LA-14430-SR
Status Report

Emissions Inventory Report Summary for Los Alamos National Laboratory for Calendar Year 2009

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Environmental Stewardship Group

Los Alamos
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Acronyms

AIRS	Aerometric Information Retrieval System
AQB	Air Quality Bureau
CAS	Chemical Abstracts Service
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
EPA	U.S. Environmental Protection Agency
FGR	flue gas recirculation
HAP	hazardous air pollutant
HCl	hydrochloric acid
LANL	Los Alamos National Laboratory
MSDS	material safety data sheet
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NO_x	nitrogen oxides
PM	particulate matter
$PM_{2.5}$	particulate matter with diameter less than 2.5 micrometers
PM_{10}	particulate matter with diameter less than 10 micrometers
PSD	Prevention of Significant Deterioration
R&D	research and development
SO_x	sulfur oxides
TA	Technical Area
TSP	total suspended particulates
VOC	volatile organic compound

EMISSIONS INVENTORY REPORT SUMMARY FOR LOS ALAMOS NATIONAL LABORATORY FOR CALENDAR YEAR 2009

by

ENVIRONMENTAL STEWARDSHIP 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 the Laboratory'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. This permit was modified and reissued on July 16, 2007. This Title V Operating Permit (Permit No. P-100M2) includes emission limits and operating limits for all regulated sources of air pollution at LANL. The Title V Operating Permit also requires semiannual emissions reporting for all sources included in the permit. This report summarizes both the annual emissions inventory reporting and the semiannual emissions reporting for LANL for calendar year 2009. LANL's 2009 emissions are well below the emission limits in the Title V Operating Permit.

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 lb 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 which

- 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_{10}),
        - PM with diameter less than 2.5 micrometers ($PM_{2.5}$),
        - sulfur dioxide,
        - nitrogen oxides (NO_x),
        - carbon monoxide (CO), or
        - volatile organic compounds (VOCs).

The annual emissions inventory must be submitted to NMED/AQB by May 1 of each year. However, in 2009 NMED developed a new web-based air emissions inventory reporting tool which delayed the deadline to June 30th. The NMED/AQB enters the data in the Aerometric Information Retrieval System (AIRS) (EPA 2008a). This nationwide system, administered by the U.S. Environmental Protection Agency (EPA), is used to help ensure 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. For 2009 emissions inventory reporting, NMED imported existing facility data from the AIRS database into spreadsheets and requested facilities to update the sheets with 2009 facility emissions information.

Additionally, on April 30, 2004, LANL was issued a Title V Operating Permit from the NMED/AQB, under 20.2.70 NMAC. This permit was modified and reissued on August 7, 2009 (P100R1) from the NMED/AQB (NMED 2009a). A condition of the Title V Operating Permit is that LANL must submit semiannual emissions reports to NMED documenting that emissions from all permitted sources are below permitted emission levels. Section 4.0 of the permit states:

Reports of actual emissions from permitted sources in Section 2.0 of the permit shall be submitted on a 6 month basis. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.11 of the permit. The reports shall be submitted within 90 days from the end of the reporting period. The reporting periods are January 1 through June 30, and July 1 through December 31. This condition is pursuant to 20.2.70.302.E.1 NMAC.

Therefore, in 2004 the Laboratory began submitting the semiannual 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.

Furthermore, LANL submitted carbon dioxide (CO_2) emissions data from all stationary combustion sources in the Emissions Inventory Report as required by 20.2.87 NMAC, Greenhouse Gas Emissions Reporting (NMED 2009b), and in accordance with New Mexico's 2009 Greenhouse Mandatory Emissions Inventory Emissions Quantification Procedure. The estimated actual CO_2 and methane (CH_4) emissions were reported for combustion sources, indirect sources (electricity use), and fugitive emissions from research and development (R&D) activities in tons per year.

1.2 Contents of Annual Emissions Inventory Submittal

NMED requested that LANL submit annual emissions inventory data for 2009 via electronic format for entry into AIRS. The information required for submittal includes the following:

- company name, address, and physical location for the facility;
- facility contact information;
- signed certification statement by a responsible facility official; and
- specific information for each emission unit such as stack and exhaust parameters, type and efficiency of control equipment, schedule of operation, annual process or fuel combustion rates, and estimated actual emissions for 2009.

This annual emissions inventory submittal includes air pollutant data for PM, PM_{10}, CO, NO_x, sulfur oxides (SO_x), VOCs, beryllium, hazardous air pollutants (HAPs), and aluminum.

For 2009, LANL is required to report $PM_{2.5}$ emissions. LANL previously reported $PM_{2.5}$ emissions at the request of NMED for 2006 and 2007. Further, ammonia is a precursor to $PM_{2.5}$ formation. It contributes to the secondary aerosol formation of $PM_{2.5}$ by combining with NO_x and SO_x to form ammonium nitrate and fine sulfate particles. LANL is also required to report emissions of ammonia for 2009.

In the 2009 annual emissions inventory submittal, LANL provided $PM_{2.5}$ emissions data for all combustion sources and other emission sources where $PM_{2.5}$ emission factors were readily available. In the absence of $PM_{2.5}$ emission factors, PM or PM_{10} emissions were assumed to be equivalent to $PM_{2.5}$. The Laboratory does not operate any emission units that are sources of ammonia emissions. Ammonia was included in the facility-wide emission estimates for chemical use.

The Laboratory's 2009 Emissions Inventory Report also includes direct CO_2 and CH_4 emissions from stationary combustion sources, fugitive emissions from R&D activities, and indirect emissions from electricity use in tons per year. This satisfies the Laboratory's reporting requirement under 20.2.87 NMAC, Greenhouse Gas Emissions Reporting (NMED 2009b).

1.3 Contents of the Semiannual Title V Operating Permit Emissions Reports

The semiannual 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 to 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 semiannual emissions reports include a few source categories not included in the annual emissions inventory. 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, LANL now must include these emissions in the semiannual Title V Operating Permit emissions reports.

2.0 REPORTED EMISSION SOURCES

Table 2.0-1 shows the emission sources included in the Laboratory's 2009 annual emissions inventory (LANL 2010a) and the 2009 semiannual emissions reports (LANL 2009 and 2010b). 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 2009 emissions inventory and semiannual emissions reports and emission calculation methodology for each source type. A summary table of actual reported emissions by source is included at the end of this section (Section 2.13). Attachment A includes worksheets showing detailed emission calculations for individual emissions sources. A copy of the 2009 emissions inventory as submitted to NMED is presented in Attachment B. The 2009 semiannual emissions reports are included as Attachment C.

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. In the past, the Laboratory operated a second power plant at TA-21 and it was shut down in 2007.

For the 2009 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 (ID 24, ID 25, and ID 26 for the natural gas and ID 137, ID 138, and ID 141 for the No. 2 fuel).

Table 2.0-1
Sources Included in LANL's 2009 Annual Emissions Inventory and Semiannual Emissions Reports

Included in Annual Emissions Inventory	Included in Semiannual Emissions Reports	Comment
Power Plant (TA-3)	Power Plant (TA-3)	n/a*
Boilers greater than 5 MMBTU/hr (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), but are not exempt for greenhouse gas reporting.
Asphalt Plant	Asphalt Plant	n/a
Degreasers	Degreasers	n/a
Air Curtain Destructors (shut down)	Not included	Air curtain destructors were shut down before issuance of the Title V Operating Permit.
Carpenter Shops	Carpenter Shops	n/a
Oil Storage Tanks	No tanks included	Applicability of the New Source Performance Standard for storage tanks changed in 2004 and the LANL oil storage tanks were not required to be included in the Title V Operating Permit.
Permitted Beryllium Sources	Permitted Beryllium Sources	n/a
Facility-wide Chemical Use	Facility-wide Chemical Use	n/a
Process Generators	Process Generators and Stationary Standby Generators (approximately 45 units)	Stationary standby generators are exempt from annual emissions inventory requirements (see Section 3.2), but are not exempt for greenhouse gas reporting.
TA-3 Turbine	TA-3 Turbine	n/a

*n/a = Not Applicable

The 2009 emissions inventory reporting year used the updated emission factors for fuel oil for PM, PM_{10}, and $PM_{2.5}$ as described for the TA-3 power plant boilers.

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_x 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_x emissions. Stack testing for NO_x and CO was conducted before FGR equipment was installed and again after it was operational. Based on these stack test results, FGR reduced NO_x emissions by approximately 64 percent. In 2009, there was no new fuel delivered to the TA-3 power plant. Figure 2.1-1 shows a picture of the TA-3 power plant building and stacks.

For the 2009 Emissions Inventory Report, the Laboratory reported direct CO_2 and CH_4 emissions from the TA-3 power plant in tons per year. This satisfies the Laboratory's reporting requirement under 20.2.87 NMAC, Greenhouse Gas Emissions Reporting (NMED 2009b).

Figure 2.1-1 TA-3 power plant.

2.2 Small Boilers and Heaters

The Laboratory operates approximately 175 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. While most boilers are exempt from the annual emissions inventory, 160 boilers are being reported for direct CO_2 and CH_4 emissions, as required under 20.2.87 NMAC, Greenhouse Gas Emissions Reporting (NMED 2009b).

The boilers that are not exempt and reported in the 2009 annual emissions inventory include the following:

- three boilers at TA-48 (ID 8, ID 9, and ID 10),
- two boilers at TA-53 (ID 11 and ID 12),
- two boilers at TA-59 (ID 13 and ID 14),
- two boilers at TA-55 (ID 29 and ID 30),
- one process-related boiler at TA-50 (ID 133),
- five boilers at the Chemistry and Metallurgy Research Replacement Facility (ID 90, ID 104, ID 105, ID 106, and ID 107),
- two boilers at TA-16 (ID 134 and ID 53), and

- 160 boilers at various locations for CO_2 emissions only (ID 140).

All of the reported boilers burn natural gas. Operating logs of actual fuel used for the TA-55 and TA-50 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 semiannual emissions reports, emissions from all small boilers and heaters are included as a source category. The Title V Operating Permit includes emissions limits for this group of emission sources. To estimate emissions, all un-metered 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 semiannual emissions reports.

2.3 Asphalt Plant

The TA-60 asphalt plant (ID 116) began operations in July 2005. This unit replaced the TA-3 asphalt plant which has not operated since June 2003 and 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 2009 was 1,339 tons.

Per NMED request, direct CO_2 and CH_4 emissions from stationary combustion sources in tons per year are being reported for 2009. This satisfies the Laboratory's reporting requirement under 20.2.87 NMAC, Greenhouse Gas Emissions Reporting (NMED 2009b).

The emissions from the asphalt plant include criteria pollutants, HAPs, and CO_2. None of the emissions were significant in regard to the overall Laboratory emissions. The largest pollutant emitted from the asphalt plant was CO at 1.01 tons per year.

2.4 Data Disintegrator

The data disintegrator is included in the 2009 emissions inventory as ID 89. Operation of this source started in August 2004. Emissions are calculated using the methodology described in the permit application dated June 23, 2003. Emissions of PM, PM_{10}, and $PM_{2.5}$ 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 $PM_{2.5}$ 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:

- $PM_{2.5}$ 15%
- PM_{10} 90%
- TSP 100%

The number of boxes of material shredded is provided on a monthly data deliverable from the site support contractor. The total number of boxes shredded at the data disintegrator in 2009 was 1,068.

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 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 ID 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 (ID 29 and ID 30). These units were not operational in 2009. The emissions from the TA-55 degreaser for this reporting period are 29.3 lbs or 0.015 tons per year. This source category is reported in both the annual emissions inventory and the semiannual emissions reports.

2.6 Carpenter Shop

LANL operates a carpenter shop at TA-3 (ID 3) which was operated intermittently throughout the year. This carpenter shop was built before 1960 and is not subject to 20.2.72 NMAC construction permitting. However, LANL included carpenter shops in the Title V Operating Permit. Therefore, this source category is included in the annual emissions inventory as Area 3 and is included on the semiannual emissions reports. Additionally, a carpenter shop located at TA-15 (ID 4) is included in the Operating Permit and began operations in June 2005.

Emissions from the carpenter shops were calculated based on the flow rate out of the cyclone, the estimated concentration of particulate in the exhaust, AP-42 emission factors, and the hours of operation of the cyclones.

In 2009, total operation of the TA-3 carpenter shop was 80 hours and the total operation of the TA-15 carpenter shop was 101 hours. The emissions for both shops can be found in Table 2.6-1.

Table 2.6-1
Emissions for Carpenter Shops

Carpenter Shop	PM_{10} (tons)	$PM_{2.5}$ (tons)	TSP (tons)
TA-3	0.013	0.013	0.028
TA-15	0.013	0.012	0.027

2.7 Oil Storage Tanks

Two large diesel storage tanks are located at the TA-3 power plant for backup fuel to the boilers. Emissions from these tanks are estimated using software developed by EPA for estimating emissions

from storage tanks (EPA 2008b). The TANKS 4.0 software requires inputs for tank parameters, site-specific meteorological conditions, and actual fuel throughputs.

The Laboratory included 15 storage tanks in their recently updated Title V permit application because they were subject to 40 CFR 60, Subpart Kb, New Source Performance Standards. Fourteen of the 15 tanks store mineral oil, scintillation oil, or dielectric oil, which all have vapor pressures of <0.01 mm Hg. Applicability of Subpart Kb was modified by EPA in 2003 and these tanks are no longer subject to this regulation and were subsequently removed from the draft LANL Title V permit application.

Emissions from these smaller oil storage tanks were included for the first time in the 2002 annual emissions inventory. With agreement from NMED, emissions from the 14 tanks were summed and listed as one stack entry in the Emissions Inventory Report due to the small quantity of emissions (email correspondence with Jim Shively, NMED/AQB, dated February 3, 2003). In 2009, NMED did not require emissions from these tanks to be included in the annual emissions inventory submittal as the emissions were insignificant. These tanks are also not included in the Title V Operating Permit semiannual emissions reports.

2.8 Permitted Beryllium-Machining Operations

The Laboratory operates four 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 (ID 3) are from actual stack emissions measurements. Emissions for the Target Fabrication Facility (ID 2) are from initial compliance stack testing and are reported as permitted emission levels. In addition, emissions from the Plutonium Facility (ID 6) are reported at permitted emission levels. Foundry operations within the Plutonium Facility did not occur during this reporting period. Total emissions from all permitted beryllium operations are included in the semiannual emissions reports.

2.9 Generators

LANL has four permitted generators (ID 56, ID 119, ID 120, and ID 135) with internal combustion engines located at TA-33 to support research activities. NMED issued a construction permit (Permit No. 2195-F) in October 2002 for installing the initial generator, and this unit is included in LANL's Title V Operating Permit. The unit first operated in May 2006. The unit operated for 49 hours in 2009. Three more units were permitted in August 2007 at TA-33 (Permit No. 2195-P); they operated for a total of 73 hours in 2009.

The Laboratory maintains approximately 45 stationary standby generators that are considered exempt sources under the Construction Permit regulations (20.2.72.202.b NMAC) and the annual emissions inventory requirements. However, the generators were included in the 2009 Emissions Inventory Report in order to report CO_2 and CH_4 emissions in accordance with greenhouse gas regulations. These sources are also included in LANL's Title V Operating Permit with operating limits and emission limits. Therefore, these sources must be included in the semiannual emissions reports. All stationary standby generators at LANL are exercised 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 semiannual 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 semiannual emissions reports for this source category. In addition, approximately 40 generators for CO_2 and CH_4 emissions are included in the Emissions Inventory Report (ID 139).

2.10 Combustion Turbine

LANL has one combustion turbine located at the TA-3 power plant (ID 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 2009 this combustion turbine operated for 74 hours.

2.11 Emissions from Chemical Use Activities

The majority of the Laboratory's work is devoted to 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 2.11-1 shows a typical laboratory at LANL where chemicals are used.

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

Figure 2.11-1 Example of a laboratory fume hood at LANL.

2.11.1 VOC Emissions

The Laboratory tracks chemical purchases through a facility-wide chemical tracking system called ChemLog. A download from the ChemLog inventory system was created that included all chemical containers added to LANL's inventory between January 1, 2009, and December 31, 2009. This dataset included 38,074 separate line items of chemicals purchased.

The dataset was reviewed electronically to identify all VOCs purchased and received at LANL in 2009. 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

Purchasing = Use = Emissions

From the dataset of chemicals purchased in 2009, 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).

Furthermore, the following categories of chemicals were eliminated based on guidance from NMED (letter from Mary Uhl, NMED/AQB, dated January 30, 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, and
- Chemicals used in bench-scale chemical analysis.*

After 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

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

if any VOCs were present and, if so, to determine the associated percent volatile. As a conservative estimate, VOCs identified in ChemLog records were assumed to be 100 percent emitted to air. Estimated emissions of VOCs from chemical use in 2009 totaled 13.5 tons.

2.11.2 HAP Emissions

Section 112(b) of the 1990 Clean Air Act Amendments listed 188 unique HAPs identified for potential regulation by EPA. In 1995, caprolactam was delisted as a HAP, and methyl ethyl ketone was delisted in 2005. Of the remaining 186 listed HAPs, 17 are classes of compounds (e.g., nickel compounds). Use of the 186 listed chemicals in activities at the Laboratory was evaluated and quantified for the annual emissions inventory submittal to NMED.

The ChemLog inventory system 2009 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 2.11.1 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, and
- 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 2009 was 5.2 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.

HAP Metals

Purchases of beryllium, chromium, lead, manganese, mercury, and nickel compounds were evaluated to determine usage and potential air emissions. Several of the purchases were identified as laboratory calibration standards containing only parts per million quantities of the metals. These were exempt from emissions inventory requirements because of their use as standards for calibrating laboratory equipment. Other purchasers of relatively large quantities of metal compounds that were contacted confirmed that the material was still in use or in storage and had not resulted in air emissions.

Hydrochloric Acid

In 2009, the largest purchases of hydrochloric acid (HCl) were made by a variety of operating groups within the Chemistry Division. The major users of HCl primarily purchased it in 2.5- or 4-liter bottles of concentrated acid. This HCl was primarily used for cleaning labware and for certain analytical processes. The remaining procurements consisted of numerous small purchases from a variety of operating groups. Additional analysis of these numerous small purchases was not done. As a conservative assumption, all of this HCl was assumed to be emitted resulting in a reported total of 0.55 tons of HCl emissions.

2.12 Greenhouse Gas Emissions

In order to satisfy the Laboratory's reporting requirement under 20.2.87 NMAC, Greenhouse Gas Emissions Reporting (NMED 2009b). The Laboratory's 2009 Emissions Inventory Report includes direct CO_2 and CH_4 emissions from stationary combustion sources, fugitive emissions from R&D activities, and indirect emissions from electricity use in tons per year. The CO_2 equivalents for CH_4 are also included. This means that the CH_4 emissions are multiplied by 21 so that they are equivalent to the emissions from CO_2. Please view all the greenhouse gas emissions on Table 2.13-1.

2.12.1 Greenhouse Gas Emissions from Research and Development Activities

Vented and fugitive emissions were reported in the 2009 Annual Emissions Inventory for R&D activities around the Laboratory (ID 7). The emissions from chemical use were found by querying purchases of CH_4 and CO_2 and assuming that they emitting 100 percent of their weight. This provides the very conservative estimates of 3.75 tons of CO_2 emissions and 1.08 tons of CH_4 emissions.

2.12.2 Greenhouse Gas Emissions from Electrical Use

Indirect emissions created from electrical use at LANL-owned properties and leased property were reported in the 2009 Annual Emissions Inventory. LANL makes up more than 2,000 individual facilities, including 47 technical areas with 8 million square feet under roof. The LANL-owned properties released 256,339 tons of CO_2 and 3.4 tons of CH_4. LANL also leases 396,623.6 square feet of property, which emitted 4,458 tons of CO_2 and 0.06 tons of CH_4.

2.13 Emissions Summary by Source

Table 2.13-1 provides a summary of LANL's 2009 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 2.13-1
Summary of LANL 2009 Reported Emissions for Annual Emissions Inventory

	NO_X (tons/yr)	SO_x (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)	CO (tons/yr)	VOC (tons/yr)	HAPs (tons/yr)	CO_2 (tons/yr)	CH_4 (tons/y)	CO2e* (tons/yr)
TA-3 Power Plant Boilers	14.22	0.15	1.86	1.86	9.8	1.35	0.46	26,935.8	0.51	10.71
Non-Exempt Boilers	5.78	0.04	0.54	0.54	3.94	0.33	0.11	6,549.55	0.12	2.52
Asphalt Plant	0.03	0.003	0.004	0.004	1.01	0.005	0.005	123.01	0.006	0.13
Data Disintegrator	n/a**	n/a	0.04	0.03	n/a	n/a	n/a	n/a	n/a	n/a
Degreaser	n/a	n/a	n/a	n/a	n/a	0.02	0.02	n/a	n/a	n/a
Carpenter Shops	n/a	n/a	0.03	0.03	n/a	n/a	n/a	n/a	n/a	n/a
Oil Storage Tanks	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a
R&D Chemical Use	n/a	n/a	n/a	n/a	n/a	13.5	5.2	n/a	n/a	n/a
TA-33 Generators	1.39	0.18	0.06	n/a	0.93	0.04	3.36E-04	85.36	0.004	0.08
TA-3 Turbine	0.35	0.02	0.05	0.05	0.07	0.02	0.01	765.9	0.014	0.29
Exempt Boilers (GHG*** only)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	21,660.1	0.41	8.61
Stationary Standby Generators (GHG only)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	199.07	0.01	0.21
Electricity Use on LANL Owned Property (GHG only)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	256,338.64	3.41	71.61
Electricity Use on Leased Property (GHG only)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4,457.68	0.06	1.26
R&D Fugitive/Venting (GHG only)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.75	1.08	22.68
TOTAL	**21.77**	**0.39**	**2.58**	**2.51**	**15.75**	**15.28**	**5.8**	**317,118.86**	**5.62**	**118.1**

*CO_2e = Carbon Dioxide Equivalent from methane emissions. **n/a = Not Applicable. ***GHG = greenhouse gas.

