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Emissions Inventory Report Summary:  
Reporting Requirements  
for the New Mexico Administrative Code,  
Title 20, Chapter 2, Part 73 (20.2.73 NMAC)  
for Calendar Year 2003

Edited by Hector Hinojosa, Group IM-1

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Meteorology and Air Quality Group (ENV-MAQ)



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**Emissions Inventory Report Summary: Reporting Requirements for the  
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**by**

**Meteorology and Air Quality Group (ENV-MAQ)**

**ABSTRACT**

Los Alamos National Laboratory 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. For calendar year 2003, the Technical Area 3 steam plant and the air curtain destructors were the primary sources of criteria air pollutants from the Laboratory, while the air curtain destructors and chemical use associated with research and development activities were the primary sources of volatile organic compounds and hazardous air pollutants. Emissions of beryllium and aluminum were reported for activities permitted under 20.2.72 NMAC. Hazardous air pollutant emissions were reported from chemical use as well as from all combustion sources. In addition, estimates of particulate matter with diameter less than 2.5 micrometers and ammonia were provided as requested by the New Mexico Environment Department, Air Quality Bureau.

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**1.0 INTRODUCTION**

**1.1 REGULATORY BASIS**

Los Alamos National Laboratory (LANL or the Laboratory) has reported on air pollutants generated from its operations since the 1970s when Air Quality Control Regulation 703, *Registration of Air Contaminant Sources*, was promulgated. According to the regulation, the Laboratory was required to register air pollutant sources that emitted more than

2,000 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;
    - particulate matter (PM) with diameter less than 10 micrometers (PM<sub>10</sub>);
    - particulate matter with diameter less than 2.5 micrometers (PM<sub>2.5</sub>);
    - sulfur dioxide;
    - nitrogen oxides (NO<sub>x</sub>);
    - carbon monoxide (CO); or
    - volatile organic compounds (VOC).

The annual emissions inventory must be submitted to NMED/AQB by April 1 of each year.

The NMED/AQB enters the data in the Aerometric Information Retrieval System (AIRS).<sup>1</sup> 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 (NAAQS) 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 2003 emissions inventory reporting, NMED imported existing facility data from the AIRS database into spreadsheets and requested facilities update the sheets with 2003 facility emissions information.



## 1.2 CONTENTS OF EMISSIONS INVENTORY SUBMITTAL

NMED requested that LANL submit emissions data for 2003 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 2003.

This annual emissions inventory submittal includes air pollutant data for PM, PM<sub>10</sub>, CO, NO<sub>x</sub>, sulfur oxides (SO<sub>x</sub>), VOCs, beryllium, and aluminum. Additionally, at the request of NMED, the 2003 report provides data on emissions from hazardous air pollutants (HAPs), PM<sub>2.5</sub>, and ammonia.

The new requirement to provide PM<sub>2.5</sub> and ammonia emissions data stems from recent developments by EPA on a NAAQS for PM<sub>2.5</sub>. States are developing a baseline for PM<sub>2.5</sub>. As such, for the 2003 emissions inventory, NMED requested emissions information on PM<sub>2.5</sub>. Further, ammonia is a precursor to PM<sub>2.5</sub> formation. It contributes to the secondary aerosol formation of PM<sub>2.5</sub> by combining with NO<sub>x</sub> and SO<sub>x</sub> to form ammonium nitrate and fine sulfate particles. Therefore, NMED also requested emissions information on ammonia.

In the 2003 emissions inventory submittal, LANL provided PM<sub>2.5</sub> emissions data for all combustion sources and other emission sources where PM<sub>2.5</sub> emission factors were readily available. In the absence of PM<sub>2.5</sub> emission factors, PM or PM<sub>10</sub> emissions were assumed to be equivalent to PM<sub>2.5</sub>. The Laboratory does not operate any emission units that are large sources of ammonia emissions. Ammonia was included in the facility-wide emission estimates for chemical use.

## 2.0 REPORTED EMISSION SOURCES

The Laboratory's *2003 Emissions Inventory Submittal to NMED*<sup>2</sup> includes estimates of actual air emissions for regulated pollutants from the following sources:

- steam plants;
- miscellaneous small boilers;
- asphalt plant;
- paper shredder;
- rock crusher;
- degreasers;
- air curtain destructors (ACDs);
- carpenter shop;
- oil storage tanks;

- permitted beryllium sources; and
- facility-wide chemical use.

The following subsections describe emission sources included in the 2003 emissions inventory 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 2.12). Attachment A includes worksheets showing detailed emission calculations for individual emissions sources. A copy of the *2003 Emissions Inventory* as submitted to NMED is presented in Attachment B.

## **2.1 STEAM PLANTS**

The Laboratory operates two steam plants, one located at Technical Area (TA) 3 and the other at TA-21. The TA-3 steam plant produces steam for heating and electricity for much of the Laboratory when sufficient power from outside sources is not available. The steam plant at TA-21 provides steam for heating of buildings at this technical area. The heat produced from both steam plants is used for comfort heat and hot water and to support facility processes. Each steam plant has three boilers that are fueled primarily with natural gas and with diesel fuel as a backup. The TA-3 steam plant was originally included in LANL's emissions inventory as AIRS ID No. 002. When a modification to the plant was made in 2001, the TA-3 steam plant was separated in to three AIRS ID numbers (032, 033, and 034) for emissions reporting purposes. The three boilers at the TA-21 steam plant are included in the emissions inventory as one AIRS ID number (004).

Actual emissions are calculated on the basis of metered fuel consumption and emission factors. The primary source of emission factors is AP-42, the U.S. Environmental Protection Agency's *Compilation of Air Pollutant Emission Factors*.<sup>3</sup> However, emission factors from stack tests conducted at the TA-3 steam plant when burning natural gas were also used, as appropriate.

The TA-3 steam plant has historically been the largest source of NO<sub>x</sub> emissions at the Laboratory. In 2002 a voluntary project to install pollution control equipment on the three boilers at the TA-3 steam plant was completed. The three boilers were fitted with flue gas recirculation (FGR) equipment to reduce NO<sub>x</sub> emissions. Stack testing for NO<sub>x</sub> and CO was conducted before FGR equipment was installed and again after it was operational. Based on these stack test results, FGR reduced NO<sub>x</sub> emissions by approximately 64 percent. The FGR equipment was operational for all of 2003. Figure 2-1 shows a picture of the TA-3 steam plant building and stacks.



**Figure 2-1. Main Steam Plant at LANL TA-3.**

## **2.2 NONEXEMPT BOILERS**

The Laboratory operates approximately 200 small boilers, 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 emissions inventory. The exemption analysis applied to boilers is discussed in Section 3.1 of this report.

The nonexempt boilers reported in the 2003 emissions inventory include the following:

- four boilers at TA-16 (AIRS ID Nos. 024 and 025);
- three boilers at TA-48 (AIRS ID Nos. 015, 016, and 017);
- two boilers at TA-53 (AIRS ID Nos. 018 and 019);
- two boilers at TA-59 (AIRS ID Nos. 020 and 021);
- two boilers at TA-55 (AIRS ID Nos. 037 and 038); and
- one process-related boiler at TA-50 (reported for the first time in 2003, AIRS ID not yet assigned).

The TA-50 boiler is associated with an evaporation system at the Laboratory's Radioactive Liquid Waste Treatment Facility. The boiler is owned and operated by a contractor and has been on-site since 2000. Initial plans were for this to be a temporary unit; however, current plans are to keep the unit operating at LANL for several more years. This boiler is included in the Laboratory's Title V Operating Permit (Permit No P-100); therefore we have included it in the emissions inventory submittal for 2003.

All of the reported boilers burn natural gas. The TA-16 boilers are equipped with meters to track fuel consumption. Operating logs for the TA-50 boiler were used to quantify fuel use for this unit. 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 they are all seasonal boilers used for building heating, it was assumed they would all operate approximately the same amount of time. 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.<sup>3</sup> Copies of spreadsheets showing fuel use and emission factors for each boiler are included in Attachment A.

### **2.3 ASPHALT PLANT**

The TA-3 asphalt plant produces small amounts of asphalt for road repairs in and around the Laboratory. This unit is included in LANL's emissions inventory as AIRS ID No. 013. The asphalt plant operated during the first half of 2003. In mid-June the plant was shut down in anticipation of a new asphalt plant being built. In September 2003 the old asphalt plant was dismantled and removed. The new asphalt plant will be located at TA-60; however, construction of the new plant has been delayed due to nesting of spotted owls. The new asphalt plant is anticipated to be operational sometime in late 2004. For the 2003 emissions inventory, emissions from the TA-3 asphalt plant are based on the amount of asphalt produced for the year. The PM emissions from the asphalt plant were calculated with an emission factor obtained from a source test. Otherwise, emission factors from AP-42 were used.<sup>4</sup>

### **2.4 PAPER SHREDDER**

Shredding operations from the paper shredder at TA-52 are a source of PM emissions. This unit is included in LANL's emissions inventory as AIRS ID No. 027. Estimates of actual emissions are based on the number of boxes of material shredded and engineering estimates for controlled emissions. The unit is equipped with a cyclone separator and baghouse for abatement. The emission factor, which is the amount of particulate estimated to enter into the exhaust, was provided by the shredder equipment manufacturer. The air abatement system efficiencies were estimated based on information from EPA on cyclone and baghouse efficiencies and are documented in LANL's Title V Operating Permit application submitted to NMED in November 2002.<sup>5</sup>

### **2.5 ROCK CRUSHER**

In June 1999, NMED issued a 20.2.72 NMAC construction permit (Permit No. 2195) to LANL to operate an impact rock crusher to crush potentially radioactive contaminated concrete removed from buildings as part of the Laboratory's decontamination and decommissioning efforts. This unit is included in LANL's emissions inventory as AIRS ID No. 026. The rock crusher was not operated in 2003.

## 2.6 DEGREASER

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. LANL uses a mass balance approach to estimate emissions. Logbooks are kept on the amount of solvent added and removed from the machine. Additionally, monthly tracking of solvent levels in the machine are logged. Using a mass balance approach, emissions are estimated. LANL has two additional halogenated solvent cleaning machines registered with NMED; however, these two machines did not operate in 2003.

## 2.7 AIR CURTAIN DESTRUCTORS

Three ACDs were used extensively during most of 2003 for controlled open burning of wood and brush generated from tree thinning activities at LANL. These units are included in LANL’s emissions inventory as AIRS ID Nos. 039, 040, and 041. The ACDs work by blowing a curtain of air over materials as they burn within a semi-enclosed environment. The fan-driven curtain of air introduces a steady oxygen supply into the combustion chamber and helps ensure nearly all fuel and gasses are consumed. Each unit can burn up to 10 tons of wood per hour. In 2003 a total of 18,671 tons of wood and brush generated from forest thinning activities were burned in the ACDs. A picture of an ACD operating at LANL’s TA-16 is included as Figure 2-2.



**Figure 2-2. ACD Operating at LANL TA-16.**

Both wood burning and engine operation emissions were estimated. Wood burning emissions were estimated based on the total tons of wood burned in 2003 and emission factors presented in the Title V Operating Permit application submitted to NMED in November 2002.<sup>5</sup> Engine emissions were estimated based on total diesel fuel consumed and horsepower hours operated. The units were operated through September 2003. In October 2003 the ACDs were shut down and dismantled.

## **2.8 CARPENTER SHOP**

LANL operates a carpenter shop at TA-3-38. This carpenter shop was built before 1960 and is not subject to 20.2.72 NMAC construction permitting. However, LANL included this source in its updated Title V Operating Permit application submitted to NMED in November 2002. Therefore, this carpenter shop is included in the annual emissions inventory as AIRS ID No. 042.

PM emissions from the carpenter shop are estimated based on number of hours the exhaust system operated and an estimated control efficiency of the cyclone. Emission factors from AP-42, Section 10.4, "Woodworking Waste Collection Operations," were used to estimate PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions.<sup>6</sup>

## **2.9 OIL STORAGE TANKS**

Two diesel storage tanks are located at the TA-3 steam plant for backup fuel to the boilers. These tanks are included in the emissions inventory under AIRS ID Nos. 035 and 036. Emissions from these tanks are estimated using software developed by EPA for estimating emissions from storage tanks.<sup>7</sup> The TANKS 4.0 software requires inputs for tank parameters, site-specific meteorological conditions, and actual fuel throughputs.

The Laboratory included oil storage tanks in the November 2002 updated Title V Operating Permit application because they were subject to *New Source Performance Standards*, 40 CFR 60, Subpart Kb. These tanks are used to store mineral oil, scintillation oil, or dielectric oil, which all have vapor pressures less than 0.01 mmHg. In 2003 EPA modified the applicability of Subpart Kb and these tanks are no longer subject to this regulation. Subsequently they were not included in the Laboratory's Title V Operating Permit (Permit No. P-100).

Emissions from these oil storage tanks were included for the first time in the 2002 emissions inventory. With the agreement of 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). This "composite" mineral oil tank was assigned AIRS ID No. 043. Because an AIRS ID number is now assigned, emissions from these tanks will continue to be included in the annual emissions inventory submittal. Based on the most conservative tank parameters and actual throughput from chemical inventory records, a unit emission rate was calculated. The TANKS 4.0 software was used to estimate emissions for both vertical and fixed roof tanks.<sup>7</sup> These unit emission rates in lb/yr were

multiplied by the number of horizontal and vertical tanks to provide an estimate of total annual emissions from all of the tanks.

## 2.10 PERMITTED BERYLLIUM-MACHINING OPERATIONS

The Laboratory operates under five 20.2.72 NMAC construction permits\*\* for beryllium-machining operations that are subject to 40 CFR 61, Subpart C, “National Emission Standards for Beryllium.” Emissions from these sources were reported at permitted emission levels; however, actual emissions monitored during initial compliance stack tests were below permitted levels. Beryllium-machining operations are reported in the emissions inventory under AIRS ID Nos. 006, 007, 008, 010, and 011.

## 2.11 EMISSIONS FROM CHEMICAL USE ACTIVITIES

The majority of the Laboratory’s work is devoted to research and development (R&D) activities. Varying operating parameters, as well as amounts and types of chemicals, are used in these activities. R&D activities occur at virtually all technical areas within the Laboratory, typically in small quantities in laboratory settings. Figure 2-3 shows a typical laboratory at LANL where chemicals are used.

