100-R2M2, January 1-June 30, 2018.

Copy: Adrienne L. Nash, LASO-NS-LP, (E-File)  
Hai Shen, EM-SG, (E-File)  
Annette E. Russell, EM-LA, (E-File)  
Frazer R. Lockhart, N3B, (E-File)  
Christian T. Maupin, N3B, (E-File)  
Richard M. Kacich, DIR, (E-File)  
Craig S. Leasure, PADOPS, (E-File)  
John Bretzke, ADESH, (E-File)  
Enrique Torres, EPC-DO, (E-File)  
Jennifer Payne, EPC-DO, (E-File)  
Taunia Van Valkenburg, EPC-CP, (E-File)  
Steven L. Story, EPC-CP, (E-File)  
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[EPC-CP Title V Monitoring Report File](#)



New Mexico Environment Department  
Air Quality Bureau  
Compliance and Enforcement Section  
525 Camino de los Marquez, Suite 1  
Santa Fe, NM 87505  
Phone (505) 476-4300 Fax (505) 476-4375



Version 04.04.18

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## REPORTING SUBMITTAL FORM

NMED USE ONLY	
Staff	
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PLEASE NOTE: ® - Indicates required field

<b>SECTION I - GENERAL COMPANY AND FACILITY INFORMATION</b>					
<b>A. ® Company Name:</b> Los Alamos National Security, LLC			<b>D. ® Facility Name:</b> Los Alamos National Laboratory		
<b>B.1 ® Company Address:</b> P.O. Box 1663 MS J978			<b>E.1 ® Facility Address:</b> Same as Company		
<b>B.2 ® City:</b> Los Alamos	<b>B.3 ® State:</b> NM	<b>B.4 ® Zip:</b> 8 7 5 4 5	<b>E.2 ® City:</b>	<b>E.3 ® State:</b>	<b>E.4 ® Zip:</b>
<b>C.1 ® Company Environmental Contact:</b> Tauria S. Van Valkenburg		<b>C.2 ® Title:</b> EPC-CP Group Leader		<b>F.1 ® Facility Contact:</b> Steven L. Story	
<b>C.3 ® Phone Number:</b> (505) 665-9827		<b>C.4 ® Fax Number:</b> (505) 665-8858		<b>F.2 ® Title:</b> Air Quality Compliance Team Leader	
<b>C.5 ® Email Address:</b> tauniav@lanl.gov		<b>F.3 ® Phone Number:</b> (505) 665-2169			
		<b>F.4 ® Fax Number:</b> (505) 665-8858			
<b>G. Responsible Official: (Title V only):</b> William R. Mairson		<b>H. Title:</b> Associate Director for ESH		<b>F.5 ® Email Address:</b> story@lanl.gov	
		<b>I. Phone Number:</b> (505) 667-4218		<b>J. Fax Number:</b> (505) 665-3811	
<b>K. ® AI Number:</b> 856	<b>L. Title V Permit Number:</b> P100-R2M1	<b>M. Title V Permit Issue Date:</b> Feb 3, 2017		<b>N. NSR Permit Number:</b> 2195	<b>O. NSR Permit Issue Date:</b> Various
<b>P. Reporting Period:</b> From: January 1, 2018 To: May 6, 2018					

<b>SECTION II - TYPE OF SUBMITTAL (check one that applies)</b>				
<b>A. <input type="checkbox"/></b>	<b>Title V Annual Compliance Certification</b>	<b>Permit Condition(s):</b>	<b>Description:</b>	
<b>B. <input type="checkbox"/></b>	<b>Title V Semi-Annual Monitoring Report</b>	<b>Permit Condition(s):</b>	<b>Description:</b>	
<b>C. <input type="checkbox"/></b>	<b>NSPS Requirement (40CFR60)</b>	<b>Regulation:</b>	<b>Section(s):</b>	<b>Description:</b>
<b>D. <input type="checkbox"/></b>	<b>MACT Requirement (40CFR63)</b>	<b>Regulation:</b>	<b>Section(s):</b>	<b>Description:</b>
<b>E. <input type="checkbox"/></b>	<b>NMAC Requirement (20.2.xx) or NESHAP Requirement (40CFR61)</b>	<b>Regulation:</b>	<b>Section(s):</b>	<b>Description:</b>
<b>F. <input checked="" type="checkbox"/></b>	<b>Permit or Notice of Intent (NOI) Requirement</b>	<b>Permit No. <input checked="" type="checkbox"/> or NOI No. <input type="checkbox"/>:</b> P100-R2M1	<b>Condition(s):</b> A109 B	<b>Description:</b> LANL Semi-Annual Emissions Report for January 1 - May 6, 2018
<b>G. <input type="checkbox"/></b>	<b>Requirement of an Enforcement Action</b>	<b>NOV No. <input type="checkbox"/> or SFO No. <input type="checkbox"/> or CD No. <input type="checkbox"/> or Other <input type="checkbox"/>:</b>	<b>Section(s):</b>	<b>Description:</b>

<b>SECTION III - CERTIFICATION</b>			
After reasonable inquiry, I <u>William R. Mairson</u> certify that the information in this submittal is true, accurate and complete. (name of reporting official)			
<b>® Signature of Reporting Official:</b> 		<b>® Title:</b> Associate Director for ESH	<b>® Date:</b> 9-12-18
		<b>® Responsible Official for Title V?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Reviewed By: \_\_\_\_\_

Date Reviewed: \_\_\_\_\_



New Mexico Environment Department  
Air Quality Bureau  
Compliance and Enforcement Section  
525 Camino de los Marquez, Suite 1  
Santa Fe, NM 87505  
Phone (505) 476-4300 Fax (505) 476-4375



Version 04.04.18

NMED USE ONLY	
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## REPORTING SUBMITTAL FORM

NMED USE ONLY	
Staff	
Admin	

PLEASE NOTE: ® - Indicates required field

<b>SECTION I - GENERAL COMPANY AND FACILITY INFORMATION</b>					
<b>A. ® Company Name:</b> U.S. Department of Energy, National Nuclear Security Administration			<b>D. ® Facility Name:</b> Los Alamos National Laboratory		
<b>B.1 ® Company Address:</b> P.O. Box 1663 MS A316			<b>E.1 ® Facility Address:</b> P.O. Box 1663, MS J978		
<b>B.2 ® City:</b> Los Alamos	<b>B.3 ® State:</b> NM	<b>B.4 ® Zip:</b> 8 - 7 5 4 5	<b>E.2 ® City:</b> Los Alamos	<b>E.3 ® State:</b> NM	<b>E.4 ® Zip:</b> 87545
<b>C.1 ® Company Environmental Contact:</b> Adrienne L. Nash		<b>C.2 ® Title:</b>		<b>F.1 ® Facility Contact:</b> Steven L. Story	
<b>C.3 ® Phone Number:</b> (505) 665-5026		<b>C.4 ® Fax Number:</b> (505) 667-9998		<b>F.2 ® Title:</b> Air Quality Compliance Team Leader	
<b>C.5 ® Email Address:</b> adrienne.nash@nnsa.doe.gov			<b>F.3 ® Phone Number:</b> (505) 665-2169		
<b>G. Responsible Official: (Title V only):</b> William S. Goodrum			<b>H. Title:</b> Manager, NNSA-LASO		<b>F.4 ® Fax Number:</b> (505) 665-8858
<b>K. ® AI Number:</b> 856	<b>L. Title V Permit Number:</b> P100-R2M2	<b>M. Title V Permit Issue Date:</b> May 7, 2018		<b>I. Phone Number:</b> (505) 667-5015	<b>J. Fax Number:</b> (505) 667-9998
<b>P. Reporting Period:</b> From: May 7, 2018 To: June 30, 2018		<b>O. NSR Permit Issue Date:</b> Various			

<b>SECTION II - TYPE OF SUBMITTAL (check one that applies)</b>				
<b>A. <input type="checkbox"/></b>	<b>Title V Annual Compliance Certification</b>	<b>Permit Condition(s):</b>	<b>Description:</b>	
<b>B. <input type="checkbox"/></b>	<b>Title V Semi-Annual Monitoring Report</b>	<b>Permit Condition(s):</b>	<b>Description:</b>	
<b>C. <input type="checkbox"/></b>	<b>NSPS Requirement (40CFR60)</b>	<b>Regulation:</b>	<b>Section(s):</b>	<b>Description:</b>
<b>D. <input type="checkbox"/></b>	<b>MACT Requirement (40CFR63)</b>	<b>Regulation:</b>	<b>Section(s):</b>	<b>Description:</b>
<b>E. <input type="checkbox"/></b>	<b>NMAC Requirement (20.2.xx) or NESHAP Requirement (40CFR61)</b>	<b>Regulation:</b>	<b>Section(s):</b>	<b>Description:</b>
<b>F. <input checked="" type="checkbox"/></b>	<b>Permit or Notice of Intent (NOI) Requirement</b>	<b>Permit No. <input checked="" type="checkbox"/> or NOI No. <input type="checkbox"/></b> P100-R2M2	<b>Condition(s):</b> A 109 B	<b>Description:</b> LANL Semi-Annual Emissions Report for May 7 - June 30, 2018
<b>G. <input type="checkbox"/></b>	<b>Requirement of an Enforcement Action</b>	<b>NOV No. <input type="checkbox"/> or SFO No. <input type="checkbox"/> or CD No. <input type="checkbox"/> or Other <input type="checkbox"/></b>	<b>Section(s):</b>	<b>Description:</b>