Table 2.13-2 provides a summary of 2009 emissions as reported on the semiannual 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 2.13-2
Summary of LANL 2009 Semiannual Emissions as Reported Under Title V Operating Permit Requirements

	NO_X (tons/yr)	SO_X (tons/yr)	PM_{10} (tons/yr)	$PM_{2.5}$ (tons/yr)	CO (tons/yr)	VOC (tons/yr)	HAPs (tons/yr)
TA-3 Power Plant Boilers	14.22	0.15	1.86	1.86	9.8	1.35	0.46
All Small Boilers & Heaters	25.49	0.15	2.04	2.04	20.5	1.42	0.48
Asphalt Plant	0.03	0.003	0.004	0.004	1.014	0.005	0.005
Data Disintegrator	n/a*	n/a	0.04	0.03	n/a	n/a	n/a
Degreaser	n/a	n/a	n/a	n/a	n/a	0.02	0.02
Carpenter Shops	n/a	n/a	0.03	0.03	n/a	n/a	n/a
Oil Storage Tanks**	n/a	n/a	n/a	n/a	n/a	0.01	n/a
R&D Chemical Use	n/a	n/a	n/a	n/a	n/a	10.4	4.4
Stationary Standby Generators	5.10	0.17	0.22	0.22	1.22	0.22	0.002
TA-33 Generators	1.39	0.18	0.06	n/a	0.93	0.04	3.36E-04
TA-3 Turbine	0.35	0.02	0.05	0.05	0.07	0.02	0.01
TOTAL	**46.58**	**0.67**	**4.3**	**4.23**	**33.53**	**13.49**	**5.38**

* n/a = Not Applicable. ** Source category not included in Title V Operating Permit.

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) and
- 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 which uses gaseous fuel, has a design rate less than or equal to 5 MMBTU per hour, 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 **one ton per year** of any regulated pollutant . . . .

Any boiler that was not used exclusively for comfort heating or hot water was evaluated for the one 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.

Although these exempt boilers are not required on the Emissions Inventory report, they are required for the greenhouse gas emissions reporting. Per NMED request, direct CO_2 and CH_4 emissions from stationary combustion sources in tons per year are being reported for in 2009. This satisfies LANL's reporting requirement under 20.2.87 NMAC, Greenhouse Gas Emissions Reporting (NMED 2009b).

For the semiannual 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 135 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 the following:

- Portable engines and portable turbines that have a design capacity . . . less than or equal to
    - 200-horsepower engine if fueled by diesel or natural gas, and
    - 500-horsepower engine if fueled by gasoline.
- Emergency generators which 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 semiannual 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 semiannual emissions reports.

Direct CO_2 and CH_4 emissions from stationary combustion sources are being reported in 2009. Therefore, generators that are exempt for the Emissions Inventory Report are now being declared in the Greenhouse Gas Emissions Report, as required by 20.2.87 NMAC, Greenhouse Gas Emissions Reporting (NMED 2009b).

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 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 2009 was gathered from the ChemLog 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 25,308 pounds (12.7 tons), which is above the two-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 two tons per year.

In conclusion, painting materials that were used in the construction project at TA-3 SM-29 were reported in the Semi-Annual Emissions Inventory Report for July through December 2009. The reported paint emissions for 2009 were 2,978 lbs (1.5 tons) of VOCs and 167 lbs (0.083 tons) of HAPs. After those paints were reported, there were 3,816 pounds (1.9 tons) of unclassified paint leftover, which then falls under the two-ton limit, shown above.

4.0 EMISSIONS SUMMARY

4.1 2009 Emissions Summary

Table 4.1-1 presents facility-wide estimated actual emissions of criteria pollutants for 2009 as reported in the annual emissions inventory and the semiannual 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 2009 emissions inventory report as submitted to NMED is presented in Attachment B. Attachment C includes semiannual emissions reports for 2009.

Table 4.1-1
LANL Facility-Wide Criteria Pollutant Emissions for 2009

Pollutant	Estimated actual Emissions for Annual Emissions Reporting (tons/yr)	Estimated actual Emissions for Semiannual Title V Operating Permit Reporting (tons/yr)	Title V Operating Permit Facility-Wide Emission Limits (tons/yr)
NO_x	21.8	46.6	245
SO_x	0.4	0.7	150
CO	15.8	33.5	225
PM	2.6	4.3	120
PM_{10}	2.6	4.3	120
$PM_{2.5}$	2.5	4.2	—*
VOC	15.3	13.5	200
CO_2	54,825.2	n/a	—**

*No Title V Operating Permit facility-wide emission limits on $PM_{2.5}$.**No greenhouse gas emission limit and CO_2 values are in metric tonnes per year.

Table 4.1-2
LANL HAP Emissions from Top Five Chemicals Used in 2009

Pollutant	Chemical Use HAP Emissions* (tons/yr)
Top 5 HAPs	
Cyanide Compounds	1.16
Hydrochloric acid	0.55
Trichloroethylene	0.42
Methanol	0.34
Methylene chloride (Dichloromethane)	0.33
All other HAPs from Chemical Use	1.6
Total HAPs	**4.4**

*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.

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 2009, excluding the very small emissions sources such as the data disintegrator, asphalt plant, degreasers, and carpenter shop. As the figure shows, the TA-3 power plant and the sum of emissions from all small boilers and heaters were the largest sources of CO and NO_x emissions in 2009. R&D chemical use was the largest source of VOC emissions.

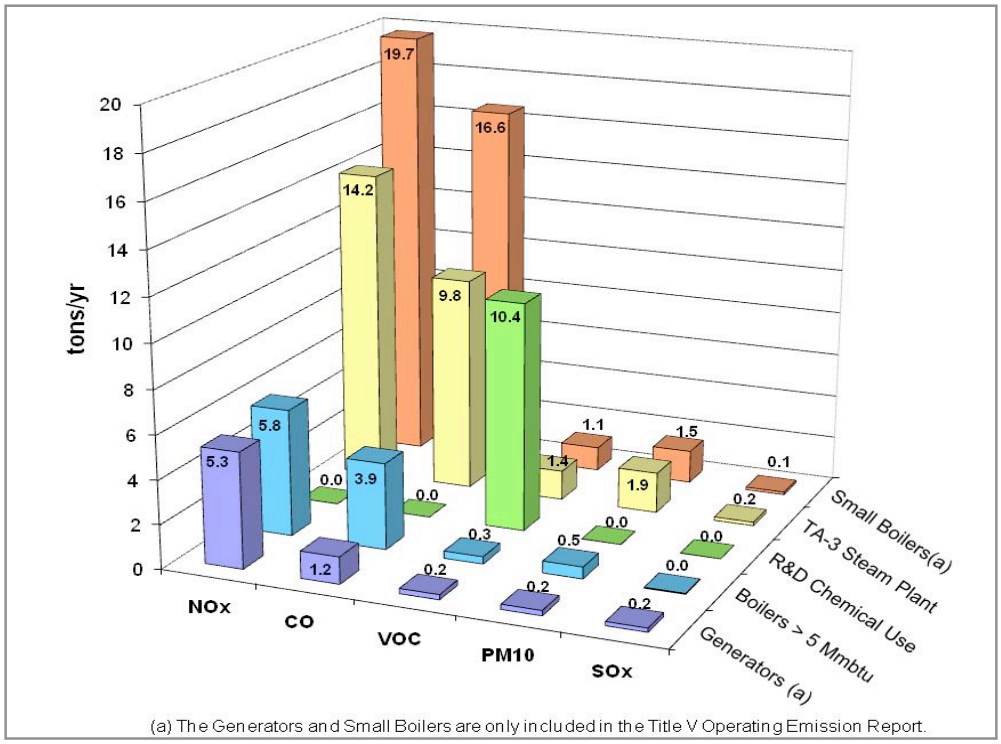

Figure 4.1-1 Emissions of criteria pollutants by source in 2009.

4.2 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 4.2-1 provides a comparison of the past 10 years' facility-wide emissions for criteria air pollutants as reported to NMED on 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 4.2-2 presents VOC and HAP emissions from chemical use activities for the last 11 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.

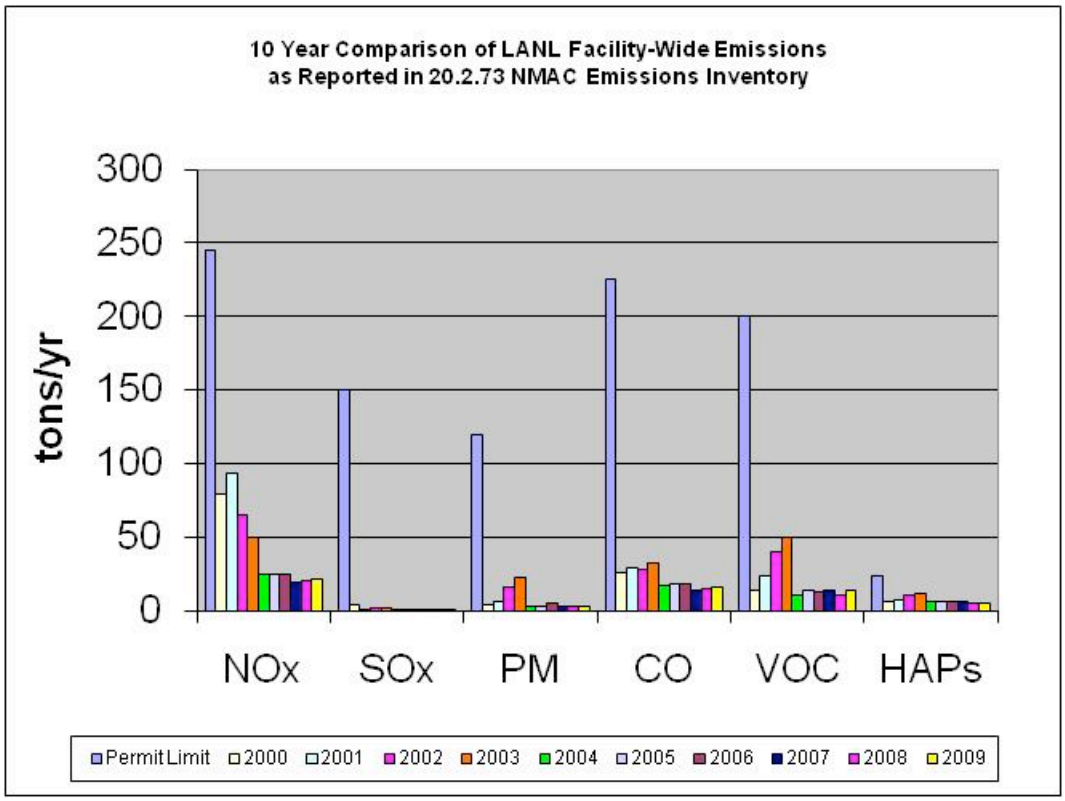

Figure 4.2-1 Comparison of facility-wide annual reported emissions from 1999–2009.

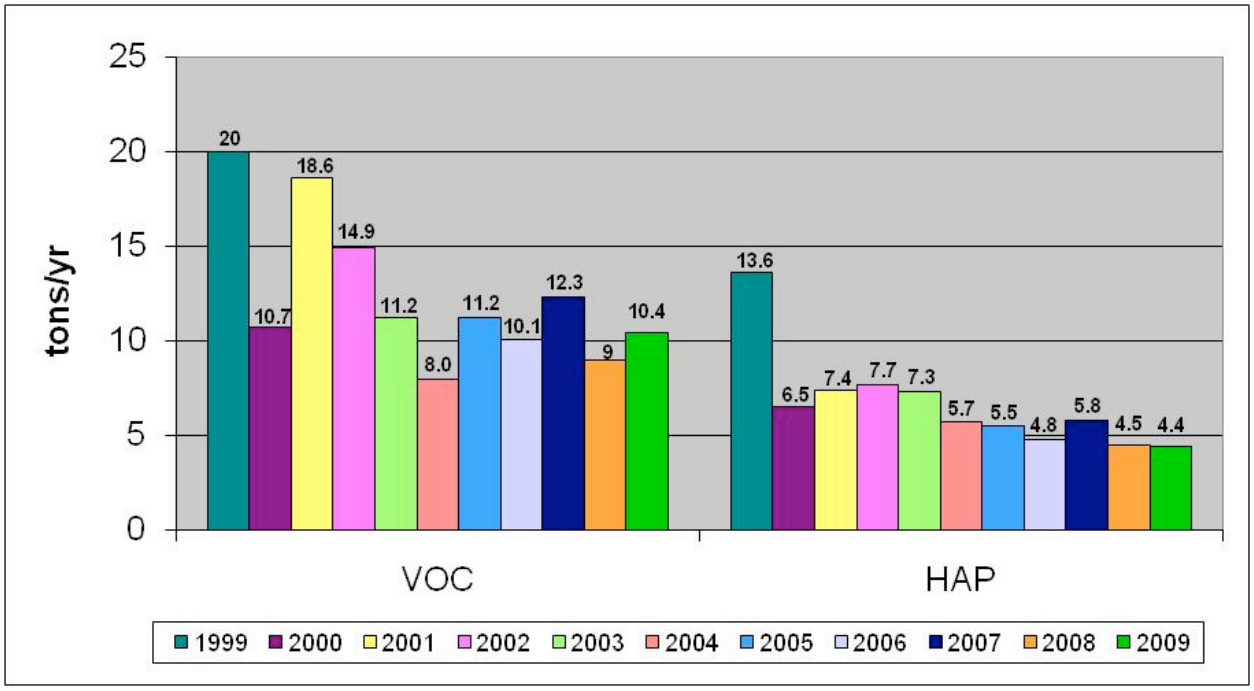

Figure 4.2-2 VOC and HAP emissions from chemical use, 1999–2009.

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Attachment A

Emission Calculation Worksheets
for Individual Emission Units

2009 TA-60 BDM Asphalt Plant

Data Reviewed By / Date: _____

Month	Data Entry: Asphalt Produced (Tons)	12-Month Rolling Total	Month	Data Entry: Asphalt Produced (Tons)	12-Month Rolling Total
January	77	2144	July	34	2048
February	62	2130	August	60	1833
March	125	2032	September	141	1783
April	66	1871	October	32	1597
May	167	1795	November	58	1378
June	494	2093	December	23	1339
6 mo. Total	991		6 mo. Total:	348	

Annual Hours			
Month	Hours	Month	Hours
Jan	9.6	Jul	4.2
Feb	7.7	Aug	5.6
Mar	15.1	Sep	9.6
Apr	8	Oct	4.7
May	7.6	Nov	12.4
Jun	14	Dec	5.3
Total:	62.0	Total:	41.8

Tons/Asphalt Produced: 1,339

12-Month Rolling Permit Limit is 13,000 Tons

Annual Total (to date): 103.84 Hours

Hours are Limited to 4380 per Year.

Emission Calculations

Pollutant	Emission Factor (lbs/hr)	Annual Emissions (tons)	Emissions (tons) Jan-June	Emissions July-Dec (tons)	Reference
NOx	0.56	0.029	0.017	0.012	(b)
CO	19.53	1.014	0.605	0.409	(b)
PM	0.33	0.017	0.010	0.007	(b)
Pollutant	**Emission Factor (lb/ton)**	**Annual Emissions (tons)**	**Emissions (tons) Jan-June**	**Emissions (tons) July-Dec**	**Reference**
PM-10	0.006	0.004	0.003	0.001	(c)
PM-2.5	0.006	0.004	0.003	0.001	(c)
SOx	0.0046	0.003	0.002	0.001	(a)
VOC	0.0082	0.005	0.004	0.001	(a)
HAPs					
Acetaldehyde	0.00032	0.000	0.000	0.000	(d)
Benzene	0.00028	0.000	0.000	0.000	(d)
EthylBenzene	0.0022	0.001	0.001	0.000	(d)
Formaldehyde	0.00074	0.000	0.000	0.000	(d)
Napthalene	0.000036	0.0000	0.000	0.000	(d)
POM	0.00011	0.0001	0.000	0.000	(d)
Quinone	0.00027	0.000	0.000	0.000	(d)
Toluene	0.001	0.001	0.000	0.000	(d)
Xylene	0.0027	0.002	0.001	0.000	(d)
TOTAL HAPS		0.005	0.004	0.001	
EPCRA 313		tons	lbs./year		
Lead	8.90E-07	5.96E-07	0.0012		(e)
Sulfuric Acid	0.0046	3.08E-03	6.16		(f)
Mercury	4.10E-07	2.74E-07	0.0005		(e)
PACs	2.70E-08	1.81E-08	3.62E-05		(d)
Benzo(g,h,i) perylene	5.00E-10	3.35E-10	6.70E-07		(g)

Reference

(a) AP-42, Sec. 11.1, *Hot Mix Asphalt Plants*, Table 11.1-5 & 11.1-6, Updated 4/2004

(b) Calculated using stack test results performed on May 18, 2009 by TRC Air Mesurements. Pound per hour values were determined at a throughput rate of 45 tons/hour (the highest achievable rate during the test).

(c) PM-10 emission factor is calculated as 64% of the PM emission factor, 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, *Hot Mix Asphalt Plants*, Updated 4/2004

(e) AP-42, Table 11.1-11, *Hot Mix Asphalt Plants*, Updated 4/2004

(f) Assume all SOx is converted to sulfuric acid

(g) EPCRA PAC Guidance Document, EPA-260-B-01-03, June 2001, Table 2-3

2009 TA-3 & TA-15 Carpenter Shops

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

TA-3	Data Entry	TA-3	Data Entry
	Hours of Operation [1]		Hours of Operation [1]
Month	TA-3	Month	TA-3
January	7.9	July	0.9
February	5.0	August	8.1
March	2.6	September	7.4
April	4.4	October	3.6
May	3.6	November	6.1
June	4.4	December	26.4
6 mo. Total	27.9	6 mo. Total:	52.5

TA-15	Data Entry	TA-15	Data Entry
	Hours of Operation [1]		Hours of Operation [1]
Month	TA-15	Month	TA-15
January	4.0	July	8.8
February	8.1	August	7.1
March	12.9	September	13.8
April	9.5	October	8.2
May	9.4	November	5.9
June	6.7	December	6.4
6 mo. Total	50.6	6 mo. Total:	50.2

Saws, drills, shaping and sanding equipment shall each not operate in excess of 4368 hours per year.

Reference
1. Based on information provided monthly by the shop foreman from each shop.

Carpenter Shop Emissions Calculations for 2009

ANNUAL EMISSIONS

	Operation Parameters		TSP Prior to Cyclone	TSP Post Cyclone	PM Post Cyclone Emissions (tons/year)		
	Exhaust Flow (ft3/min)	Hours of Operation[3] (hr/yr)	(tons/year)	tons/yr	(PM) (PM > 40 µm)	(PM 10) (PM 5-20 µm)	(PM 2.5) (PM <2.5 µm)
TA-3-38	2706	80	0.077	0.028	0.002	0.013	0.013
TA-15-563	2100	101	0.075	0.027	0.002	0.013	0.012

January through June Emissions

	Operation Parameters		TSP Prior to Cyclone	TSP Post Cyclone	PM Post Cyclone Emissions (tons)		
	Exhaust Flow (ft3/min)	Hours of Operation[3] (hr/period)	tons	tons	(PM) (PM > 40 µm)	(PM 10) (PM 5-20 µm)	(PM 2.5) (PM <2.5 µm)
TA-3-38	2706	28	0.027	0.010	0.001	0.005	0.004
TA-15-563	2100	51	0.037	0.014	0.001	0.007	0.006

July through December Emissions

	Operation Parameters		TSP Prior to Cyclone	TSP Post Cyclone	PM Post Cyclone Emissions (tons)		
	Exhaust[1] Flow (ft3/min)	Hours of Operation[3] (hr/period)	tons	tons	(PM) (PM > 40 µm)	(PM 10) (PM 5-20 µm)	(PM 2.5) (PM <2.5 µm)
TA-3-38	2706	53	0.050	0.018	0.001	0.009	0.008
TA-15-563	2100	50	0.037	0.014	0.001	0.006	0.006

Conversions:

lb/ton	lb/grain	min/hr	ton/lb
2000	0.00014	60	0.0005

Assumptions:

	Cyclone[4] Efficiencies	% PM in Wood Dust Prior to Cyclone[5]
PM < 2.5	0.45	0.30
PM 5-20 microns	0.65	0.50
PM > 40 microns	0.95	0.50

Post Cyclone Emission Factor:

grain/ft 3 [2]
0.03

Maximum permitted exhaust flow rate is:	Shop Location	Flow Rate
	TA-3-38	5000 cfm
	TA-15-563	5471 cfm

Allowable Emission Limits are: 3.07 tpy of PM10 for the TA-3-38 shop
2.81 tpy of PM10 for the TA-15-563 shop

Reviewed By/Date: _____

References:

1.) Exhaust Rate calculated by Victor Martinez.

2.) Emission Factor obtained from AP-42, Section 10.4 Woodworking Waste Collection Operations, post cyclone emissions, Table 10.4.1, February 1980.

3.) Based on information provided monthly by the shop foreman.

4.) K. Wark & C.F. Warner, Air Pollution - Its Origin and Control, Table 5-9, pg 186 (1976).