For the purposes of annual emissions inventory reporting, one AIRS ID has been assigned for all R&D chemical use (AIRS ID No. 031). The methods used to quantify emissions of VOC and HAPs from R&D activities are discussed below.



**Figure 2-3. Example of Chemical Use in Laboratory Hood at LANL.**

\*\* Permit No. 632, issued December 26, 1985; Permit No. 632-M2, issued October 30, 1998; Permit No. 635, issued March 19, 1986; Permit No. 636, issued March 19, 1986; Permit No. 1080-M1-R2, issued March 11, 1998.

### 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, 2003, and December 31, 2003. This dataset included 43,702 separate line items of chemicals purchased. The dataset was reviewed electronically to identify all VOCs purchased and received at LANL in 2003. With the exception of specific listed chemicals, VOCs are any compounds of carbon that participate in atmospheric photochemical reactions. VOCs include commonly used chemicals such as ethanol, methanol, trichloroethylene, and isopropanol. The general assumption used in estimating VOC emissions from chemical use is:

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

From the dataset of chemicals purchased in 2003, 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 (solids are 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 3.4);
- 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, material safety data sheets (MSDS) were reviewed to determine if any

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\* This exemption was applied only to biological research solutions. Otherwise, this exemption was not applied. See Table 3.1.



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% emitted to air. Estimated emissions of VOCs from chemical use in 2003 totaled 11.2 tons.

### **2.11.2 HAP Emissions**

Section 112(b) of the 1990 Clean Air Act Amendments listed 189 unique HAPs identified for potential regulation by EPA. In 1995, caprolactam was delisted as a HAP. Of the remaining 188 listed HAPs, 17 are classes of compounds (e.g., nickel compounds). Use of the 188 listed chemicals in activities at the Laboratory was evaluated and quantified for the annual emissions inventory submittal to NMED.

The ChemLog inventory system CY 2003 data set 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, MSDS 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 3.1 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 2003 was 7.3 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 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

Facility and Waste Operations Division purchased multiple 14-gallon carboys of hydrochloric acid (HCl) totaling approximately 2,535 lb. This HCl was used for heat exchanger scale cleaning and for cleaning of electro dialysis reversal membranes. Emissions from these particular activities were estimated to be 0.24 lb based on specific process information and engineering calculations. This is also considered a routine maintenance activity and exempt from emissions inventory reporting. 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 2.05 tons of HCl emissions.

### 2.12 EMISSIONS SUMMARY BY SOURCE

Table 2-1 provides a summary of LANL's 2003 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 2-1. Summary of LANL 2003 Reported Emissions**

	NO <sub>x</sub> (tons/yr)	SO <sub>x</sub> (tons/yr)	PM <sub>10</sub> (tons/yr)	PM <sub>2.5</sub> (tons/yr)	CO (tons/yr)	VOC (tons/yr)	HAPs (tons/yr)
TA-3 Steam Plant Boilers	16.94	0.27	2.25	2.24	11.67	1.6	0.53
TA-21 Steam Plant Boilers	1.6	0.02	0.12	0.12	1.34	0.09	0.03
Small Boilers	6.44	0.04	0.59	0.59	4.41	0.37	0.12
Asphalt Plant	0.02	0.003	0.03	0.03	0.24	0.005	0.005
Paper Shredder	NA*	NA	0.001	0.001	NA	NA	NA
Rock Crusher	NA	NA	NA	NA	NA	NA	NA
Degreaser	NA	NA	NA	NA	NA	0.01	0.01
Air Curtain Destructors	24.6	1.3	14.4	13.5	14.3	36.0	3.3
Carpenter Shop	NA	NA	0.009	0.008	NA	NA	NA
Oil Storage Tanks	NA	NA	NA	NA	NA	0.04	NA
R&D	NA	NA	NA	NA	NA	11.2	7.3
<b>TOTAL</b>	<b>49.6</b>	<b>1.63</b>	<b>17.4</b>	<b>16.5</b>	<b>31.96</b>	<b>49.3</b>	<b>11.3</b>

\*Not applicable.

### 3.0 REPORTING EXEMPTIONS

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

- "List of Insignificant Activities," September 29, 1995,<sup>8</sup> and
- "List of Trivial Activities," January 10, 1996.<sup>9</sup>

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." Specifically, boilers were exempted from the 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 five (5) million BTU 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 (1) 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 (1) ton per year** exemption. For purposes of determining exemptions, boiler design ratings were used to estimate potential to emit. Any boiler not qualifying for one of these two exemptions is included in the emissions inventory.

#### 3.2 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 3-1.

Fuels such as propane, kerosene, and acetylene were analyzed separately and are not listed in Table 3-1. When fuels are burned in an open flame, almost all of the fuels are consumed and emissions are minimal. Emissions from fuel combustion are accounted for using emission factors for each fuel-burning unit.

**Table 3-1. Exemptions Applied for Chemical Use Activities**

<b>Basis of Exemption</b>	<b>Activity Type</b>	<b>Activity</b>
Container sizes of 1 pound 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	<p>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.</p> <p>Activities for maintenance and repair of equipment, pollution-control equipment, or motor vehicles either inside or outside of a building.</p>
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	<p>Bench-scale laboratory equipment used for physical or chemical analysis but not lab fume hoods or vents.</p> <p><i>Note: This exemption was applied only to biological research solutions. Otherwise, this exemption was not applied.</i></p>

### 3.3 HAP EMISSIONS

A 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 Trivial Activities” and “List of Insignificant Activities” (refer to Table 3.1).

### 3.4 PAINTS

An analysis of VOC and HAP emissions resulting from painting activities conducted at the Laboratory was performed to determine if certain exemptions apply. Paint information for 2003 was gathered from work control databases and 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” 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 corresponding amounts of paint were totaled for painting activities that did not qualify for one of the trivial activity exemptions listed above. The paint total for 2003 was determined to be 2,938 lb (1.47 tons), which further qualified for the following insignificant activity:

*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 (2) tons per year.*

All emissions from paints and painting activities were exempt as insignificant or trivial activities and therefore were not included in the 2003 emissions inventory.

### 3.5 GENERATORS

The Laboratory maintains an inventory of approximately 125 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, 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 that comply with the definition of standby equipment.

Standby equipment is defined in NMED/AQB "List of Insignificant Activities" as

"an emissions unit which on a temporary basis replaces equipment used in normal operation, and which either has an allowable emission rate or potential to emit for each fee pollutant that is equal to or less than the equipment replaced, or which does 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. Since 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, they are insignificant sources and are also exempt from emissions inventory reporting requirements.

The Laboratory is installing a process-related generator at TA-33 to support research activities. NMED issued a construction permit in October 2002 for installation of this generator (Permit No. 2195-F), and this unit is included in LANL's Title V Operating Permit. However, installation is not yet complete and the generator did not operate in 2003. Therefore, this unit is not included in the 2003 emissions inventory.

## **4.0 EMISSIONS SUMMARY**

### **4.1. 2003 EMISSIONS SUMMARY**

Table 4-1 presents facility-wide actual emissions of criteria pollutants for 2003 as reported in the annual emissions inventory. Table 4-2 presents facility-wide actual emissions for HAPs. Emission unit information and detailed emissions calculations are included in Attachment A. The *2003 Emissions Inventory Report* as submitted to NMED is presented in Attachment B. As mentioned, it is formatted to be compatible with AIRS.

As requested by NMED, HAP emissions from all combustion sources and chemical use, PM<sub>2.5</sub> emission estimates, and ammonia were reported. As discussed with NMED on February 21, 2002, the voluntary reporting of New Mexico toxic air pollutants was not included due to time and resource constraints.

Figure 4-1 shows air pollutant emissions by source for 2003, excluding beryllium, aluminum, and HAPs. As the figure shows, the ACDs were the largest source of VOC,

CO, PM<sub>10</sub>, and NO<sub>x</sub> emissions in 2003. The TA-3 boilers were the second largest source of CO and NO<sub>x</sub> emissions, and R&D chemical use was the second largest source of VOC emissions.

**Table 4-1. LANL Facility-Wide Criteria Pollutant Emissions for 2003**

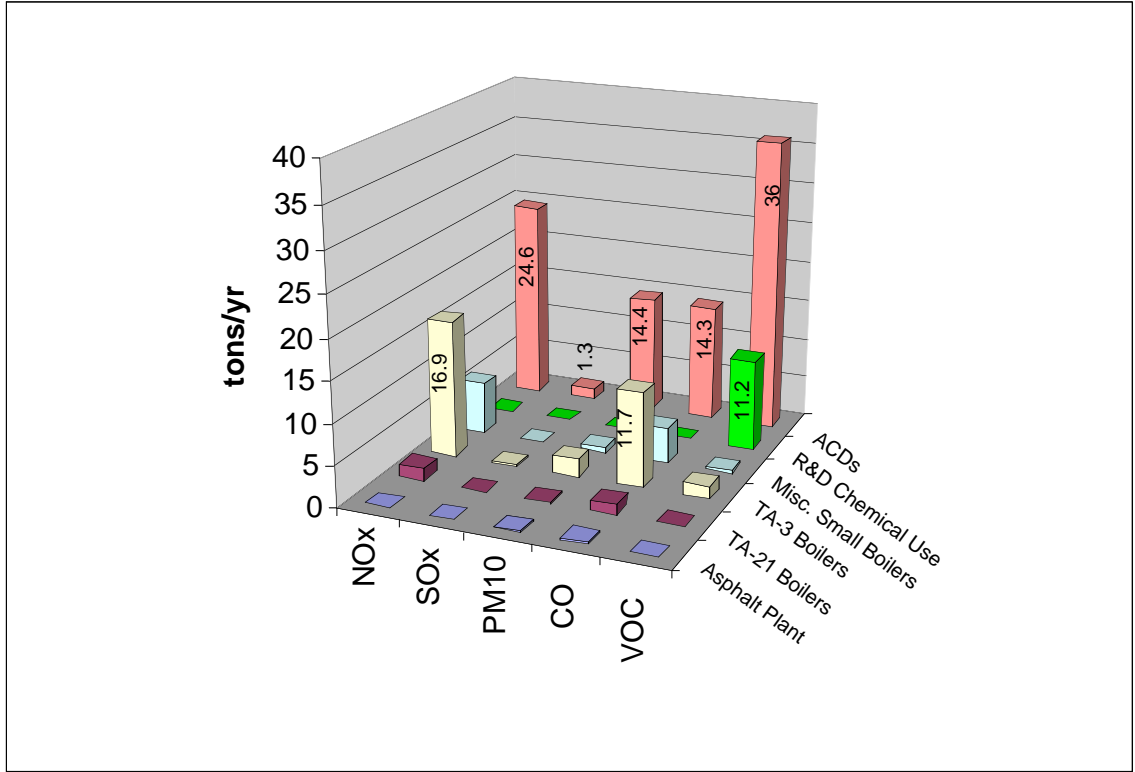
<b>Pollutant</b>	<b>Actual Emissions (tons/yr)</b>
NO <sub>x</sub>	49.6
SO <sub>x</sub>	1.6
CO	32.0
PM	22.2
PM <sub>10</sub>	17.4
PM <sub>2.5</sub>	16.5
VOC	49.3

**Table 4-2. LANL Facility-Wide HAP Emissions for 2003**

<b>Pollutant</b>	<b>Chemical Use Emissions (tons/yr)</b>	<b>Combustion/ Other Source Emissions (tons/yr)</b>	<b>Total HAPs (tons/yr)</b>
<b>Total HAPs</b>	7.3	3.99	11.3
<b>Top 6 HAPs</b>			
Hydrochloric Acid	2.05	1.6	3.65
Manganese Compounds	1.15	0.13	1.28
Hexane	0.06	1.18	1.24
Methylene Chloride	0.95	0.03	0.98
Methanol	0.73	0	0.73
Acetonitrile	0.63	0	0.63

There are two notable differences in reported emissions from 2002 to 2003.

- Emissions of NO<sub>x</sub> have decreased from 2002 levels due to the operation of the FGR system on the TA-3 steam plant boilers for the entire year.
- CO, PM, and VOC emissions were higher in 2003 due to increased use of the ACDs for forest thinning and fire mitigation efforts. The ACDs were shut down at the end of September 2003 and are not anticipated to be used in the near future.



**Figure 4-1. Emissions of Criteria Pollutants by Source in 2003.**

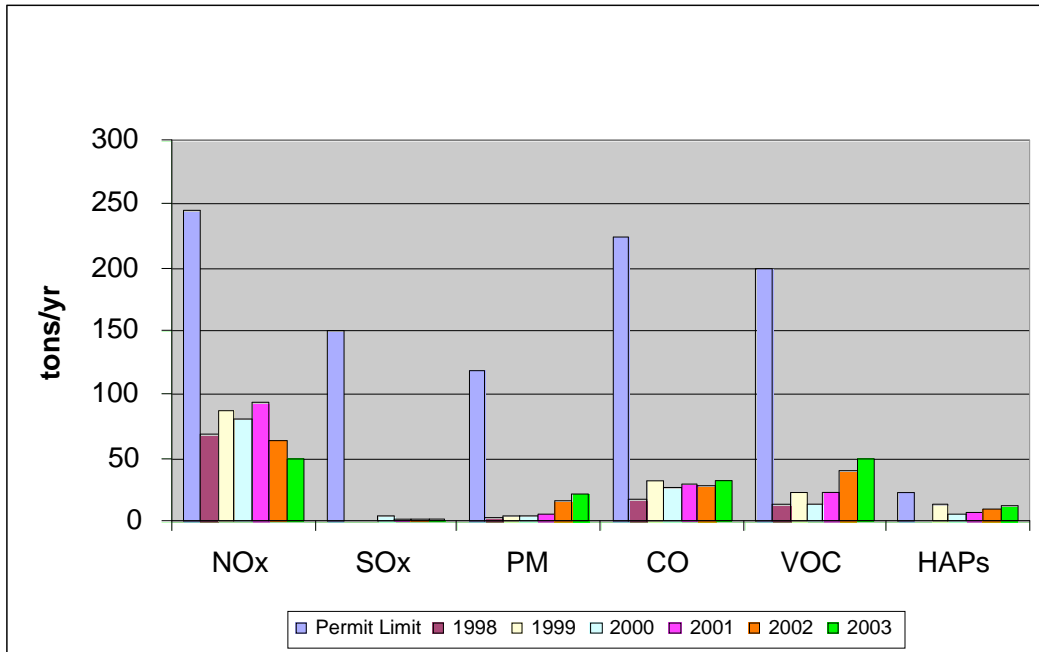
**4.2. EMISSION TRENDS AND TITLE V PERMIT LIMITS**

In May 2004, a facility-wide Title V Operating Permit (Permit No. P-100) was issued to LANL. This permit includes facility-wide emission limits that keep the Laboratory under the major source thresholds for Prevention of Significant Deterioration permitting. The Title V Operating Permit also includes facility-wide emission limits on HAPs that keep the Laboratory under major source classification for HAPs. A copy of the permit can be accessed at the LANL Meteorology and Air Quality web site at: <http://www.airquality.lanl.gov/>.