<b>SECTION III - CERTIFICATION</b>			
After reasonable inquiry, I <u>William S. Goodrum</u> certify that the information in this submittal is true, accurate and complete. (name of reporting official)			
<b>® Signature of Reporting Official:</b> 		<b>® Title:</b> Manager, NNSA-LASO	<b>® Date:</b> 9-25-18
		<b>® Responsible Official for Title V?</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Reviewed By: \_\_\_\_\_

Date Reviewed: \_\_\_\_\_

# Title V Semi-Annual Emissions Report for Permit P100-R2M1

January 1, 2018 – May 6, 2018

## Identifying Information

Source Name: Los Alamos National Laboratory County: Los Alamos

Source Address:

City: Los Alamos State: NM Zip Code: 87545

Responsible Official: William R. Mairson Ph No. (505) 667-4218 Fax No. (505) 665-3811

Technical Contact: Steven L. Story Ph No. (505) 665-2169 Fax No. (505) 665-8858

Principal Company Product or Business: National Security and Nuclear Weapons Research Primary SIC Code: 8733

Permit No. P100-R2M1, January 1, 2018 – May 6, 2018 {IDEA/Tempo ID No. 856} Permit Issued Date: Feb. 3, 2017

## Certification of Truth, Accuracy, and Completeness

I, William R. Mairson certify that, based on information and belief formed after reasonable inquiry, the statements and information in the attached semi-annual emission report are true, accurate, and complete.

Signature



Date: 9-12-18

Title: Associate Director Environmental, Safety, and Health

# Title V Semi-Annual Emissions Report for Permit P100-R2M2

May 7, 2018 – June 30, 2018

## Identifying Information

Source Name: Los Alamos National Laboratory County: Los Alamos

Source Address:

City: Los Alamos State: NM Zip Code: 87545

Responsible Official: William S. Goodrum Ph No. (505) 667-5015 Fax No. (505) 667-9998

Technical Contact: Steven L. Story Ph No. (505) 665-2169 Fax No. (505) 665-8858

Principal Company Product or Business: National Security and Nuclear Weapons Research Primary SIC Code: 8733

Permit No. P100-R2M2, May 7, 2018 – June 30, 2018 {IDEA/Tempo ID No. 856} Permit Issued Date: May 7, 2018

## Certification of Truth, Accuracy, and Completeness

I, William S. Goodrum certify that, based on information and belief formed after reasonable inquiry, the statements and information in the attached semi-annual emission report are true, accurate, and complete.

Signature



Date:

9-25-18

Title: Manager, NNSA-LASO

# **ENCLOSURE 1**

**LANL Title V Semi-Annual Emissions Report for  
AI 856 Permit P100-R2M1 and P100-R2M2  
January 1, 2018 – June 30, 2018**

**ADESH: 18-061**

**LA-UR-18-28268**

**SEP 12 2018**

**Date:** \_\_\_\_\_

**Title V Semi-Annual Emissions Report  
AI 856, Permits P100-R2M1 and P100-R2M2  
January 1, 2018 - June 30, 2018**

**Emission Reporting Requirements**

**A109 Facility: Reporting Schedules**

- A. A Semi-Annual Report of monitoring activities is due within 45 days following the end of every 6-month reporting period. The six month reporting periods start on January 1<sup>st</sup> and July 1<sup>st</sup> of each year.
- B. A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.



**Specific Emissions Reports:****A600 Asphalt Production**

A602 Emission Limits - Asphalt Production

Unit No.	Nox tpy	SO <sub>2</sub> tpy	PM tpy	CO tpy	VOC tpy
TA-60-BDM	50.0	50.0	50.0	30.0	50.0

**Reporting Requirement**

A607 F The permittee shall submit reports described in Section A109 and in accordance with B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

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

Comments:

Asphalt Plant TA-60-BDM	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A602 A) (tons per year)
NO <sub>x</sub>	0.0027			50.0
SO <sub>2</sub>	0.0010			50.0
PM	0.0016			50.0
CO	0.0942			30.0
VOC	0.0018			50.0
HAPs	0.0017			No Source Permit Limit

## A700 Beryllium Activities

### A702 Emission Limits - Beryllium Activities

Source	Beryllium Particulate Matter	Aluminum Particulate Matter
Sigma Facility TA-3-66	10 gm/24 hr	N/A
Beryllium Technology Facility TA-3-141	3.5 gm/yr	N/A
Target Fabrication Facility TA-35-213	0.36 gm/yr	N/A
Plutonium Facility TA-55-PF-4 Machining Operation	2.99 gm/yr	2.99 gm/yr
Plutonium Facility TA-55-PF-4 Foundry Operation	$8.73 \times 10^{-04}$ gm/yr	$8.73 \times 10^{-04}$ gm/yr

### Reporting Requirement

A707 D The permittee shall submit reports described in Section A109 and in accordance with B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area I shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

No

Provide comments and identify any supporting documentation as an attachment.

Comments: To meet condition of 5.f in NSR permit #634-M2, LANL submitted the following quarterly beryllium emissions reports for the Beryllium Technology Facility: first quarter report, April 18, 2018 (SBR20180006) and second quarter report, August 17, 2018 (SBR20180008).

Continued on the next page

## A700 Beryllium Activities - continued

### Comments:

Source	Pollutant	January - June Emissions	July - December Emissions	Annual Emissions	Permit Limits (Condition A702.A)
Sigma Facility TA-3-66 <sup>(1)</sup>	Beryllium (grams)	0.020			10 gm/24-hr
Beryllium Technology Facility TA-3-14 <sup>(2)</sup>	Beryllium (grams)	3.17E-03			3.5 gm/yr
Target Fabrication Facility TA-35-213 <sup>(3)</sup>	Beryllium (grams)	< 0.00944			0.36 gm/yr
Plutonium Facility TA-55-PF4 Machining Operation <sup>(4)</sup>	Beryllium (grams)	< 1.495			2.99 gm/yr
	Aluminum (grams)	< 1.495			2.99 gm/yr
Plutonium Facility TA-55-PF4 Foundry Operation <sup>(5)</sup>	Beryllium (grams)	0			8.73 x 10 <sup>-4</sup> gm/yr
	Aluminum (grams)	0			8.73 x 10 <sup>-4</sup> gm/yr
<b>Beryllium Total<sup>(5)</sup> (tons) =</b>		<b>&lt; 1.69E-06</b>			
<b>Aluminum Total (tons) =</b>		<b>&lt; 1.65E-06</b>			

**Notes:** (1) Emissions from the Sigma Facility are from electroplating, chemical milling, and metallographic operations. (2) Emission values shown for the Beryllium Technology Facility are from actual stack emission measurements which are submitted to NMED quarterly. (3) Emissions for the Target Fabrication Facility are from initial compliance testing of that source and calculated based on a conservative assumption of 8 hour work days. Log books were checked to verify that work days were much less than 8 hours. (4) Emissions for the Plutonium Facility are calculated based on permitted throughputs. Log books were checked to verify that throughputs were much less than permitted values. (5) The Plutonium Facility foundry operations did not operate during the first 6 months of 2018.

## A800 External Combustion

### A802 Emission Limits - External Combustion

Unit No.	NO <sub>x</sub> tpy	CO tpy	VOC tpy	SO <sub>2</sub> tpy	TSP tpy	PM <sub>10</sub> tpy
All Boilers	80.0	80.0	50.0	50.0	50.0	50.0

Unit No.	NO <sub>x</sub> tpy	CO tpy	SO <sub>2</sub> tpy	TSP tpy	PM <sub>10</sub> tpy	PM <sub>2.5</sub> tpy
RLUOB-BHW-1 (gas)	2.9	4.8	0.3	0.4	0.4	0.4
RLUOB-BHW-2 (gas)	2.9	4.8	0.3	0.4	0.4	0.4
RLUOB-BHW-3 (gas)	2.9	4.8	0.3	0.4	0.4	0.4
RLUOB-BHW-4 (gas)	2.9	4.8	0.3	0.4	0.4	0.4
RLUOB Boilers (oil)	2.9	0.9	10.4	0.5	0.3	0.3
RLUOB Boilers Total	14.5	20.1	11.6	2.1	1.9	1.9

### Reporting Requirement

A807 B The permittee shall submit reports described in Section A109 and in accordance with B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

No

Provide comments and identify any supporting documentation as an attachment.

#### Comments:

Boilers	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A802 A) (tons per year)
NO <sub>x</sub>	10.98			80
SO <sub>2</sub>	0.07			50
TSP	0.88			50
PM-10	0.88			50
CO	8.86			80
VOCs	0.63			50
HAPs	0.21			No Source Limit

**Note:** The emissions shown in this table includes all exempt, non-exempt, metered, and non-metered boilers at LANL except for the TA-3-22 Power Plant boilers. The Power Plant boilers can be found under Section A1300 of this report.