5.) Emissions Inventory Improvement Program (EIIP) Uncontrolled Emission Factor Listing for Criteria Air Pollutants, Volume II: Chapter 14, July 2001 And AP-42 Appendix B, Section 10.5 Woodworking Waste Collection Operations: Belt Sander Hood Exhaust Cyc

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

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

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

Permit Limit (12 mo rolling): 646 MMSCF or **646,000 MCF** Reviewed by/date:

2009 Combustion Turbine Emissions (Actual)

Pollutant Criteria	Factors	Unit Emissions (Tons) TA-3-2422 Combustion Turbine Annual	Jan-June	July-Dec	Reference
NOx	50.5	0.352	0.054	0.298	a
SOx	3.5	0.024	0.004	0.021	b
PM	6.8	0.047	0.007	0.040	c
PM_{10}	6.8	0.047	0.007	0.040	c
CO	10.5	0.073	0.011	0.062	a
VOC	2.2	0.015	0.002	0.013	d
HAPs / TRI					
Acetaldehyde	4.12E-02	2.87E-04	4.38E-05	2.43E-04	e, f, g
Acrolein	6.59E-03	4.60E-05	7.00E-06	3.90E-05	e, f, g
Benzene	1.24E-02	8.62E-05	1.31E-05	7.30E-05	e, f,g
Benzo (a) anthracene	3.09E-03	2.15E-05	3.28E-06	1.83E-05	f, h
1,3-Butadiene	4.43E-04	3.09E-06	4.70E-07	2.62E-06	e, f, g
Cadmium	7.11E-03	4.95E-05	7.55E-06	4.20E-05	f, h
Chromium	1.34E-02	9.33E-05	1.42E-05	7.91E-05	f, h
Copper	7.11E-02	4.95E-04	7.55E-05	4.20E-04	f, h
Ethylbenzene	3.30E-02	2.30E-04	3.50E-05	1.95E-04	e, f, g
Fluoranthene	1.24E-03	8.62E-06	1.31E-06	7.30E-06	f, h
Formaldehyde	7.31E-01	5.10E-03	7.77E-04	4.32E-03	e, f, g
Manganese	8.24E-02	5.74E-04	8.75E-05	4.87E-04	f, h
Mercury	6.80E-03	4.74E-05	7.22E-06	4.02E-05	f, h
Napthalene	1.34E-03	9.33E-06	1.42E-06	7.91E-06	e, f, g
Nickel	1.18E-01	8.26E-04	1.26E-04	7.00E-04	f, h
PAH	2.27E-03	1.58E-05	2.41E-06	1.34E-05	e, f, g
Phenol	1.34E-02	9.33E-05	1.42E-05	7.91E-05	e, f, h
Propylene Oxide	2.99E-02	2.08E-04	3.17E-05	1.77E-04	e, f, g
Toluene	1.34E-01	9.33E-04	1.42E-04	7.91E-04	e, f, g
Xylenes (isomers)	6.59E-02	4.60E-04	7.00E-05	3.90E-04	e, f, g
TOTAL HAPS		9.59E-03	1.46E-03	8.13E-03	

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.

(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 equivilant to converting the 2 grains per 100 scf to percent. The 0.0034 lb/mmbtu was converted to lb/mm

(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/mmscf by multiplying by 1030 giving 2.2

(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./mmscf factor.

(h) Emission factors from EPA FIRE database (SCC: 20300202 & 20200201). These values were also converted from lb/mmbtu to lb/mmscf.

The SCFH value (fuel flow rate) from the compliance test report (223620 SCFH or 223.6 MSCFH)

2009 Daily Calculations of NOx and CO Pound per Hour Emissions*

Day	Jan		Feb		Mar	
	NOx	CO	NOx	CO	NOx	CO
1	0	0	0	0	On March 5, 2009, a revision to NSR 2195B was issued to remove this calculation.	The emissions are measured annually using a portable analyzer.
2	0	0	0	0		
3	0	0	0	0		
4	0	0	0	0		
5	0	0	0	0		
6	**	**	26.14	185.67		
7	0	0	0	0		
8	**	**	0	0		
9	0	0	0	0		
10	0	0	0	0		
11	0	0	0	0		
12	0	0	0	0		
13	0	0	0	0		
14	0	0	0	0		
15	0	0	0	0		
16	2.16	15.35	0	0		
17	0	0	0	0		
18	0	0	0	0		
19	0	0	0	0		
20	5.80	41.20	0	0		
21	**	**	0	0		
22	0	0	0	0		
23	0	0	0	0		
24	0	0	0	0		
25	0	0	0	0		
26	**	**	0	0		
27	0	0	82.32	584.80		
28	0	0	0	0		
29	0	0				
30	0	0				
31	0	0				

* These calculations partually fulfill conditions 2.9.4.7 and 2.9.4.8 of Title V Permit P100M1.

** This fuel was used for compressor start-up only. No fuel went to turbine.

*** Unit started as a test or for training but never reached full load.

2009 TA-52 Data Disintegrator (EQPT 89)

Reviewed By / Date:

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

Annual Boxes:	1,068

Emission Calculations

	Emission [b] Factor	% in Exhaust [e]	Control [d] Efficiency (Cyclone)	Control [d] Efficiency (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 [a]	
45	Pounds

	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)
Annual	48,060	54.1	0.03	81.1	0.04	90.1	0.05
January - June	28,080	31.6	0.02	47.4	0.02	52.7	0.03
July - December	19,980	22.5	0.01	33.7	0.02	37.5	0.02

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 list

(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.

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

DATA ENTRY

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

Month	12-Mo. Rolling Total Natural Gas (MMscf)	12-Mo. Rolling Total Fuel Oil (gallons)
January	477.9	2995
February	475.9	2502
March	476.3	2008
April	479.1	2063
May	478.4	1787
June	480.9	1732
July	480.2	1787
August	481.3	1842
September	482.1	1747
October	485.6	1583
November	487.9	1371
December	490.1	1609
Permit Limits:	2000 MMscf	500,000 gallons

For References, See "Emission Summary Sheet"

Data Reviewed By:

Emissions by Boiler 2009

Pollutant Criteria	Emission Factor		Unit Emissions				Unit Emissions				Unit Emissions			
			Boiler #1, Stack 032				Boiler #2, Stack 033				Boiler #3, Stack 034			
	Natural Gas (lb/MMscf) [a]	Fuel Oil [f] Pounds/ 1000 gal	Annual Natl Gas (tons)	Annual Fuel Oil (tons)	Jan-June (gas&oil) (tons)	July-Dec (gas&oil) (tons)	Annual Natl Gas (tons)	Annual Fuel Oil (tons)	Jan-June (gas&oil) (tons)	July-Dec (gas&oil) (tons)	Annual Natl Gas (tons)	Annual Fuel Oil (tons)	Jan-June (gas&oil) (tons)	July-Dec (gas&oil) (tons)
Nox [c]	58	8.64	6.252	0.001	3.499	2.754	4.123	0.003	4.069	0.057	3.836	0.003	0.299	3.540
Sox [g]	0.6	7.4	0.065	0.001	0.037	0.029	0.043	0.002	0.043	0.001	0.040	0.002	0.005	0.037
PM [d]	7.6	3.3	0.819	0.001	0.459	0.361	0.540	0.001	0.534	0.008	0.503	0.001	0.040	0.464
PM-10 [d]	7.6	2.3	0.819	0.000	0.459	0.361	0.540	0.001	0.533	0.008	0.503	0.001	0.039	0.464
PM-2.5 [d]	7.6	1.55	0.819	0.000	0.459	0.361	0.540	0.000	0.533	0.008	0.503	0.001	0.039	0.464
CO [e]	40	5.0	4.312	0.001	2.413	1.900	2.844	0.002	2.806	0.039	2.646	0.002	0.206	2.442
VOC	5.5	0.2	0.593	0.0000	0.332	0.261	0.391	0.0001	0.386	0.005	0.364	0.000	0.028	0.336
HAPs [h]														
Arsenic	0.0002	0.00055	2.16E-05	9.01E-08	1.21E-05	9.51E-06	1.42E-05	1.70E-07	1.41E-05	2.58E-07	1.32E-05	1.80E-07	1.17E-06	1.22E-05
Benzene	0.0021	-	2.26E-04	0.0	1.27E-04	9.97E-05	1.49E-04	0.0	1.47E-04	2.03E-06	1.39E-04	0.0	1.07E-05	1.28E-04
Beryllium	0.000012	0.00041	1.29E-06	6.76E-08	7.80E-07	5.81E-07	8.53E-07	1.28E-07	9.20E-07	6.05E-08	7.94E-07	1.35E-07	1.74E-07	7.55E-07
Cadmium	0.0011	0.00041	1.19E-04	6.76E-08	6.64E-05	5.22E-05	7.82E-05	1.28E-07	7.72E-05	1.11E-06	7.28E-05	1.35E-07	5.73E-06	6.72E-05
Chromium	0.0014	0.00041	1.51E-04	6.76E-08	8.45E-05	6.65E-05	9.95E-05	1.28E-07	9.82E-05	1.40E-06	9.26E-05	1.35E-07	7.27E-06	8.55E-05
Cobalt	0.000084	-	9.05E-06	0.0	5.07E-06	3.99E-06	5.97E-06	0.0	5.89E-06	8.11E-08	5.56E-06	0.0	4.29E-07	5.13E-06
Dichlorobenzene	0.0012	-	1.29E-04	0.0	7.24E-05	5.70E-05	8.53E-05	0.0	8.41E-05	1.16E-06	7.94E-05	0.0	6.13E-06	7.32E-05
Formaldehyde	0.075	0.048	8.08E-03	7.90E-06	4.53E-03	3.56E-03	5.33E-03	1.49E-05	5.27E-03	7.81E-05	4.96E-03	1.58E-05	3.96E-04	4.58E-03
Hexane	1.8	-	1.94E-01	0.0	1.09E-01	8.55E-02	1.28E-01	0.0	1.26E-01	1.74E-03	1.19E-01	0.0	9.20E-03	1.10E-01
Lead	0.0005	0.00123	5.39E-05	2.03E-07	3.03E-05	2.38E-05	3.55E-05	3.83E-07	3.53E-05	6.29E-07	3.31E-05	4.06E-07	2.89E-06	3.06E-05
Mangenese	0.00038	0.00082	4.10E-05	1.35E-07	2.30E-05	1.81E-05	2.70E-05	2.56E-07	2.68E-05	4.65E-07	2.51E-05	2.70E-07	2.17E-06	2.32E-05
Mercury [i]	0.00026	0.00041	2.80E-05	6.76E-08	1.57E-05	1.24E-05	1.85E-05	1.28E-07	1.83E-05	3.00E-07	1.72E-05	1.35E-07	1.44E-06	1.59E-05
Napthalene	0.00061	-	6.58E-05	0.0	3.68E-05	2.90E-05	4.34E-05	0.0	4.28E-05	5.89E-07	4.03E-05	0.0	3.12E-06	3.72E-05
Nickel	0.0021	0.00041	2.26E-04	6.76E-08	1.27E-04	9.97E-05	1.49E-04	1.28E-07	1.47E-04	2.08E-06	1.39E-04	1.35E-07	1.08E-05	1.28E-04
POM	0.000088	0.0033	9.49E-06	5.43E-07	5.76E-06	4.27E-06	6.26E-06	1.03E-06	6.80E-06	4.78E-07	5.82E-06	1.09E-06	1.35E-06	5.55E-06
Selenium	0.000024	0.00206	2.59E-06	3.38E-07	1.73E-06	1.20E-06	1.71E-06	6.39E-07	2.08E-06	2.68E-07	1.59E-06	6.76E-07	6.86E-07	1.58E-06
Toluene	0.0034	-	3.67E-04	0.0	2.05E-04	1.61E-04	2.42E-04	0.0	2.38E-04	3.28E-06	2.25E-04	0.0	1.74E-05	2.08E-04
TOTAL HAPS			2.04E-01	9.54E-06	1.14E-01	8.97E-02	1.34E-01	1.80E-05	1.32E-01	1.83E-03	1.25E-01	1.91E-05	9.67E-03	1.15E-01

For References, see Emission Summary.

12 Month Rolling Emissions 2009 (Tons)

Pollutant	TSP	PM10	NOx	CO	VOC	SO_2
Permit Limit (tons/yr) 12-Month Rolling Total	**8.4**	**8.2**	**60.2**	**41.3**	**5.6**	**7.9**
January	1.821	1.819	13.871	9.565	1.314	0.154
February	1.813	1.811	13.812	9.525	1.309	0.152
March	1.813	1.812	13.823	9.532	1.310	0.150
April	1.824	1.823	13.904	9.588	1.318	0.151
May	1.821	1.820	13.881	9.572	1.316	0.150
June	1.830	1.829	13.953	9.622	1.323	0.151
July	1.828	1.827	13.933	9.608	1.321	0.151
August	1.832	1.831	13.966	9.631	1.324	0.151
September	1.835	1.834	13.987	9.646	1.326	0.151
October	1.848	1.847	14.088	9.715	1.335	0.152
November	1.856	1.855	14.154	9.761	1.342	0.151
December	1.865	1.864	14.219	9.805	1.348	0.153

Monthly Emission Totals (Tons)

Pollutant	TSP	PM10	NOx	CO	VOC	SO_2
January	0.246	0.245	1.872	1.291	0.177	0.021
February	0.213	0.213	1.627	1.122	0.154	0.017
March	0.200	0.200	1.524	1.051	0.144	0.018
April	0.168	0.168	1.280	0.882	0.121	0.014
May	0.115	0.115	0.878	0.606	0.083	0.009
June	0.090	0.090	0.685	0.473	0.065	0.007
July	0.082	0.082	0.626	0.431	0.059	0.007
August	0.062	0.062	0.473	0.326	0.045	0.005
September	0.084	0.084	0.644	0.444	0.061	0.007
October	0.150	0.150	1.147	0.791	0.109	0.012
November	0.191	0.191	1.458	1.006	0.138	0.015
December	0.263	0.263	2.005	1.382	0.190	0.022
Annual Totals	1.865	1.864	14.219	9.805	1.348	0.153

Emission Summary TA-3 Power Plant 2009

Pollutant Criteria	Emission Factor: Natural Gas (lb/MMscf) [a]	Emission Factor: Fuel Oil [f] (lb/1000 gal.)	Annual Emissions (Natural Gas + Fuel Oil) (tons)	Jan-June Emissions (Natural Gas + Fuel Oil) (tons)	July-Dec Emissions (Natural Gas + Fuel Oil) (tons)	Reference: Gas	Reference: Oil
NOx	58	8.64	14.219	7.867	6.352	(c)	(c)
SOx	0.6	7.4	0.153	0.086	0.067	(a)(j)	(g)(j)
PM	7.6	3.3	1.865	1.032	0.833	(d)	(d)
PM-10	7.6	2.3	1.864	1.032	0.833	(d)	(d)
PM-2.5	7.6	1.55	1.863	1.031	0.832	(d)	(d)
CO	40	5.0	9.805	5.425	4.380	(b)	(g)
VOC	5.5	0.2	1.348	0.746	0.602	(b)	(i)
HAPs [h]							
Arsenic	0.0002	0.00055	4.94E-05	2.74E-05	2.20E-05	(a)	(k)
Benzene	0.0021	-	5.15E-04	2.85E-04	2.30E-04	(c)	
Beryllium	0.000012	0.00041	3.27E-06	1.87E-06	1.40E-06	(c)	(k)
Cadmium	0.0011	0.00041	2.70E-04	1.49E-04	1.21E-04	(c)	(k)
Chromium	0.0014	0.00041	3.43E-04	1.90E-04	1.53E-04	(c)	(k)
Cobalt	0.000084	-	2.06E-05	1.14E-05	9.20E-06	(c)	
Dichlorobenzene	0.0012	-	2.94E-04	1.63E-04	1.31E-04	(c)	
Formaldehyde	0.075	0.048	1.84E-02	1.02E-02	8.22E-03	(c)	(k)
Hexane	1.8	-	4.41E-01	2.44E-01	1.97E-01	(c)	
Lead	0.0005	0.001233	1.24E-04	6.85E-05	5.50E-05	(c)	(k)
Manganese	0.00038	0.000822	9.38E-05	5.20E-05	4.18E-05	(c)	(k)
Mercury	0.00026	0.000411	6.40E-05	3.55E-05	2.85E-05	(i)(c)	(i)(k)
Napthalene	0.00061	-	1.49E-04	8.27E-05	6.68E-05	(c)	
Nickel	0.0021	0.000411	5.15E-04	2.85E-04	2.30E-04	(c)	(k)
POM	0.000088	0.0033	2.42E-05	1.39E-05	1.03E-05	(c)	(k)
Selenium	0.000024	0.002055	7.53E-06	4.49E-06	3.04E-06	(c)	(k)
Toluene	0.0034	-	8.33E-04	4.61E-04	3.72E-04	(c)	
TOTAL HAPS			4.63E-01	2.56E-01	2.07E-01		
EPCRA 313				**lbs./year**			
Lead	0.0005	0.00123	1.24E-04	0.247		(c)	(i)(k)
Sulfuric Acid	0.60	0.285	1.47E-01	294.49		(e)(j)	(e)(h)
Mercury	0.00026	0.00041	6.40E-05	0.128		(c)	(i)(k)
PACs	8.69E-07	1.65E-05	2.26E-07	4.52E-04		(f)(l)	(f)(l)
Benzo(g,h,i) perylene	1.20E-06	2.26E-06	2.96E-07	5.92E-04		(i)(k)(c)	(f)
Zinc	-	0.00055	4.41E-07	8.82E-04			(k)

(a) AP-42, 7/98, Section. 1.4, *Natural Gas Combustion*, Tables 1.4-1, 1.4-2

(b) Fuel usage obtained from Jerry Gonzales (FWO-UI). Values are provided in a monthly data deliverable from KSL.

(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, Natural Gas Combustion, Table 1.4-2. Consistent with previous stacktests.

(f) AP-42, 9/98, Section. 1.3, *Fuel Oil Combustion*, Table 1.3-1 with Errata, Table 1.3-3, and Table 1.3-6.

(g) Boilers>100 MMBtu/hr: SOx Emission Factor (SO_2{142S} + SO_3{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')

S(%)= 0.05

(h) HAP emission factors for natural gas from AP-42, Tables 1.4-3 an 1.4-4, for fuel oil from AP-42 Tables 1.3-8 and 1.3-10.

(i) AP-42, Table 1.4-2, 1.4-3, and 1.4-4, July 1998

(j) Assume all SO_3 is converted to sulfuric acid.

(k) AP-42, tables 1.3-9 and 1.3-10, September 1998.

(l) EPCRA PAC Guidance Document, Table 2-3.

Reviewed By/Date:

2009 Small Boilers Data Entry / Gas Use

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

2009 Non Metered Boiler Pool Capacity:	**292.8**	MMBTU/hr [f]	
Estimated Gas-Use per MMBtu rating Jan-June:		0.93	MMscf/MMBtu/hr
Estimated Gas-Use per MMBtu rating July-Dec:		0.73	MMscf/MMBtu/hr
Estimated Gas-Use per MMBtu - Annual		1.66	MMscf/MMBtu/hr

Definitions:
MMSCF = Million Standard Cubic Feet
MSCF = Thousand Standard Cubic Feet
Metered/Non-metered: Metered boilers are those units that have unit specific volumetric flow meters for the boiler(s) only.

Gas Use Non-Metered [g] (MMSCF)

AIRS Stack #	015	016	017	018	019	020	021	024	Insignificant Units [h]
Location:	TA-48-1	TA-48-1	TA-48-1	TA-53-365	TA-53-365	TA-59-1	TA-59-1	TA-16-1484	Lab Wide
Equipment ID:	BS-1	BS-2	BS-6	BHW-1	BHW-2	BHW-1	BHW-2	Plant 5	Various
Database ID:	B-0023	B-0024	B-0022	B-0042	B-0043	B-0006	B-0007	B-0093 & B-0092	
Design Rate [i] (MMBTU/hr)	**5.336**	**5.335**	**7.140**	**7.115**	**7.115**	**5.335**	**5.335**	**12.700**	**237**
Calculated Gas Use-Jan-June	4.947	4.946	6.619	6.595	6.595	4.946	4.946	11.773	220.067
Calculated Gas Use-July-Dec	3.917	3.916	5.241	5.222	5.222	3.916	3.916	9.322	174.247
Calculated Gas Use-Annual	8.864	8.862	11.860	11.818	11.818	8.862	8.862	21.095	394.314

Reviewed By / Date:

2009 Small Boilers Emission Summary
Title V Semi-Annual Reporting

	Total Emissions (tons)		
Pollutant	**Annual Emissions (Includes Insignificant Sources)**	**Jan-June (Includes Insignificant Sources)**	**July-Dec (Includes Insignificant Sources)**
Criteria			
NOx	25.493	13.999	11.494
SOx	0.154	0.085	0.069
PM	2.035	1.113	0.922
PM-10	2.035	1.113	0.922
PM-2.5	2.035	1.113	0.922
CO	20.496	11.364	9.132
VOC	1.418	0.781	0.637
HAPs			
Arsenic	5.14E-05	2.83E-05	2.30E-05
Benzene	5.39E-04	2.97E-04	2.41E-04
BE	3.08E-06	1.70E-06	1.38E-06
Cadmium	2.82E-04	1.56E-04	1.26E-04
Chromium	3.59E-04	1.98E-04	1.61E-04
Cobalt	2.15E-05	1.19E-05	9.65E-06
Dichlorobenzene	3.08E-04	1.70E-04	1.38E-04
Formaldehyde	1.92E-02	1.06E-02	8.61E-03
Hexane	4.62E-01	2.55E-01	2.07E-01
Lead	1.28E-04	7.08E-05	5.74E-05
Mangenese	9.75E-05	5.38E-05	4.36E-05
Mercury	6.67E-05	3.68E-05	2.99E-05
Napthalene	1.56E-04	8.64E-05	7.01E-05
Nickel	5.39E-04	2.97E-04	2.41E-04
POM	2.26E-05	1.25E-05	1.01E-05
Selenium	6.15E-06	3.40E-06	2.76E-06
Toluene	8.72E-04	4.81E-04	3.91E-04
TOTAL HAPS	0.484	0.267	0.217

The totals in this table include exempt, non-exempt, metered, and non-metered boilers (all boilers except Power Plant boilers).