Although the permit was not in effect until spring 2004, a comparison of historical emissions to the facility-wide emission limits in the Title V Operating Permit is provided in the sections below. 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 generators. In future years, semi-annual emissions reporting for all sources included in the Title V Operating Permit is required to demonstrate compliance with the permitted emission limits. These semi-annual emission reports are due by March 30 and September 30 of each year.

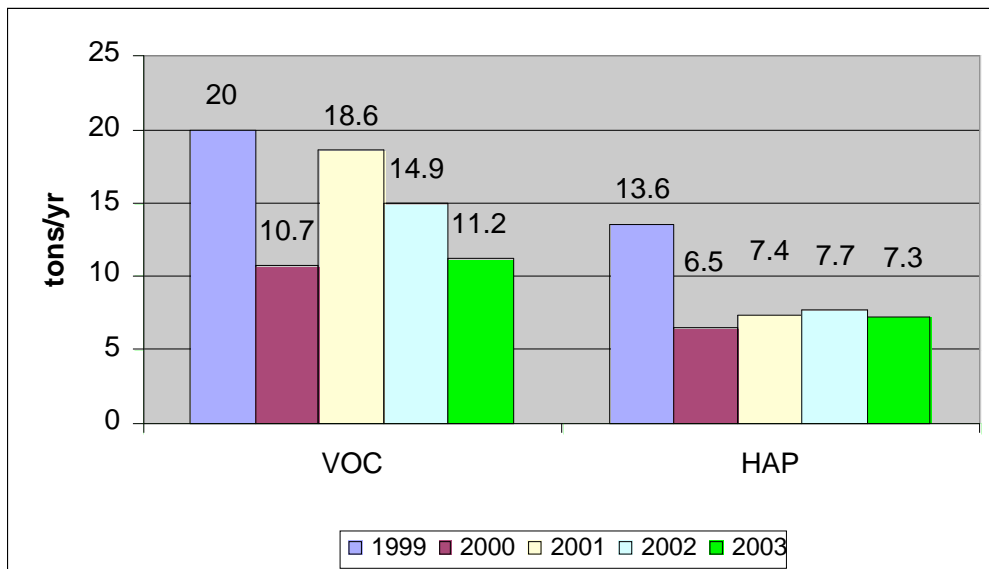


Figure 4-2 provides a comparison of the past six years' facility-wide emissions for criteria air pollutants as reported to NMED. The facility-wide emission limits included in LANL's Title V Operating Permit are also shown on the graph.



**Figure 4-2. Comparison of Facility-Wide Emissions from 1998–2003.**

Figure 4-3 represents VOC and HAP emissions from chemical use activities. As shown, the HAP emissions from chemical use have remained relatively constant, and VOC emissions declined slightly in recent 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 4-3. VOC and HAP Emissions from Chemical Use, 1999–2003.**

## REFERENCES

1. U.S. Environmental Protection Agency, Aerometric Information Retrieval System (AIRS), <http://www.epa.gov/ttn/chief>.
2. Los Alamos National Laboratory, "2003 Annual Emissions Inventory Report Submittal to the New Mexico Environment Department," LA-UR-04-2016, March 2004.
3. U.S. Environmental Protection Agency, "Compilation of Air Pollutant Emission Factors," AP-42, Fifth Edition, Section 1.4 – Natural Gas Combustion, July 1998, and Section 1.3 – Fuel Oil Combustion, September 1998.
4. U.S. Environmental Protection Agency, "Compilation of Air Pollutant Emission Factors," AP-42, Fifth Edition, Section 11.1 – Hot Mix Asphalt Plants, December 2000.
5. Los Alamos National Laboratory, "20.2.70 NMAC Operating Permit Application for Los Alamos National Laboratory," Chapters 1 & 2, LA-UR-02-6717; Chapter 3, LA-UR-02-6258; Chapter 4, LA-UR-02-6601; Maps, LA-UR-02-7202; Application Forms, LA-UR-02-7286; November 2002.
6. U.S. Environmental Protection Agency, "Compilation of Air Pollutant Emission Factors," AP-42, Fifth Edition, Section 10.4 - Woodworking Waste Collection Operations, February 1980.
7. U.S. Environmental Protection Agency, TANKS Emission Estimation Software, <http://www.epa.gov/ttn/chief/software/TANKS>.
8. New Mexico Environment Department, Air Quality Bureau, "List of Insignificant Activities under Title V Operating Permits," September 29, 1995.
9. New Mexico Environment Department, Air Quality Bureau, "List of Trivial Activities under Title V Operating Permits," January 10, 1996.

**ATTACHMENT A.  
EMISSION CALCULATION WORKSHEETS  
FOR INDIVIDUAL EMISSION UNITS**



2003 Air Curtain destructors Burn Emissions

		Total Wood Burned (ton) <sup>2</sup>	NOx	CO	SOx	TSP	PM-10	VOC	HAPs	PM 2.5 <sup>3</sup>
<i>Emissions Factors (Burn) (lb/ton)</i> <sup>1</sup>			2	1.4	0.1	2	1.5	3.8	0.35	1.4
<b>S-127 Surface Air Curtain Destructor</b>		8593								
<i>Emissions (lb/yr)</i>		17,186	12,030	859	17,186	12,890	32,653	3,008	12,030	
<b>Emissions Total (ton/yr)</b>		<b>8.59</b>	<b>6.02</b>	<b>0.43</b>	<b>8.59</b>	<b>6.44</b>	<b>16.33</b>	<b>1.50</b>	<b>6.02</b>	
<b>T-350 Trench Burner # 1</b>										
<i>Emissions Factors (Burn) (lb/ton)</i> <sup>1</sup>			2	1.4	0.1	2	1.5	3.8	0.35	1.4
<i>Emissions (lb/yr)</i>		251	502	351	25	502	377	954	88	351
<b>Emissions Total (ton/yr)</b>		<b>0.25</b>	<b>0.18</b>	<b>0.01</b>	<b>0.25</b>	<b>0.19</b>	<b>0.48</b>	<b>0.04</b>	<b>0.18</b>	
<b>T-350 Trench Burner # 2</b>		9827								
<i>Emissions (lb/yr)</i>		19,654	13,758	983	19,654	14,741	37,343	3,439	13,758	
<b>Emissions Total (ton/yr)</b>		<b>9.83</b>	<b>6.88</b>	<b>0.49</b>	<b>9.83</b>	<b>7.37</b>	<b>18.67</b>	<b>1.72</b>	<b>6.88</b>	

<sup>1</sup> Emissions Factors from Title V application submitted to NMED on 11/27/02

<sup>2</sup> Wood totals obtained from air curtain destructor operating logs maintained by FWO.

<sup>3</sup> PM2.5 is 70% of total PM based on AP-42, Table 13.1-3, October 1996. Emission Factor for Fire stage for short needle conifers.

2003 Air Curtain Destroctors Burn Emissions

**Air Curtain Destroctors - Emissions from Diesel Engine**

S-127 Air Curtain Destroctor	Hours Unit Operated	NOx	CO	SOx	TSP	PM-10	Aldehydes	VOC	HAPs	PM 2.5
<i>Emission Factors (Engine) lb/hp-hr<sup>1</sup></i>	1,894	0.031	0.0067	0.0021	0.0022	0.0022	0.00046	0.0025	0.000046	0.0022
Surface Unit S-127 John Deere	76									
Engine Size (hp)										
Emissions (lb/year) <sup>2</sup>		4462	964	302	317	317	66	360	7	317
Emissions Total Ton/Year		2.23	0.48	0.15	0.16	0.16	0.03	0.18	0.00	0.16
<b>T-350 Air Curtain Destroctors</b>										
<i>Emission Factors (Engine) lb/hp-hr<sup>1</sup></i>		0.031	0.0067	0.0021	0.0022	0.0022	0.00046	0.0025	0.000046	0.0022
Trench Unit # 1 T-350 John Deere	45									
Engine Size (hp)	125									
Emissions (lb/year) <sup>2</sup>		174	38	12	12	12	3	14	0	12
Emissions Total Ton/Year		0.09	0.02	0.01	0.01	0.01	0.00	0.01	0.00	0.01
<b>Trench Unit # 2 T-350 John Deere</b>										
Engine Size (hp)	1850									
Emissions (lb/year) <sup>2</sup>	125	7169	1549	488	509	509	106	578	11	509
Emissions Total Ton/Year		3.58	0.77	0.24	0.25	0.25	0.05	0.29	0.01	0.25

<sup>1</sup> Emissions Factors from Title V application submitted to NMED on 11/27/02

<sup>2</sup> Sample Calculation: 0.031 lb/hp-hr x 76 hp x 2060 hr = 4853 lb/yr  
Operating Hours obtained from Michael Dennis.

2003 Air Curtain Destructors Burn Emissions

Air Curtain Destructors Emission Totals

	NOx	CO	SOx	TSP	PM-10	Aldehydes	VOC	HAPs	PM 2.5
<b>S-127 Surface Air Curtain Destructor</b>									
Wood Burning Emissions Factors (lb/ton)	2	1.4	0.1	2	1.5		3.8	0.35	1.4
Engine Emission Factors lb/hp-hr	0.031	0.0067	0.0021	0.0022	0.0022	0.00046	0.0025	0.00046	0.0022
Wood Burning Emissions (Tons/year)	8.6	6.0	0.4	8.6	6.4		16.3	1.5	6.0
Engine Burning Emissions (Tons/year)	2.2	0.5	0.2	0.2	0.2	0.0	0.2	0.00	0.16
<b>Total S-127 Emissions</b>	10.8	6.5	0.6	8.8	6.6	0.0	16.5	1.5	6.2
<b>Trench # 1 T-350 Air Curtain Destructor</b>									
Wood Burning Emissions (Tons/year)	0.3	0.2	0.01	0.3	0.2		0.5	0.0	0.2
Engine Burning Emissions (Tons/year)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.01
<b>Total T-350-1 Emissions</b>	0.3	0.2	0.0	0.3	0.2	0.0	0.5	0.0	0.2
<b>Trench # 2 T-350 Air Curtain Destructor</b>									
Wood Burning Emissions (Tons/year)	9.8	6.9	0.49	9.8	7.4		18.7	1.7	6.9
Engine Burning Emissions (Tons/year)	3.6	0.8	0.2	0.3	0.3	0.1	0.3	0.01	0.25
<b>Total T-350-2 Emissions</b>	13.4	7.7	0.7	10.1	7.6	0.1	19.0	1.7	7.1
<b>2003 Total for 3 ACDs (Tons/year)</b>	<b>24.6</b>	<b>14.3</b>	<b>1.3</b>	<b>19.1</b>	<b>14.4</b>	<b>0.1</b>	<b>36.0</b>	<b>3.3</b>	<b>13.5</b>

Max. Emissions (from Title V app)

38.2 23.7 2.0 32.4 24.4 61.3 5.6

<sup>1</sup> Emissions Factors from Title V application submitted to NMED on 11/27/02

# Asphalt Plant Operational Data - 2003

## 2003 TA-3 Asphalt Plant

Data Reviewed By / Date:

Month	Data Entry Asphalt Produced (Tons)
January	69
February	70
March	182
April	175
May	454
June	254
<b>6 mo. Total</b>	<b>1,204</b>

Month	12-Month Rolling Total	Data Entry Asphalt Produced (Tons)	12-Month Rolling Total
July	6903	0	2542
August	6817	0	1697
September	6866	0	1611
October	5394	0	1379
November	5524	0	1261
December	4377	0	1204
<b>6 mo. Total:</b>		<b>0</b>	

12-Month Rolling Permit Limit is 13,000 Tons

Tons/Asphalt Produced (2003): 1,204

## Emission Calculations

Pollutant	Emission Factor (lb/ton)	Annual Emissions (tons)	Emissions (tons) Jan-June	Emissions (tons) July-Dec	Reference
NOx	0.025	0.015	0.015	0.000	(a)
SOx	0.0046	0.003	0.003	0.000	(a)
PM	0.07	0.042	0.042	0.000	(b)
PM-10	0.05	0.030	0.030	0.000	(c)
PM-2.5	0.05	0.030	0.030	0.000	(c)
CO	0.4	0.241	0.241	0.000	(a)
VOC	0.0082	0.005	0.005	0.000	(a)
HAPs					
Acetaldehyde	0.00032	1.93E-04	1.93E-04	0.00E+00	(d)
Benzene	0.00028	1.69E-04	1.69E-04	0.00E+00	(d)
EthylBenzene	0.0022	1.32E-03	1.32E-03	0.00E+00	(d)
Formaldehyde	0.00074	4.45E-04	4.45E-04	0.00E+00	(d)
Napthalene	0.000036	2.17E-05	2.17E-05	0.00E+00	(d)
POM	0.00011	6.62E-05	6.62E-05	0.00E+00	(d)
Quinone	0.00027	1.63E-04	1.63E-04	0.00E+00	(d)
Toluene	0.001	6.02E-04	6.02E-04	0.00E+00	(d)
Xylene	0.0027	1.63E-03	1.63E-03	0.00E+00	(d)
<b>TOTAL HAPS</b>		<b>4.61E-03</b>	<b>4.61E-03</b>	<b>0.00E+00</b>	

Reference
(a) AP-42, 12/2000, Section 11.1, Hot Mix Asphalt Plants, Table 11.1-5 and 11.1-6
(b) Source Test, 8/25/93 (Title V Application, December 1995)
(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, December 2000, Hot Mix Asphalt Plants
(e) AP-42, Table 11.1-11, December 2000, Hot Mix Asphalt Plants
(f) Assume all SOx is converted to sulfuric acid
(g) EPCRA PAC Guidance Document, EPA-260-B-01-03, June 2001, Table 2-3