Continued on the next page

**A800 External Combustion - continued**

RLUOB-BHW-1 (Gas)	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A802 B) (tons per year)
NOx	0.0056			2.9
SO <sub>2</sub>	0.0001			0.3
TSP	0.0009			0.4
PM-10	0.0009			0.4
PM-2.5	0.0009			0.4
CO	0.0072			4.8
VOCs	0.0048			No Source Limit
HAPs	3.55E-04			No Source Limit

RLUOB-BHW-2 (Gas)	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A802 B) (tons per year)
NOx	0.0056			2.9
SO <sub>2</sub>	0.0001			0.3
TSP	0.0009			0.4
PM-10	0.0009			0.4
PM-2.5	0.0009			0.4
CO	0.0072			4.8
VOCs	0.0048			No Source Limit
HAPs	3.55E-04			No Source Limit

RLUOB-BHW-3 (Gas)	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A802 B) (tons per year)
NOx	0.0056			2.9
SO <sub>2</sub>	0.0001			0.3
TSP	0.0009			0.4
PM-10	0.0009			0.4
PM-2.5	0.0009			0.4
CO	0.0072			4.8
VOCs	0.0048			No Source Limit
HAPs	3.55E-04			No Source Limit

RLUOB-BHW-4 (Gas)	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A802 B) (tons per year)
NOx	0			2.9
SO <sub>2</sub>	0			0.3
TSP	0			0.4
PM-10	0			0.4
PM-2.5	0			0.4
CO	0			4.8
VOCs	0			No Source Limit
HAPs	0			No Source Limit

**Note:** The RLUOB-BHW-4 boiler has not been installed.

Continued on the next page.



**A800 External Combustion - continued**

<b>RLUOB Boilers Totals (Oil)</b>	<b>January - June Emissions (tons)</b>	<b>July - December Emissions (tons)</b>	<b>Annual Emissions (tons)</b>	<b>Permit Limits (Condition A802 B) (tons per year)</b>
NOx	0			2.9
SO <sub>2</sub>	0			10.4
TSP	0			0.5
PM-10	0			0.3
PM-2.5	0			0.3
CO	0			0.9
VOCs	0			No Source Limit
HAPs	0			No Source Limit

Note: The RLUOB boilers did not operate on fuel oil during the first 6 months of 2018.

<b>RLUOB Boilers Totals (Gas and Oil)</b>	<b>January - June Emissions (tons)</b>	<b>July - December Emissions (tons)</b>	<b>Annual Emissions (tons)</b>	<b>Permit Limits (Condition A802 B) (tons per year)</b>
NOx	0.0168			14.5
SO <sub>2</sub>	0.0003			11.6
TSP	0.0028			2.1
PM-10	0.0028			1.9
PM-2.5	0.0028			1.9
CO	0.0215			20.1
VOCs	0.0145			No Source Limit
HAPs	1.07E-03			No Source Limit

## A900 Chemical Usage

### A902 Emission Limits - Chemical Usage

Unit No.	VOC/HAPs tpy
LANL-FW-CHEM	3.75
CMRR-CHEM	3.75

The VOC emissions from this source category are included in the facility-wide allowable emissions limit established in Table 106.B: 200 tpy VOC, 8.0 tpy per individual HAP, and 24.0 tpy of combined total HAPs. Any VHAPs that are also defined as a VOC shall be included in the VOC total.

### Reporting Requirement

A907 A The permittee shall submit reports described in Section A109 and in accordance with B110. With respect to individual HAPs, reports shall include any HAP emitted in quantity greater than 0.5 tons per year.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

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

#### Comments:

Chemical Usage LANL-FW-CHEM		January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A902 B)
VOCs		5.64			Source limits refer to facility-wide limits.
HAPs		3.07			
Individual HAPs greater than 0.5 tons	Hydrochloric Acid	0.70			
	Methanol	0.57			

Chemical Usage CMRR-CHEM		January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A902 B)
HAPs		0.0124			3.75
VOCs		0.0034			3.75
TAPs		0.0369			No Source Limit

## A1000 Degreasers

### A1002 Emission Limits - Degreasers

Unit No.	VOC/HAPs tpy
TA-55-DG-1	-- <sup>1</sup>

<sup>1</sup> The VOC emissions from this source category are included in the facility-wide allowable emissions limit established in Table 106.B: 200 tpy VOC, 8.0 tpy per individual HAP, and 24.0 tpy of combined total HAPs. Any VHAPs that are also defined as a VOC shall be included in the VOC total.

### Reporting Requirement

A1007 A The permittee shall submit reports described in Section A109 and in accordance with B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

No

Provide comments and identify any supporting documentation as an attachment.

#### Comments:

Degreaser TA-55-DG-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1002 A) (tons per year)
VOCs	0			Source limits refer to facility-wide limits.
HAPs	0			

Note: The TA-55-DG-1 degreaser did not operate during the first 6 months of 2018.



## A1100 Internal Combustion

### A1102 Emission Limits - Internal Combustion

Unit No.	NO <sub>x</sub> tpy	CO tpy	VOC tpy	SO <sub>2</sub> tpy	TSP tpy	PM <sub>10</sub> tpy
TA-33-G-1P	18.1	15.2	0.3	2.5	0.6	0.6
TA-33-G-2	0.21	0.1	--	--	--	--
TA-33-G-3	0.21	0.1	--	--	--	--
TA-33-G-4	2.33	1.4	0.2	0.16	--	--

† The VOC emissions from this source category are included in the facility-wide allowable emissions limit established in condition 106.B: 200 tpy VOC, 8.0 tpy per individual HAP, and 24.0 tpy of combined total HAPs.

## Reporting Requirement

A1107 A The permittee shall comply with all applicable reporting requirements of 40 CFR 60, Subpart A as required in 60.4218 and in accordance with Section B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

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

### Comments:

Generator TA-33-G-1P	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1102 A) (tons per year)
NO <sub>x</sub>	0.0157			18.1
SO <sub>2</sub>	0.0004			2.5
TSP	0.0005			0.6
PM <sub>10</sub>	0.0005			0.6
CO	0.0016			15.2
VOC	0.0011			0.3
HAPs	4.53E-06			No Source Limit

Generator TA-33-G-2	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1102 A) (tons per year)
NO <sub>x</sub>	5.21E-05			0.21
SO <sub>2</sub>	3.58E-06			Not Required
TSP	3.58E-06			Not Required
PM <sub>10</sub>	3.58E-06			Not Required
CO	1.52E-05			0.1
VOC	4.13E-06			Not Required
HAPs	1.69E-08			No Source Limit

Continued on the next page.

# A1100 Internal Combustion- continued

Generator TA-33-G-3	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1102 A) (tons per year)
NOx	0			0.21
SO <sub>2</sub>	0			Not Required
TSP	0			Not Required
PM <sub>10</sub>	0			Not Required
CO	0			0.1
VOC	0			Not Required
HAPs	0			No Source Limit

Note: The TA-33-G-3 generator did not operate during the first 6 months of 2018.

Generator TA-33-G-4	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1102 A) (tons per year)
NOx	0.0234			2.33
SO <sub>2</sub>	0.0016			0.16
TSP	0.0016			Not Required
PM <sub>10</sub>	0.0016			Not Required
CO	0.0141			1.4
VOC	0.0019			0.2
HAPs	7.60E-06			No Source Limit

Generator RLUOB-GEN-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0			No Source Specific Emission Limits for the CMRR Generators
SO <sub>2</sub>	0			
TSP	0			
PM <sub>10</sub>	0			
CO	0			
VOC	0			
HAPs	0			

Note: The RLUOB-GEN-1 generator did not operate during the first 6 months of 2018.

Generator RLUOB-GEN-2	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0.722			No Source Specific Emission Limits for the CMRR Generators
SO <sub>2</sub>	0.019			
TSP	0.042			
PM <sub>10</sub>	0.035			
CO	0.895			
VOC	0.102			
HAPs	2.07E-04			

Continued on the next page.

**A1100 Internal Combustion- continued**

Generator RLUOB-GEN-3	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0.227			No Source Specific Emission Limits for the CMRR Generators
SO <sub>2</sub>	0.006			
TSP	0.013			
PM <sub>10</sub>	0.011			
CO	0.281			
VOC	0.032			
HAPs	6.51E-05			

Generator TA-48-GEN-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0			No Source Specific Emission Limits for the TA-48 Generator
SO <sub>2</sub>	0			
TSP	0			
PM <sub>10</sub>	0			
CO	0			
VOC	0			
HAPs	0			

Note: The TA-48-GEN-1 generator did not operate during the first six months of 2018.

Generator TA-55-GEN-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0			No Source Specific Emission Limits for the TA-55 Generators
SO <sub>2</sub>	0			
TSP	0			
PM <sub>10</sub>	0			
CO	0			
VOC	0			
HAPs	0			

Note: The TA-55-GEN-1 generator did not operate during the first six months of 2018.