2009 Non-Exempt Boiler Emissions for Annual EI Reporting (Tons/Year)

Pollutant Criteria	AIRS 015 TA-48-1 BS-1	AIRS 016 TA-48-1 BS-2	AIRS 017 TA-48-1 BS-6	AIRS 018 TA-53-365 BHW-1	AIRS 019 TA-53-365 BHW-2	AIRS 020 TA-59-1 BHW-1	AIRS 021 TA-59-1 BHW-2	AIRS 024 TA-16 Plant 5	AIRS 037 TA-55-6 BHW-1B	AIRS 038 TA-55-6 BHW-2B	AIRS New TA-50-2 BS-1	Total
NOx	0.443	0.443	0.593	0.591	0.591	0.443	0.443	0.391	0.819	0.922	0.098	5.777
SOx	0.003	0.003	0.004	0.004	0.004	0.003	0.003	0.006	0.004	0.004	0.001	0.036
PM	0.034	0.034	0.045	0.045	0.045	0.034	0.034	0.080	0.084	0.095	0.007	0.536
PM-10	0.034	0.034	0.045	0.045	0.045	0.034	0.034	0.080	0.084	0.095	0.007	0.536
PM-2.5	0.034	0.034	0.045	0.045	0.045	0.034	0.034	0.080	0.084	0.095	0.007	0.536
CO	0.372	0.372	0.498	0.496	0.496	0.372	0.372	0.391	0.227	0.255	0.082	3.935
VOC	0.024	0.024	0.033	0.032	0.032	0.024	0.024	0.058	0.036	0.040	0.005	0.334
HAPs												
Arsenic	8.86E-07	8.86E-07	1.19E-06	1.18E-06	1.18E-06	8.86E-07	8.86E-07	2.11E-06	1.19E-06	1.34E-06	1.95E-07	1.19E-05
Benzene	9.31E-06	9.31E-06	1.25E-05	1.24E-05	1.24E-05	9.31E-06	9.31E-06	2.22E-05	1.25E-05	1.40E-05	2.05E-06	1.25E-04
BE	5.32E-08	5.32E-08	7.12E-08	7.09E-08	7.09E-08	5.32E-08	5.32E-08	1.27E-07	7.13E-08	8.02E-08	1.17E-08	7.15E-07
Cadmium	4.88E-06	4.87E-06	6.52E-06	6.50E-06	6.50E-06	4.87E-06	4.87E-06	1.16E-05	6.53E-06	7.35E-06	1.07E-06	6.56E-05
Chromium	6.20E-06	6.20E-06	8.30E-06	8.27E-06	8.27E-06	6.20E-06	6.20E-06	1.48E-05	8.31E-06	9.35E-06	1.37E-06	8.35E-05
Cobalt	3.72E-07	3.72E-07	4.98E-07	4.96E-07	4.96E-07	3.72E-07	3.72E-07	8.86E-07	4.99E-07	5.61E-07	8.21E-08	5.01E-06
Dichlorobenzene	5.32E-06	5.32E-06	7.12E-06	7.09E-06	7.09E-06	5.32E-06	5.32E-06	1.27E-05	7.13E-06	8.02E-06	1.17E-06	7.15E-05
Formaldehyde	3.32E-04	3.32E-04	4.45E-04	4.43E-04	4.43E-04	3.32E-04	3.32E-04	7.91E-04	4.45E-04	5.01E-04	7.33E-05	4.47E-03
Hexane	7.98E-03	7.98E-03	1.07E-02	1.06E-02	1.06E-02	7.98E-03	7.98E-03	1.90E-02	1.07E-02	1.20E-02	1.76E-03	1.07E-01
Lead	2.22E-06	2.22E-06	2.96E-06	2.95E-06	2.95E-06	2.22E-06	2.22E-06	5.27E-06	2.97E-06	3.34E-06	4.89E-07	2.98E-05
Mangenese	1.68E-06	1.68E-06	2.25E-06	2.25E-06	2.25E-06	1.68E-06	1.68E-06	4.01E-06	2.26E-06	2.54E-06	3.71E-07	2.27E-05
Mercury	1.15E-06	1.15E-06	1.54E-06	1.54E-06	1.54E-06	1.15E-06	1.15E-06	2.74E-06	1.54E-06	1.74E-06	2.54E-07	1.55E-05
Napthalene	2.70E-06	2.70E-06	3.62E-06	3.60E-06	3.60E-06	2.70E-06	2.70E-06	6.43E-06	3.62E-06	4.07E-06	5.96E-07	3.64E-05
Nickel	9.31E-06	9.31E-06	1.25E-05	1.24E-05	1.24E-05	9.31E-06	9.31E-06	2.22E-05	1.25E-05	1.40E-05	2.05E-06	1.25E-04
POM	3.90E-07	3.90E-07	5.22E-07	5.20E-07	5.20E-07	3.90E-07	3.90E-07	9.28E-07	5.23E-07	5.88E-07	8.60E-08	5.25E-06
Selenium	1.06E-07	1.06E-07	1.42E-07	1.42E-07	1.42E-07	1.06E-07	1.06E-07	2.53E-07	1.43E-07	1.60E-07	2.34E-08	1.43E-06
Toluene	1.51E-05	1.51E-05	2.02E-05	2.01E-05	2.01E-05	1.51E-05	1.51E-05	3.59E-05	2.02E-05	2.27E-05	3.32E-06	2.03E-04
TOTAL HAPS/Unit	8.37E-03	8.37E-03	1.12E-02	1.12E-02	1.12E-02	8.37E-03	8.37E-03	1.99E-02	1.12E-02	1.26E-02	1.85E-03	0.11

Emission Factors (lb/MMscf)			
Criteria Pollutant	**Small Uncontrolled Boilers[1]**	**TA-16 Low NOx Boilers[4]**	**TA-55-6 Boilers[3]**
NOx	100	37.08	138
SOx	0.6	0.6	0.6
PM[2]	7.6	7.6	14.2
PM-10[2]	7.6	7.6	14.2
PM-2.5[2]	7.6	7.6	14.2
CO	84	37.08	38.2
VOC	5.5	5.5	5.98
HAPs[5]			
Arsenic	0.0002		
Benzene	0.0021		
BE	0.000012		
Cadmium	0.0011		
Chromium	0.0014		
Cobalt	0.000084		
Dichlorobenzene	0.0012		
Formaldehyde	0.075		
Hexane	1.8		
Lead	0.0005		
Mangenese	0.00038		
Mercury	0.00026		
Napthalene	0.00061		
Nickel	0.0021		
POM	0.000088		
Selenium	0.000024		
Toluene	0.0034		

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. Stacktesting 3/00 for NOx. Otherwise, Emission factors from Sellers Engineering
(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

REFERENCES
(a) Information on non-metered boilers is provided as a data deliverable from KSL and contains all gas use at LANL minus those non-LANL sources which feed from the LANL main line and LANL sources that are individually metered. Total Gas use does not inc
(b)TA-16 Boilers include 2 boilers in plant 5. Gas use was difficult to obtain, so, the boilers were included in the "boiler pool" to determine gas use. Plant 6 has been taken off line and is not expected to be reused or boilers relocated. The removal
(c) TA-55 has two boilers with separate AIRs numbers. Each boiler has a gas meter. The gas use information is provided monthly by the TA-55 facility personnel and is included in the KSL data deliverable.
(d) The TA-50-RLWTF boiler was added to EI as a new source in 2003. This boiler is owned and operated by a contractor and has been operated at LANL since mid-2000. Originally planned as a temporary source, but current plans are to keep operating for se
(e) The 12-month rolling average includes all gas use from all boilers listed in this spreadsheet. Boilers not included in this report due to their large size or design are TA-21 boilers & powerplant boilers at TA-3. A gas use limit of 870 MMscf/yr, 12-
(f) The non-metered boiler pool capacity is the sum of all active non-metered boilers design ratings (derated value, called design rating in boiler data base) in MMBTU. This number is used to estimate the gas use rate (total non-metered gas use divided b
(g) The non-metered boilers gas use section provides estimates of gas use for each boiler. This is calculated using the non-metered gas rate, as discussed in reference (f). The individual boiler design rating is mutiplied by the gas use rate to provide
(h) NMED List of Insignificant Activities (9/95), Item (3.) exempts fuel burning equipment which uses gaseous fuel, has a design rate less than or equal to 5 MMBTU/hr, and is used for heating buildings for personal comfort or for producing hot water for p
(i) The design rate for boilers includes a correction for elevation. LANL is at approximately 7,500 feet above sea level. Corrections are made for atmospheric boilers using 4% reduction (derated) for each 1,000 feet above sea level (4% x 7.5 = 30%). Fo

EPCRA 313

Chemical	Amount in Fuel[a]		Emissions from all Small Boilers[b]	
	Conc.	Pounds	Emission Factor (lbs/MMscf)	Emissions (lbs)
Lead[c]			5.0E-04	0.27
Sulfuric Acid[d]			0.6	324.44
Mercury[c]			2.6E-04	0.14
PACs[e]			8.69E-07	4.70E-04
Benzo(g,h,i) perylene[c]			1.20E-06	6.49E-04

(a) Amount of EPCRA chemical in fuel is considered "otherwise used" for EPCRA 313 threshold determination

(b) Combustion compounds emitted are considered "manufactured" for EPCRA 313 threshold deteminations. Lead and mercury are lead compounds and mercury compounds.

(c) Emission Factors from AP-42, Section 1.4, Natural Gas Combustion, Tables 1.4-2, 1.4-3 and 1.4-4, July 1998

(d) Assume all SOx emissions are converted to sulfuric acid in the stack.

(e) EPCRA PAC Guidance Document, Table 2-3

Attachment B

2009 Annual Emissions Inventory Submittal to NMED

ENV-EAQ AIR QUALITY INTERNAL MEMORANDUM

To: 2009 Emissions Inventory File

From: Walt Whetham

Date: June 10, 2010

Re: 2009 Emissions Inventory Electronic Submittal

Los Alamos National Laboratory will submit their 2009 Emissions Inventory Report to New Mexico Environmental Department via NMED's new online reporting tool, AEIR. The 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 and will be submitted before New Mexico Environmental Department's revised deadline of July 1st. Additionally, this report satisfies LANL's reporting requirement under 20.2.87 NMAC, Greenhouse Gas Emissions Reporting.

Printouts from the AEIR tool for each of the 40 sources are attached.

Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 116
Designation: TA-60-BDM
Description: Asphalt Plant Dryer - Propane
Type: Asphalt Drum/Burner
SCC: Industrial Processes, Mineral Products, Asphalt Concrete, Drum Mix Plant: Rotary Drum Dryer / Mixer, Natural Gas - Fired

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Propane		Propane (actual)
Input Materials Processed:	Asphalt (OUTPUT)		Asphalt (actual)
Materials Consumed:	21862.0	gal/y	0 MM SCF/y (actual)
Fuel Heating Value:	2516.0	MM BTU/MM SCF	2516 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0	percent	0 percent (actual)
Percent Ash of Fuel:	0.0	percent	0 percent (actual)
Percent Carbon Content:	0.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	8	0 (actual)
Operating Time in Days per Week:	5	0 (actual)
Operating Time in Weeks per Year:	26	0 (actual)
Operating Time in Hours per Year:	1040	0 (actual)
Percent of Operation During Winter:	10	0 (actual)
Percent of Operation During Spring:	30	0 (actual)
Percent of Operation During Summer:	30	0 (actual)
Percent of Operation During Fall:	30	0 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	123.01	tons/y	146.2/Actual	Other publication reference
Carbon Dioxide (from combustion):	123.01	tons/y	146.2/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	1.014	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Lead:	0.0	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.0060	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0060	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.029	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (10 microns or less):	0.0040	tons/y	0/Actual	Manufacturer Specification

Particulate Matter (2.5 microns or less):	0.0040	tons/y	0/Actual	Manufacturer Specification
Particulate Matter (total suspended):	0.017	tons/y	0/Actual	Manufacturer Specification
Sulfur Dioxide:	0.0030	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.0050	tons/y	0/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

Print Close

Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 2
Designation: TA-35-213
Description: Be Target Fabrication Facility - Machining TA-35-213
Type: Beryllium Work
SCC: Industrial Processes, Fabricated Metal Products, Machining Operations, Specify Material**

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:			
Input Materials Processed:			Metal (actual)
Materials Consumed:			
Fuel Heating Value:			
Percent Sulfur of Fuel:		percent	
Percent Ash of Fuel:		percent	
Percent Carbon Content:		percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	5	5 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	1920	1920 (actual)
Percent of Operation During Winter:	25	25 (actual)
Percent of Operation During Spring:	25	25 (actual)
Percent of Operation During Summer:	25	25 (actual)
Percent of Operation During Fall:	25	25 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Beryllium:	0.0	tons/y	1.98E-08/Actual	Estimate
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
Particulate Matter (total suspended):	0.0	tons/y	0.0/Actual	Estimate

Subject Item Comments

For both beryllium and particulate emissions, the actual number reported is <1.98E-8 tons/year. However, the AEIR tool rounds the number to zero.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 3
Designation: TA-3-141
Description: Be Test Facility - Machining TA-3-141
Type: Beryllium Work
SCC: Industrial Processes, Fabricated Metal Products, Machining Operations, Specify Material**

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:			
Input Materials Processed:			Metal (actual)
Materials Consumed:			
Fuel Heating Value:			
Percent Sulfur of Fuel:		percent	
Percent Ash of Fuel:		percent	
Percent Carbon Content:		percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	24	24 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	8760	8760 (actual)
Percent of Operation During Winter:	25	25 (actual)
Percent of Operation During Spring:	25	25 (actual)
Percent of Operation During Summer:	25	25 (actual)
Percent of Operation During Fall:	25	25 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Beryllium:	0.0	tons/y	0.0/Actual	Engineer Calculation
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
Particulate Matter (total suspended):	0.0	tons/y	7.71E-09/Actual	Engineer Calculation

Subject Item Comments

For both beryllium and particulate emissions, the actual number reported is <7.71E-9 tons/year. However, the AEIR tool rounds the number to zero.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 6
Designation: TA-55-PF4 (a)
Description: Plutonium Facility Beryllium machining, weld cutting / dressing and metallography
Type: Beryllium Work
SCC: Industrial Processes, Fabricated Metal Products, Machining Operations, Specify Material**

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:			
Input Materials Processed:			Metal (actual)
Materials Consumed:			
Fuel Heating Value:			
Percent Sulfur of Fuel:		percent	
Percent Ash of Fuel:		percent	
Percent Carbon Content:		percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	5	5 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	1920	1920 (actual)
Percent of Operation During Winter:	25	25 (actual)
Percent of Operation During Spring:	25	25 (actual)
Percent of Operation During Summer:	25	25 (actual)
Percent of Operation During Fall:	25	25 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Beryllium:	0.0	tons/y	3.21E-06/Actual	EPA emission factors (e.g., AP-42)
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation

Subject Item Comments

For both beryllium emissions, the actual number reported is <3.21E-6 tons/year. However, the AEIR tool rounds the number to zero.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 41
Designation: TA-3-66
Description: Sigma Facility-electroplating/metallography
Type: Beryllium Work
SCC: Industrial Processes, Fabricated Metal Products, Abrasive Cleaning of Metal Parts, Polishing

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:			
Input Materials Processed:			Metal (actual)
Materials Consumed:			1100 MM SCF/y (actual)
Fuel Heating Value:			0 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:		percent	
Percent Ash of Fuel:		percent	0 percent (actual)
Percent Carbon Content:		percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	8	8 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	2912	2912 (actual)
Percent of Operation During Winter:	25	25 (actual)
Percent of Operation During Spring:	25	25 (actual)
Percent of Operation During Summer:	25	25 (actual)
Percent of Operation During Fall:	25	25 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Beryllium:	0.0	tons/y	1.5/Allowable	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation

Subject Item Comments

Polishing/milling operations are conducted in an aqueous solution and melting/casting operations are exhausted through a HEPA filter. Emissions are negligible.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 8
Designation: TA-48-1-BS-1
Description: Boiler TA-48-1-BS-1
Type: Boiler
SCC: External Combustion Boilers, Electric Generation, Natural Gas, Boilers < 100 Million Btu/hr except Tangential

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	8.86	MM SCF/y	10.01 MM SCF/y (actual)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1030 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0060	percent	
Percent Ash of Fuel:	0.0	percent	0 percent (actual)
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	15	15 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	33	33 (actual)
Operating Time in Hours per Year:	3465	5500 (actual)
Percent of Operation During Winter:	40	40 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	0	0 (actual)
Percent of Operation During Fall:	40	40 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	486.9	tons/y	479.1/Actual	Other publication reference
Carbon Dioxide (from combustion):	486.9	tons/y	479.1/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.372	tons/y	0.455/Actual	EPA emission factors (e.g., AP-42)
Hexane:	0.0080	tons/y	0.01/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.0090	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0090	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.443	tons/y	0.542/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (10 microns or less):	0.034	tons/y	0.041/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (2.5 microns or less):	0.034	tons/y	0.041/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.034	tons/y	0.041/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.0030	tons/y	0.003/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.024	tons/y	0.03/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 9
Designation: TA-48-1-BS-2
Description: Boiler TA-48-1-BS-2
Type: Boiler
SCC: External Combustion Boilers, Electric Generation, Natural Gas, Boilers < 100 Million Btu/hr except Tangential

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	8.86	MM SCF/y	10.01 MM SCF/y (actual)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1030 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0060	percent	
Percent Ash of Fuel:	0.0	percent	0 percent (actual)
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	15	15 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	33	33 (actual)
Operating Time in Hours per Year:	3465	5500 (actual)
Percent of Operation During Winter:	40	40 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	0	0 (actual)
Percent of Operation During Fall:	40	40 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	486.8	tons/y	479/Actual	Other publication reference
Carbon Dioxide (from combustion):	486.8	tons/y	479/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.372	tons/y	0.455/Actual	EPA emission factors (e.g., AP-42)
Hexane:	0.0080	tons/y	0.01/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.0090	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0090	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.443	tons/y	0.542/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (10 microns or less):	0.034	tons/y	0.041/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (2.5 microns or less):	0.034	tons/y	0.041/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.034	tons/y	0.041/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.0030	tons/y	0.003/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.024	tons/y	0.03/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 10
Designation: TA-48-1-BS-6
Description: Boiler TA-48-1-BS-6
Type: Boiler
SCC: External Combustion Boilers, Electric Generation, Natural Gas, Boilers < 100 Million Btu/hr except Tangential

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	11.86	MM SCF/y	13.4 MM SCF/y (actual)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1030 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0060	percent	
Percent Ash of Fuel:	0.0	percent	0 percent (actual)
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	15	15 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	33	33 (actual)
Operating Time in Hours per Year:	3465	5500 (actual)
Percent of Operation During Winter:	40	40 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	0	
Percent of Operation During Fall:	40	40 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	651.5	tons/y	641/Actual	Other publication reference
Carbon Dioxide (from combustion):	651.5	tons/y	641/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.498	tons/y	0.609/Actual	EPA emission factors (e.g., AP-42)
Formaldehyde:	0.0	tons/y	0.001/Actual	EPA emission factors (e.g., AP-42)
Hexane:	0.011	tons/y	0.013/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.012	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.012	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.593	tons/y	0.725/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (10 microns or less):	0.045	tons/y	0.055/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (2.5 microns or less):	0.045	tons/y	0.055/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.045	tons/y	0.055/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.0040	tons/y	0.004/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.033	tons/y	0.4/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 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

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	11.82	MM SCF/y	13.35 MM SCF/y (actual)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1030 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0060	percent	
Percent Ash of Fuel:	0.0	percent	0 percent (actual)
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	15	15 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	33	33 (actual)
Operating Time in Hours per Year:	3465	5500 (actual)
Percent of Operation During Winter:	40	40 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	0	0 (actual)
Percent of Operation During Fall:	40	40 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	649.2	tons/y	638.8/Actual	Other publication reference
Carbon Dioxide (from combustion):	649.2	tons/y	638.8/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.496	tons/y	0.607/Actual	EPA emission factors (e.g., AP-42)
Formaldehyde:	0.0	tons/y	0.001/Actual	EPA emission factors (e.g., AP-42)
Hexane:	0.011	tons/y	0.013/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.012	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.012	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.591	tons/y	0.722/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (10 microns or less):	0.045	tons/y	0.055/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (2.5 microns or less):	0.045	tons/y	0.055/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.045	tons/y	0.055/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.0040	tons/y	0.004/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.032	tons/y	0.04/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 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

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	11.82	MM SCF/y	13.35 MM SCF/y (actual)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1030 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0060	percent	
Percent Ash of Fuel:	0.0	percent	0 percent (actual)
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	15	15 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	33	33 (actual)
Operating Time in Hours per Year:	3465	5500 (actual)
Percent of Operation During Winter:	40	40 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	0	0 (actual)
Percent of Operation During Fall:	40	40 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	649.2	tons/y	638.8/Actual	Other publication reference
Carbon Dioxide (from combustion):	649.2	tons/y	638.8/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.496	tons/y	0.607/Actual	EPA emission factors (e.g., AP-42)
Formaldehyde:	0.0	tons/y	0.001/Actual	EPA emission factors (e.g., AP-42)
Hexane:	0.011	tons/y	0.013/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.012	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.012	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.591	tons/y	0.722/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (10 microns or less):	0.045	tons/y	0.055/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (2.5 microns or less):	0.045	tons/y	0.055/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.045	tons/y	0.055/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.0040	tons/y	0.004/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.032	tons/y	0.4/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 13
Designation: TA-59-1-BHW-1
Description: Boiler TA-59-1-BHW-1
Type: Boiler
SCC: External Combustion Boilers, Electric Generation, Natural Gas, Boilers < 100 Million Btu/hr except Tangential

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	8.86	MM SCF/y	10.01 MM SCF/y (actual)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1030 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0060	percent	
Percent Ash of Fuel:	0.0	percent	0 percent (actual)
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	15	15 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	33	33 (actual)
Operating Time in Hours per Year:	3465	5500 (actual)
Percent of Operation During Winter:	40	40 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	0	0 (actual)
Percent of Operation During Fall:	40	40 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	486.8	tons/y	479/Actual	EPA emission factors (e.g., AP-42)
Carbon Dioxide (from combustion):	486.8	tons/y	479/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.372	tons/y	0.455/Actual	Other publication reference
Hexane:	0.0080	tons/y	0.01/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.0090	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0090	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.443	tons/y	0.542/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (10 microns or less):	0.034	tons/y	0.041/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (2.5 microns or less):	0.034	tons/y	0.041/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.034	tons/y	0.041/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.0030	tons/y	0.003/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.024	tons/y	0.03/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 14
Designation: TA-59-1-BHW-2
Description: Boiler 59-1-BHW-2
Type: Boiler
SCC: External Combustion Boilers, Electric Generation, Natural Gas, Boilers < 100 Million Btu/hr except Tangential