**2003 TA-3 & TA-15 Carpenter Shops**

TA-3 Month	Data Entry		12-Month Rolling Total	Month	Data Entry		12-Month Rolling Total
	Hours of Operation <sup>1</sup> TA-3				Hours of Operation <sup>1</sup> TA-3		
January	11.0		11.0	July	2.3		59.9
February	11.0		22.0	August	7.4		67.3
March	11.0		33.0	September	8.2		75.5
April	11.0		44.0	October	0.0		75.5
May	11.0		55.0	November	17.4		92.8
June	2.6		57.6	December	17.4		110.2
6 mo. Total	57.6			6 mo. Total:	52.5		

TA-15 Month	Data Entry		12-Month Rolling Total	Month	Data Entry		12-Month Rolling Total
	Hours of Operation <sup>1</sup> TA-15				Hours of Operation <sup>1</sup> TA-15		
January	0		0	July	0		0
February	0		0	August	0		0
March	0		0	September	0		0
April	0		0	October	0		0
May	0		0	November	0		0
June	0		0	December	0		0
6 mo. Total	0			6 mo. Total:	0		

Permitted maximum operating limit is 4368 hours per 12-Month rolling total for each Carpenter Shop

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

# Carpenter Shop Emissions Calculations for 2003

ANNUAL EMISSIONS				TSP Prior to Cyclone		TSP Post Cyclone		PM Post Cyclone Emissions (tons/year)		
Operation Parameters		Hours of Operation (hr/yr)		(tons/year)		tons/yr		(PM)		
Exhaust Flow (ft <sup>3</sup> /min)	2706	2100	110	0.105	0.038	0.003	0.018	0.017	0.000	0.000
TA-3-38										
TA-15-563										
January through June Emissions										
Operation Parameters		Hours of Operation (hr/period)		(tons)		tons		(PM)		
Exhaust Flow (ft <sup>3</sup> /min)	2706	2100	58	0.055	0.020	0.001	0.010	0.009	0.000	0.000
TA-3-38										
TA-15-563										
July through December Emissions										
Operation Parameters		Hours of Operation (hr/period)		(tons)		tons		(PM)		
Exhaust Flow (ft <sup>3</sup> /min)	2706	2100	53	0.050	0.018	0.001	0.009	0.008	0.000	0.000
TA-3-38										
TA-15-563										

- 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 Cyclone.

**Conversions:**

lb/ton	2000	lb/grain	0.000142857	min/hr	60	ton/lb	0.0005
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**Assumptions:**

PM < 2.5	0.45	% PM & PM10 in Wood <sup>(5)</sup>	0.30
PM 5-20 microns	0.65	Dust Prior to Cyclone	0.50
PM > 40 microns	0.95		0.50

**Post Cyclone Emission Factor:**

grain/ft <sup>3</sup> (2)	0.03
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**Maximum permitted exhaust flow rate is:**

Shop Location	Flow Rate
TA-3-38	5000 cfm

## 2003 TA-52 Paper Shredder

Month	Data Entry		Month	Data Entry	
	Boxes Shredded	12-Month Rolling Total		Boxes Shredded	12-Month Rolling Total
January	424	424	July	584	3212
February	364	788	August	402	3614
March	661	1449	September	457	4071
April	485	1934	October	499	4570
May	477	2411	November	71	4641
June	641	3052	December	0	4641
<b>6 mo. Total</b>	<b>2,628</b>		<b>6 mo. Total:</b>	<b>2,013</b>	

<b>Annual Boxes (2003):</b>	<b>4,641</b>
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Permitted maximum operating limit is 300 pounds per hour (or 5 boxes assuming each box weighs 60 pounds).

Maximum Annual emission rate is 13 tons of Total Suspended Particulate (TSP) per year.

## Emissions

	Boxes Shredded	Weight <sup>1</sup> per box	Amount <sup>3</sup> Processed (pounds)	Emission <sup>2</sup> Factor	Control <sup>4</sup> Efficiency (Cyclone)	Control <sup>4</sup> Efficiency (Bag house)	TSP Emissions (pounds)	PM-10 (pounds)	PM-2.5 (pounds)
<b>Annual</b>	4,641	60	278,460	1%	90%	99%	2.78	2.78	2.78
<b>January - June</b>	2,628	60	157,680	1%	90%	99%	1.58	1.58	1.58
<b>July - December</b>	2,013	60	120,780	1%	90%	99%	1.21	1.21	1.21

## Reference

1. Estimated box weight is 60 pounds. Information provided by shredding operations manager.

2. Emission Factor obtained from SEM, the shredder manufacturer.

3. Information provided by the shredder operator (KSL).

4. Information on control equipment efficiencies is based on engineering judgment.

### 2003 Small Boilers Data Entry / Gas Use

Month	Metered TA-16 Boiler Gas Use (MSCF) <sup>(b)</sup>		Metered TA-55 Boiler Gas Use (MSCF) <sup>(c)</sup>		Metered TA-50 Gas Use (MSCF) <sup>(d)</sup>	Non-Metered Boilers Gas Use <sup>(a)</sup>		12-Month Rolling Average for all Small Boilers (MMSCF) <sup>(e)</sup>
	Plant-5	Plant-6	BHW-1B (B-602)	BHW-2B (B-603)		(MSCF)	(MMSCF)	
January			3569	18	RLWTF	65,378	65.38	68.97
February			3562	18		65,159	65.16	137.70
March			1653	18		58,180	58.18	197.56
April			1822	19		43,011	43.01	242.41
May			1959	42		29,256	29.26	273.66
June			1535	43		20,309	20.31	295.55
July			2828	42		12,361	12.36	310.78
August			1293	40		18,472	18.47	330.59
September			2066	43		14,336	14.34	347.03
October			1662	17		30,988	30.99	379.70
November			1668	645		61,135	61.14	443.15
December			2301	495		72,633	72.63	518.58
<b>TOTAL</b>	<b>18861</b>	<b>0</b>	<b>25918</b>	<b>1440</b>	<b>5.06</b>	<b>491218</b>	<b>491.22</b>	

**Data Entry**

Permit Limit = 870 MMscf

2003 Non Metered Boiler Pool Capacity: **249.4** MMBTU/hr<sup>(f)</sup>

Estimated Gas-Use per MMBtu rating Jan-June: 1.13 MMscf/MMBtu/hr

Estimated Gas-Use per MMBtu rating July-Dec: 0.84 MMscf/MMBtu/hr

Estimated Gas-Use per MMBtu - Annual: 1.97 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.

AIRS Stack #	Gas Use Non-Metered <sup>(g)</sup> (MMSCF)										Insignificant Units <sup>(h)</sup>
	015	016	017	018	019	020	021				
<b>Location:</b>	TA-48-1	TA-48-1	TA-48-1	TA-53-365	TA-53-365	TA-59-1	TA-59-1	TA-59-1	Lab Wide		
<b>ID:</b>	BS-1	BS-2	BS-6	BHW-1	BHW-2	BHW-1	BHW-2	BHW-1	Various		
<b>Design Rate<sup>(i)</sup> (MMBTU/hr)</b>	<b>5.336</b>	<b>5.335</b>	<b>7.140</b>	<b>7.115</b>	<b>7.115</b>	<b>7.115</b>	<b>7.115</b>	<b>5.335</b>	<b>5.335</b>	<b>207</b>	
Calculated Gas Use-Jan-June	6.019	6.018	8.053	8.024	8.024	8.018	8.018	6.018	233.119		
Calculated Gas Use-July-Dec	4.492	4.491	6.010	5.988	5.988	4.491	4.491	4.491	173.974		
Calculated Gas Use-Annual	10.510	10.509	14.063	14.013	14.013	10.509	10.509	10.509	407.093		

Criteria Pollutant	Emission Factors (lb/MMscf)		
	Small Uncontrolled Boilers <sup>1</sup>	TA-16 Low NOx Boilers <sup>4</sup>	TA-55-6 Boilers <sup>3</sup>
NOx	100	37.08	138
SOx	0.6	0.6	0.6
PM <sup>2</sup>	7.6	7.6	14.2
PM-10 <sup>2</sup>	7.6	7.6	14.2
PM-2.5 <sup>2</sup>	7.6	7.6	14.2
CO	84	37.08	38.2
VOC	5.5	5.5	5.98
HAPs <sup>5</sup>			
Arsenic	0.0002		
Benzene	0.0021		
BE	0.000012		
Cadmium	0.0011		
Chromium	0.0014		
Cobalt	0.000084		
Dichlorobenzene	0.0012		
Formaldehyde	0.0075		
Hexane	1.8		
Lead	0.0005		
Manganese	0.00038		
Mercury	0.00026		
Naphthalene	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. Stack test on 3/00 for NOx. Otherwise, Emission factors from Sellers Engineering

**2003 Small Boilers Emission Summary for Title V Semi-Annual Reporting**

Pollutant Criteria	Total Emissions (tons)		
	Annual Emissions (Includes Insignificant Sources)	Jan-June (Includes Insignificant Sources)	July-Dec (Includes Insignificant Sources)
NOx	26.799	15.049	11.400
SOx	0.161	0.089	0.067
PM	2.133	1.170	0.891
PM-10	2.133	1.170	0.891
PM-2.5	2.133	1.170	0.891
CO	21.504	12.087	9.067
VOC	1.485	0.816	0.616
<b>HAPs</b>			
Arsenic	4.91E-05	2.81E-05	2.10E-05
Benzene	5.16E-04	2.95E-04	2.20E-04
BE	2.95E-06	1.69E-06	1.26E-06
Cadmium	2.70E-04	1.55E-04	1.15E-04
Chromium	3.44E-04	1.97E-04	1.47E-04
Cobalt	2.06E-05	1.18E-05	8.82E-06
Dichlorobenzene	2.95E-04	1.69E-04	1.26E-04
Formaldehyde	1.84E-03	1.05E-03	7.87E-04
Hexane	4.42E-01	2.53E-01	1.89E-01
Lead	1.23E-04	7.03E-05	5.25E-05
Manganese	9.33E-05	5.34E-05	3.99E-05
Mercury	6.39E-05	3.66E-05	2.73E-05
Napthalene	1.50E-04	8.58E-05	6.40E-05
Nickel	5.16E-04	2.95E-04	2.20E-04
POM	2.16E-05	1.24E-05	9.24E-06
Selenium	5.89E-06	3.38E-06	2.52E-06
Toluene	8.35E-04	4.78E-04	3.57E-04
<b>TOTAL HAPS</b>	<b>0.447</b>	<b>0.256</b>	<b>0.191</b>

## 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.
- (b) TA-16 Boilers include 4 boilers in two "plants". Each plant has a separate AIRs number. Gas use is included in the KSL data deliverable. KSL does not hold the maintenance contract for the TA-16 boilers, but will work with the facility to gather the information. Plant 6 did not operate in 2003.
- (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) TA-50-RLWTF boiler added to EI as a new source for 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 several more years. Therefore, decision was made to include in LANL's annual EI. Fuel use has not been tracked monthly. Total fuel use since source began operated was assumed to be used equally over the 3 years of operation.
- (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-month rolling average is a permit limit in Section 2.4 of the LANL operating permit.
- (f) The non-metered boiler pool capacity is the sum of all active non-metered boilers design ratings in MMBTU. This number is used to estimate the gas use rate (total non-metered gas use divided by the non-metered boiler pool capacity number).
- (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 multiplied by the gas use rate to provide the estimated gas used per reporting period (in MMSCF).
- (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 personal use.
- (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 ( $4\% \times 7.5 = 30\%$ ). For forced draft and power burner boilers, the reduction is half that of atmospheric at 15%. The correction is made using the boiler plate input rating minus the appropriate percentage.

**2003 Small Boilers Emissions by Boiler 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 025 TA-16 Plant 6	AIRS 037 TA-55-6 BHW-1B	AIRS 038 TA-55-6 BHW-2B	AIRS-NEW TA-50 RLWTF	Total for Small Boilers
	NOx	0.526	0.525	0.703	0.701	0.701	0.525	0.525	0.350	0.00	1.788	0.099	2.53E-04
SOx	0.003	0.003	0.004	0.004	0.004	0.003	0.003	0.006	0.00	0.008	0.000	1.52E-06	0.039
PM	0.040	0.040	0.053	0.053	0.053	0.040	0.040	0.072	0.00	0.184	0.010	1.92E-05	0.586
PM-10	0.040	0.040	0.053	0.053	0.053	0.040	0.040	0.072	0.00	0.184	0.010	1.92E-05	0.586
PM-2.5	0.040	0.040	0.053	0.053	0.053	0.040	0.040	0.072	0.00	0.184	0.010	1.92E-05	0.586
CO	0.441	0.441	0.591	0.589	0.589	0.441	0.441	0.350	0.00	0.495	0.028	2.13E-04	4.406
VOC	0.029	0.029	0.039	0.039	0.039	0.029	0.029	0.052	0.00	0.077	0.004	1.39E-05	0.365
<b>HAPS</b>													
Arsenic	1.05E-06	1.05E-06	1.41E-06	1.40E-06	1.40E-06	1.05E-06	1.05E-06	1.89E-06	0.00E+00	2.59E-06	1.44E-07	5.06E-10	1.30E-05
Benzene	1.10E-05	1.10E-05	1.48E-05	1.47E-05	1.47E-05	1.10E-05	1.10E-05	1.98E-05	0.00E+00	2.72E-05	1.51E-06	5.31E-09	1.37E-04
BE	6.31E-08	6.31E-08	8.44E-08	8.41E-08	8.41E-08	6.31E-08	6.31E-08	1.13E-07	0.00E+00	1.56E-07	8.64E-09	3.04E-11	7.82E-07
Cadmium	5.78E-06	5.78E-06	7.73E-06	7.71E-06	7.71E-06	5.78E-06	5.78E-06	1.04E-05	0.00E+00	1.43E-05	7.92E-07	2.78E-09	7.17E-05
Chromium	7.36E-06	7.36E-06	9.84E-06	9.81E-06	9.81E-06	7.36E-06	7.36E-06	1.32E-05	0.00E+00	1.81E-05	1.01E-06	3.54E-09	9.12E-05
Cobalt	4.41E-07	4.41E-07	5.91E-07	5.89E-07	5.89E-07	4.41E-07	4.41E-07	7.92E-07	0.00E+00	1.09E-06	6.05E-08	2.13E-10	5.47E-06
Dichlorobenzene	6.31E-06	6.31E-06	8.44E-06	8.41E-06	8.41E-06	6.31E-06	6.31E-06	1.13E-05	0.00E+00	1.56E-05	8.64E-07	3.04E-09	7.82E-05
Formaldehyde	3.94E-05	3.94E-05	5.27E-05	5.25E-05	5.25E-05	3.94E-05	3.94E-05	7.07E-05	0.00E+00	9.72E-05	5.40E-06	1.90E-08	4.89E-04
Hexane	9.46E-03	9.46E-03	1.27E-02	1.26E-02	1.26E-02	9.46E-03	9.46E-03	1.70E-02	0.00E+00	2.33E-02	1.30E-03	4.55E-06	1.17E-01
Lead	2.63E-06	2.63E-06	3.52E-06	3.50E-06	3.50E-06	2.63E-06	2.63E-06	4.72E-06	0.00E+00	6.48E-06	3.60E-07	1.27E-09	3.26E-05
Manganese	2.00E-06	2.00E-06	2.67E-06	2.66E-06	2.66E-06	2.00E-06	2.00E-06	3.58E-06	0.00E+00	4.92E-06	2.74E-07	9.61E-10	2.48E-05
Mercury	1.37E-06	1.37E-06	1.83E-06	1.82E-06	1.82E-06	1.37E-06	1.37E-06	2.45E-06	0.00E+00	3.37E-06	1.87E-07	6.58E-10	1.69E-05
Napthalene	3.21E-06	3.21E-06	4.29E-06	4.27E-06	4.27E-06	3.21E-06	3.21E-06	5.75E-06	0.00E+00	7.90E-06	4.39E-07	1.54E-09	3.98E-05
Nickel	1.10E-05	1.10E-05	1.48E-05	1.47E-05	1.47E-05	1.10E-05	1.10E-05	1.98E-05	0.00E+00	2.72E-05	1.51E-06	5.31E-09	1.37E-04
POM	4.62E-07	4.62E-07	6.19E-07	6.17E-07	6.17E-07	4.62E-07	4.62E-07	8.30E-07	0.00E+00	1.14E-06	6.34E-08	2.23E-10	5.74E-06
Selenium	1.26E-07	1.26E-07	1.69E-07	1.68E-07	1.68E-07	1.26E-07	1.26E-07	2.26E-07	0.00E+00	3.11E-07	1.73E-08	6.07E-11	1.56E-06
Toluene	1.79E-05	1.79E-05	2.39E-05	2.38E-05	2.38E-05	1.79E-05	1.79E-05	3.21E-05	0.00E+00	4.41E-05	2.45E-06	8.60E-09	2.22E-04
<b>TOTAL HAPS/Unit</b>	9.57E-03	9.57E-03	1.28E-02	1.28E-02	1.28E-02	9.57E-03	9.57E-03	1.72E-02	0.00E+00	2.36E-02	1.31E-03	4.61E-06	0.12