Generator TA-55-GEN-2	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0			No Source Specific Emission Limits for the TA-55 Generators
SO <sub>2</sub>	0			
TSP	0			
PM <sub>10</sub>	0			
CO	0			
VOC	0			
HAPs	0			

Note: The TA-55-GEN-2 generator did not operate during the first six months of 2018.

Continued on the next page.

**A1100 Internal Combustion- continued**

Generator TA-55-GEN-3	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NO <sub>x</sub>	0.1474			No Source Specific Emission Limits for the TA-55 Generators
SO <sub>2</sub>	0.0025			
TSP	0.0046			
PM <sub>10</sub>	0.0046			
CO	0.0322			
VOC	0.0046			
HAPs	2.68E-05			

**A1200 Data Disintegrator**

## A1202 Emission Limits - Data Disintegrator

Unit No.	TSP tpy	PM10 tpy
TA-52-11	9.9	9.9

**Reporting Requirement**

A1207 A The permittee shall submit reports described in Section A109 and in accordance with B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

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

**Comments:**

Data Disintegrator TA-52-11	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1202 A) (tons per year)
TSP	0.22			9.9
PM10	0.20			9.9



**A1300 TA-3 Power Plant**

A1302 Emission Limits - TA-3 Power Plant

**All TA-3 Power Plant Boilers Combined (TA-33-1, TA-33-2, TA-33-3)**

NOx tpy	CO tpy	VOC tpy	SOx tpy	TSP tpy	PM <sub>10</sub> tpy	PM2.5 tpy
31.5	21.5	2.8	4.9	4.7	4.4	4.2

**TA-3 Power Plant Turbine (TA-3-22-CT-1)**

NOx tpy	CO tpy	VOC tpy	SOx tpy	TSP tpy	PM <sub>10</sub> tpy	PM2.5 tpy
59.4	72.3	1.5	4.2	4.8	4.8	4.8

**Reporting Requirement**

A1307 A The permittee shall submit reports described in Section A109 and in accordance with B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NOx, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

No

Provide comments and identify any supporting documentation as an attachment.

**Comments:**

Boilers TA-3-22-1, TA-3-22-2, TA-3-22-3	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limit (Condition A1302 A) (tons per year)
NOx	5.40			31.5
SO <sub>2</sub>	0.06			4.9
TSP	0.71			4.7
PM <sub>10</sub>	0.71			4.4
PM <sub>2.5</sub>	0.71			4.2
CO	3.72			21.5
VOC	0.51			2.8
HAPs	0.18			No Source Limit

Combustion Turbine TA-3-22 CT-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limit (Condition A1302 A) (tons per year)
NOx	3.254			59.4
SOx	0.226			4.2
TSP	0.438			4.8
PM <sub>10</sub>	0.438			4.8
PM <sub>2.5</sub>	0.438			4.8
CO	0.677			72.3
VOC	0.142			1.5
HAPs	0.089			No Source Limit

## A1400 Open Burning

### A1402 Emission Limits - Open Burning

Unit No.	Individual HAP <sup>1</sup> (tpy)	Total HAPs <sup>1</sup> (tpy)
Facility-Wide Open Burning	8.0	24.0

<sup>1</sup> Individual and Total HAPs emitted by Open Burning are included in facility-wide HAP emission limits at Table 106.B.

## Reporting Requirement

A1407 A The permittee shall submit reports as outlined in the Condition 1407.A Requirements, as described in Section A109, and in accordance with Section B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

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

### Comments:

No open burning activities took place during the first six months of 2018.

## A1500 Evaporative Sprayers

### A1502 Emission Limits - Evaporative Sprayers

Unit No.	HAPs tpy
TA-60-EVAP-1	--
TA-60-EVAP-2	--
TA-60-EVAP-3	--
TA-60-EVAP-4	--
TA-60-EVAP-5	--

Hazardous air pollutants (HAPs) from the evaporative coolers are included in and subject to the individual and total HAP facility-wide emission limits in Table 106.B: 8.0 tpy per individual HAP, and 24.0 tpy of combined total HAPs.

### Reporting Requirement

A1507 A The permittee shall submit reports described in Section A109 and in accordance with B111.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

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

Comments:

Evaporative Sprayer TA-60-EVAP-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1502 A) (tons per year)
Polychlorinated biphenyls	1.02E-09			Source limits refer to facility-wide limits.
Chloroform	4.71E-06			
Chloromethane	3.22E-06			
Bromoform	4.16E-06			
Cyanide Compounds	9.57E-06			
Manganese Compounds	3.46E-05			
Antimony Compounds	1.64E-05			
TOTAL HAPs	7.26E-05			

Evaporative Sprayer TA-60-EVAP-2	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1502 A) (tons per year)
Polychlorinated biphenyls	6.20E-10			Source limits refer to facility-wide limits.
Chloroform	2.85E-06			
Chloromethane	1.95E-06			
Bromoform	2.52E-06			
Cyanide Compounds	5.79E-06			
Manganese Compounds	2.09E-05			
Antimony Compounds	9.89E-06			
TOTAL HAPs	4.39E-05			

Continued on the next page.



# A1500 Evaporative Sprayers - continued

Evaporative Sprayer TA-60-EVAP-3	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1502 A) (tons per year)
Polychlorinated biphenyls	0			Source limits refer to facility-wide limits.
Chloroform	0			
Chloromethane	0			
Bromoform	0			
Cyanide Compounds	0			
Manganese Compounds	0			
Antimony Compounds	0			
TOTAL HAPs	0			

Note: The TA-60-EVAP-3 evaporative sprayer did not operate during the first 6 months of 2018.

Evaporative Sprayer TA-60-EVAP-4	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1502 A) (tons per year)
Polychlorinated biphenyls	0			Source limits refer to facility-wide limits.
Chloroform	0			
Chloromethane	0			
Bromoform	0			
Cyanide Compounds	0			
Manganese Compounds	0			
Antimony Compounds	0			
TOTAL HAPs	0			

Note: The TA-60-EVAP-4 evaporative sprayer has not been installed.

Evaporative Sprayer TA-60-EVAP-5	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1502 A) (tons per year)
Polychlorinated biphenyls	0			Source limits refer to facility-wide limits.
Chloroform	0			
Chloromethane	0			
Bromoform	0			
Cyanide Compounds	0			
Manganese Compounds	0			
Antimony Compounds	0			
TOTAL HAPs	0			

Note: The TA-60-EVAP-5 evaporative sprayer has not been installed.

## A102 Facility Wide Emission Limits

**Table 102.A: Total Potential Criteria Pollutant Emissions from Entire Facility**

Pollutant	Emissions (tons per year)
Nitrogen Oxides (NOx)	245.0
Carbon Monoxide (CO)	225.0
Volatile Organic Carbons (VOC)	200.0
Sulfur Dioxide (SO <sub>2</sub> )	150.0
Total Particulate Matter (TSP)	120.0
Particulate Matter less than 10 microns (PM <sub>10</sub> )	120.0
Particulate Matter less than 2.5 microns (PM <sub>2.5</sub> )	120.0

**Table 102.B: Total Potential HAPs that exceed 1.0 tons per year**

Pollutant	Emissions (tons per year)
Individual HAP	8.0
Total HAPs	24.0

### Reporting Requirement

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NOx, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

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

Comments:

Pollutant	January - June Emissions (tons)	July - December Emissions (tons)	2018 Annual Emissions (tons)	Facility Wide Permit Limits (Condition A102) (tons per year)
Nitrogen Oxides	20.77			245
Carbon Monoxide	14.57			225
Volatile Organic Carbons	7.06			200
Sulfur Dioxide	0.38			150
Total Particulate Matter	2.31			120
Particulate Matter less than 10 microns	2.28			120
Particulate Matter less than 2.5 microns	1.15			120
Hazardous Air Pollutants	3.55			24



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Environmental Compliance Programs (EPC-CP)***  
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***National Nuclear Security Administration  
Los Alamos Field Office***  
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Los Alamos, New Mexico, 87544  
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*Symbol:* ESHQSS: 19-015  
*LA-UR:* 19-21018  
*Locates Action No.:* N/A  
*Date:* **MAR 19 2019**

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

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

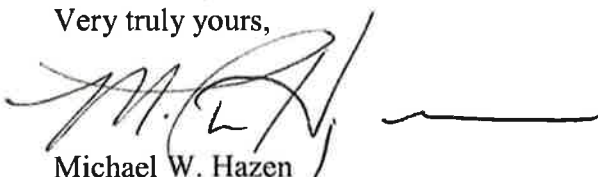
Dear Kristina Sullivan:

Please find Los Alamos National Laboratory's (LANL) Semi-Annual Emissions report for Operating permits P100-R2M2 and P100-R2M3 for the period July 1, 2018 through December 31, 2018 (*Attachment I*). This report is required by permit condition A109.B and is submitted within 90 days from the end of the reporting period as required by that condition.


The semi-annual emissions report includes actual emissions from permitted sources included in LANL's Operating Permit. In this report, actual emissions are listed along with emission limits for ease in comparing and verifying compliance. No annual emission limits were exceeded during this reporting period.