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	8.86	MM SCF/y	10.01 MM SCF/y (actual)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1030 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0060	percent	
Percent Ash of Fuel:	0.0	percent	0 percent (actual)
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	15	15 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	33	33 (actual)
Operating Time in Hours per Year:	3465	5500 (actual)
Percent of Operation During Winter:	40	40 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	0	0 (actual)
Percent of Operation During Fall:	40	40 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	486.8	tons/y	479/Actual	Other publication reference
Carbon Dioxide (from combustion):	486.8	tons/y	479/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.372	tons/y	0.455/Actual	EPA emission factors (e.g., AP-42)
Hexane:	0.0080	tons/y	0.01/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.0090	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0090	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.443	tons/y	0.542/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (10 microns or less):	0.034	tons/y	0.041/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (2.5 microns or less):	0.034	tons/y	0.041/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.034	tons/y	0.041/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.0030	tons/y	0.003/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.024	tons/y	0.03/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 24
Designation: TA-3-22-1
Description: Power Plant Boiler (pph, Natural Gas)
Type: Boiler
SCC: External Combustion Boilers, Electric Generation, Natural Gas, Boilers > 100 Million Btu/hr except Tangential

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	215.6	MM SCF/y	45.8 MM SCF/y (actual)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1049 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0060	percent	
Percent Ash of Fuel:	0.0	percent	
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	24	24 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	8760	8760 (actual)
Percent of Operation During Winter:	30	30 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	20	20 (actual)
Percent of Operation During Fall:	30	30 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	11842.8	tons/y	2550/Actual	Other publication reference
Carbon Dioxide (from combustion):	11842.8	tons/y	2550/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	4.312	tons/y	0.92/Actual	EPA emission factors (e.g., AP-42)
Formaldehyde:	0.0080	tons/y	0.002/Actual	EPA emission factors (e.g., AP-42)
Hexane:	0.19	tons/y	0.04/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.223	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.223	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	6.252	tons/y	1.33/Actual	Actual stack test
Particulate Matter (10 microns or less):	0.819	tons/y	0.174/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (2.5 microns or less):	0.819	tons/y	0.174/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (total suspended):	0.819	tons/y	0.174/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.065	tons/y	0.014/Actual	EPA emission factors (e.g., AP-42)
Toluene; (Methyl benzene):	0.0	tons/y	8e-005/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.593	tons/y	0.13/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

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Carbon Dioxide and Carbon Dioxide(from Combustion)emissions
are both given in metric tons/year as requested by NMED.
The value for toluene is rounded to zero and the actual
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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 25
Designation: TA-3-22-2
Description: Power Plant Boiler (pph, Natural Gas)
Type: Boiler
SCC: External Combustion Boilers, Electric Generation, Natural Gas, Boilers > 100 Million Btu/hr except Tangential

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	142.2	MM SCF/y	307.9 MM SCF/y (actual)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1049 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0060	percent	
Percent Ash of Fuel:	0.0	percent	
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	24	24 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	8760	8760 (actual)
Percent of Operation During Winter:	30	30 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	20	20 (actual)
Percent of Operation During Fall:	30	30 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	7809.8	tons/y	17135.7/Actual	Other publication reference
Carbon Dioxide (from combustion):	7809.8	tons/y	17135.7/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	2.844	tons/y	2.763/Actual	EPA emission factors (e.g., AP-42)
Formaldehyde:	0.0050	tons/y	0.005/Actual	EPA emission factors (e.g., AP-42)
Hexane:	0.128	tons/y	0.124/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.147	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.147	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	4.123	tons/y	4.007/Actual	Actual stack test
Particulate Matter (10 microns or less):	0.54	tons/y	0.525/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (2.5 microns or less):	0.54	tons/y	0.525/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (total suspended):	0.54	tons/y	0.525/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.043	tons/y	0.04/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.391	tons/y	0.38/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 26
Designation: TA-3-22-3
Description: Power Plant Boiler (pph, Natural Gas)
Type: Boiler
SCC: External Combustion Boilers, Electric Generation, Natural Gas, Boilers > 100 Million Btu/hr except Tangential

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	132.3	MM SCF/y	130.9 MM SCF/y (actual)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1049 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0060	percent	
Percent Ash of Fuel:	0.0	percent	
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	24	24 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	8760	8760 (actual)
Percent of Operation During Winter:	30	30 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	20	20 (actual)
Percent of Operation During Fall:	30	30 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	7266.8	tons/y	7286.1/Actual	Other publication reference
Carbon Dioxide (from combustion):	7266.8	tons/y	7286.1/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	2.646	tons/y	5.198/Actual	EPA emission factors (e.g., AP-42)
Formaldehyde:	0.0050	tons/y	0.01/Actual	EPA emission factors (e.g., AP-42)
Hexane:	0.119	tons/y	0.234/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.137	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.137	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	3.836	tons/y	7.536/Actual	Actual stack test
Particulate Matter (10 microns or less):	0.503	tons/y	0.988/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (2.5 microns or less):	0.503	tons/y	0.988/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (total suspended):	0.503	tons/y	0.988/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.04	tons/y	0.078/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.364	tons/y	0.715/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 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

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		
Materials Consumed:	11.88	MM SCF/y	870 MM SCF/y (potential)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1030 BTU/SCF (potential)
Percent Sulfur of Fuel:	0.0060	percent	1030 MM BTU/MM SCF (actual)
Percent Ash of Fuel:	0.0	percent	
Percent Carbon Content:	68.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	15	15 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	33	33 (actual)
Operating Time in Hours per Year:	3465	5500 (actual)
Percent of Operation During Winter:	40	40 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	0	0 (actual)
Percent of Operation During Fall:	40	40 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	652.4	tons/y	835.5/Actual	Other publication reference
Carbon Dioxide (from combustion):	652.4	tons/y	835.5/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.227	tons/y	0.147/Actual	Manufacturer Specification
Hexane:	0.011	tons/y	0.007/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.012	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.012	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.819	tons/y	0.53/Actual	Actual stack test
Particulate Matter (10 microns or less):	0.084	tons/y	0.055/Actual	Manufacturer Specification

Particulate Matter (2.5 microns or less):	0.084	tons/y	0.055/Actual	Manufacturer Specification
Particulate Matter (total suspended):	0.084	tons/y	0.055/Actual	Manufacturer Specification
Sulfur Dioxide:	0.0040	tons/y	0.002/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.036	tons/y	0.023/Actual	Manufacturer Specification

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 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

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		
Materials Consumed:	13.36	MM SCF/y	0 percent (potential)
Fuel Heating Value:	1049.0	MM BTU/MM SCF	870 BTU/SCF (potential)
Percent Sulfur of Fuel:	0.0060	percent	1030 MM BTU/MM SCF (actual)
Percent Ash of Fuel:	0.0	percent	
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	15	15 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	33	33 (actual)
Operating Time in Hours per Year:	3465	5500 (actual)
Percent of Operation During Winter:	40	40 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	0	0 (actual)
Percent of Operation During Fall:	40	40 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	733.9	tons/y	401.6/Actual	Other publication reference
Carbon Dioxide (from combustion):	733.9	tons/y	401.6/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.255	tons/y	0.371/Actual	Manufacturer Specification
Formaldehyde:	0.0	tons/y	0.001/Actual	EPA emission factors (e.g., AP-42)
Hexane:	0.012	tons/y	0.018/Actual	EPA emission factors (e.g., AP-42)
Lead:	0.0	tons/y	0/Actual	Manufacturer Specification
Methane:	0.014	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.014	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference

Nitrogen Dioxide:	0.922	tons/y	1.341/Actual	Actual stack test
Particulate Matter (10 microns or less):	0.095	tons/y	0.138/Actual	Manufacturer Specification
Particulate Matter (2.5 microns or less):	0.095	tons/y	0.138/Actual	Manufacturer Specification
Particulate Matter (total suspended):	0.095	tons/y	0.138/Actual	Manufacturer Specification
Sulfur Dioxide:	0.0040	tons/y	0.006/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.04	tons/y	0.058/Actual	Manufacturer Specification

Subject Item Comments

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Carbon Dioxide and Carbon Dioxide(from Combustion)emissions
are both given in metric tons/year as requested by NMED.
The value for lead is rounded to zero and the actual number
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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 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

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	0.0	MM SCF/y	0 MM SCF/y (actual)
Fuel Heating Value:	0.0	MM BTU/MM SCF	0 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0	percent	
Percent Ash of Fuel:	0.0	percent	0 percent (actual)
Percent Carbon Content:	0.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	0	0 (actual)
Operating Time in Days per Week:	0	0 (actual)
Operating Time in Weeks per Year:	0	0 (actual)
Operating Time in Hours per Year:	0	0 (actual)
Percent of Operation During Winter:	0	0 (actual)
Percent of Operation During Spring:	0	0 (actual)
Percent of Operation During Summer:	0	0 (actual)
Percent of Operation During Fall:	0	0 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Monoxide:	0.0	tons/y	0/Actual	Design calculation
Lead:	0.0	tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
Nitrogen Dioxide:	0.0	tons/y	0/Actual	Design calculation
Particulate Matter (10 microns or less):	0.0	tons/y	0/Actual	Design calculation

Particulate Matter (2.5 microns or less):	0.0	tons/y	0/Actual	Design calculation
Particulate Matter (total suspended):	0.0	tons/y	0/Actual	Design calculation
Sulfur Dioxide:	0.0	tons/y	0/Actual	Design calculation
Volatile Organic Compounds (VOC):	0.0	tons/y	0/Actual	Design calculation

Subject Item Comments

This emission source shares a meter with Source ID Number 134 (TA-16-1484-BS-1) and all of the emissions from these boilers are reported under ID 134.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 90
Designation: B-1
Description: Boiler-CMRR
Type: Boiler
SCC: External Combustion Boilers, Commercial/Institutional, Natural Gas, < 10 Million Btu/hr

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (potential)
Input Materials Processed:	Natural Gas (INPUT)		
Materials Consumed:	0.0	MM SCF/y	95.5 MM SCF/y (potential)
Fuel Heating Value:	0.0	BTU/SCF	1012.9 BTU/SCF (potential)
Percent Sulfur of Fuel:	0.0	percent	0.5 percent by weight (potential)
Percent Ash of Fuel:	0.0	percent	
Percent Carbon Content:	0.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	0	
Operating Time in Days per Week:	0	
Operating Time in Weeks per Year:	0	
Operating Time in Hours per Year:	0	8760 (potential)
Percent of Operation During Winter:	0	
Percent of Operation During Spring:	0	
Percent of Operation During Summer:	0	
Percent of Operation During Fall:	0	

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Monoxide:	0.0	tons/y	4.98/Allowable	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
Nitrogen Dioxide:	0.0	tons/y	3.44/Allowable	Design calculation

Particulate Matter (10 microns or less):	0.0	tons/y	0.42/Allowable	Design calculation
Particulate Matter (total suspended):	0.0	tons/y	0.46/Allowable	Design calculation
Sulfur Dioxide:	0.0	tons/y	2.36/Allowable	Design calculation
Volatile Organic Compounds (VOC):	0.0	tons/y	0.26/Allowable	Design calculation

Subject Item Comments

This unit did not operate in 2009.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 104
Designation: B-2
Description: Boiler-CMRR
Type: Boiler
SCC: External Combustion Boilers, Commercial/Institutional, Natural Gas, < 10 Million Btu/hr

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (potential)
Input Materials Processed:	Natural Gas (INPUT)		
Materials Consumed:	0.0	MM SCF/y	95.5 MM SCF/y (potential)
Fuel Heating Value:	0.0	BTU/SCF	1012.9 BTU/SCF (potential)
Percent Sulfur of Fuel:	0.0	percent	0.5 percent by weight (potential)
Percent Ash of Fuel:	0.0	percent	
Percent Carbon Content:	0.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	0	
Operating Time in Days per Week:	0	
Operating Time in Weeks per Year:	0	
Operating Time in Hours per Year:	0	8760 (potential)
Percent of Operation During Winter:	0	
Percent of Operation During Spring:	0	
Percent of Operation During Summer:	0	
Percent of Operation During Fall:	0	

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Monoxide:	0.0	tons/y	4.98/Allowable	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
Nitrogen Dioxide:	0.0	tons/y	3.44/Allowable	Design calculation

Particulate Matter (10 microns or less):	0.0	tons/y	0.42/Allowable	Design calculation
Particulate Matter (total suspended):	0.0	tons/y	0.46/Allowable	Design calculation
Sulfur Dioxide:	0.0	tons/y	2.36/Allowable	Design calculation
Volatile Organic Compounds (VOC):	0.0	tons/y	0.26/Allowable	Design calculation

Subject Item Comments

This unit did not operate in 2009.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 105
Designation: B-3
Description: Boiler-CMRR
Type: Boiler
SCC: External Combustion Boilers, Commercial/Institutional, Natural Gas, < 10 Million Btu/hr

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (potential)
Input Materials Processed:	Natural Gas (INPUT)		
Materials Consumed:	0.0	MM SCF/y	95.5 MM SCF/y (potential)
Fuel Heating Value:	0.0	BTU/SCF	1012.9 BTU/SCF (potential)
Percent Sulfur of Fuel:	0.0	percent	0.5 percent by weight (potential)
Percent Ash of Fuel:	0.0	percent	
Percent Carbon Content:	0.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	0	
Operating Time in Days per Week:	0	
Operating Time in Weeks per Year:	0	
Operating Time in Hours per Year:	0	8760 (potential)
Percent of Operation During Winter:	0	
Percent of Operation During Spring:	0	
Percent of Operation During Summer:	0	
Percent of Operation During Fall:	0	

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Monoxide:	0.0	tons/y	4.98/Allowable	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
Nitrogen Dioxide:	0.0	tons/y	3.44/Allowable	Design calculation

Particulate Matter (10 microns or less):	0.0	tons/y	0.42/Allowable	Design calculation
Particulate Matter (total suspended):	0.0	tons/y	0.46/Allowable	Design calculation
Sulfur Dioxide:	0.0	tons/y	2.36/Allowable	Design calculation
Volatile Organic Compounds (VOC):	0.0	tons/y	0.26/Allowable	Design calculation

Subject Item Comments

This unit did not operate in 2009.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 106
Designation: B-4
Description: Boiler-CMRR
Type: Boiler
SCC: External Combustion Boilers, Commercial/Institutional, Natural Gas, < 10 Million Btu/hr

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (potential)
Input Materials Processed:	Natural Gas (INPUT)		
Materials Consumed:	0.0	MM SCF/y	95.5 MM SCF/y (potential)
Fuel Heating Value:	0.0	BTU/SCF	1012.9 BTU/SCF (potential)
Percent Sulfur of Fuel:	0.0	percent	0.5 percent by weight (potential)
Percent Ash of Fuel:	0.0	percent	
Percent Carbon Content:	0.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	0	
Operating Time in Days per Week:	0	
Operating Time in Weeks per Year:	0	
Operating Time in Hours per Year:	0	8760 (potential)
Percent of Operation During Winter:	0	
Percent of Operation During Spring:	0	
Percent of Operation During Summer:	0	
Percent of Operation During Fall:	0	

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Monoxide:	0.0	tons/y	4.98/Allowable	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
Nitrogen Dioxide:	0.0	tons/y	3.44/Allowable	Design calculation

Particulate Matter (10 microns or less):	0.0	tons/y	0.42/Allowable	Design calculation
Particulate Matter (total suspended):	0.0	tons/y	0.46/Allowable	Design calculation
Sulfur Dioxide:	0.0	tons/y	2.36/Allowable	Design calculation
Volatile Organic Compounds (VOC):	0.0	tons/y	0.26/Allowable	Design calculation

Subject Item Comments

This unit was not installed in 2009.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 107
Designation: B-5
Description: Boiler-CMRR
Type: Boiler
SCC: External Combustion Boilers, Commercial/Institutional, Natural Gas, < 10 Million Btu/hr

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (potential)
Input Materials Processed:	Natural Gas (INPUT)		
Materials Consumed:	0.0	MM SCF/y	95.5 MM SCF/y (potential)
Fuel Heating Value:	0.0	BTU/SCF	1012.9 BTU/SCF (potential)
Percent Sulfur of Fuel:	0.0	percent	0.5 percent by weight (potential)
Percent Ash of Fuel:	0.0	percent	
Percent Carbon Content:	0.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	0	
Operating Time in Days per Week:	0	
Operating Time in Weeks per Year:	0	
Operating Time in Hours per Year:	0	8760 (potential)
Percent of Operation During Winter:	0	
Percent of Operation During Spring:	0	
Percent of Operation During Summer:	0	
Percent of Operation During Fall:	0	

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Monoxide:	0.0	tons/y	4.98/Allowable	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
Nitrogen Dioxide:	0.0	tons/y	3.44/Allowable	Design calculation

Particulate Matter (10 microns or less):	0.0	tons/y	0.42/Allowable	Design calculation
Particulate Matter (total suspended):	0.0	tons/y	0.46/Allowable	Design calculation
Sulfur Dioxide:	0.0	tons/y	2.36/Allowable	Design calculation
Volatile Organic Compounds (VOC):	0.0	tons/y	0.26/Allowable	Design calculation

Subject Item Comments

This unit was not installed in 2009.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 133
Designation: TA-50-2-BS-1
Description: Superior Model M56-5-1500-S260
Type: Boiler
SCC: External Combustion Boilers, Electric Generation, Natural Gas, Boilers < 100 Million Btu/hr except Tangential

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (potential)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	1.95	MM SCF/y	870 MM SCF/y (potential)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1030 BTU/SCF (potential)
Percent Sulfur of Fuel:	0.0060	percent	0 percent (actual)
Percent Ash of Fuel:	0.0	percent	1049 percent (actual)
Percent Carbon Content:	68.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	24	24 (actual)
Operating Time in Days per Week:	2	2 (actual)
Operating Time in Weeks per Year:	12	12 (actual)
Operating Time in Hours per Year:	576	576 (actual)
Percent of Operation During Winter:	25	25 (actual)
Percent of Operation During Spring:	25	25 (actual)
Percent of Operation During Summer:	25	25 (actual)
Percent of Operation During Fall:	25	25 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	107.3	tons/y	98.5/Actual	Other publication reference
Carbon Dioxide (from combustion):	107.3	tons/y	98.5/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.082	tons/y	0.07/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.0020	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0020	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.098	tons/y	0.09/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (10 microns or less):	0.0070	tons/y	0.007/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (2.5 microns or less):	0.0070	tons/y	0.007/Actual	EPA emission factors (e.g., AP-42)

Sulfur Dioxide:	0.0010	tons/y	0.001/Actual EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.0050	tons/y	0.005/Actual EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 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

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (potential)
Input Materials Processed:	Natural Gas (INPUT)		
Materials Consumed:	21.1	MM SCF/y	870 MM SCF/y (potential)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1030 BTU/SCF (potential)
Percent Sulfur of Fuel:	0.0060	percent	
Percent Ash of Fuel:	0.0	percent	
Percent Carbon Content:	68.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	24	0 (actual)
Operating Time in Days per Week:	7	0 (actual)
Operating Time in Weeks per Year:	52	0 (actual)
Operating Time in Hours per Year:	8760	0 (actual)
Percent of Operation During Winter:	25	0 (actual)
Percent of Operation During Spring:	25	0 (actual)
Percent of Operation During Summer:	25	0 (actual)
Percent of Operation During Fall:	25	0 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	1158.8	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (from combustion):	1158.8	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.391	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Lead:	0.0	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.022	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.022	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.391	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (10 microns or less):	0.08	tons/y	0/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (2.5 microns or less):	0.08	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.08	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.0060	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.058	tons/y	0/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED. The value for lead is rounded to zero and the actual number

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 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

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Diesel		Diesel (actual)
Input Materials Processed:	Diesel (INPUT)		Natural Gas (actual)
Materials Consumed:	622.0	gal/y	138.2 MM SCF/y (actual)
Fuel Heating Value:	139.0	MM BTU/M gal	1030 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.05	percent	
Percent Ash of Fuel:	0.01	percent	0.01 percent (actual)
Percent Carbon Content:	83.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	24	24 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	8760	8760 (actual)
Percent of Operation During Winter:	30	30 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	20	20 (actual)
Percent of Operation During Fall:	30	30 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	6.3	tons/y	4.4/Actual	Other publication reference
Carbon Dioxide (from combustion):	6.3	tons/y	4.4/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.0020	tons/y	2.763/Actual	EPA emission factors (e.g., AP-42)
Formaldehyde:	0.0	tons/y	0.005/Actual	EPA emission factors (e.g., AP-42)
Hexane:	0.0	tons/y	0.124/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.0	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.0030	tons/y	4.007/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (10 microns or less):	0.0010	tons/y	0.525/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (2.5 microns or less):	0.0	tons/y	0.525/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.0010	tons/y	0.525/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.0020	tons/y	0.04/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.0	tons/y	0.38/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED. The value for VOCs is rounded to zero and the actual number

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 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

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Diesel		Diesel (actual)
Input Materials Processed:	Diesel (INPUT)		Natural Gas (actual)
Materials Consumed:	658.0	gal/y	259.9 MM SCF/y (actual)
Fuel Heating Value:	139.0	MM BTU/M gal	1030 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.05	percent	
Percent Ash of Fuel:	0.01	percent	0.01 percent (actual)
Percent Carbon Content:	68.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	24	24 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	8760	8760 (actual)
Percent of Operation During Winter:	30	30 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	20	20 (actual)
Percent of Operation During Fall:	30	30 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	6.7	tons/y	7.7/Actual	Other publication reference
Carbon Dioxide (from combustion):	6.7	tons/y	7.7/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.0020	tons/y	5.198/Actual	EPA emission factors (e.g., AP-42)
Formaldehyde:	0.0	tons/y	0.01/Actual	EPA emission factors (e.g., AP-42)
Hexane:	0.0	tons/y	0.234/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.0	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.0030	tons/y	7.536/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (10 microns or less):	0.0010	tons/y	0.988/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (2.5 microns or less):	0.0010	tons/y	0.988/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.0010	tons/y	0.988/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.0020	tons/y	0.078/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.0	tons/y	0.715/Actual	Other publication reference

Subject Item Comments

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Carbon Dioxide and Carbon Dioxide(from Combustion)emissions
are both given in metric tons/year as requested by NMED.
The value for formaldehyde is rounded to zero and the
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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 140
Designation: BOILERS
Description: Boilers - GHG only
Type: Boiler
SCC: External Combustion Boilers, Electric Generation, Natural Gas, Boilers < 100 Million Btu/hr except Tangential