## TA-3 Steam Plant Fuel Use Totals (Data Entry)

DATA ENTRY						
Month	TA-3-22 Steam Plant <sup>b</sup> Boiler # 1 (Edgemoor Iron Works, 210 MMBTU/hr)		TA-3-22 Steam Plant <sup>b</sup> Boiler # 2 (Edgemoor Iron Works, 210 MMBTU/hr)		TA-3-22 Steam Plant <sup>b</sup> Boiler # 3 (Union Iron Works, 210 MMBTU/hr)	
	Natural Gas (MCF)	Fuel Oil (gallons)	Natural Gas (MCF)	Fuel Oil (gallons)	Natural Gas (MCF)	Fuel Oil (gallons)
January	89	0	205	3500	63085	0
February	248	0	635	0	59355	0
March	26223	0	4083	0	37088	2110
April	46644	0	187	0	0	0
May	41486	0	199	0	0	0
June	18673	0	2230	1400	18338	0
July	21598	0	0	0	4834	0
August	23290	0	0	0	1164	0
September	23678	10200	0	0	9875	0
October	3963	400	0	0	40397	0
November	34265	240	544	6170	26043	0
December	66466	830	909	488	4513	183
<b>Annual Totals:</b>	<b>306623</b>	<b>11670</b>	<b>8992</b>	<b>11558</b>	<b>264692</b>	<b>2293</b>
Jan. - June	133363	0	7539	4900	177866	2110
July - Dec.	173260	11670	1453	6658	86826	183
				<b>Monthly Totals</b>		
				Natural Gas (MMscf)	Fuel Oil (gallons)	Fuel Oil (gallons)
				63.38	3500	3500
				60.24	0	0
				67.39	2110	2110
				46.83	0	0
				41.69	0	0
				39.24	0	1400
				26.43	0	0
				24.45	0	0
				33.55	0	10200
				44.36	0	400
				60.85	0	6410
				71.89	183	1501
				580.31	2293	25521
				318.77	2110	7010
				261.54	183	18511

Month	12-Mo. Rolling Avg. Natural Gas (MMscf)	12-Mo. Rolling Avg. Fuel Oil (gallons)
January	63.4	3500
February	123.6	3500
March	191.0	5610
April	237.8	5610
May	279.5	5610
June	318.8	7010
July	345.2	7010
August	369.7	7010
September	403.2	17210
October	447.6	17610
November	508.4	24020
December	580.3	25521

<b>Permit Limits:</b>	<b>4000 MMscf</b>	<b>500,000 gallons</b>
	<b>3400 MMscf*</b>	

For References  
see "Emission Summary Sheet"

**\* NOTE:** If 3400 MMscf of natural gas is exceeded (12 mo. rolling avg.), semiannual compliance stack tests shall be conducted.

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

## TA-3 Steam Plant Emissions by Boiler

Pollutant Criteria	Emission Factor		Boiler #1, Stack 032				Boiler #2, Stack 033				Boiler #3, Stack 034			
	Natural Gas (lb/MMscf) <sup>(a)</sup>	Fuel Oil <sup>(f)</sup> Pounds/ 1000 gal	Annual (tons)	Jan-June (tons)	July-Dec (tons)	Annual (tons)	Jan-June (tons)	July-Dec (tons)	Annual (tons)	Jan-June (tons)	July-Dec (tons)	Annual (tons)	Jan-June (tons)	July-Dec (tons)
Nox <sup>(c)</sup>	58	8.64	8.942	3.868	5.075	0.311	0.240	0.071	7.686	5.167	2.519			
Sox <sup>(g)</sup>	0.6	7.4	0.135	0.040	0.095	0.045	0.020	0.025	0.088	0.061	0.027			
PM <sup>(d)</sup>	7.6	3.3	1.184	0.507	0.678	0.053	0.037	0.017	1.010	0.679	0.330			
PM-10 <sup>(d)</sup>	7.6	2.3	1.179	0.507	0.672	0.047	0.034	0.013	1.008	0.678	0.330			
PM-2.5 <sup>(d)</sup>	7.6	1.55	1.174	0.507	0.667	0.043	0.032	0.011	1.008	0.678	0.330			
CO <sup>(e)</sup>	40	5.0	6.162	2.667	3.494	0.209	0.163	0.046	5.300	3.563	1.737			
VOC	5.5	0.2	0.844	0.367	0.478	0.026	0.021	0.005	0.728	0.489	0.239			
<b>HAPs<sup>(h)</sup></b>														
Arsenic	0.0002	0.00055	3.39E-05	1.33E-05	2.05E-05	4.07E-06	2.10E-06	1.97E-06	2.71E-05	1.84E-05	8.73E-06			
Benzene	0.0021	-	3.22E-04	1.40E-04	1.82E-04	9.44E-06	7.92E-06	1.53E-06	2.78E-04	1.87E-04	9.12E-05			
Beryllium	0.000012	0.00041	4.24E-06	8.00E-07	3.44E-06	2.43E-06	1.05E-06	1.38E-06	2.06E-06	1.50E-06	5.59E-07			
Cadmium	0.0011	0.00041	1.71E-04	7.33E-05	9.77E-05	7.32E-06	5.15E-06	2.17E-06	1.46E-04	9.83E-05	4.78E-05			
Chromium	0.0014	0.00041	2.17E-04	9.34E-05	1.24E-04	8.67E-06	6.28E-06	2.39E-06	1.86E-04	1.25E-04	6.08E-05			
Cobalt	0.000084	-	1.29E-05	5.60E-06	7.28E-06	3.78E-07	3.17E-07	6.10E-08	1.11E-05	7.47E-06	3.65E-06			
Dichlorobenzene	0.0012	-	1.84E-04	8.00E-05	1.04E-04	5.40E-06	4.52E-06	8.72E-07	1.59E-04	1.07E-04	5.21E-05			
Formaldehyde	0.0075	0.048	1.43E-03	5.00E-04	9.30E-04	3.11E-04	1.46E-04	1.65E-04	1.05E-03	7.18E-04	3.30E-04			
Hexane	1.8	-	2.76E-01	1.20E-01	1.56E-01	8.09E-03	6.79E-03	1.31E-03	2.38E-01	1.60E-01	7.81E-02			
Lead	0.0005	0.00123	8.39E-05	3.33E-05	5.05E-05	9.37E-06	4.91E-06	4.47E-06	6.76E-05	4.58E-05	2.18E-05			
Manganese	0.00038	0.00082	6.31E-05	2.53E-05	3.77E-05	6.46E-06	3.45E-06	3.01E-06	5.12E-05	3.47E-05	1.66E-05			
Mercury <sup>(i)</sup>	0.00026	0.00041	4.23E-05	1.73E-05	2.49E-05	3.54E-06	1.99E-06	1.56E-06	3.49E-05	2.36E-05	1.13E-05			
Napthalene	0.00061	-	9.35E-05	4.07E-05	5.28E-05	2.74E-06	2.30E-06	4.43E-07	8.07E-05	5.42E-05	2.65E-05			
Nickel	0.0021	0.00041	3.24E-04	1.40E-04	1.84E-04	1.18E-05	8.92E-06	2.89E-06	2.78E-04	1.87E-04	9.12E-05			
POM	0.000088	0.0033	3.27E-05	5.87E-06	2.69E-05	1.95E-05	8.42E-06	1.10E-05	1.54E-05	1.13E-05	4.12E-06			
Selenium	0.000024	0.00206	1.57E-05	1.60E-06	1.41E-05	1.20E-05	5.13E-06	6.86E-06	5.53E-06	4.30E-06	1.23E-06			
Toluene	0.0034	-	5.21E-04	2.27E-04	2.95E-04	1.53E-05	1.28E-05	2.47E-06	4.50E-04	3.02E-04	1.48E-04			
<b>TOTAL HAPS</b>			<b>2.80E-01</b>	<b>1.21E-01</b>	<b>1.58E-01</b>	<b>8.52E-03</b>	<b>7.01E-03</b>	<b>1.52E-03</b>	<b>2.41E-01</b>	<b>1.62E-01</b>	<b>7.91E-02</b>			

For References, see Emission Summary.

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

**\* TA-3 Steam Plant 12 Month Rolling Emissions (Tons)**

Pollutant	TSP	PM10	NOx	CO	VOC	SO <sub>2</sub>
Permit Limit (tons/yr)						
12-Month Rolling Average	15.7	15.7	99.6	81.3	11.1	36.9
January	0.247	0.245	1.853	1.276	0.175	0.032
February	0.476	0.474	3.600	2.481	0.340	0.050
March	0.735	0.732	5.564	3.834	0.526	0.078
April	0.913	0.910	6.922	4.771	0.655	0.092
May	1.071	1.069	8.131	5.605	0.769	0.105
June	1.223	1.219	9.275	6.393	0.877	0.122
July	1.323	1.320	10.041	6.922	0.950	0.129
August	1.416	1.413	10.750	7.411	1.017	0.137
September	1.561	1.552	11.767	8.107	1.111	0.185
October	1.730	1.721	13.056	8.995	1.233	0.199
November	1.972	1.960	14.848	10.228	1.401	0.241
December	2.247	2.235	16.939	11.670	1.598	0.268

\* For 2003, the rolling total does not include 2002. This is only summing monthly emissions for 2003 (not true 12-month rolling avg.). Starting with 04', 03' will be included making it a true 12 mo. rolling avg.

**Monthly Emission Totals (Tons)**

Pollutant	TSP	PM10	NOx	CO	VOC	SO <sub>2</sub>
January	0.247	0.245	1.853	1.276	0.175	0.032
February	0.229	0.229	1.747	1.205	0.166	0.018
March	0.260	0.259	1.964	1.353	0.186	0.028
April	0.178	0.178	1.358	0.937	0.129	0.014
May	0.158	0.158	1.209	0.834	0.115	0.013
June	0.151	0.151	1.144	0.788	0.108	0.017
July	0.100	0.100	0.767	0.529	0.073	0.008
August	0.093	0.093	0.709	0.489	0.067	0.007
September	0.144	0.139	1.017	0.697	0.093	0.048
October	0.169	0.169	1.288	0.888	0.122	0.015
November	0.242	0.239	1.792	1.233	0.168	0.042
December	0.276	0.275	2.091	1.442	0.198	0.027
Annual Totals	2.247	2.235	16.939	11.670	1.598	0.268