If you have any questions or comments regarding this submittal or would like to discuss the submittal in greater detail, please contact Adrienne Nash at (505) 665-5026 or Walt Whetham at (505) 665-8885.

Very truly yours,

  
Michael W. Hazen  
Associate Lab Director

Very truly yours,

  
William S. Goodrum  
Manager, Los Alamos Field office

MWH/WSG/WWW:jdm

Attachment(s): Attachment 1 Title V Semi-Annual Emissions Report for Permits P100-R2M2 and P100-R2M3, Jul 1, 2018 – Dec 31, 2018

Copy: Adrienne L. Nash, LASO-MA-LS, [adrienne.nash@nnsa.doe.gov](mailto:adrienne.nash@nnsa.doe.gov), (E-File)  
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Christian Maupin, N3B, (E-File)  
Elizabeth Lowes, N3B, (E-File)  
Dana Lindsay, N3B, (E-File)  
EPC-CP Title V Emissions Report File  
EPC-CP Correspondence File  
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**New Mexico Environment Department  
Air Quality Bureau  
Compliance and Enforcement Section  
525 Camino de los Marquez, Suite 1  
Santa Fe, NM 87505  
Phone (505) 476-4300**



Version 07.20.18

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## REPORTING SUBMITTAL FORM

NMED USE ONLY	
Staff	
Admin	

PLEASE NOTE: ® - Indicates required field

SECTION I - GENERAL COMPANY AND FACILITY INFORMATION										
<b>A. ® Company Name:</b> Department of Energy, National Nuclear Security Administration					<b>D. ® Facility Name:</b> Los Alamos National Laboratory					
<b>B.1 ® Company Address:</b> 3747 West Jemez Road					<b>E.1 ® Facility Address:</b> P.O. Box 1663 MS J978					
<b>B.2 ® City:</b> Los Alamos		<b>B.3 ® State:</b> NM		<b>B.4 ® Zip:</b> 8 7 5 4 4		<b>E.2 ® City:</b> Los Alamos		<b>E.3 ® State:</b> NM		
<b>E.4 ® Zip:</b> 87545		<b>C.1 ® Company Environmental Contact:</b> Adrienne L. Nash			<b>C.2 ® Title:</b> Program Manager			<b>F.1 ® Facility Contact:</b> Marjorie B. Stockton		
<b>F.2 ® Title:</b> Acting Air Quality Compliance Team Leader			<b>C.3 ® Phone Number:</b> (505) 665-5026			<b>C.4 ® Fax Number:</b> (505) 667-9998			<b>F.3 ® Phone Number:</b> (505) 665-3289	
<b>F.4 ® Fax Number:</b> NA			<b>C.5 ® Email Address:</b> adrienne.nash@nnsa.doe.gov			<b>F.5 ® Email Address:</b> mstockton@lanl.gov				
<b>G. Responsible Official: (Title V only):</b> William S. Goodrum			<b>H. Title:</b> Manager			<b>I. Phone Number:</b> (505) 667-5105			<b>J. Fax Number:</b> NA	
<b>K. ® AI Number:</b> 856		<b>L. Title V Permit Number:</b> P100-R2M3		<b>M. Title V Permit Issue Date:</b> October 17, 2018		<b>N. NSR Permit Number:</b> 2195		<b>O. NSR Permit Issue Date:</b> Various		
<b>P. Reporting Period:</b> From: July 1, 2018 To: December 31, 2018										

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

SECTION II - TYPE OF SUBMITTAL (check one that applies)				
A. <input type="checkbox"/>	Title V Annual Compliance Certification	Permit Condition(s):	Description:	
B. <input type="checkbox"/>	Title V Semi-Annual Monitoring Report	Permit Condition(s):	Description:	
C. <input type="checkbox"/>	NSPS Requirement (40CFR60)	Regulation:	Section(s):	Description:
D. <input type="checkbox"/>	MACT Requirement (40CFR63)	Regulation:	Section(s):	Description:
E. <input type="checkbox"/>	NMAC Requirement (20.2.xx) or NESHAP Requirement (40CFR61)	Regulation:	Section(s):	Description:
F. <input checked="" type="checkbox"/>	Permit or Notice of Intent (NOI) Requirement	Permit No. <input checked="" type="checkbox"/> or NOI No. <input type="checkbox"/> P100R2M2 and P100R2M3	Condition(s): A109 B	Description: Title V Semi-Annual Emissions Report 7/1/2018-12/31/2018
G. <input type="checkbox"/>	Requirement of an Enforcement Action	NOV No. <input type="checkbox"/> or SFO No. <input type="checkbox"/> or CD No. <input type="checkbox"/> or Other <input type="checkbox"/>	Section(s):	Description:

SECTION III - CERTIFICATION			
After reasonable inquiry, I <u>William S. Goodrum</u> certify that the information in this submittal is true, accurate and complete. (Name of Certifier)			
® Signature of Certifier: 		® Title: Manager	® Date: 3-19-19
		® Responsible Official for Title V? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Reviewed By: \_\_\_\_\_

Date Reviewed: \_\_\_\_\_



# Title V Report Certification Form

## I. Report Type

- ☐ Annual Compliance Certification
- ☐ Semi-Annual Monitoring Report
- ☒ Other Specify: Semi-Annual Emissions Report

## II. Identifying Information

Facility Name: Los Alamos National Laboratory

Facility Address: P.O. Box 1663, MS J978

State: NM

Zip: 87545

Responsible Official (RO): William S. Goodrum

Phone: (505) 667-5105

Fax: NA

RO Title: Manager, LASO

RO e-mail: [steve.goodrum@nnsa.doe.gov](mailto:steve.goodrum@nnsa.doe.gov)

Permit No.: P100-R2M2

Date Permit Issued: 5/7/2018

Report Due Date (as required by the permit): 3/30/2019

Permit AI number: 856

Time period covered by this Report: From: 7/1/2018

To: 10/16/2018

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

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

Signature



Date:

3-19-19

# Title V Report Certification Form

## I. Report Type

- ☐ Annual Compliance Certification
- ☐ Semi-Annual Monitoring Report
- ☒ Other Specify: Semi-Annual Emissions Report

## II. Identifying Information

Facility Name: Los Alamos National Laboratory

Facility Address: P.O. Box 1663, MS J978

State: NM

Zip: 87545

Responsible Official (RO): William S. Goodrum

Phone: (505) 667-5105

Fax: NA

RO Title: Manager, LASO

RO e-mail: [steve.goodrum@nnsa.doe.gov](mailto:steve.goodrum@nnsa.doe.gov)

Permit No.: P100-R2M3

Date Permit Issued: 10/17/2018

Report Due Date (as required by the permit): 3/30/2019

Permit AI number: 856

Time period covered by this Report: From: 10/17/2018

To: 12/31/2018

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

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

Signature



Date:

3-19-19

# **Attachment 1**

**Title V Semi-Annual Emissions Report  
For Permits P100-R2M2 and P100-R2M3  
July 1, 2018 – December 31, 2018**

**ESHQSS-19-015**

**LA-UR-19-21018**

**Date: MAR 19 2019**



**Title V Semi-Annual Emissions Report  
AI 856, Permits P100-R2M2 and P100-R2M3  
July 1, 2018 - December 31, 2018**

**Emission Reporting Requirements**

**A109 Facility: Reporting Schedules**

- A. A Semi-Annual Report of monitoring activities is due within 45 days following the end of every 6-month reporting period. The six month reporting periods start on January 1<sup>st</sup> and July 1<sup>st</sup> of each year.
- B. A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

## Specific Emissions Reports:

### A600 Asphalt Production

A602 Emission Limits - Asphalt Production

Unit No.	Nox tpy	SO <sub>2</sub> tpy	PM tpy	CO tpy	VOC tpy
TA-60-BDM	50.0	50.0	50.0	30.0	50.0

### Reporting Requirement

A607 F The permittee shall submit reports described in Section A109 and in accordance with B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

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

Comments:

Asphalt Plant TA-60-BDM	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A602 A) (tons per year)
NO <sub>x</sub>	0.0026	0.0021	0.005	50.0
SO <sub>2</sub>	0.0010	0.0008	0.002	50.0
PM	0.0016	0.0013	0.003	50.0
CO	0.0942	0.0762	0.170	30.0
VOC	0.0018	0.0014	0.003	50.0
HAPs	0.0017	0.0013	0.003	No Source Permit Limit

## A700 Beryllium Activities

### A702 Emission Limits - Beryllium Activities

Source	Beryllium Particulate Matter	Aluminum Particulate Matter
Sigma Facility TA-3-66	10 gm/24 hr	N/A
Beryllium Technology Facility TA-3-141	3.5 gm/yr	N/A
Target Fabrication Facility TA-35-213	0.36 gm/yr	N/A
Plutonium Facility TA-55-PF-4 Machining Operation	2.99 gm/yr	2.99 gm/yr
Plutonium Facility TA-55-PF-4 Foundry Operation	$8.73 \times 10^{-04}$ gm/yr	$8.73 \times 10^{-04}$ gm/yr

### Reporting Requirement

A707 D The permittee shall submit reports described in Section A109 and in accordance with B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

No

Provide comments and identify any supporting documentation as an attachment.