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		
Materials Consumed:	394.3	MM SCF/y	403.3 MM SCF/y (actual)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	1049 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0060	percent	0.006 percent (actual)
Percent Ash of Fuel:	0.0	percent	0 percent (actual)
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	24	
Operating Time in Days per Week:	7	
Operating Time in Weeks per Year:	52	
Operating Time in Hours per Year:	8736	
Percent of Operation During Winter:	25	
Percent of Operation During Spring:	25	
Percent of Operation During Summer:	25	
Percent of Operation During Fall:	25	

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide (from combustion):	21681.4	tons/y	22445.1/Actual	Other publication reference

Subject Item Comments

This SI ID accounts for all of the CO2 emissions from smaller boilers except for those boilers that have their own SI ID. Carbon Dioxide emissions are given in metric

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 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

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Diesel		Diesel (actual)
Input Materials Processed:	Diesel (INPUT)		Diesel (actual)
Materials Consumed:	329.0	gal/y	1753 gal/y (actual)
Fuel Heating Value:	139.0	MM BTU/M gal	139 MM BTU/M gal (actual)
Percent Sulfur of Fuel:	0.05	percent	0.05 percent (actual)
Percent Ash of Fuel:	0.01	percent	0.01 percent (actual)
Percent Carbon Content:	83.0	percent	83 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	24	24 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	8760	8760 (actual)
Percent of Operation During Winter:	30	30 (actual)
Percent of Operation During Spring:	20	20 (actual)
Percent of Operation During Summer:	20	20 (actual)
Percent of Operation During Fall:	30	30 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	3.4	tons/y	17.8/Actual	Other publication reference
Carbon Dioxide (from combustion):	3.4	tons/y	17.8/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.0010	tons/y	0.004/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.0	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.0010	tons/y	0.008/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (10 microns or less):	0.0010	tons/y	0.002/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.0	tons/y	0.003/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.0010	tons/y	0.006/Actual	EPA emission factors (e.g., AP-42)

Volatile Organic Compounds (VOC): 0.0 tons/y 0.0002/Actual EPA emission factors (e.g., AP-42)

Subject Item Comments

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Carbon Dioxide and Carbon Dioxide(from Combustion)emissions
are both given in metric tons/year as requested by NMED.
The value for Methane is rounded to zero and the actual
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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 56
Designation: TA-33-G-1
Description: Kohler Diesel Generator TA-33-G-1
Type: Internal combustion engine
SCC: Internal Combustion Engines, Electric Generation, Distillate Oil (Diesel), Reciprocating

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Diesel		Diesel (actual)
Input Materials Processed:	Diesel (INPUT)		Diesel (actual)
Materials Consumed:	7237.2	gal/y	0 M gal/y (actual)
Fuel Heating Value:	139.0	MM BTU/M gal	0 MM BTU/M gal (actual)
Percent Sulfur of Fuel:	0.0010	percent	0.34 percent (actual)
Percent Ash of Fuel:	0.01	percent	0.01 percent (actual)
Percent Carbon Content:	83.0	percent	83 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	4	0 (actual)
Operating Time in Days per Week:	1	0 (actual)
Operating Time in Weeks per Year:	12	0 (actual)
Operating Time in Hours per Year:	48	0 (actual)
Percent of Operation During Winter:	25	0 (actual)
Percent of Operation During Spring:	25	0 (actual)
Percent of Operation During Summer:	25	0 (actual)
Percent of Operation During Fall:	25	0 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	73.87	tons/y	37.6/Actual	Other publication reference
Carbon Dioxide (from combustion):	73.87	tons/y	37.6/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.86	tons/y	0/Actual	Design calculation
Lead:	0.0	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.0	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	1.06	tons/y	0/Actual	Design calculation
Particulate Matter (10 microns or less):	0.035	tons/y	0/Actual	Design calculation
Particulate Matter (2.5 microns or less):	0.035	tons/y	0/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (total suspended):	0.035	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.157	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.019	tons/y	0/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 119
Designation: TA-33-G-2
Description: Kohler Diesel Generator TA-33-G-2
Type: Internal combustion engine
SCC: Internal Combustion Engines, Electric Generation, Distillate Oil (Diesel), Reciprocating

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Diesel		Diesel (actual)
Input Materials Processed:	Diesel (INPUT)		Diesel (actual)
Materials Consumed:	2.6	gal/y	1100 gal/y (potential)
Fuel Heating Value:	139.0	MM BTU/MM SCF	139 MM BTU/M gal (actual)
Percent Sulfur of Fuel:	0.0010	percent	0.0015 percent (actual)
Percent Ash of Fuel:	0.01	percent	0.01 percent (actual)
Percent Carbon Content:	83.0	percent	83 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	2	2 (actual)
Operating Time in Days per Week:	1	3 (actual)
Operating Time in Weeks per Year:	1	10 (actual)
Operating Time in Hours per Year:	2	21 (actual)
Percent of Operation During Winter:	25	25 (actual)
Percent of Operation During Spring:	25	25 (actual)
Percent of Operation During Summer:	25	25 (actual)
Percent of Operation During Fall:	25	25 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	0.03	tons/y	0.36/Actual	Other publication reference
Carbon Dioxide (from combustion):	0.03	tons/y	0.36/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.0	tons/y	0.002/Actual	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.0010	tons/y	0.008/Actual	Design calculation
Particulate Matter (10 microns or less):	0.0	tons/y	0.001/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.0	tons/y	0.001/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.0	tons/y	0.001/Actual	EPA emission factors (e.g., AP-42)

Volatile Organic Compounds (VOC):	0.0	tons/y	0.001/Actual	Design calculation

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 120
Designation: TA-33-G-3
Description: Kohler Diesel Generator TA-33-G-3
Type: Internal combustion engine
SCC: Internal Combustion Engines, Industrial, Natural Gas, Reciprocating

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Diesel		Diesel (actual)
Input Materials Processed:	Diesel (INPUT)		Diesel (actual)
Materials Consumed:	1.4	g/yr	1100 gal/y (potential)
Fuel Heating Value:	139.0	MM BTU/M gal	139 MM BTU/M gal (actual)
Percent Sulfur of Fuel:	0.0010	percent	0.0015 percent (actual)
Percent Ash of Fuel:	0.01	percent	0.01 percent (actual)
Percent Carbon Content:	83.0	percent	83 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	1	1 (actual)
Operating Time in Days per Week:	1	1 (actual)
Operating Time in Weeks per Year:	1	1 (actual)
Operating Time in Hours per Year:	1	0.6 (actual)
Percent of Operation During Winter:	25	25 (actual)
Percent of Operation During Spring:	25	25 (actual)
Percent of Operation During Summer:	25	25 (actual)
Percent of Operation During Fall:	25	25 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	0.01	tons/y	0.01/Actual	Other publication reference
Carbon Dioxide (from combustion):	0.01	tons/y	0.01/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.0	tons/y	0/Actual	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.0	tons/y	0/Actual	Design calculation
Particulate Matter (10 microns or less):	0.0	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.0	tons/y	0/Actual	EPA emission factors (e.g., AP-42)

Sulfur Dioxide:	0.0	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.0	tons/y	0/Actual	Design calculation

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 135
Designation: TA-33-G-4
Description: Caterpillar Diesel Generator TA-33-G-4
Type: Internal combustion engine
SCC: Internal Combustion Engines, Industrial, Natural Gas, 4-cycle Rich Burn

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Diesel		Diesel (actual)
Input Materials Processed:	Diesel (INPUT)		Diesel (actual)
Materials Consumed:	1121.8	gal/y	853 gal/y (actual)
Fuel Heating Value:	139.0	MM BTU/M gal	139 MM BTU/M gal (actual)
Percent Sulfur of Fuel:	0.0010	percent	0.0015 percent (actual)
Percent Ash of Fuel:	0.01	percent	0.01 percent (actual)
Percent Carbon Content:	83.0	percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	4	4 (actual)
Operating Time in Days per Week:	2	2 (actual)
Operating Time in Weeks per Year:	16	10 (actual)
Operating Time in Hours per Year:	128	500 (potential)
Percent of Operation During Winter:	25	25 (actual)
Percent of Operation During Spring:	25	25 (actual)
Percent of Operation During Summer:	25	25 (actual)
Percent of Operation During Fall:	25	25 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	11.45	tons/y	8.66/Actual	Other publication reference
Carbon Dioxide (from combustion):	11.45	tons/y	8.66/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.072	tons/y	0.06/Actual	Design capacity
Methane:	0.0	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.34	tons/y	0.26/Actual	Design capacity
Particulate Matter (10 microns or less):	0.024	tons/y	0.02/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.024	tons/y	0.02/Actual	EPA emission factors (e.g., AP-42)

Sulfur Dioxide:	0.024	tons/y	0.02/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.024	tons/y	0.02/Actual	Design calculation

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 139
Designation: GENERATORS
Description: Generators - GHG only
Type: Internal combustion engine
SCC: Internal Combustion Engines, Electric Generation, Distillate Oil (Diesel), Reciprocating

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Diesel		Diesel (actual)
Input Materials Processed:	Diesel (INPUT)		
Materials Consumed:	26258.7	gal/y	20607.4 gal (actual)
Fuel Heating Value:	139.0	MM BTU/M gal	139 MM BTU/M gal (actual)
Percent Sulfur of Fuel:	0.0010	percent	0.0015 percent (actual)
Percent Ash of Fuel:	0.01	percent	0.01 percent (actual)
Percent Carbon Content:	83.0	percent	83 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	24	
Operating Time in Days per Week:	7	
Operating Time in Weeks per Year:	52	
Operating Time in Hours per Year:	8736	
Percent of Operation During Winter:	25	
Percent of Operation During Spring:	25	
Percent of Operation During Summer:	25	
Percent of Operation During Fall:	25	

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide (from combustion):	284.56	tons/y	213.1/Actual	Other publication reference

Subject Item Comments

This SI ID accounts for all CO2 emissions from generators except for those generators that have their own SI ID. Carbon Dioxide emissions are given in metric tons/year as

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 21
Designation: TA-55-DG-1
Description: Degreaser - Ultrasonic Cold Batch TA-55-4
Type: Parts Washer
SCC: Petroleum and Solvent Evaporation, Organic Solvent Evaporation, Degreasing, Trichloroethylene: General Degreasing Units

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:			
Input Materials Processed:	Solvents: All (INPUT)		Solvents: All (actual)
Materials Consumed:			
Fuel Heating Value:			
Percent Sulfur of Fuel:		percent	
Percent Ash of Fuel:		percent	
Percent Carbon Content:		percent	

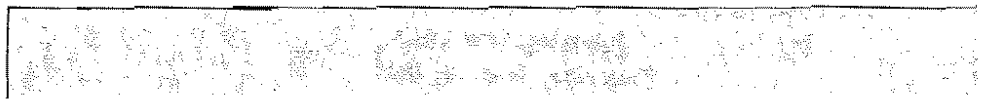
Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	4	4 (actual)
Operating Time in Days per Week:	1	1 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	208	208 (actual)
Percent of Operation During Winter:	25	25 (actual)
Percent of Operation During Spring:	25	25 (actual)
Percent of Operation During Summer:	25	25 (actual)
Percent of Operation During Fall:	25	25 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
TCE; (Trichloroethylene); (Trichloroethene):	0.015	tons/y	0.011/Actual	Material balance

Subject Item Comments



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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 3
Designation: TA-3-38
Description: Carpenter Shop - General Construction
Type: Processing
SCC: Industrial Processes, Pulp and Paper and Wood Products, Miscellaneous Wood Working Operations, Sanding/Planning Operations: Specify

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:			
Input Materials Processed:	Wood (INPUT)		
Materials Consumed:			
Fuel Heating Value:			
Percent Sulfur of Fuel:		percent	
Percent Ash of Fuel:		percent	
Percent Carbon Content:		percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	12	12 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	4368	4368 (actual)
Percent of Operation During Winter:	20	20 (actual)
Percent of Operation During Spring:	30	30 (actual)
Percent of Operation During Summer:	30	30 (actual)
Percent of Operation During Fall:	20	20 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
Particulate Matter (10 microns or less):	0.026	tons/y	0.06/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (2.5 microns or less):	0.013	tons/y	0.029/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.028	tons/y	0.064/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.0	tons/y	0/Actual	Design calculation

Subject Item Comments

Print Close

Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 4
Designation: TA-15-563
Description: Carpenter Shop - Test Stands
Type: Processing
SCC: Industrial Processes, Pulp and Paper and Wood Products, Miscellaneous Wood Working Operations, Sanding/Planning Operations: Specify

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:			
Input Materials Processed:	Wood (INPUT)		
Materials Consumed:			
Fuel Heating Value:			
Percent Sulfur of Fuel:		percent	
Percent Ash of Fuel:		percent	
Percent Carbon Content:		percent	

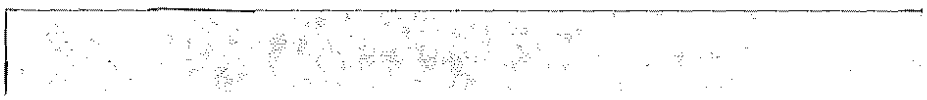
Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	12	12 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	4368	4368 (actual)
Percent of Operation During Winter:	20	20 (actual)
Percent of Operation During Spring:	30	30 (actual)
Percent of Operation During Summer:	30	30 (actual)
Percent of Operation During Fall:	20	20 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
Particulate Matter (10 microns or less):	0.025	tons/y	0.05/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (2.5 microns or less):	0.012	tons/y	0.024/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (total suspended):	0.027	tons/y	0.054/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments



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Facility Annual Emissions - Subject Item Submittal Review
Submittal Year 2009
Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 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

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:			Natural Gas (actual)
Input Materials Processed:			
Materials Consumed:			
Fuel Heating Value:			
Percent Sulfur of Fuel:		percent	
Percent Ash of Fuel:		percent	
Percent Carbon Content:		percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	24	24 (actual)
Operating Time in Days per Week:	7	7 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	8760	8760 (actual)
Percent of Operation During Winter:	25	25 (actual)
Percent of Operation During Spring:	25	25 (actual)
Percent of Operation During Summer:	25	25 (actual)
Percent of Operation During Fall:	25	25 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Acetaldehyde; (Ethyl aldehyde):	0.0	tons/y	0/Actual	Material balance
Acetonitrile; (Methyl cyanide):	0.0	tons/y	0.65/Actual	Material balance
Acetophenone:	0.0	tons/y	0/Actual	Material balance
Acrylamide:	0.0	tons/y	0/Actual	Material balance
Acrylic acid:	0.0	tons/y	0/Actual	Material balance
Acrylonitrile:	0.0	tons/y	0/Actual	Material balance
Ammonia:	0.0	tons/y	0/Actual	Material balance
Aniline:	0.0	tons/y	0/Actual	Material balance
Antimony:	0.0	tons/y	0/Actual	Material balance
Antimony compounds:	0.0	tons/y	0/Actual	Material balance
Arsenic Compounds:	0.0	tons/y	0/Actual	Material balance
Benzene:	0.0	tons/y	0/Actual	Material balance
Benzyl Chloride:	0.0	tons/y	0/Actual	Material balance
Biphenyl:	0.0	tons/y	0/Actual	Material balance
Bromoform; (Tribromomethane):	0.0	tons/y	0/Actual	Material balance
Butadiene(1,3-):	0.0	tons/y	0/Actual	Material balance
Cadmium:	0.0	tons/y	0/Actual	Material balance
Cadmium compounds:	0.0	tons/y	0/Actual	Material balance
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation

Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Disulfide:	0.0	tons/y	0/Actual	Material balance
Carbon tetrachloride; (Tetrachoromethane):	0.0	tons/y	0/Actual	Material balance
Carbonyl sulfide:	0.0	tons/y	0/Actual	Material balance
Catechol (Pyrocatechol):	0.0	tons/y	0/Actual	Material balance
Chlorine:	0.0	tons/y	0/Actual	Material balance
Chloroacetic Acid:	0.0	tons/y	0/Actual	Material balance
Chlorobenzene(Phenyl Chloride):	0.0	tons/y	0/Actual	Material balance
Chloroform; (Trichloromethane):	0.0	tons/y	0/Actual	Material balance
Chromium:	0.0	tons/y	0/Actual	Material balance
Cobalt Compounds:	0.0	tons/y	0/Actual	Material balance
Cresol(m-); (Methylphenol, 3-):	0.0	tons/y	0/Actual	Material balance
Cumene:	0.0	tons/y	0/Actual	Material balance
Cyanide compounds:	1.16	tons/y	0/Actual	Material balance
Dibutylphthalate; (Di-n-butyl phthalate):	0.0	tons/y	0/Actual	Material balance
Diethanolamine:	0.0	tons/y	0/Actual	Material balance
Dimethyl Sulfate:	0.0	tons/y	0/Actual	Material balance
Dimethyl formamide:	0.0	tons/y	0/Actual	Material balance
Dimethylhydrazine(1,1-):	0.0	tons/y	0/Actual	Material balance
Dioxane(1,4-) (1,4-Diethyleneoxide):	0.0	tons/y	0/Actual	Material balance
Epichlorohydrin; (1-Chloro-2,3-epoxypropane):	0.0	tons/y	0/Actual	Material balance
Epoxybutane(1,2-) (1,2-Butylene oxide):	0.0	tons/y	0/Actual	Material balance
Ethyl Acrylate:	0.0	tons/y	0/Actual	Material balance
Ethyl chloride; (Chloroethane):	0.0	tons/y	0/Actual	Material balance
Ethylene Glycol:	0.0	tons/y	0/Actual	Material balance
Ethylene dibromide; (EDB); (1.2-Dibromoethane):	0.0	tons/y	0/Actual	Material balance
Formaldehyde:	0.0	tons/y	0/Actual	Material balance
Glycol Ethers:	0.0	tons/y	0/Actual	Material balance
Hexachlorocyclopentadiene:	0.0	tons/y	0/Actual	Material balance
Hexamethylphosphoramide:	0.0	tons/y	0/Actual	Material balance
Hexane:	0.0	tons/y	0/Actual	Material balance
Hydrazine:	0.0	tons/y	0/Actual	Material balance
Hydrochloric acid (HCl):	0.55	tons/y	0.95/Actual	Material balance
Hydrofluoric Acid; (Hydrogen fluoride):	0.0	tons/y	0/Actual	Material balance
Hydroquinone:	0.0	tons/y	0/Actual	Material balance
Iodomethane (Methyl iodide):	0.0	tons/y	0/Actual	Material balance
Lead Compounds:	0.0	tons/y	0/Actual	Material balance
Manganese:	0.0	tons/y	0/Actual	Material balance
Manganese compounds:	0.0	tons/y	0/Actual	Material balance
Mercury compounds:	0.0	tons/y	0/Actual	Material balance
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
Methanol; (Methyl alcohol):	0.0	tons/y	0.72/Actual	Material balance
Methyl Ethyl Ketone; (MEK); (2-Butanone):	0.0	tons/y	0/Actual	Material balance
Methyl Methacrylate:	0.0	tons/y	0/Actual	Material balance
Methyl bromide; (Bromomethane):	0.0	tons/y	0/Actual	Material balance
Methyl chloride; (Chloromethane):	0.0	tons/y	0/Actual	Material balance
Methyl isobutyl ketone; (Hexone); (4-Methyl-2-pentanone):	0.0	tons/y	0/Actual	Material balance
Methyl tert butyl ether:	0.0	tons/y	0/Actual	Material balance
Methylene chloride; (Dichloromethane):	0.0	tons/y	0.56/Actual	Material balance
Methylenebiphenyl isocyanate; (MDI); (Diphenylmethane diisocyanate):	0.0	tons/y	0/Actual	Material balance
Naphthalene:	0.0	tons/y	0/Actual	Material balance
Nickel:	0.0	tons/y	0/Actual	Material balance
Nickel compounds:	0.0	tons/y	0/Actual	Material balance

Nitrobenzene; (nitro-Benzene):	0.0	tons/y	0/Actual	Material balance
Nitrophenol(4-); (p-Nitrophenol):	0.0	tons/y	0/Actual	Material balance
PCE; (Perchloroethylene); (Tetrachloroethylene); (Tetrachloroethene):	0.0	tons/y	0/Actual	Material balance
Phenol:	0.0	tons/y	0/Actual	Material balance
Phenylenediamine(p-); (Phenylenediamine):	0.0	tons/y	0/Actual	Material balance
Phosphine:	0.0	tons/y	0/Actual	Material balance
Phosphorus:	0.0	tons/y	0/Actual	Material balance
Phthalic anhydride:	0.0	tons/y	0/Actual	Material balance
Polycylic Organic Matter:	0.0	tons/y	0/Actual	Material balance
Propylene oxide:	0.0	tons/y	0/Actual	Material balance
Selenium:	0.0	tons/y	0/Actual	Material balance
Selenium compounds:	0.0	tons/y	0/Actual	Material balance
Styrene:	0.0	tons/y	0/Actual	Material balance
TCE; (Trichloroethylene); (Trichloroethene):	0.0	tons/y	0.72/Actual	Material balance
Tetrachloroethane(1,1,2,2-):	0.0	tons/y	0/Actual	Material balance
Titanium tetrachloride:	0.0	tons/y	0/Actual	Material balance
Toluene diisocyanate(2,4-):	0.0	tons/y	0/Actual	Material balance
Toluene; (Methyl benzene):	0.0	tons/y	0/Actual	Material balance
Total HAP:	0.0	tons/y	5.44/Actual	Material balance
Trichloroethane(1,1,1-) (Methyl Chloroform):	0.0	tons/y	0/Actual	Material balance
Trichloroethane(1,1,2-):	0.0	tons/y	0/Actual	Material balance
Triethylamine:	0.0	tons/y	0/Actual	Material balance
Trimethylpentane(2,2,4-):	0.0	tons/y	0/Actual	Material balance
Urethane; (Ethyl carbamate):	0.0	tons/y	0/Actual	Material balance
Vinyl acetate; (Vinyl acetate monomer):	0.0	tons/y	0/Actual	Material balance
Volatile Organic Compounds (VOC):	0.0	tons/y	11.2/Actual	Material balance
Xylene(m-); (1,3-Dimethylbenzene); (meta-Xylene):	0.0	tons/y	0/Actual	Material balance
Xylene(o-); (1,2-Dimethylbenzene); (ortho-Xylene):	0.0	tons/y	0/Actual	Material balance
Xylenes (total); (Xylol):	0.0	tons/y	0/Actual	Material balance
bis(2-ethylhexyl) phthalate; (Di-2-ethylhexyl phthalate); (DEHP):	0.0	tons/y	0/Actual	Material balance