## TA-3 Steam Plant 2003 Emission Summary

Pollutant Criteria	Emission Factor		Annual Emissions (Natural Gas + Fuel Oil) (tons)	Jan-June Emissions (Natural Gas + Fuel Oil) (tons)	July-Dec Emissions (Natural Gas + Fuel Oil) (tons)	Reference		Reference
	Natural Gas (lb/MMscf) <sup>a</sup>	Fuel Oil <sup>b</sup> (lb/1000 gal.)				Gas	Oil	
NOx	58	8.64	16.939	9.275	7.665	(c)	(c)	(a) AP-42, 7/98, Section. 1.4, Natural Gas Combustion, Tables 1.4-1, 1.4-2
SOx	0.6	7.4	0.268	0.122	0.147	(a)(j)	(g)(j)	(b) Fuel usage obtained from Jerry Gonzales (FWO-UJ). Values are provided in a monthly data deliverable from KSL.
PM	7.6	3.3	2.247	1.223	1.024	(d)	(d)	(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.
PM-10	7.6	2.3	2.235	1.219	1.015	(d)	(d)	(d) Emission factors for natural gas of PM-10 and PM-2.5 are roughly equal to those of PM, (AP-42, 9/98, Table 1.4-2). The PM EF for No. 2 fuel oil is the sum of filterable and condensable PM (AP-42, 9/98, Tables 1.3-1 and 1.3-2).
PM-2.5	7.6	1.55	2.225	1.217	1.008	(d)	(d)	(e) AP-42, 1/95, Section. 1.4, Natural Gas Combustion, Table 1.4-2. Consistent with previous stack tests.
CO	40	5.0	11.670	6.393	5.277	(b)	(g)	(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.
VOC	5.5	0.2	1.598	0.877	0.721	(b)	(l)	(g) Boilers > 100 MMBtu/hr. SOx Emission Factor (SO <sub>2</sub> (142S) + SO <sub>3</sub> (5.7S)) = 147.7 * S (from AP-42, Table 1.3-1 w/Errata) (S = weight % sulfur in oil) (Sulfur content per analysis on oil in tanks in August 01', no new oil delivered in 02/03')
<b>HAPs<sup>n</sup></b>								
Arsenic	0.0002	0.00055	6.50E-05	3.38E-05	3.12E-05	(a)	(k)	(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.
Benzene	0.0021	-	6.09E-04	3.35E-04	2.75E-04	(c)	(k)	(i) AP-42, Table 1.4-2, 1.4-3, and 1.4-4, July 1998
Beryllium	0.00012	0.00041	8.73E-06	3.35E-06	5.37E-06	(c)	(k)	(j) Assume all SO <sub>3</sub> is converted to sulfuric acid.
Cadmium	0.0011	0.00041	3.24E-04	1.77E-04	1.48E-04	(c)	(k)	(k) AP-42, tables 1.3-9 and 1.3-10, September 1998.
Chromium	0.0014	0.00041	4.11E-04	2.25E-04	1.87E-04	(c)	(k)	(l) EPCRA PAC Guidance Document, Table 2-3.
Cobalt	0.000084	-	2.44E-05	1.34E-05	1.10E-05	(c)	(k)	<b>Reviewed By/Date:</b>
Dichlorobenzene	0.0012	-	3.48E-04	1.91E-04	1.57E-04	(c)	(k)	(f) (k)
Formaldehyde	0.0075	0.048	2.79E-03	1.36E-03	1.43E-03	(c)	(k)	(e)(h)
Hexane	1.8	-	5.22E-01	2.87E-01	2.35E-01	(c)	(k)	(c)
Lead	0.0005	0.00123	1.61E-04	8.40E-05	7.68E-05	(c)	(k)	(i)(k)
Manganese	0.00038	0.00082	1.21E-04	6.34E-05	5.73E-05	(c)	(k)	(j)(k)
Mercury	0.00026	0.00041	8.07E-05	4.29E-05	3.78E-05	(i)(c)	(j)(k)	S(%) = 0.05
Naphthalene	0.00061	-	1.77E-04	9.72E-05	7.98E-05	(c)	(k)	(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.
Nickel	0.0021	0.00041	6.15E-04	3.36E-04	2.78E-04	(c)	(k)	(i) AP-42, Table 1.4-2, 1.4-3, and 1.4-4, July 1998
POM	0.000088	0.0033	6.76E-05	2.56E-05	4.21E-05	(c)	(k)	(j) Assume all SO <sub>3</sub> is converted to sulfuric acid.
Selenium	0.000024	0.00206	3.32E-05	1.10E-05	2.22E-05	(c)	(k)	(k) AP-42, tables 1.3-9 and 1.3-10, September 1998.
Toluene	0.0034	-	9.87E-04	5.42E-04	4.45E-04	(c)	(c)	(l) EPCRA PAC Guidance Document, Table 2-3.
TOTAL HAPs			5.29E-01	2.90E-01	2.39E-01			<b>Reviewed By/Date:</b>
<b>EPCRA 313</b>								
Lead	0.0005	0.00123	1.61E-04	0.322		(c)	(i)(k)	(j) Assume all SO <sub>3</sub> is converted to sulfuric acid.
Sulfuric Acid	0.60	0.285	1.78E-01	355.46		(e)(j)	(e)(h)	(k) AP-42, tables 1.3-9 and 1.3-10, September 1998.
Mercury	0.00026	0.00041	8.07E-05	0.161		(c)	(i)(k)	(l) EPCRA PAC Guidance Document, Table 2-3.
PACs	8.69E-07	1.65E-05	4.63E-07	9.25E-04		(f)(l)	(f)(l)	<b>Reviewed By/Date:</b>
Benzo(g,h,i) perylene	1.20E-06	2.26E-06	3.77E-07	7.54E-04		(i)(k)(c)	(f)	(k) AP-42, tables 1.3-9 and 1.3-10, September 1998.
Zinc	-	0.00055	6.99E-06	1.40E-02			(k)	(l) EPCRA PAC Guidance Document, Table 2-3.

**2003 TA-21 Steam Plant Data Entry / Fuel Use**

<b>DATA ENTRY</b>						
<b>Monthly Fuel Use</b>						
<b>TA-21-357</b>						
<b>Month</b>	<b>Natural Gas (MCF)</b>	<b>Fuel Oil (gallons)</b>	<b>Converted Natural Gas (MMscf)</b>	<b>Month</b>	<b>Natural Gas 12-Month Rolling Average (MMscf)</b>	<b>Fuel Oil 12-Month Rolling Average (Gallons)</b>
January	3,738	142	3.74	January	3.74	142
February	3,705	0	3.71	February	7.44	142
March	3,500	0	3.50	March	10.94	142
April	2,782	0	2.78	April	13.73	142
May	2,201	73	2.20	May	15.93	215
June	1,810	43	1.81	June	17.74	258
July	1,626	0	1.63	July	19.36	258
August	1,606	0	1.61	August	20.97	258
September	1,765	0	1.77	September	22.73	258
October	2,105	0	2.11	October	24.84	258
November	3,137	7	3.14	November	27.98	265
December	3,942	14	3.94	December	31.92	279
<b>Annual Totals:</b>	<b>31,917</b>	<b>279</b>	<b>31.92</b>			
Jan. - June	17,736	258	17.74			
July - Dec.	14,181	21	14.18			

Permit Limit = 60 MMScf/yr natural gas (12 month rolling average)  
and 10,000 gal/yr fuel oil (12 month rolling average)

## 2003 TA-21 Steam Plant Emission Summary

Pollutant Criteria	Annual Emissions (Natural Gas + Fuel Oil) (tons)	Jan-June Emissions (Natural Gas + Fuel Oil) (tons)	July-Dec Emissions (Natural Gas + Fuel Oil) (tons)
NOx	1.599	0.889	0.709
SOx	0.016	0.012	0.005
PM	0.122	0.068	0.054
PM-10	0.122	0.068	0.054
PM-2.5	0.122	0.068	0.054
CO	1.341	0.746	0.596
VOC	0.088	0.049	0.039
<b>HAPs</b>			
Arsenic	3.27E-06	1.84E-06	1.42E-06
Benzene	3.36E-05	1.86E-05	1.49E-05
Beryllium	2.49E-07	1.59E-07	8.94E-08
Cadmium	1.76E-05	9.81E-06	7.80E-06
Chromium	2.24E-05	1.25E-05	9.93E-06
Cobalt	1.34E-06	7.45E-07	5.96E-07
Dichlorobenzene	1.92E-05	1.06E-05	8.51E-06
Formaldehyde	1.26E-04	7.27E-05	5.37E-05
Hexane	2.87E-02	1.60E-02	1.28E-02
Lead	8.15E-06	4.59E-06	3.56E-06
Manganese	6.18E-06	3.48E-06	2.70E-06
Mercury	4.21E-06	2.36E-06	1.85E-06
Napthalene	9.73E-06	5.41E-06	4.33E-06
Nickel	3.36E-05	1.87E-05	1.49E-05
POM	1.86E-06	1.21E-06	6.59E-07
Selenium	6.70E-07	4.78E-07	1.92E-07
Toluene	5.43E-05	3.02E-05	2.41E-05
Zinc	7.64E-08	1.53E-04	0.00E+00
<b>TOTAL HAPS</b>	2.91E-02	1.63E-02	1.29E-02
<b>EPCRA 313</b>		<b>lbs./year</b>	
Lead	8.15E-06	0.016	
Sulfuric Acid	1.64E-02	32.81	
Mercury	4.21E-06	0.008	
PACs	1.62E-08	3.23E-05	
Benzo(g,h,i) perylene	1.95E-08	3.89E-05	

## 2003 TA-21 Steam Plant Emissions Calculations

Pollutant Criteria	Natural Gas						Fuel Oil						Reference
	Emission Factor (lb/MMscf)	Emissions (tons)		Emissions (tons) July-Dec	Ref.	Emission Factor (lb/1000 gal)	Emissions (tons)		Emissions (tons) July-Dec	Ref.			
		Annual	Jan-June				Annual	Jan-June					
Nox	100	1.596	0.887	0.709	(b)	20	2.79E-03	2.58E-03	2.10E-04	(g)	(a) Fuel usage obtained from Jerry Gonzales, FWO-UI		
SOx	0.6	0.010	0.005	0.004	(b)	49.0	6.83E-03	6.32E-03	5.14E-04	(h)	(b) AP-42, 7/98, Section 1.4, Natural Gas Combustion, Tables 1.4-1, 1.4-2.		
PM	7.6	0.121	0.067	0.054	(b)	3.3	4.60E-04	4.26E-04	3.47E-05	(g)			
PM-10	7.6	0.121	0.067	0.054	(d)	2.3	3.21E-04	2.97E-04	2.42E-05	(j)	(c) AP-42 7/98, Section 1.4, Natural Gas Combustion, Tables 1.4-3, 1.4-4.		
PM-2.5	7.6	0.121	0.067	0.054	(d)	1.55	2.16E-04	2.00E-04	1.63E-05	(j)			
CO	84	1.341	0.745	0.596	(b)	5.0	6.98E-04	6.45E-04	5.25E-05	(g)			
VOC	5.5	0.088	0.049	0.039	(b)	0.2	2.79E-05	2.58E-05	2.10E-06	(i)	(d) PM-10 and PM-2.5 for natural gas combustion roughly equal to PM, per AP-42, Natural Gas Combustion, Table 1.4-2.		
<b>HAPs</b>													
Arsenic	0.0002	3.19E-06	1.77E-06	1.42E-06	(c)	0.00055	7.64E-08	7.07E-08	5.75E-09	(k)	(e) Assume all SOx is converted to sulfuric acid.		
Benzene	0.0021	3.35E-05	1.86E-05	1.49E-05	(c)								
Beryllium	0.000012	1.92E-07	1.06E-07	8.51E-08	(c)	0.00041	5.73E-08	5.30E-08	4.32E-09	(k)			
Cadmium	0.0011	1.76E-05	9.75E-06	7.80E-06	(c)	0.00041	5.73E-08	5.30E-08	4.32E-09	(k)			
Chromium	0.0014	2.23E-05	1.24E-05	9.93E-06	(c)	0.00041	5.73E-08	5.30E-08	4.32E-09	(k)	(f) EPCRA PAC Guidance Document, Table 2-3.		
Cobalt	0.000084	1.34E-06	7.45E-07	5.96E-07	(c)								
Dichlorobenzene	0.0012	1.92E-05	1.06E-05	8.51E-06	(c)						(g) AP-42, 9/98, Section 1.3, Fuel Oil Combustion, Table 1.3-1 with Errata. The PM emission factor is the sum of filterable and condensable PM.		
Formaldehyde	0.0075	1.20E-04	6.65E-05	5.32E-05	(c)	0.048	6.70E-06	6.19E-06	5.04E-07	(k)			
Hexane	1.8	2.87E-02	1.60E-02	1.28E-02	(c)								
Lead	0.0005	7.98E-06	4.43E-06	3.55E-06	(c)	0.00123	1.72E-07	1.59E-07	1.29E-08	(k)			
Manganese	0.00038	6.06E-06	3.37E-06	2.69E-06	(c)	0.00082	1.15E-07	1.06E-07	8.63E-09	(k)			
Mercury	0.00026	4.15E-06	2.31E-06	1.84E-06	(c)	0.00041	5.73E-08	5.30E-08	4.32E-09	(k)	(h) S = weight % sulfur in oil (Title V Application, December 1995) Boilers <100 MMBtu/hr: SOx Emission Factor = 144 * S		
Napthalene	0.00061	9.73E-06	5.41E-06	4.33E-06	(c)						S(%)= 0.34		
Nickel	0.0021	3.35E-05	1.86E-05	1.49E-05	(c)	0.00041	5.73E-08	5.30E-08	4.32E-09	(k)			
POM	0.000088	1.40E-06	7.80E-07	6.24E-07	(c)	0.0033	4.60E-07	4.26E-07	3.47E-08	(k)			
Selenium	0.000024	3.83E-07	2.13E-07	1.70E-07	(c)	0.00206	2.87E-07	2.65E-07	2.16E-08	(k)	(i) AP-42, 9/98, Section 1.3, Fuel Oil Combustion, Table 1.3-3		
Toluene	0.0034	5.43E-05	3.02E-05	2.41E-05	(c)						NMTOC.		
<b>TOTAL HAPs</b>		<b>2.91E-02</b>	<b>1.61E-02</b>	<b>1.29E-02</b>			<b>8.09E-06</b>	<b>7.48E-06</b>	<b>6.09E-07</b>				
<b>EPCRA 313</b>			<b>lbs./year</b>					<b>lbs./year</b>					
Lead	0.0005	7.98E-06	0.016		(c)	0.00123	1.72E-07	3.44E-04		(k)	(i) AP-42 9/98, Section 1.3, Fuel Oil Combustion, Table 1.3-6. The PM emission factor is the sum of filterable and condensable PM.		
Sulfuric Acid	0.60	9.58E-03	19.150		(e)	49.0	6.83E-03	13.660		(e)(h)			
Mercury	0.00026	4.15E-06	8.30E-03		(c)	0.00041	5.73E-08	1.15E-04		(k)			
PACs	8.69E-07	1.39E-08	2.77E-05		(f)	1.65E-05	2.30E-09	4.60E-06		(f)	(k) AP-42, 9/98, Section 1.3, Fuel Oil Combustion, Tables 1.3-8, 1.3-10.		
Benzo(g,h,i) perylene	1.20E-06	1.92E-08	3.83E-05		(c)	2.26E-06	3.15E-10	6.31E-07		(f)			
Zinc						0.00055	7.64E-08	1.53E-04		(k)			





**ATTACHMENT B. 2003 EMISSIONS INVENTORY SUBMITTAL TO NMED**



# LOS ALAMOS NATIONAL LABORATORY'S 2003 EMISSIONS INVENTORY

*Submitted as Required by:*

**Title 20, Chapter 2, Part 73 of the New Mexico Administrative Code**

*Prepared by:*

**The University of California**

*For:*

**The National Nuclear Security Administration of the  
United States Department of Energy**

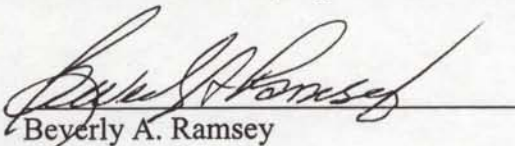
*Information Contacts:*

**Margie Stockton, (505) 667-9359**

**Jean Dewart, (505) 665-0239**

**Certification Statement**

I, Beverly A. Ramsey, hereby certify on behalf of Los Alamos National Laboratory and the University of California, that the information and statements contained in this Emissions Inventory report are true and accurate to the best of my knowledge and belief.