**Comments:** To meet condition of 5.f in NSR permit #634-M2, LANL submitted the following quarterly beryllium emissions reports for the Beryllium Technology Facility: first quarter report, April 18, 2018 (SBR20180006), second quarter report, August 17, 2018 (SBR20180008), third quarter, October, 24, 2018 (SBR20180011), and fourth quarter report, February 06, 2019 (SBR20190003).

## A700 Beryllium Activities - continued

### Comments:

Source	Pollutant	January - June Emissions	July - December Emissions	Annual Emissions	Permit Limits (Condition A702 A)
Sigma Facility TA-3-66 <sup>(1)</sup>	Beryllium (grams)	0.020	0.0006	0.021	10 gm/24 hr
Beryllium Technology Facility TA-3-141 <sup>(2)</sup>	Beryllium (grams)	0.0032	0.0031	0.0062	3.5 gm/yr
Target Fabrication Facility TA-35-213 <sup>(3)</sup>	Beryllium (grams)	< 0.00944	< 0.009	< 0.018	0.36 gm/yr
Plutonium Facility TA-55-PF4 Machining Operation <sup>(4)</sup>	Beryllium (grams)	< 1.495	< 1.41	< 2.91	2.99 gm/yr
	Aluminum (grams)	< 1.495	< 1.41	< 2.91	2.99 gm/yr
Plutonium Facility TA-55-PF4 Foundry Operation <sup>(5)</sup>	Beryllium (grams)	0	0	0.00	$8.73 \times 10^{-4}$ gm/yr
	Aluminum (grams)	0	0	0.00	$8.73 \times 10^{-4}$ gm/yr
Beryllium Total <sup>(5)</sup> (tons) =		< 1.69E-06	< 1.57E-06	< 3.26E-06	
Aluminum Total (tons) =		< 1.65E-06	< 1.55E-06	< 3.30E-06	

Notes: (1) Emissions from the Sigma Facility are from electroplating, chemical milling, and metallographic operations. (2) Emission values shown for the Beryllium Technology Facility are from actual stack emission measurements which are submitted to NMED quarterly. (3) Emissions for the Target Fabrication Facility are from initial compliance testing of that source and calculated based on a conservative assumption of 8 hour work days. Log books were checked to verify that work days were much less than 8 hours. (4) Emissions for the Plutonium Facility are calculated based on permitted throughputs. Log books were checked to verify that throughputs were much less than permitted values. (5) The Plutonium Facility foundry operations did not operate during the last 6 months of 2018.

**A800 External Combustion****A802 Emission Limits - External Combustion**

Unit No.	NO <sub>x</sub> tpy	CO tpy	VOC tpy	SO <sub>2</sub> tpy	TSP tpy	PM <sub>10</sub> tpy
All Boilers	80.0	80.0	50.0	50.0	50.0	50.0

Unit No.	NO <sub>x</sub> tpy	CO tpy	SO <sub>2</sub> tpy	TSP tpy	PM <sub>10</sub> tpy	PM <sub>2.5</sub> tpy
RLUOB-BHW-1 (gas)	2.9	4.8	0.3	0.4	0.4	0.4
RLUOB-BHW-2 (gas)	2.9	4.8	0.3	0.4	0.4	0.4
RLUOB-BHW-3 (gas)	2.9	4.8	0.3	0.4	0.4	0.4
RLUOB-BHW-4 (gas)	2.9	4.8	0.3	0.4	0.4	0.4
RLUOB Boilers (oil)	2.9	0.9	10.4	0.5	0.3	0.3
RLUOB Boilers Total	14.5	20.1	11.6	2.1	1.9	1.9

**Reporting Requirement**

A807 B The permittee shall submit reports described in Section A109 and in accordance with B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

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

**Comments:**

Boilers	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A802 A) (tons per year)
NO <sub>x</sub>	10.98	9.32	20.3	80
SO <sub>2</sub>	0.07	0.06	0.1	50
TSP	0.88	0.75	1.6	50
PM-10	0.88	0.75	1.6	50
CO	8.86	7.46	16.3	80
VOCs	0.63	0.53	1.2	50
HAPs	0.21	0.18	0.4	No Source Limit

Note: The emissions shown in this table includes all exempt, non-exempt, metered, and non-metered boilers at LANL except for the TA-3-22 Power Plant boilers. The Power Plant boilers can be found under Section A1300 of this report.

Continued on the next page

**A800 External Combustion - continued**

<b>RLUOB-BHW-1 (Gas)</b>	<b>January - June Emissions (tons)</b>	<b>July - December Emissions (tons)</b>	<b>Annual Emissions (tons)</b>	<b>Permit Limits (Condition A802 B) (tons per year)</b>
NOx	0.0056	0.0049	0.011	2.9
SO <sub>2</sub>	0.0001	0.0001	0.0002	0.3
TSP	0.0009	0.0008	0.002	0.4
PM-10	0.0009	0.0008	0.002	0.4
PM-2.5	0.0009	0.0008	0.002	0.4
CO	0.0072	0.0063	0.013	4.8
VOCs	0.0048	0.0042	0.009	No Source Limit
HAPs	3.55E-04	3.12E-04	0.001	No Source Limit

<b>RLUOB-BHW-2 (Gas)</b>	<b>January - June Emissions (tons)</b>	<b>July - December Emissions (tons)</b>	<b>Annual Emissions (tons)</b>	<b>Permit Limits (Condition A802 B) (tons per year)</b>
NOx	0.0056	0.0049	0.011	2.9
SO <sub>2</sub>	0.0001	0.0001	0.0002	0.3
TSP	0.0009	0.0008	0.002	0.4
PM-10	0.0009	0.0008	0.002	0.4
PM-2.5	0.0009	0.0008	0.002	0.4
CO	0.0072	0.0063	0.013	4.8
VOCs	0.0048	0.0042	0.009	No Source Limit
HAPs	3.55E-04	3.12E-04	0.001	No Source Limit

<b>RLUOB-BHW-3 (Gas)</b>	<b>January - June Emissions (tons)</b>	<b>July - December Emissions (tons)</b>	<b>Annual Emissions (tons)</b>	<b>Permit Limits (Condition A802 B) (tons per year)</b>
NOx	0.0056	0.0049	0.011	2.9
SO <sub>2</sub>	0.0001	0.0001	0.0002	0.3
TSP	0.0009	0.0008	0.002	0.4
PM-10	0.0009	0.0008	0.002	0.4
PM-2.5	0.0009	0.0008	0.002	0.4
CO	0.0072	0.0063	0.013	4.8
VOCs	0.0048	0.0042	0.009	No Source Limit
HAPs	3.55E-04	3.12E-04	0.001	No Source Limit

<b>RLUOB-BHW-4 (Gas)</b>	<b>January - June Emissions (tons)</b>	<b>July - December Emissions (tons)</b>	<b>Annual Emissions (tons)</b>	<b>Permit Limits (Condition A802 B) (tons per year)</b>
NOx	0	0	0	2.9
SO <sub>2</sub>	0	0	0	0.3
TSP	0	0	0	0.4
PM-10	0	0	0	0.4
PM-2.5	0	0	0	0.4
CO	0	0	0	4.8
VOCs	0	0	0	No Source Limit
HAPs	0	0	0	No Source Limit

Note: The RLUOB-BHW-4 boiler has not been installed.

Continued on the next page.



# **A800 External Combustion - continued**

<b>RLUOB Boilers Totals (Oil)</b>	<b>January - June Emissions (tons)</b>	<b>July - December Emissions (tons)</b>	<b>Annual Emissions (tons)</b>	<b>Permit Limits (Condition A802 B) (tons per year)</b>
NOx	0	0	0	2.9
SO <sub>2</sub>	0	0	0	10.4
TSP	0	0	0	0.5
PM-10	0	0	0	0.3
PM-2.5	0	0	0	0.3
CO	0	0	0	0.9
VOCs	0	0	0	No Source Limit
HAPs	0	0	0	No Source Limit

Note: The RLUOB boilers did not operate on fuel oil during 2018.

<b>RLUOB Boilers Totals (Gas and Oil)</b>	<b>January - June Emissions (tons)</b>	<b>July - December Emissions (tons)</b>	<b>Annual Emissions (tons)</b>	<b>Permit Limits (Condition A802 B) (tons per year)</b>
NOx	0.0168	0.0148	0.032	14.5
SO <sub>2</sub>	0.0003	0.0003	0.001	11.6
TSP	0.0028	0.0024	0.005	2.1
PM-10	0.0028	0.0024	0.005	1.9
PM-2.5	0.0028	0.0024	0.005	1.9
CO	0.0215	0.0189	0.040	20.1
VOCs	0.0145	0.0127	0.027	No Source Limit
HAPs	1.07E-03	9.35E-04	0.002	No Source Limit

## A900 Chemical Usage

### A902 Emission Limits - Chemical Usage

Unit No.	VOC/HAPs tpy
LANL-FW-CHEM	-- <sup>1</sup>
CMRR-CHEM	3.75 <sup>1</sup>

<sup>1</sup> The VOC emissions from this source category are included in the facility-wide allowable emissions limit established in Table 106.B: 200 tpy VOC, 8.0 tpy per individual HAP, and 24.0 tpy of combined total HAPs. Any VHAPs that are also defined as a VOC shall be included in the VOC total.