Subject Item Comments

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 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

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:			
Input Materials Processed:	Paper (INPUT)		Paper (actual)
Materials Consumed:			
Fuel Heating Value:			
Percent Sulfur of Fuel:		percent	
Percent Ash of Fuel:		percent	
Percent Carbon Content:		percent	

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	7	7 (actual)
Operating Time in Days per Week:	5	5 (actual)
Operating Time in Weeks per Year:	52	52 (actual)
Operating Time in Hours per Year:	1820	2000 (actual)
Percent of Operation During Winter:	25	25 (actual)
Percent of Operation During Spring:	25	25 (actual)
Percent of Operation During Summer:	25	25 (actual)
Percent of Operation During Fall:	25	25 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Design calculation
Methane:	0.0	metric tons/y	0/Actual	Design calculation
Methane (from combustion):	0.0	metric tons/y	0/Actual	Design calculation
Methane (fugitives):	0.0	metric tons/y	0/Actual	Design calculation
Methane (vented):	0.0	metric tons/y	0/Actual	Design calculation
Particulate Matter (10 microns or less):	0.04	tons/y	0.29/Actual	Manufacturer Specification
Particulate Matter (2.5 microns or less):	0.03	tons/y	0.19/Actual	Manufacturer Specification

Particulate Matter (total suspended): 0.05 tons/y 0.32/Actual Manufacturer Specification

Subject Item Comments

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Facility Annual Emissions - Subject Item Submittal Review

Submittal Year 2009

Thursday, June 10, 2010

Agency ID: 856
Facility Name: Los Alamos National Laboratory
Organization Name: U.S. Department of Energy National Nuclear Security Administration

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ID: 112
Designation: TA-3-22-CT-1
Description: Combustion Turbine
Type: Turbine
SCC: Internal Combustion Engines, Electric Generation, Natural Gas, Turbine

Supplemental Parameters

	Amount	Unit of Measure	Previous Year
Fuel Type:	Natural Gas		Natural Gas (actual)
Input Materials Processed:	Natural Gas (INPUT)		Natural Gas (actual)
Materials Consumed:	13.9	MM SCF/y	0 MM SCF/y (actual)
Fuel Heating Value:	1036.0	MM BTU/MM SCF	0 MM BTU/MM SCF (actual)
Percent Sulfur of Fuel:	0.0060	percent	0 percent (actual)
Percent Ash of Fuel:	0.0	percent	0 percent (actual)
Percent Carbon Content:	68.0	percent	68 percent (actual)

Operating Detail

	Value	Previous Year
Operating Time in Hours per Day:	5	0 (actual)
Operating Time in Days per Week:	4	0 (actual)
Operating Time in Weeks per Year:	12	0 (actual)
Operating Time in Hours per Year:	240	0 (actual)
Percent of Operation During Winter:	25	0 (actual)
Percent of Operation During Spring:	25	0 (actual)
Percent of Operation During Summer:	25	0 (actual)
Percent of Operation During Fall:	25	0 (actual)

Actual Pollutants

Pollutant	Amount	Unit of Measure	Previous Year Amount	Calculation Method
Carbon Dioxide:	765.9	tons/y	942.5/Actual	Other publication reference
Carbon Dioxide (from combustion):	765.9	tons/y	942.5/Actual	Other publication reference
Carbon Dioxide (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Dioxide (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Carbon Monoxide:	0.073	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Lead:	0.0	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Methane:	0.014	metric tons/y	0/Actual	Other publication reference
Methane (from combustion):	0.014	metric tons/y	0/Actual	Other publication reference
Methane (fugitives):	0.0	metric tons/y	0/Actual	Other publication reference
Methane (vented):	0.0	metric tons/y	0/Actual	Other publication reference
Nitrogen Dioxide:	0.352	tons/y	0/Actual	Actual stack test
Particulate Matter (10 microns or less):	0.047	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Particulate Matter (2.5 microns or less):	0.047	tons/y	0/Actual	EPA emission factors (e.g., AP-42)

Particulate Matter (total suspended):	0.047	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Sulfur Dioxide:	0.024	tons/y	0/Actual	EPA emission factors (e.g., AP-42)
Volatile Organic Compounds (VOC):	0.015	tons/y	0/Actual	EPA emission factors (e.g., AP-42)

Subject Item Comments

Carbon Dioxide and Carbon Dioxide(from Combustion)emissions are both given in metric tons/year as requested by NMED.

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Los Alamos National Laboratory's 2009 Greenhouse Gas Emissions Totals

Facility Greenhouse Emissions Totals in CO_2e	314,643.8 metric tons
Total for Combustion Sources in CO_2e	56,460.1 metric tons
Carbon Dioxide Vented emisions (process and fugitive emissions) in CO_2e	3.8 metric tons
Methane Vented emisions (process and fugitive emissions) in CO_2e	22.7 metric tons

Los Alamos National Laboratory's 2009 Example Equations for Greenhouse Gas Calculations

Asphalt Plant

CO_2 Example

Fuel Use (gal/yr) * Heat Content (BTU/gal) * Emission Factor (kg CO_2/MMBTU) * (1 MMBTU/1000000 BTU) * (1 metric ton / 1000 kg) = metric ton CO_2/year

ID 116 (21,862 gal) * (91,547 BTU/gal) * (61.46 kg CO_2/MMBTU) * (1 MMBTU/1000000 BTU) * (1 metric ton / 1000 kg) = **123.0 metric tons of CO_2**

CH_4 Example

Fuel Use (gal/yr) * Heat Content (BTU/gal) * Emission Factor (kg CH_4/MMBTU) * (1 MMBTU/1000000 BTU) * (1 metric ton / 1000 kg) = metric ton CH_4/year

ID 116 (21,862 gal) * (91,547 BTU/gal) * (0.003 kg CH_4/MMBTU) * (1 MMBTU/1000000 BTU) * (1 metric ton / 1000 kg) = **0.006 metric tons of CH_4**

Power Plant/Boiler

CO_2 Example

Natural gas use (MMSCF/ year) * High Heat Value of nat. gas (MMBTU/MMSCF) * Emission Factor (kg CO_2/MMBTU) * 1 metric ton/1000 kg = metric tons CO_2 / year

ID 24 (215.6 MMSCF/yr) * (1036 MMBTU/MMSCF) * (53.02 kgCO_2/MMBUTU) * (1 metric ton/1000 kg) = **11,842.8 metric tons of CO_2 / year**

Fuel Oil Use (gallons/year) * MMBTU/gallon * Emission Factor (kg CO_2/MMBTU) * 1 metric ton/1000 kg = metric tons CO_2 / year

ID 141 (329 gallons/yr) * (0.138 MMBTU/gal) * (73.96 kg CO_2/MMBTU) * (1 metric ton/1000 kg) = **3.4 metric tons CO_2 / year**

CH_4 Example

Natural gas use (MMSCF/ year) * High Heat Value of nat. gas (MMBTU/MMSCF) * Emission Factor (kg CH_4/MMBTU) * 1 metric ton/1000 kg = metric tons CH_4 / year

ID 24 (215.6 MMSCF/yr) * (1036 MMBTU/MMSCF) * (0.001 kg CH_4/MMBTU) * (1 metric ton/1000 kg) = **0.223 metric tons of CH_4 / year**

Fuel Oil Use (gallons/year) * MMBTU/gallon * Emission Factor (kg CH_4/MMBTU) * 1 metric ton/1000 kg = metric tons CH_4/ year

ID 141 (329 gallons/yr) * (0.138 MMBTU/gal) * (0.003 kg CH_4/MMBTU) * (1 metric ton/1000 kg) = **1.36E-04 metric tons CH_4 / year**

Combustion Turbine

CO^2 Example

Natural gas use (MMSCF/year) * High Heat Value of nat. gas (MMBTU/MMSCF) * Emission Factor (kg CO_2/MMBTU) * metric ton/1000 kg = metric tons CO_2 / year

ID 112 (13.943 MMSCF/year) * (1036 MMBTU/MMSCF) * (53.02 kg CO_2/MMBTU) * (1 metric ton/1000 kg) = 7**65.9 metric tons CO_2 / year**

CH_4 Example

Natural gas use (MMSCF/year) * High Heat Value of nat. gas (MMBTU/MMSCF) * Emission Factor (kg CH_4/MMBTU) * 1 metric ton/1000 kg = metric tons CH_4 / year

ID 112 (13.943 MMSCF/year) * (1036 MMBTU/MMCF) * (0.001 kg CH_4/MMBTU) * (1 metric ton/1000 kg) = **0.014 metric tons CH_4 / year**

Generator

CO_2 Example

Fuel Use (gal./year) * High Heat Value (MMBTU/gal) * Emission Factor (kg CO_2/gal.) * (1 metric ton /1000 kg) = metric tons CO_2 / year

ID 56 (7,237.2 gal./year) * (0.138 MMBTU/gal) * (73.96 kg CO_2/MMBTU) * (1 metric ton/1000 kg) = **73.87 metric tons CO_2 / year**

CH_4 Example

Fuel Use (gal./year) * High Heat Value (MMBTU/gal) * Emission Factor (kg CH_4/gal.) * (1 metric ton/1000 kg) = metric tons CH_4 / year

ID 56 (7,237.2 gal./year) * (0.138 MMBTU/gal) * (0.003 kg CH_4/MMBTU) * (1 metric ton/1000 kg) = **0.003 metric tons CH_4 / year**

Vented and Fugitive Emissions

Research and Development Activities	metric tons	CO_2e metric tons
CO_2 Fugitive Emissions	3.75	3.75
CH_4 Fugitive Emissions	1.08	22.68

Indirect Emissions

Electricity Use	CO_2e metric tons
LANL Property	257,497.70
Leased Space	4,477.84
Total	**261,975.54**

Attachment C

2009 Semi-Annual Emissions Reports Submitted

Under Title V Operating Permit Requirements

Los Alamos
NATIONAL LABORATORY
EST. 1943

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

Date: August 21, 2009
Refer To: ESH&Q-09-043

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

IDEA ID NO. 856 – LOS ALAMOS NATIONAL LABORATORY (LANL)
OPERATING PERMIT NO: P100M2
SEMI-ANNUAL EMISSIONS REPORT – JANUARY 1, 2009 TO JUNE 30, 2009

Dear Compliance Reporting Manager:

Enclosed is Los Alamos National Laboratory's (LANL) Semi-Annual Emissions report for the period January 1, 2009 through June 30, 2009. This report is required by permit condition 4.1 and is submitted within 90 days from the end of the reporting period as required by permit condition 4.3.

The semi-annual emissions report includes actual emissions from permitted sources included in section 2.0 of LANL's Operating Permit. Emissions are also reported from insignificant boiler and generator sources. These sources are included to demonstrate that LANL has not exceeded Prevention of Significant Deterioration (PSD) applicability thresholds. In this report, 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.

Should you have any questions or comments regarding the information provided in this report, please contact Steve Story at (505) 665-2169.

Sincerely,

J. Chris Cantwell
Associate Director, ESH&Q

www

Cy:

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ENV-EAQ Title V Emissions Report File
ENV-EAQ Admin File
ESH&Q File

Title V Semi-Annual Emission Report for Permit P100M2

Emission Reporting Requirements

4.0 Reporting

Conditions of 4.0 are pursuant to 20.2.70.302.E NMAC.

4.1 Reports of actual emissions from permitted sources in Section 2.0 shall be submitted on a 6 month basis. Reports shall not include emissions from insignificant activities. Emission estimates of criteria pollutants NOx, CO, SO2, PM and VOCs shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.10 of this permit.

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

Specific Emissions Reports:

2.1 Asphalt Production

2.1.2 Emission Limits

Emission Unit	Allowable Emission Limits				
	NO_x	SO_2	PM	CO	VOC
TA-60-BDM	1.0 tpy	1.0 tpy	0.04 gr/dscf 35.4 lbs/hr	2.6 tpy	1.0 tpy

Reporting Requirement

2.1.6.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

4.1 Reports of actual emissions from permitted sources in Section 2.0 shall be submitted on a 6 month basis. Reports shall not include emissions from insignificant activities. Emission estimates of criteria pollutants NOx, CO, SO_2, PM and VOCs shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.10 of this permit.

[(1)] Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on August 5, 2009, Tracking Number SBR20090006.

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 2.1.2) (tons per year)
NOx	0.017			1.0
SO_2	0.002			1.0
PM	0.010			*35.4 lb/hr
CO	0.605			2.6
VOC	0.004			1.0
HAPs	0.004			No Source Permit Limit

Note: * The Asphalt Plant does not have an annual limit for PM. The hourly emissions were demonstrated during the initial source compliance test conducted on August 25th & 26th, 2005, and a retest of the plant conducted on May 18, 2009.

2.2 Beryllium Activities

2.2.2 Emission Limits

Source	Allowable Emission Limits	
	Beryllium	Aluminum
Chemistry and Metallurgy Research Facility TA-3-29	10 gm/24 hr	Not Applicable
Sigma Facility TA-3-66	10 gm/24 hr	Not Applicable
Beryllium Test Facility TA-3-141	0.35 gm/24 hr 3.5 gm/yr	Not Applicable
TA-16-207	10 gm/24 hr	Not Applicable
TA-35-87	10 gm/24 hr	Not Applicable
Target Fabrication Facility TA-35-213	1.8×10^{-04} gm/hr 0.36 gm/yr	Not Applicable

Source	Allowable Emission Limits	
	Beryllium	Aluminum
Plutonium Facility TA-55-PF4		
Machining Operation	0.12 gm/24 hr 2.99 gm/yr	0.12 gm/24 hr 2.99 gm/yr
Foundry Operation	3.49×10^{-5} gm/24 hr 8.73×10^{-4} gm/yr	3.49×10^{-5} gm/24 hr 8.73×10^{-4} gm/yr

Reporting Requirement

2.2.6 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

4.1 Reports of actual emissions from permitted sources in Section 2.0 shall be submitted on a 6 month basis. Reports shall not include emissions from insignificant activities. Emission estimates of criteria pollutants NOx, CO, SO_2, PM and VOCs shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.10 of this permit.

[(1)] Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on August 5, 2009, Tracking Number SBR20090006.

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: Continued on the next page

2.2 Beryllium Activities - continued

Comments:

Source	Pollutant	January - June Emissions	July - December Emissions	Annual Emissions	Permit Limits (Condition 2.2.2)
Beryllium Test Facility TA-3-141[(1)]	Beryllium (grams)	< 0.0033			3.5 gm/yr
Target Fabrication Facility TA-35-213[(2)]	Beryllium (grams)	< 0.00944			0.36 gm/yr
Plutonium Facility TA-55-PF4 Machining Operation[(3)]	Beryllium (grams)	< 1.495			2.99 gm/yr
	Aluminum (grams)	< 1.495			2.99 gm/yr
Plutonium Facility TA-55-PF4 Foundry Operation[(4)]	Beryllium (grams)	0			8.73×10^{-4} gm/yr
	Aluminum (grams)	0			8.73×10^{-4} gm/yr
Beryllium Total[(5)] (tons) =		**< 1.66E-06**			
Aluminum Total (tons) =		**< 1.65E-06**			

Notes: [(1)] Emission values shown for the Beryllium Test Facility are from actual stack emission measurements which are submitted to NMED quarterly. [(2)] 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. [(3)] 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. [(4)] The Plutonium Facility foundry operations did not operate in the first 6 months of 2009. [(5)] Other Beryllium activities listed in section 2.2 of the permit do not require reporting in the Semi-Annual Emissions Report.

2.3 Boilers and Heaters

2.3.2 Emission Limits

Source	Allowable Emission Limits				
All Boilers and Heaters[1]	NO_x (tpy)	CO (tpy)	PM or PM_{10} (tpy)	SO_2 (tpy)	VOC (tpy)
	80	80	50	50	50

[1] Excludes TA-3-22 Power Plant addressed in Condition 2.9

Reporting Requirement

2.3.6.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.(1)

4.1 Reports of actual emissions from permitted sources in Section 2.0 shall be submitted on a 6 month basis. Reports shall not include emissions from insignificant activities. Emission estimates of criteria pollutants NOx, CO, SO_2, PM and VOCs shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.10 of this permit.

(1) Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on August 5, 2009, Tracking Number SBR20090006.

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 and Heaters	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition 2.3.2) (tons per year)
NOx	14.00			80
SO_2	0.09			50
PM	1.11			50
PM-10	1.11			50
CO	11.36			80
VOCs	0.78			50
HAPs	0.27			No Source Limit

Note: The emissions shown in this table include significant and insignificant sources. This section does not include the TA-3-22 Power Plant boilers. These can be found under Section 2.9 of this report.

2.4 Carpenter Shops

2.4.2 Emission Limits

Source	Allowable Emission Limits
	PM_{10} (tpy)
TA-15-563	2.81
TA-3-38	3.07

Reporting Requirement

2.4.6.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

4.1 Reports of actual emissions from permitted sources in Section 2.0 shall be submitted on a 6 month basis. Reports shall not include emissions from insignificant activities. Emission estimates of criteria pollutants NOx, CO, SO_2, PM and VOCs shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.10 of this permit.

(1) Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on August 5, 2009, Tracking Number SBR20090006.

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:

Shop	Pollutant	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition 2.4.2) (tons per year)
TA-3-38	**PM_{10}**	0.009			3.07
TA-15-563	**PM_{10}**	0.013			2.81

2.5 Chemical Usage

2.5.2 Emission Limits

2.5.3.1 The contribution of VOC and/or HAPs emissions from chemical usage shall not cause the exceedence of the corresponding facility-wide limit listed below:

200 tons per year of facility-wide VOCs
8 tons per year of individual facility-wide HAP
24 tons per year of total facility-wide HAPs

Reporting Requirement

2.5.5.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

4.1 Reports of actual emissions from permitted sources in Section 2.0 shall be submitted on a 6 month basis. Reports shall not include emissions from insignificant activities. Emission estimates of criteria pollutants NOx, CO, SO_2, PM and VOCs shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.10 of this permit.

[(1)] Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on August 5, 2009, Tracking Number SBR20090006.

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 2.5.3.1)
VOCs	3.9			Source limits refer to facility-wide limits.
HAPs	1.4			
Highest Individual HAP for the first six months of 2009 (Hydrochloric Acid)	0.5			

2.6 Degreasers

2.6.2 Emission Limits

2.6.2.1 The contribution of VOC and/or HAP emissions from chemical usage shall not cause the exceedence of the corresponding facility-wide limit listed below:

200 tons per year of facility-wide VOCs
8 tons per year of an individual facility-wide HAP
24 tons per year of total facility-wide HAPs

Reporting Requirement

2.6.6.3 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

4.1 Reports of actual emissions from permitted sources in Section 2.0 shall be submitted on a 6 month basis. Reports shall not include emissions from insignificant activities. Emission estimates of criteria pollutants NOx, CO, SO_2, PM and VOCs shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.10 of this permit.

[(1)] Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on August 5, 2009, Tracking Number SBR20090006.

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 2.6.2.1) (tons per year)**
VOCs	0.007			Source limits refer to facility-wide limits. (See Facility Emissions Table on Page 1)
HAPs	0.007			

Note: Degreasers TA-55-DG-2 and TA-55-DG-3 were not used in the first six months of 2009. The units have been removed from LANL and will not be used in the future. The Title V application submitted to NMED in April 2008 reflects this change.

2.7 Internal Combustion Sources

2.7.2 Emission Limits

Source	Allowable Emission Limits											
	TSP		PM10		NO_x		CO		VOC		SO_x	
TA-33-G-1	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy
	1.4	0.6	1.4	0.6	40.3	18.1	33.7	15.2	0.7	0.3	5.5	2.5

Reporting Requirement

2.7.6.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

4.1 Reports of actual emissions from permitted sources in Section 2.0 shall be submitted on a 6 month basis. Reports shall not include emissions from insignificant activities. Emission estimates of criteria pollutants NOx, CO, SO_2, PM and VOCs shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.10 of this permit.

[(1)] Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on August 5, 2009, Tracking Number SBR20090006.

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-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition 2.7.2) (tons per year)
NOx	0.024			18.1
SO_X	0.019			2.5
TSP	0.004			0.6
PM_{10}	0.004			0.6
CO	0.024			15.2
VOC	0.001			0.3
HAPs	4.40E-04			No Source Limit

Continued on the next page.

2.7 Internal Combustion Sources - continued

Comments:

Generator TA-33-G-2	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (NSR Permit 2195-P Condition 2) (tons per year)
NOx	0.000			0.21
SO_X	0.000			Not Required
TSP	0.000			Not Required
PM_{10}	0.000			Not Required
CO	0.000			0.1
VOC	0.000			Not Required
HAPs	0.00E+00			No Source Limit

Note: This generator is not listed in the latest Title V permit, P100M2. However, it is listed in NSR Permit No. 2195-P which was issued on August 8, 2007 and has been included in the Title V application submitted to NMED in April 2008. This generator did not run during the first six months of 2009.

Generator TA-33-G-3	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (NSR Permit 2195-P Condition 2) (tons per year)
NOx	0.000			0.21
SO_X	0.000			Not Required
TSP	0.000			Not Required
PM_{10}	0.000			Not Required
CO	0.000			0.1
VOC	0.000			Not Required
HAPs	0.00E+00			No Source Limit

Note: This generator is not listed in the latest Title V permit, P100M2. However, it is listed in NSR Permit No. 2195-P which was issued on August 8, 2007 and has been included in the Title V application submitted to NMED in April 2008. The unit ran less than an hour during the first six months of 2009.

Generator TA-33-G-4	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (NSR Permit 2195-P Condition 2) (tons per year)
NOx	0.274			2.33
SO_X	0.059			0.16
TSP	0.020			Not Required
PM_{10}	0.020			Not Required
CO	0.274			1.4
VOC	0.020			0.2
HAPs	1.96E-02			No Source Limit

Note: This generator is not listed in the latest Title V permit, P100M2. However, it is listed in NSR Permit No. 2195-P which was issued on August 8, 2007 and has been included in the Title V application submitted to NMED in April 2008. The emissions from this unit are included in the facility wide total.