Beverly A. Ramsey

Division Leader

Risk Reduction and Environmental Stewardship Division

University of California

Los Alamos National Laboratory

(505) 667-2211

3/22/04  
Date

## Updated NMED Spreadsheets

Inventory Year (YYYY)	Facility Name	Facility Description	Street Line 1	Street Name 2	City	State	Zip Code	Contact Person Name	Contact Person Phone	Contact Person E-mail	Permit Number
2003	Los Alamos National Laboratory	National Security	PO Box 1663, Air Quality Group	Mail Stop J978	Los Alamos	NM	87545-	Jackie Hurtle	5056654380	jhurtle@lanl.gov	1081M1R3,2195,2195, B,0632,0634M2,0635, 0636

County FIPS	Facility Name	Emission Type	Pollutant Code	CAS Number	Emission Numeric Value	Emission Unit Numerator
028	Los Alamos National Labo 12		CO	630080		32.10 TY
028	Los Alamos National Labo 12		NO2	10102440		49.51 TY
028	Los Alamos National Labo 12		PM10			17.38 TY
028	Los Alamos National Labo 12		PM25			16.46 TY
028	Los Alamos National Labo 12		PT			22.22 TY
028	Los Alamos National Labo 12		SO2	7446095		1.65 TY
028	Los Alamos National Labo 12		VOC			49.32 TY
028	Los Alamos National Labo 12		THAP			10.76 TY
028	Los Alamos National Labo 12		NH3	7664417		0.22 TY
028	Los Alamos National Labo 12		AB			0 TY
028	Los Alamos National Labo 12		AL-PT	7429905		3.30E-06 TY
028	Los Alamos National Labo 12		BE	7440417		3.71E-06 TY
028	Los Alamos National Labo 12		BZ	71432		0.37 TY
028	Los Alamos National Labo 12		CL	7782505		0.07 TY
028	Los Alamos National Labo 12		FORM	50000		0.38 TY
028	Los Alamos National Labo 12		HC81	1330207		0.01 TY
028	Los Alamos National Labo 12		HCL	7647010		3.65 TY
028	Los Alamos National Labo 12		MN-PT	7439965		0 TY
028	Los Alamos National Labo 12		RD			0 TY
028	Los Alamos National Labo 12		TOLU	108883		0.26 TY
028	Los Alamos National Labo 12		100027	100027		9.23E-06 TY
028	Los Alamos National Labo 12		100414	100414		0.004 TY
028	Los Alamos National Labo 12		100425	100425		0.16 TY
028	Los Alamos National Labo 12		100447	100447		0 TY
028	Los Alamos National Labo 12		101688	101688		0 TY
028	Los Alamos National Labo 12		106423	106423		0.0016 TY
028	Los Alamos National Labo 12		106445	106445		0 TY
028	Los Alamos National Labo 12		106467	106467		0.0004 TY
028	Los Alamos National Labo 12		106503	106503		0 TY
028	Los Alamos National Labo 12		106514	106514		0.0002 TY
028	Los Alamos National Labo 12		106887	106887		0 TY
028	Los Alamos National Labo 12		106898	106898		0.00011 TY
028	Los Alamos National Labo 12		106934	106934		0.0002 TY
028	Los Alamos National Labo 12		106990	106990		2.82E-06 TY
028	Los Alamos National Labo 12		107028	107028		0.34 TY
028	Los Alamos National Labo 12		107062	107062		0.06 TY
028	Los Alamos National Labo 12		107131	107131		0.0006 TY
028	Los Alamos National Labo 12		107211	107211		0 TY
028	Los Alamos National Labo 12		107302	107302		0.00003 TY
028	Los Alamos National Labo 12		108054	108054		0 TY
028	Los Alamos National Labo 12		108101	108101		0.025 TY
028	Los Alamos National Labo 12		108383	108383		0.0001 TY
028	Los Alamos National Labo 12		108394	108394		0.0003 TY
028	Los Alamos National Labo 12		108907	108907		0.011 TY
028	Los Alamos National Labo 12		108952	108952		0.007 TY
028	Los Alamos National Labo 12		109	109		0.0001 TY
028	Los Alamos National Labo 12		110543	110543		1.24 TY
028	Los Alamos National Labo 12		111422	111422		0 TY
028	Los Alamos National Labo 12		1120714	1120714		0 TY
028	Los Alamos National Labo 12		117817	117817		3.95E-06 TY
028	Los Alamos National Labo 12		120809	120809		0 TY
028	Los Alamos National Labo 12		120821	120821		0 TY
028	Los Alamos National Labo 12		121448	121448		0.005 TY
028	Los Alamos National Labo 12		121697	121697		0 TY
028	Los Alamos National Labo 12		122667	122667		0 TY
028	Los Alamos National Labo 12		123319	123319		0.012 TY
028	Los Alamos National Labo 12		123386	123386		0.005 TY

028	Los Alamos National Labo 12	123911	123911	0.0017 TY
028	Los Alamos National Labo 12	125	125	0.008 TY
028	Los Alamos National Labo 12	127184	127184	0.009 TY
028	Los Alamos National Labo 12	136	136	0.038 TY
028	Los Alamos National Labo 12	139	139	0.004 TY
028	Los Alamos National Labo 12	140885	140885	0 TY
028	Los Alamos National Labo 12	144	144	0.017 TY
028	Los Alamos National Labo 12	156627	156627	0 TY
028	Los Alamos National Labo 12	1634044	1634044	0 TY
028	Los Alamos National Labo 12	171	171	0.044 TY
028	Los Alamos National Labo 12	1746016	1746016	7.23E-10 TY
028	Los Alamos National Labo 12	18540299	18540299	0.0003 TY
028	Los Alamos National Labo 12	195	195	0.006 TY
028	Los Alamos National Labo 12	198	198	1.28 TY
028	Los Alamos National Labo 12	199	199	0.001 TY
028	Los Alamos National Labo 12	226	226	0.011 TY
028	Los Alamos National Labo 12	234	234	0 TY
028	Los Alamos National Labo 12	246	246	0.0035 TY
028	Los Alamos National Labo 12	253	253	0.0014 TY
028	Los Alamos National Labo 12	302012	302012	0.0007 TY
028	Los Alamos National Labo 12	383	383	0.026 TY
028	Los Alamos National Labo 12	3CLET	79016	0.012 TY
028	Los Alamos National Labo 12	463581	463581	0 TY
028	Los Alamos National Labo 12	51207319	51207319	0 TY
028	Los Alamos National Labo 12	51285	51285	0.00002 TY
028	Los Alamos National Labo 12	540841	540841	0 TY
028	Los Alamos National Labo 12	542881	542881	0 TY
028	Los Alamos National Labo 12	56235	56235	0.01 TY
028	Los Alamos National Labo 12	57125	57125	0 TY
028	Los Alamos National Labo 12	57147	57147	0 TY
028	Los Alamos National Labo 12	584849	584849	0 TY
028	Los Alamos National Labo 12	60344	60344	0 TY
028	Los Alamos National Labo 12	60355	60355	0.0004 TY
028	Los Alamos National Labo 12	624	624	7.56E-09 TY
028	Los Alamos National Labo 12	62533	62533	0.0001 TY
028	Los Alamos National Labo 12	67561	67561	0.73 TY
028	Los Alamos National Labo 12	67663	67663	0.15 TY
028	Los Alamos National Labo 12	680319	680319	0 TY
028	Los Alamos National Labo 12	68122	68122	0.048 TY
028	Los Alamos National Labo 12	71556	71556	0.009 TY
028	Los Alamos National Labo 12	7439921	7439921	0 TY
028	Los Alamos National Labo 12	7439976	7439976	0 TY
028	Los Alamos National Labo 12	7440020	7440020	0 TY
028	Los Alamos National Labo 12	7440360	7440360	0 TY
028	Los Alamos National Labo 12	7440382	7440382	0 TY
028	Los Alamos National Labo 12	7440417	7440417	0 TY
028	Los Alamos National Labo 12	7440439	7440439	0 TY
028	Los Alamos National Labo 12	7440473	7440473	0 TY
028	Los Alamos National Labo 12	7440484	7440484	0 TY
028	Los Alamos National Labo 12	74839	74839	0.001 TY
028	Los Alamos National Labo 12	74873	74873	0.005 TY
028	Los Alamos National Labo 12	74884	74884	0.001 TY
028	Los Alamos National Labo 12	75003	75003	0 TY
028	Los Alamos National Labo 12	75014	75014	0.002 TY
028	Los Alamos National Labo 12	75058	75058	0.63 TY
028	Los Alamos National Labo 12	75070	75070	0.07 TY
028	Los Alamos National Labo 12	75092	75092	0.98 TY
028	Los Alamos National Labo 12	75150	75150	0.002 TY
028	Los Alamos National Labo 12	75252	75252	0.0009 TY

028	Los Alamos National Labo 12	75343	75343	0 TY
028	Los Alamos National Labo 12	75354	75354	0 TY
028	Los Alamos National Labo 12	75445	75445	0.0004 TY
028	Los Alamos National Labo 12	7550450	7550450	0.0010 TY
028	Los Alamos National Labo 12	75558	75558	0 TY
028	Los Alamos National Labo 12	75569	75569	0.0015 TY
028	Los Alamos National Labo 12	7664393	7664393	0.023 TY
028	Los Alamos National Labo 12	7723140	7723140	0.0025 TY
028	Los Alamos National Labo 12	77474	77474	0 TY
028	Los Alamos National Labo 12	77781	77781	0.0001 TY
028	Los Alamos National Labo 12	7782492	7782492	0 TY
028	Los Alamos National Labo 12	7803512	7803512	0 TY
028	Los Alamos National Labo 12	78875	78875	0.003 TY
028	Los Alamos National Labo 12	78933	78933	0.46 TY
028	Los Alamos National Labo 12	79005	79005	0.0096 TY
028	Los Alamos National Labo 12	79016	79016	0.009 TY
028	Los Alamos National Labo 12	79061	79061	0.0096 TY
028	Los Alamos National Labo 12	79107	79107	0.0013 TY
028	Los Alamos National Labo 12	79118	79118	0 TY
028	Los Alamos National Labo 12	79345	79345	0.0009 TY
028	Los Alamos National Labo 12	80626	80626	0.001 TY
028	Los Alamos National Labo 12	822060	822060	0 TY
028	Los Alamos National Labo 12	84742	84742	5.77E-06 TY
028	Los Alamos National Labo 12	85449	85449	0 TY
028	Los Alamos National Labo 12	87865	87865	4.29E-06 TY
028	Los Alamos National Labo 12	88062	88062	1.85E-06 TY
028	Los Alamos National Labo 12	91203	91203	0.001 TY
028	Los Alamos National Labo 12	92	92	0.002 TY
028	Los Alamos National Labo 12	92524	92524	0 TY
028	Los Alamos National Labo 12	92671	92671	0 TY
028	Los Alamos National Labo 12	93	93	0.005 TY
028	Los Alamos National Labo 12	95476	95476	0.0099 TY
028	Los Alamos National Labo 12	96093	96093	0.00006 TY
028	Los Alamos National Labo 12	98828	98828	0.004 TY
028	Los Alamos National Labo 12	98862	98862	2.70E-07 TY
028	Los Alamos National Labo 12	98953	98953	0.002 TY