### Reporting Requirement

A907 A The permittee shall submit reports described in Section A109 and in accordance with B110. With respect to individual HAPs, reports shall include any HAP emitted in quantity greater than 0.5 tons per year.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

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

#### Comments:

Chemical Usage LANL-FW-CHEM		January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A902.B)
VOCs		5.64	5.61	11.25	Source limits refer to facility-wide limits.
HAPs		3.07	2.81	5.88	
Individual HAPs greater than 0.5 tons	Hydrochloric Acid	0.70	0.54	1.24	
	Methanol	0.57	0.57	1.14	
	Methylene Chloride	0.28	0.56	0.84	
	Hexane	0.20	0.34	0.54	

Chemical Usage CMRR-CHEM		January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A902.B)
HAPs		0.0124	0.0000	0.0124	3.75
VOCs		0.0034	0.0000	0.0034	3.75
TAPs		0.0369	0.0110	0.0479	No Source Limit



## A1000 Degreasers

### A1002 Emission Limits - Degreasers

Unit No.	VOC/HAPs tpy
TA-55-DG-1	--

1 The VOC emissions from this source category are included in the facility-wide allowable emissions limit established in Table 106.B: 200 tpy VOC, 8.0 tpy per individual HAP, and 24.0 tpy of combined total HAPs. Any VHAPs that are also defined as a VOC shall be included in the VOC total.

## Reporting Requirement

A1007 A The permittee shall submit reports described in Section A109 and in accordance with B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

No

Provide comments and identify any supporting documentation as an attachment.

### Comments:

Degreaser TA-55-DG-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1002 A) (tons per year)
VOCs	0	0.011	0.011	Source limits refer to facility-wide limits.
HAPs	0	0.011	0.011	

Note: The TA-55-DG-1 degreaser did not operate during the first 6 months of 2018.

**A1100 Internal Combustion****A1102 Emission Limits - Internal Combustion**

Unit No.	NO <sub>x</sub> tpy	CO tpy	VOC tpy	SO <sub>2</sub> tpy	TSP tpy	PM <sub>10</sub> tpy
TA-33-G-1P	18.1	15.2	0.3	2.5	0.6	0.6
TA-33-G-2	0.21	0.1	-- <sup>1</sup>	--	--	--
TA-33-G-3	0.21	0.1	-- <sup>1</sup>	--	--	--
TA-33-G-4	2.33	1.4	0.2	0.16	--	--

<sup>1</sup> The VOC emissions from this source category are included in the facility-wide allowable emissions limit established in condition 106.B: 200 tpy VOC, 8.0 tpy per individual HAP, and 24.0 tpy of combined total HAPs.

**Reporting Requirement**

A1107 A The permittee shall comply with all applicable reporting requirements of 40 CFR 60, Subpart A as required in 60.4218 and in accordance with Section B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

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

**Comments:**

Generator TA-33-G-1P	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1102 A) (tons per year)
NO <sub>x</sub>	0.0157	0.1822	0.198	18.1
SO <sub>2</sub>	0.0004	0.0049	0.005	2.5
TSP	0.0005	0.0056	0.006	0.6
PM <sub>10</sub>	0.0005	0.0056	0.006	0.6
CO	0.0016	0.0182	0.020	15.2
VOC	0.0011	0.0134	0.015	0.3
HAPs	4.53E-06	5.27E-05	5.72E-05	No Source Limit

Generator TA-33-G-2	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1102 A) (tons per year)
NO <sub>x</sub>	5.21E-05	0	5.21E-05	0.21
SO <sub>2</sub>	3.58E-06	0	3.58E-06	Not Required
TSP	3.58E-06	0	3.58E-06	Not Required
PM <sub>10</sub>	3.58E-06	0	3.58E-06	Not Required
CO	1.52E-05	0	1.52E-05	0.1
VOC	4.13E-06	0	4.13E-06	Not Required
HAPs	1.69E-08	0	1.69E-08	No Source Limit

Note: The TA-33-G-2 generator did not operate during the second six months of 2018.

Continued on the next page.

**A1100 Internal Combustion- continued**

Generator TA-33-G-3	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1102 A) (tons per year)
NOx	0	0	0	0.21
SO <sub>2</sub>	0	0	0	Not Required
TSP	0	0	0	Not Required
PM <sub>10</sub>	0	0	0	Not Required
CO	0	0	0	0.1
VOC	0	0	0	Not Required
HAPs	0	0	0	No Source Limit

Note: The TA-33-G-3 generator did not operate during 2018.

Generator TA-33-G-4	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1102 A) (tons per year)
NOx	0.0234	0.0996	0.123	2.39
SO <sub>2</sub>	0.0016	0.0069	0.008	0.16
TSP	0.0016	0.0069	0.008	Not Required
PM <sub>10</sub>	0.0016	0.0069	0.008	Not Required
CO	0.0141	0.0601	0.074	1.4
VOC	0.0019	0.0079	0.010	0.2
HAPs	7.60E-06	3.23E-05	3.99E-05	No Source Limit

Generator RLUOB-GEN-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0	0.0017	0.0017	No Source Specific Emission Limits for the CMRR Generators
SO <sub>2</sub>	0	4.38E-05	4.38E-05	
TSP	0	0.0001	0.0001	
PM <sub>10</sub>	0	0.0001	0.0001	
CO	0	0.0021	0.0021	
VOC	0	0.0002	0.0002	
HAPs	0	4.82E-07	4.82E-07	

Note: The RLUOB-GEN-1 generator did not operate during the first 6 months of 2018.

Generator RLUOB-GEN-2	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0.722	0.160	0.88	No Source Specific Emission Limits for the CMRR Generators
SO <sub>2</sub>	0.019	0.004	0.02	
TSP	0.042	0.009	0.05	
PM <sub>10</sub>	0.035	0.008	0.04	
CO	0.895	0.198	1.09	
VOC	0.102	0.023	0.12	
HAPs	2.07E-04	4.58E-05	2.53E-04	

Continued on the next page.

**A1100 Internal Combustion- continued**

Generator RLUOB-GEN-3	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0.227	0.218	0.45	No Source Specific Emission Limits for the CMRR Generators
SO <sub>2</sub>	0.006	0.006	0.01	
TSP	0.013	0.013	0.03	
PM <sub>10</sub>	0.011	0.011	0.02	
CO	0.281	0.271	0.55	
VOC	0.032	0.031	0.06	
HAPs	6.51E-05	6.26E-05	1.28E-04	

Generator TA-48-GEN-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0	0	0	No Source Specific Emission Limits for the TA-48 Generator
SO <sub>2</sub>	0	0	0	
TSP	0	0	0	
PM <sub>10</sub>	0	0	0	
CO	0	0	0	
VOC	0	0	0	
HAPs	0	0	0	

Note: The TA-48-GEN-1 generator did not operate during 2018.

Generator TA-55-GEN-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0	0	0	No Source Specific Emission Limits for the TA-55 Generators
SO <sub>2</sub>	0	0	0	
TSP	0	0	0	
PM <sub>10</sub>	0	0	0	
CO	0	0	0	
VOC	0	0	0	
HAPs	0	0	0	

Note: The TA-55-GEN-1 generator did not operate during 2018.

Generator TA-55-GEN-2	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0	0	0	No Source Specific Emission Limits for the TA-55 Generators
SO <sub>2</sub>	0	0	0	
TSP	0	0	0	
PM <sub>10</sub>	0	0	0	
CO	0	0	0	
VOC	0	0	0	
HAPs	0	0	0	

Note: The TA-55-GEN-2 generator did not operate during 2018.

Continued on the next page.



**A1100 Internal Combustion- continued**

Generator TA-55-GEN-3	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	0.147	0.090	0.24	No Source Specific Emission Limits for the TA-55 Generators
SO <sub>2</sub>	0.002	0.002	0.004	
TSP	0.005	0.003	0.01	
PM <sub>10</sub>	0.005	0.003	0.01	
CO	0.032	0.020	0.05	
VOC	0.005	0.003	0.01	
HAPs	2.68E-05	1.63E-05	4.31E-05	

**A1200 Data Disintegrator**

## A1202 Emission Limits - Data Disintegrator

Unit No.	TSP tpy	PM10 tpy
TA-52-11	9.9	9.9

**Reporting Requirement**

A1207 A The permittee shall submit reports described in Section A109 and in accordance with B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

No

Provide comments and identify any supporting documentation as an attachment.