Continued on the next page.

2.7 Internal Combustion Sources - continued

Comments:

Stationary Standby Generators	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	2.85			No Source Specific Emission Limits for Standby Generators
SOx	0.11			
TSP	0.13			
PM_{10}	0.13			
CO	0.65			
VOC	0.13			
HAPs	0.001			

Note: Standby Generators are insignificant sources.

2.8 Data Disintegrator

2.8.2 Emission Limits

Source	Allowable Emission Limits			
TA-52-11	TSP (pph)	TSP (tpy)	PM10 (pph)	PM10 (tpy)
	2.3	9.9	2.3	9.9

PM10 and TSP emissions limits shown in above Table are after controls.

Reporting Requirement

2.8.6.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

4.1 Reports of actual emissions from permitted sources in Section 2.0 shall be submitted on a 6 month basis. Reports shall not include emissions from insignificant activities. Emission estimates of criteria pollutants NOx, CO, SO_2, PM and VOCs shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.10 of this permit.

[(1)] Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on August 5, 2009, Tracking Number SBR20090006.

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 2.8.2) (tons per year)
TSP	0.03			9.9
PM10	0.02			9.9

2.9 Power Plant at Technical Area 3 (TA-3-22)

2.9.2 Emission Limits

Source	Allowable Emission Limits											
	NOx (lb/hr)		CO (lb/hr)		SOx (lb/hr)		TSP (lb/hr)		PM_{10} (lb/hr)		VOC (lb/hr)	
	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil
TA-3-22-1	10.2	11.3	7.0	6.5	1.1	9.6	1.3	4.3	1.3	3.0	1.0	0.3
TA-3-22-2	10.2	11.3	7.0	6.5	1.1	9.6	1.3	4.3	1.3	3.0	1.0	0.3
TA-3-22-3	10.2	11.3	7.0	6.5	1.1	9.6	1.3	4.3	1.3	3.0	1.0	0.3
Boilers Combined[1]	60.2 tpy		41.3 tpy		7.9 tpy		8.4 tpy		8.2 tpy		5.6 tpy	
TA-3-22 CT-1 (lb/hr)	23.8		170.9		1.4		1.6		1.6		1.0	
TA-3-22 CT-1 (tpy)[1,2]	33.2		19.8		1.9		2.3		2.3		-	

[1]Annual emission limits are 12-month rolling totals. This is pursuant to NSR Permit No. 2195BM1, Table 2.2, Note 1.
[2]"-" notation implies emission rates less than or equal to 0.5 tpy.

Reporting Requirement

2.9.6.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.(1)

4.1 Reports of actual emissions from permitted sources in Section 2.0 shall be submitted on a 6 month basis. Reports shall not include emissions from insignificant activities. Emission estimates of criteria pollutants NOx, CO, SO_2, PM and VOCs shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.10 of this permit.

(1) Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on August 5, 2009, Tracking Number SBR20090006.

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: Continued on the next page

2.9 Power Plant at Technical Area 3 (TA-3-22) - Continued

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 2.9.2) (tons per year)
NOx	7.87			60.2
SO_2	0.09			7.9
TSP	1.03			8.4
PM_{10}	1.03			8.2
CO	5.42			41.3
VOC	0.75			5.6
HAPs	0.26			No Source Limit

Combustion Turbine TA-3-22 CT-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limit (Condition 2.9.2) (tons per year)
NOx	0.054			33.2
SO_2	0.004			1.9
TSP	0.007			2.3
PM_{10}	0.007			2.3
CO	0.011			19.8
VOC	0.002			No TPY Limit
HAPs	1.46E-03			No Source Limit

2.10 Facility Wide Emission Limits

2.10.1 Emission Limits

Total Allowable Criteria Pollutant and HAP Emission Limits

Pollutant	Emission Limit (tons per year)
Nitrogen Oxides (NO_x)	245
Carbon Monoxide (CO)	225
Volatile Organic Compounds (VOCs)	200
Sulfur Dioxide (SO_2)	150
Particulate Matter (PM)	120
Hazardous Air Pollutants (HAPs)	24 combined / 8 individual

Reporting Requirement

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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)	2009 Annual Emissions (tons)	Facility Wide Emission Limits (Permit Condition 2.10.1) (tons per year)
Nitrogen Oxides	25.1			245
Sulfur Dioxide	0.4			150
Particulate Matter	2.4			120
Carbon Monoxide	18.3			225
Volatile Organic Compounds	5.6			200
Hazardous Air Pollutants	2.0			24 combined
Highest Individual HAP (Hydrochloric Acid)	0.5			8 individual

Los Alamos
NATIONAL LABORATORY
EST. 1943

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

Date: March 22, 2010
Refer To: ESH&Q-10-008

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

SUBJECT: IDEA ID NO. 856 – LOS ALAMOS NATIONAL LABORATORY (LANL) OPERATING PERMIT NO: P100R1, SEMI-ANNUAL EMISSIONS REPORT – JULY 1, 2009 TO DECEMBER 31, 2009

Dear Compliance Reporting Manager:

Enclosed is Los Alamos National Laboratory's (LANL) Semi-Annual Emissions report for the period July 1, 2009 through December 31, 2009. This report is required by permit condition 4.1 and is submitted within 90 days from the end of the reporting period as required by permit condition 4.3.

The semi-annual emissions report includes actual emissions from permitted sources included in section 2.0 of LANL's Operating Permit. Emissions are also reported from insignificant boiler and generator sources. These sources are included to demonstrate that LANL has not exceeded Prevention of Significant Deterioration (PSD) applicability thresholds. In this report, 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.

Should you have any questions or comments regarding the information provided in this report, please contact Steve Story at (505) 665-2169.

Sincerely,

J. Chris Cantwell
Associate Director, ESH&Q

JCC/WWW/tav

Cy:

M. Mallory, PADOPS, A102
S. Fong, DOE-LA-AO, A316
D. Hjeresen, ENV-DO, K404
C. Blackwell, LC-LESH, A187
D. Janecky, ENV-EAQ, J978
S. Story, ENV-EAQ, J978
M. Stockton, ENV-EAQ, J978
W. Whetham, ENV-EAQ, J978
IRM-RM550, A150
ENV-EAQ Title V Emissions Report File
ENV-EAQ Admin File
ESH&Q File

Title V Semi-Annual Emissions Report for Permit P100R1
July 1, 2009 - December 31, 2009

Emission Reporting Requirements

4.0 Reporting

Conditions of 4.0 are pursuant to 20.2.70.302.E NMAC.

4.1 Reports of actual emissions from permitted sources in Section 2.0 shall be submitted on a 6 month basis. Reports shall not include emissions from insignificant activities. Emission estimates of criteria pollutants NOx, CO, SO2, PM and VOCs shall not include fugitive emissions. Emission estimates of HAPs shall include fugitive emissions. The reports shall include a comparison of actual emissions that occurred during the reporting period with the facility-wide allowable emission limits specified in Section 2.11 of this permit.

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

Specific Emissions Reports:

2.1 Asphalt Production

2.1.2 Emission Limits

Emission Unit	Allowable Emission Limits				
	NO_x	SO_2	PM	CO	VOC
TA-60-BDM	95.0 tpy	50.0 tpy	0.04 gr/dscf 33.8 lbs/hr 95.0 tpy	95.0 tpy	95.0 tpy

Reporting Requirement

2.1.6.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

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

[(1)] Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on February 10, 2010, Tracking Number SBR20100004.

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 2.1.2) (tons per year)
NOx	0.017	0.012	0.029	95.0
SO_2	0.002	0.000	0.002	50.0
PM	0.010	0.007	0.017	95.0
CO	0.605	0.409	1.014	95.0
VOC	0.004	0.000	0.004	95.0
HAPs	0.004	0.000	0.004	No Source Permit Limit

2.2 Beryllium Activities

2.2.2 Emission Limits

Source	Allowable Emission Limits	
	Beryllium	**Aluminum**
Sigma Facility TA-3-66	10 gm/24 hr	Not Applicable
Beryllium Technology Facility TA-3-141	0.35 gm/24 hr 3.5 gm/yr	Not Applicable

Source	Allowable Emission Limits	
	Beryllium	**Aluminum**
Target Fabrication Facility TA-35-213	1.8×10^{-04} gm/hr 0.36 gm/yr	Not Applicable
Plutonium Facility TA-55-PF4		
Machining Operation	0.12 gm/24 hr 2.99 gm/yr	0.12 gm/24 hr 2.99 gm/yr
Foundry Operation	3.49×10^{-5} gm/24 hr 8.73×10^{-4} gm/yr	3.49×10^{-5} gm/24 hr 8.73×10^{-4} gm/yr

Reporting Requirement

2.2.6 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

4.1

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

[(1)] Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on February 10, 2010, Tracking Number SBR20100004.

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: Continued on the next page

2.2 Beryllium Activities - continued

Comments:

Source	Pollutant	January - June Emissions	July - December Emissions	Annual Emissions	Permit Limits (Condition 2.2.2)
Beryllium Test Facility TA-3-141[(1)]	Beryllium (grams)	< 0.0033	< 0.0033	< 0.007	3.5 gm/yr
Target Fabrication Facility TA-35-213[(2)]	Beryllium (grams)	< 0.00944	< 0.009	< 0.018	0.36 gm/yr
Plutonium Facility TA-55-PF4 Machining Operation[(3)]	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[(4)]	Beryllium (grams)	0	0	0.00	8.73×10^{-4} gm/yr
	Aluminum (grams)	0	0	0.00	8.73×10^{-4} gm/yr
Beryllium Total[(5)] (tons) =		**< 1.66E-06**	**< 1.57E-06**	**< 3.23E-06**	
Aluminum Total (tons) =		**< 1.65E-06**	**< 1.55E-06**	**< 3.30E-06**	

Notes: [(1)] Emission values shown for the Beryllium Test Facility are from actual stack emission measurements which are submitted to NMED quarterly. [(2)] 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. [(3)] 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. [(4)] The Plutonium Facility foundry operations did not operate in 2009. [(5)] The Sigma Facility listed in section 2.2 of the permit does not require reporting in the Semi-Annual Emissions Report.

2.3 Boilers and Heaters

2.3.2 Emission Limits

Source	Allowable Emission Limits				
All Boilers and Heaters[1]	NO_x (tpy)	CO (tpy)	PM or PM_{10} (tpy)	SO_2 (tpy)	VOC (tpy)
	80	80	50	50	50

[1] Excludes TA-3-22 Power Plant addressed in Condition 2.9

Reporting Requirement

2.3.6.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.(1)

4.1

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

(1) Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on February 10, 2010, Tracking Number SBR20100004.

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 and Heaters	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition 2.3.2) (tons per year)
NOx	14.00	11.49	25.49	80
SO_2	0.09	0.07	0.16	50
PM	1.11	0.92	2.03	50
PM-10	1.11	0.92	2.03	50
CO	11.36	9.13	20.49	80
VOCs	0.78	0.64	1.42	50
HAPs	0.27	0.22	0.49	No Source Limit

Note: The emissions shown in this table include significant and insignificant sources. This section does not include the TA-3-22 Power Plant boilers. These can be found under Section 2.9 of this report.

2.4 Carpenter Shops

2.4.2 Emission Limits

Source	Allowable Emission Limits
	PM_{10} (tpy)
TA-15-563	2.81
TA-3-38	3.07

Reporting Requirement

2.4.6.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.(1)

4.1

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

(1) Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on February 10, 2010, Tracking Number SBR20100004.

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:

Shop	Pollutant	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition 2.4.2) (tons per year)
TA-3-38	**PM_{10}**	0.009	0.017	0.026	3.07
TA-15-563	**PM_{10}**	0.013	0.012	0.025	2.81

2.5 Chemical Usage

2.5.2 Emission Limits

2.5.3.1 The contribution of VOC and/or HAPs emissions from chemical usage shall not cause the exceedence of the corresponding facility-wide limit listed below:

200 tons per year of facility-wide VOCs
8 tons per year of individual facility-wide HAP
24 tons per year of total facility-wide HAPs

Reporting Requirement

2.5.5.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

4.1

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

[(1)] Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on February 10, 2010, Tracking Number SBR20100004.

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 2.5.3.1)**
VOCs	3.9	6.5	10.4	Source limits refer to facility-wide limits.
HAPs	1.4	3.0	4.4	
Highest Individual HAP for the first 6 months of 2009 (Hydrochloric Acid)	0.5	0.1	0.6	
Highest Individual HAP for the second 6 months of 2009 (Cyanide Compounds)	0.0	1.2	1.2	

2.6 Degreasers

2.6.2 Emission Limits

2.6.2.1 The contribution of VOC and/or HAP emissions from chemical usage shall not cause the exceedence of the corresponding facility-wide limit listed below:

200 tons per year of facility-wide VOCs
8 tons per year of an individual facility-wide HAP
24 tons per year of total facility-wide HAPs

Reporting Requirement

2.6.6.3 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

4.1

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

[(1)] Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on February 10, 2010, Tracking Number SBR20100004.

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 2.6.2.1) (tons per year)
VOCs	0.007	0.008	0.015	Source limits refer to facility-wide limits. (See Facility Emissions Table on Page 1)
HAPs	0.007	0.008	0.015	

2.7 Internal Combustion Sources

2.7.2 Emission Limits

Source	Allowable Emission Limits											
	NO_x[1]		CO		VOC		SO_x[2]		TSP		PM_{10}	
	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy	pph	tpy
TA-33-G-1	40.3	18.1	33.7	15.2	0.7	0.3	5.5	2.5	1.4	0.6	1.4	0.6
TA-33-G-2	0.83	0.21	0.2	0.1	0.1	- -[3]	- -	- -	- -	- -	- -	- -
TA-33-G-3	0.83	0.21	0.2	0.1	0.1	- -	- -	- -	- -	- -	- -	- -
TA-33-G-4	9.33	2.33	5.7	1.4	0.75	0.2	0.62	0.16	- -	- -	- -	- -

1 Nitrogen dioxide emissions include all oxides of nitrogen expressed as NO_2.
2 Sulfur dioxide emissions include all oxides of sulfur expressed as SO_2
3 "- -" indicates the emission rate is less than 0.05 pph or 0.05 tpy and limits are not required for this permit.

Reporting Requirement

2.7.6.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.(1)

4.1

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

(1) Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on February 10, 2010, Tracking Number SBR20100004.

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-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition 2.7.2) (tons per year)
NOx	0.024	1.032	1.056	18.1
SO_X	0.004	0.153	0.157	2.5
TSP	0.001	0.034	0.035	0.6
PM_{10}	0.001	0.034	0.035	0.6
CO	0.019	0.841	0.860	15.2
VOC	0.000	0.019	0.019	0.3
HAPs	5.12E-06	2.23E-04	2.28E-04	No Source Limit

Continued on the next page.

2.7 Internal Combustion Sources - continued

Comments:

Generator TA-33-G-2	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition 2.7.2) (tons per year)
NOx	0.000	0.001	0.001	0.21
SO_X	0.000	0.000	0.000	Not Required
TSP	0.000	0.000	0.000	Not Required
PM_{10}	0.000	0.000	0.000	Not Required
CO	0.000	0.000	0.000	0.1
VOC	0.000	0.000	0.000	Not Required
HAPs	0.00E+00	2.03E-07	2.03E-07	No Source Limit

Note: This generator did not run during the first six months of 2009 and only ran for 1.5 hours during the second six months.

Generator TA-33-G-3	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition 2.7.2) (tons per year)
NOx	0.000	0.000	0.000	0.21
SO_X	0.000	0.000	0.000	Not Required
TSP	0.000	0.000	0.000	Not Required
PM_{10}	0.000	0.000	0.000	Not Required
CO	0.000	0.000	0.000	0.1
VOC	0.000	0.000	0.000	Not Required
HAPs	2.70E-08	8.11E-08	1.08E-07	No Source Limit

Note: This generator ran less than an hour during 2009.

Generator TA-33-G-4	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits (Condition 2.7.2) (tons per year)
NOx	0.274	0.061	0.335	2.33
SO_X	0.020	0.004	0.024	0.16
TSP	0.020	0.004	0.024	Not Required
PM_{10}	0.020	0.004	0.024	Not Required
CO	0.059	0.013	0.072	1.4
VOC	0.020	0.004	0.024	0.2
HAPs	8.82E-05	1.98E-05	1.08E-04	No Source Limit

Continued on the next page.

2.7 Internal Combustion Sources - continued

Comments:

Stationary Standby Generators	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limits
NOx	2.85	2.42	5.27	No Source Specific Emission Limits for Standby Generators
SOx	0.11	0.07	0.18	
TSP	0.13	0.10	0.23	
PM_{10}	0.13	0.10	0.23	
CO	0.65	0.58	1.23	
VOC	0.13	0.10	0.23	
HAPs	0.001	0.001	0.002	

Note: Standby Generators are insignificant sources.

2.8 Data Disintegrator

2.8.2 Emission Limits

Source	Allowable Emission Limits			
TA-52-11	TSP (pph)	TSP (tpy)	PM10 (pph)	PM10 (tpy)
	2.3	9.9	2.3	9.9

PM10 and TSP emissions limits shown in above Table are after controls.

Reporting Requirement

2.8.6.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

4.1

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

[(1)] Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on February 10, 2010, Tracking Number SBR20100004.

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 2.8.2) (tons per year)
TSP	0.03	0.02	0.05	9.9
PM10	0.02	0.02	0.04	9.9

2.9 Power Plant at Technical Area 3 (TA-3-22)

2.9.2 Emission Limits

Source	Allowable Emission Limits											
	NOx		CO		SOx		TSP		PM_{10}		VOC	
	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil
TA-3-22-1 (lb/hr)	10.2	11.3	7.0	6.5	1.1	9.6	1.3	4.3	1.3	3.0	1.0	0.3
TA-3-22-2 (lb/hr)	10.2	11.3	7.0	6.5	1.1	9.6	1.3	4.3	1.3	3.0	1.0	0.3
TA-3-22-3 (lb/hr)	10.2	11.3	7.0	6.5	1.1	9.6	1.3	4.3	1.3	3.0	1.0	0.3
Boilers Individually (tpy)	35.9		N/A		N/A		N/A		N/A		N/A	
Boilers Combined[1] (tpy)	60.2		41.3		7.9		8.4		8.2		5.6	

Source	Allowable Emission Limits											
	NOx		CO		SOx		TSP		PM_{10}		VOC	
	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil	Gas	Oil
TA-3-22 CT-1 (lb/hr)	23.8		170.9		1.4		1.6		1.6		1.0	
TA-3-22 CT-1 (tpy)[1,2]	33.2		19.8		1.9		2.3		2.3		-	
TA-3-22 CT-1 (ppm)	25 ppmv @ 15% O_2		N/A		N/A		N/A		N/A		N/A	

[1] Annual emission limits are 12-month rolling totals. This is pursuant to NSR Permit 2195B-M1R2, Table 2.1, Note 7.

[2] "-" notation implies emission rates less than or equal to 0.5 tpy.

* N/A means not applicable.

Reporting Requirement

2.9.6.1 Reports shall be submitted in accordance with conditions 4.1 and 4.2.[(1)]

4.1

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

[(1)] Condition 4.2 refers to submitting a Semi-Annual Monitoring report which LANL submitted on February 10, 2010, Tracking Number SBR20100004.

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: Continued on the next page

2.9 Power Plant at Technical Area 3 (TA-3-22) - Continued

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 2.9.2) (tons per year)
NOx	7.87	6.35	14.22	60.2
SO_2	0.09	0.07	0.16	7.9
TSP	1.03	0.83	1.86	8.4
PM_{10}	1.03	0.83	1.86	8.2
CO	5.42	4.38	9.80	41.3
VOC	0.75	0.60	1.35	5.6
HAPs	0.26	0.21	0.47	No Source Limit

Boiler	Pollutant	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limit (Condition 2.9.2) (tons per year)
TA-3-22-1	**NOx**	3.50	2.75	6.25	35.9
TA-3-22-2	**NOx**	4.07	0.06	4.13	35.9
TA-3-22-3	**NOx**	0.30	3.54	3.84	35.9

Combustion Turbine TA-3-22 CT-1	January - June Emissions (tons)	July - December Emissions (tons)	Annual Emissions (tons)	Permit Limit (Condition 2.9.2) (tons per year)
NOx	0.054	0.298	0.35	33.2
SO_2	0.004	0.021	0.02	1.9
TSP	0.007	0.040	0.05	2.3
PM_{10}	0.007	0.040	0.05	2.3
CO	0.011	0.062	0.07	19.8
VOC	0.002	0.013	0.02	No TPY Limit
HAPs	1.46E-03	8.13E-03	0.02	No Source Limit

2.10 Open Burning

2.10.2 Emission Limits

2.10.2.1 The contribution of HAP emissions from open burning shall not cause the exceedance of the corresponding facility-wide limit listed below:

8 tons per year of an individual facility-wide HAP
24 tons per year of total facility-wide HAPs

Reporting Requirement

2.10.5.1 Reports shall be submitted in accordance with conditions 4.1.

4.1

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

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 in 2009.

2.11 Facility Wide Emission Limits

2.11.1 Emission Limits

Total Allowable Criteria Pollutant and HAP Emission Limits

Pollutant	Emission Limit (tons per year)
Nitrogen Oxides (NO_x)	245
Carbon Monoxide (CO)	225
Volatile Organic Compounds (VOCs)	200
Sulfur Dioxide (SO_2)	150
Particulate Matter (PM)	120
Hazardous Air Pollutants (HAPs)	24 combined / 8 individual

Reporting Requirement

4.1

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

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)	2009 Annual Emissions (tons)	Facility Wide Permit Limits (Condition 2.11.1) (tons per year)
Nitrogen Oxides	25.1	21.7	46.8	245
Sulfur Dioxide	0.3	0.4	0.7	150
Particulate Matter	2.4	2.0	4.4	120
Carbon Monoxide	18.1	15.4	33.5	225
Volatile Organic Compounds	5.6	7.9	13.5	200
Hazardous Air Pollutants	1.9	3.4	5.2	24 combined
Highest Individual HAP (Cyanide Compound)	0.0	1.2	1.2	8 individual


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