**Comments:**

Data Disintegrator TA-52-11	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1202 A) (tons per year)
TSP	0.22	0.17	0.39	9.9
PM10	0.20	0.15	0.35	9.9

**A1300 TA-3 Power Plant**

A1302 Emission Limits - TA-3 Power Plant

**All TA-3 Power Plant Boilers Combined (TA-33-1, TA-33-2, TA-33-3)**

NOx tpy	CO tpy	VOC tpy	SOx tpy	TSP tpy	PM <sub>10</sub> tpy	PM2.5 tpy
31.5	21.5	2.8	4.9	4.7	4.4	4.2

**TA-3 Power Plant Turbine (TA-3-22-CT-1)**

NOx tpy	CO tpy	VOC tpy	SOx tpy	TSP tpy	PM <sub>10</sub> tpy	PM2.5 tpy
59.4	72.3	1.5	4.2	4.8	4.8	4.8

**Reporting Requirement**

A1307 A The permittee shall submit reports described in Section A109 and in accordance with B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NOx, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

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

**Comments:**

Boilers TA-3-22-1, TA-3-22-2, TA-3-22-3	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limit (Condition A1302 A) (tons per year)
NOx	5.396	4.734	10.13	31.5
SO <sub>2</sub>	0.057	0.049	0.11	4.9
TSP	0.707	0.620	1.33	4.7
PM <sub>10</sub>	0.707	0.620	1.33	4.4
PM <sub>2.5</sub>	0.707	0.620	1.33	4.2
CO	3.721	3.265	6.99	21.5
VOC	0.512	0.449	0.96	2.8
HAPs	0.176	0.154	0.33	No Source Limit

Combustion Turbine TA-3-22 CT-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limit (Condition A1302 A) (tons per year)
NOx	3.254	1.068	4.34	59.4
SOx	0.226	0.075	0.30	4.2
TSP	0.438	0.147	0.58	4.8
PM <sub>10</sub>	0.438	0.147	0.58	4.8
PM <sub>2.5</sub>	0.438	0.147	0.58	4.8
CO	0.677	0.226	0.90	72.3
VOC	0.142	0.047	0.19	1.5
HAPs	0.089	0.030	0.12	No Source Limit

## A1400 Open Burning

### A1402 Emission Limits - Open Burning

Unit No.	Individual HAP <sup>1</sup> (tpy)	Total HAPs <sup>1</sup> (tpy)
Facility-Wide Open Burning	8.0	24.0

<sup>1</sup> Individual and Total HAPs emitted by Open Burning are included in facility-wide HAP emission limits at Table 106.B.

## Reporting Requirement

A1407 A The permittee shall submit reports as outlined in the Condition 1407.A Requirements, as described in Section A109, and in accordance with Section B110.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources and the Soil Vapor Extraction equipment at Material Disposal Area L shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

No

Provide comments and identify any supporting documentation as an attachment.

### Comments:

No open burning activities took place during 2018.



## A1500 Evaporative Sprayers

### A1502 Emission Limits - Evaporative Sprayers

Unit No.	HAPs tpy
TA-60-EVAP-1	-- '1
TA-60-EVAP-2	-- '1
TA-60-EVAP-3	-- '1
TA-60-EVAP-4	-- '1
TA-60-EVAP-5	-- '1

1 Hazardous air pollutants (HAPs) from the evaporative coolers are included in and subject to the individual and total HAP facility-wide emission limits in Table 106.B: 8.0 tpy per individual HAP, and 24.0 tpy of combined total HAPs.

## Reporting Requirement

A1507 A The permittee shall submit reports described in Section A109 and in accordance with B111.

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NOx, CO, SO2, VOC, TSP, PM10, and PM2.5 shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

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

### Comments:

Evaporative Sprayer TA-60-EVAP-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1502 A) (tons per year)
Polychlorinated biphenyls	1.02E-09	9.35E-10	1.96E-09	Source limits refer to facility-wide limits.
Chloroform	4.71E-06	5.69E-06	1.04E-05	
Chloromethane	3.22E-06	1.04E-05	1.37E-05	
Bromoform	4.16E-06	1.19E-06	5.35E-06	
Cyanide Compounds	9.57E-06	5.12E-05	6.08E-05	
Manganese Compounds	3.46E-05	2.23E-05	5.69E-05	
Antimony Compounds	1.64E-05	1.49E-05	3.13E-05	
<b>TOTAL HAPs</b>	<b>2.55E-04</b>	<b>2.72E-04</b>	<b>5.27E-04</b>	

Evaporative Sprayer TA-60-EVAP-2	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1502 A) (tons per year)
Polychlorinated biphenyls	6.20E-10	5.73E-10	1.19E-09	Source limits refer to facility-wide limits.
Chloroform	2.85E-06	3.49E-06	6.33E-06	
Chloromethane	1.95E-06	6.39E-06	8.34E-06	
Bromoform	2.52E-06	7.27E-07	3.24E-06	
Cyanide Compounds	5.79E-06	3.14E-05	3.72E-05	
Manganese Compounds	2.09E-05	1.37E-05	3.46E-05	
Antimony Compounds	9.89E-06	9.14E-06	1.90E-05	
<b>TOTAL HAPs</b>	<b>1.54E-04</b>	<b>1.67E-04</b>	<b>3.21E-04</b>	

Continued on the next page.

### A1500 Evaporative Sprayers - continued

Evaporative Sprayer TA-60-EVAP-3	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1502 A) (tons per year)
Polychlorinated biphenyls	0	0	0	Source limits refer to facility-wide limits.
Chloroform	0	0	0	
Chloromethane	0	0	0	
Bromoform	0	0	0	
Cyanide Compounds	0	0	0	
Manganese Compounds	0	0	0	
Antimony Compounds	0	0	0	
<b>TOTAL HAPs</b>	0	0	0	

Note: The TA-60-EVAP-3 evaporative sprayer did not operate in 2018.

Evaporative Sprayer TA-60-EVAP-4	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1502 A) (tons per year)
Polychlorinated biphenyls	0	7.58E-11	7.58E-11	Source limits refer to facility-wide limits.
Chloroform	0	4.62E-07	4.62E-07	
Chloromethane	0	8.47E-07	8.47E-07	
Bromoform	0	9.62E-08	9.62E-08	
Cyanide Compounds	0	4.16E-06	4.16E-06	
Manganese Compounds	0	1.81E-06	1.81E-06	
Antimony Compounds	0	1.21E-06	1.21E-06	
<b>TOTAL HAPs</b>	0	2.21E-05	2.21E-05	

Note: The TA-60-EVAP-4 evaporative sprayer did not operate during the first six months of 2018.

Evaporative Sprayer TA-60-EVAP-5	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition A1502 A) (tons per year)
Polychlorinated biphenyls	0	4.72E-13	4.72E-13	Source limits refer to facility-wide limits.
Chloroform	0	2.87E-09	2.87E-09	
Chloromethane	0	5.27E-09	5.27E-09	
Bromoform	0	5.99E-10	5.99E-10	
Cyanide Compounds	0	2.59E-08	2.59E-08	
Manganese Compounds	0	1.13E-08	1.13E-08	
Antimony Compounds	0	7.53E-09	7.53E-09	
<b>TOTAL HAPs</b>	0	1.38E-07	1.38E-07	

Note: The TA-60-EVAP-5 did not operate during the first six months of 2018.

## A102 Facility Wide Emission Limits

**Table 102.A: Total Potential Criteria Pollutant Emissions from Entire Facility**

Pollutant	Emissions (tons per year)
Nitrogen Oxides (NOx)	245.0
Carbon Monoxide (CO)	225.0
Volatile Organic Carbons (VOC)	200.0
Sulfur Dioxide (SO <sub>2</sub> )	150.0
Total Particulate Matter (TSP)	120.0
Particulate Matter less than 10 microns (PM <sub>10</sub> )	120.0
Particulate Matter less than 2.5 microns (PM <sub>2.5</sub> )	120.0

**Table 102.B: Total Potential HAPs that exceed 1.0 tons per year**

Pollutant	Emissions (tons per year)
Individual HAP	8.0
Total HAPs	24.0

### Reporting Requirement

A109 B A Semi-Annual Report of actual emissions from all permitted sources unless otherwise specified in this permit is due within 90 days following the end of every 6-month reporting period as defined at Condition A109.A. Emission estimates of criteria pollutants NOx, CO, SO<sub>2</sub>, VOC, TSP, PM<sub>10</sub>, and PM<sub>2.5</sub> shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. Emission estimates shall not include Insignificant or Trivial Activities, except that facility-wide emissions from all natural gas combustion sources shall be estimated. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits at Table 106.B.

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

☐

Yes

Date report submitted:

Tracking Number:

☒

No

Provide comments and identify any supporting documentation as an attachment.

#### Comments:

Pollutant	January - June Emissions (tons)	July - December Emissions (tons)	2018 Annual Emissions (tons)	Facility Wide Permit Limits (Condition A102) (tons per year)
Nitrogen Oxides	20.77	15.90	36.7	245
Carbon Monoxide	14.57	11.60	26.2	225
Volatile Organic Carbons	7.06	6.73	13.8	200
Sulfur Dioxide	0.38	0.20	0.6	150
Total Particulate Matter	2.31	1.72	4.0	120
Particulate Matter less than 10 microns	2.28	1.70	4.0	120
Particulate Matter less than 2.5 microns	1.15	0.77	1.9	120
Hazardous Air Pollutants	3.55	3.18	6.7	24