Inventory Year (YYYY)	AIRS Point ID	Design Capacity	Design Capacity Numerator	Design Capacity Unit Denominator	Max Nameplate Capacity	Description	Installation Date	Removal Date	Shut Down?
2003	001	0 LB		YR		0 Be Machining TA-3 BLDG 39	1-Jan-85	22-Oct-02	TRUE
2003	002	0 E6BTU		HR		0 TA3-22 Boilers (3 Each) See	1-Jan-50	27-Sep-00	TRUE
2003	003	0 E6BTU		HR		0 TA16 Boiler (3 Each) -	1-Jan-50	1-Jan-97	TRUE
2003	004	30.6 E6BTU		HR		36 Steam Plant Boiler TA21 BLDG	1-Jan-83		FALSE
2003	005	0 E6BTU		HR		0 TD Site Boiler (Not Built)			FALSE
2003	006	10000 LB		YR		10000 Be Machining TA35 BLDG 213	26-Dec-85		FALSE
2003	007	10000 LB		YR		10000 Be Machining TA3 BLDG 141	19-Mar-85		FALSE
2003	008	0 LB		YR		0 Be Machining TA3 BLDG 102	19-Mar-86		FALSE
2003	009	0 LB		YR		0 Be Shop TA3-35 (Not Built)		22-Oct-02	TRUE
2003	010	1100 LB		YR		1100 Be Cutting & Beand Dressing	1-Jan-78		FALSE
2003	011	1100 LB		YR		1100 Metallography TA55-4 North	1-Jan-78		FALSE
2003	012	0 E6BTU		HR		0 Solid Waste Fired Boiler (Not			FALSE
2003	013	60 TON		HR		60 Asphalt Plant TA-3-73	1-Jan-60	1-Jul-03	TRUE
2003	014	700 HP		HR		700 Caterpillar HCR TA SI Pump	1-Jan-82	1-Nov-01	TRUE
2003	015	5.3 E6BTU		HR		6.3 Boiler (TA-48-1) BS-1	1-Aug-87		FALSE
2003	016	5.3 E6BTU		HR		6.3 Boiler (TA-48-1) BS-2	1-Oct-76		FALSE
2003	017	7.1 E6BTU		HR		8.4 Boiler (TA-48-1) BS-6	1-Oct-94		FALSE
2003	018	7.1 E6BTU		HR		8.4 Boiler (TA-53-365) BHW-1	1-Jan-88		FALSE
2003	019	7.1 E6BTU		HR		8.4 Boiler (TA-53-365) BHW-2	1-Jan-88		FALSE
2003	020	5.3 E6BTU		HR		6.3 Boiler (TA-59-1) BHW-1	1-Sep-78		FALSE
2003	021	5.3 E6BTU		HR		6.3 Boiler (TA-59-1) BHW-2	1-Oct-94		FALSE
2003	022	7.1 E6BTU		HR		8.4 Boiler (TA-55-6) BHW-1	1-Jan-76	1-Oct-98	TRUE
2003	023	7.1 E6BTU		HR		8.4 Boiler (TA-55-6) BHW-2	1-Jan-76	1-Oct-01	TRUE
2003	024	12.7 E6BTU		HR		15 Boiler and backup, TA-16, Plant	1-Jan-76		FALSE
2003	025	15.6 E6BTU		HR		18.4 Boiler and Backup, Plant 6 (TA-	1-Nov-96		FALSE
2003	026	150 TON		HR		150 Rock Crusher	1-Nov-96		FALSE
2003	027	300 LB		HR		300 SEM-1424 Disintegrator paper	1-Jun-98		FALSE
2003	028	20 L		DAY		20 Degreaser - cold ultrasonic	1-Jan-91		FALSE
2003	029	18 L		DAY		18 Degreaser - cold ultrasonic	1-Sep-98		FALSE
2003	030	6 L		DAY		6 Degreaser - inhouse cold batch	3-Jun-00	6-Dec-01	TRUE
2003	031	0 LB		YR		0 Research & Development	1-Dec-99	29-Jan-01	TRUE
2003	032	189.5 E6BTU		HR		210 TA3-22 Edgemoor Iron Works	1-Jan-50		FALSE
2003	033	189.5 E6BTU		HR		210 TA3-22 Edgemoor Iron Works	1-Jan-50		FALSE
2003	034	189.5 E6BTU		HR		210 TA3-22 Edgemoor Iron Works	1-Jan-50		FALSE
2003	035	3770 BBL		DAY		3770 Tank TA-03-026 (No. 2 fuel oil)	1-Jan-52		FALSE
2003	036	5455 BBL		DAY		5455 Tank TA-03-779 (No. 2 fuel oil)	1-Aug-98		FALSE
2003	037	12.4 E6BTU		HR		14.6 Sellers Boiler BHW-1B(TA 55,	1-Oct-98		FALSE
2003	038	12.4 E6BTU		HR		14.6 Sellers Boiler BHW-2B(TA 55,	6-Sep-01		FALSE
2003	039	20 TON		HR		20 Air Curtain Destructor S-127	29-Oct-01	1-Oct-03	TRUE
2003	040	20 TON		HR		20 Air Curtain Destructor T-350-1	26-Sep-01	1-Oct-03	TRUE
2003	041	20 TON		HR		20 Air Curtain Destructor T-350-2	11-Oct-01	1-Oct-03	TRUE
2003	042	5470 FT3		MIN		5470 Carpenter Shop TA-3-38	1-Jan-60		FALSE
2003	043	21000 GAL		DAY		21000 Composite Mineral Oil Tank	1-Jan-86		FALSE
2003	NEW	10.7 E6BTU		HR		12.6 Boiler TA-50 RLWTF	1-Feb-00		FALSE

Inventory Year (YYYY)	Description	AIRS Stack ID	Emission Release Point Type	Stack Height	Stack Diameter	Exit Gas Temperature	Exit Gas Velocity	UTM Zone	X Coordinate	Y Coordinate
2003	Be Machining TA-3 BLDG 39	001	02	54	1	70	38	13	380.48	3970.38
2003	TA3-22 Boilers (3 Each) See	002	02	68	8	416	12	13	380.5	3971
2003	TA16 Boiler (3 Each) -	003	02	65	5	0	0	13	378	3968
2003	Steam Plant Boiler TA21	004	02	41	2	68	13	13	385	3971
2003	TD Site Boiler (Not Built)	005	02	0	0	0	0	13	380	3970
2003	Be Machining TA35 BLDG 213	006	02	71	1	70	38	13	382.85	3969.39
2003	Be Machining TA3 BLDG 141	007	02	50	5	70	47	13	381.2	3970.28
2003	Be Machining TA3 BLDG 102	008	02	45	3	70	19	13	380.5	3970.16
2003	Be Shop TA3-35 (Not Built)	009	02	0	0	0	0	13	380	3970.02
2003	Be Cutting & Beand Dressing	010	02	32	4	77	30	13	382	3969
2003	Metallography TA55-4 North	011	02	49	4	77	39	13	382	3969
2003	Solid Waste Fired Boiler (Not	012	02	0	0	0	0	13	382	3969
2003	Asphalt Plant TA-3-73	013	02	30	4	130	27	13	380	3970
2003	Caterpillar HCR TA SI Pump	014	02	17	1	977	75	13	386	3968
2003	Boiler (TA-48-1) BS-1	015	01	50	2	300	10	13	382	3970
2003	Boiler (TA-48-1) BS-2	016	01	50	2	300	10	13	382	3970
2003	Boiler (TA-48-1) BS-6	017	01	50	2	300	13	13	382	3970
2003	Boiler (TA-53-365) BHW-1	018	01	22	2	300	32	13	386	3970
2003	Boiler (TA-53-365) BHW-2	019	01	22	2	300	32	13	386	3970
2003	Boiler (TA-59-1) BHW-1	020	01	55	2	300	19	13	381	3970
2003	Boiler (TA-59-1) BHW-2	021	01	55	2	300	19	13	381	3970
2003	Boiler (TA-55-6) BHW-1	022	01	30	2	222	24	13	383	3970
2003	Boiler (TA-55-6) BHW-2	023	01	30	2	333	29	13	383	3970
2003	Boiler and backup, TA-16,	024	01	21	2	341	22	13	379	3967
2003	Boiler and Backup, Plant 6 (TA-	025	01	19	2	341	14	13	379	3967
2003	Rock Crusher	026	01	3	3	70	0	13	379	3967
2003	SEM-1424 Disintegrator paper	027	01	26	1	70	29	13	384	3969
2003	Degreaser - cold ultrasonic	028	01	32	4	77	30	13	382	3969
2003	Degreaser - cold ultrasonic	029	01	32	1	70	3	13	384	3968
2003	Degreaser - inhouse cold	030	01	32	1	70	3	13	384	3968
2003	Research & Development	031	01	0	0	0	0	13	384	3968
2003	TA3-22 Edgemoor Iron Works	032	02	68	8	416	29	13	381.19	3970.3
2003	TA3-22 Edgemoor Iron Works	033	02	68	8	416	29	13	381.19	3970.3
2003	TA3-22 Edgemoor Iron Works	034	02	68	8	416	29	13	381.19	3970.3
2003	Tank TA-03-026 (No. 2 fuel oil)	035	02	0	0	0	0	13	381.19	3970.3
2003	Tank TA-03-779 (No. 2 fuel oil)	036	02	0	0	0	0	13	381.19	3970.3
2003	Sellers Boiler BHW-1B(TA 55,	037	02	30	2	334	8	13	381.19	3970.3
2003	Sellers Boiler BHW-2B(TA 55,	038	02	30	2	334	8	13	381.19	3970.3
2003	Air Curtain Destructor S-127	039	02	10	17	2500	1	13	381.19	3970.3
2003	Air Curtain Destructor T-350-1	040	02	10	25	2500	1	13	381.19	3970.3
2003	Air Curtain Destructor T-350-2	041	02	10	25	2500	1	13	381.19	3970.3
2003	Carpenter Shop TA-3-38	042	02	17	1.1	75	45	13	380.26	3970.72
2003	Composite Mineral Oil Tank	043	02	0	0	0	0	13	386.72	3969.92
2003	Boiler TA-50 RLWTF	NEW	05	15	1.4	400	0.001	13	382.8	3969.4

Inventory Year (YYYY)	AIRS Stack ID	SCC AFS	Description	Winter Throughput PCT	Spring Throughput PCT	Summer Throughput PCT	Fall Throughput PCT	Annual Avg Days Per Week	Annual Avg Weeks Per Year	Annual Avg Hours Per Day	Annual Avg Hours Per Year	Heat Content
2003	001	30903004	Be Machining TA-3 BLDG	0	0	0	0	0	0	0	0	0
2003	002	10100601	TA3-22 Boilers (3 Each)	0	0	0	0	0	0	0	0	0
2003	003	10100602	TA16 Boiler (3 Each) -	0	0	0	0	0	0	0	0	0
2003	004	10100602	Steam Plant Boiler TA21	25	25	25	25	7	7	52	8760	1030
2003	005	10100602	TD Site Boiler (Not Built)	0	0	0	0	0	0	0	0	0
2003	006	30903004	Be Machining TA35 BLDG	15	20	30	35	7	7	52	1920	0
2003	007	30903004	Be Machining TA3 BLDG	25	25	25	25	7	7	52	8760	0
2003	008	30903004	Be Machining TA3 BLDG	25	25	25	25	5	5	52	2400	0
2003	009	30903004	Be Shop TA3-35 (Not Built)	0	0	0	0	0	0	0	0	0
2003	010	30903004	Be Cutting & Beand	25	25	25	25	7	7	52	8760	0
2003	011	30900303	Metallurgy TA55-4 North	25	25	25	25	7	7	52	8760	0
2003	012	10301202	Solid Waste Fired Boiler	0	0	0	0	0	0	0	0	0
2003	013	30500211	Asphalt Plant TA-3-73	15	20	35	30	5	5	20	400	0
2003	014	20200202	Caterpillar HCR TA SI Pump	0	0	0	0	0	0	0	0	0
2003	015	10100602	Boiler (TA-48-1) BS-1	40	20	0	40	7	7	33	5500	1030
2003	016	10100602	Boiler (TA-48-1) BS-2	40	20	0	40	7	7	33	5500	1030
2003	017	10100602	Boiler (TA-48-1) BS-6	40	20	0	40	7	7	33	5500	1030
2003	018	10100602	Boiler (TA-53-365) BHW-1	40	20	0	40	7	7	33	5500	1030
2003	019	10100602	Boiler (TA-53-365) BHW-2	40	20	0	40	7	7	33	5500	1030
2003	020	10100602	Boiler (TA-59-1) BHW-1	40	20	0	40	7	7	33	5500	1030
2003	021	10100602	Boiler (TA-59-1) BHW-2	40	20	0	40	7	7	33	5500	1030
2003	022	10100602	Boiler (TA-55-6) BHW-1	0	0	0	0	0	0	0	0	0
2003	023	10100602	Boiler (TA-55-6) BHW-2	0	0	0	0	0	0	0	0	0
2003	024	10100602	Boiler and backup, TA-16,	25	25	25	25	7	7	52	8760	1030
2003	025	10100602	Boiler and Backup, Plant 6	25	25	25	25	7	7	52	8760	1030
2003	026	30502501	Rock Crusher	0	0	0	0	0	0	0	0	0
2003	027	30701399	SEM-1424 Disintegrator	25	25	25	25	5	5	52	2080	0
2003	028	40100336	Degreaser - cold ultrasonic	25	25	25	25	5	5	52	520	0
2003	029	40100336	Degreaser - cold ultrasonic	0	0	0	0	0	0	0	0	0
2003	030	40100336	Degreaser - inhouse cold	0	0	0	0	0	0	0	0	0
2003	031	31503001	Research & Development	0	0	0	0	0	0	0	0	0
2003	032	10100601	TA3-22 Edgemoor Iron	25	25	25	25	5	5	52	2600	0
2003	033	10100601	TA3-22 Edgemoor Iron	30	20	20	30	7	7	52	8760	1030
2003	034	10100601	TA3-22 Edgemoor Iron	30	20	20	30	7	7	52	8760	1030
2003	035	39090004	Tank TA-03-026 (No. 2 fuel	30	20	20	30	7	7	52	8760	137
2003	036	39090004	Tank TA-03-779 (No. 2 fuel	30	20	20	30	7	7	52	8760	137
2003	037	10100602	Sellers Boiler BHW-1B(TA	40	20	0	40	7	7	33	5500	1030
2003	038	10100602	Sellers Boiler BHW-2B(TA	0	0	0	0	7	7	33	5500	1030
2003	039	30181001	Air Curtain Destructor S-127	10	40	10	40	5	5	30	45	4500
2003	040	30181001	Air Curtain Destructor T-350-	10	40	10	40	5	5	30	1850	4500
2003	041	30181001	Air Curtain Destructor T-350-	10	40	10	40	5	5	30	1894	4500
2003	042	30700804	Carpenter Shop TA-3-38	20	30	30	20	5	5	50	2000	4500
2003	043	39090004	Composite Mineral Oil Tank	25	25	25	25	7	7	52	8760	0
2003	NEW	10100602	Boiler TA-50 RLWTF	25	25	25	25	2	2	8	192	1030

Inventory Year (YYYY)	AIRS Point ID	Description	Actual Throughput	Throughput Unit Numerator	Max Operating Rate Per Hour	Material	Material I/O
2003	001	Be Machining TA-3 BLDG 39	0	LB	0	516	I
2003	002	TA3-22 Boilers (3 Each ) See Pt 32, 33,	0	E6FT3S	0	209	I
2003	003	TA16 Boiler (3 Each) - Removed	0	E6FT3S	0	209	I
2003	004	Steam Plant Boiler TA21 BLDG 357 (3)	31.9	E6FT3S	3.64E-03	209	I
2003	005	TD Site Boiler (Not Built)	0	E6FT3S	0	209	I
2003	006	Be Machining TA35 BLDG 213	0	LB	0	516	I
2003	007	Be Machining TA3 BLDG 141	10000	LB	1.141552511415	516	I
2003	008	Be Machining TA3 BLDG 102	0	LB	0	516	I
2003	009	Be Shop TA3-35 (Not Built)	0	LB	0	516	I
2003	010	Be Cutting & Beand Dressing TA-55-4	1100	LB	0.125570776255	516	I
2003	011	Metallography TA55-4 North Stack	1100	LB	0.125570776255	516	I
2003	012	Solid Waste Fired Boiler (Not Built)	0	TON	0	567	I
2003	013	Asphalt Plant TA-3-73	1204	TON	3.01	647	I
2003	014	Caterpillar HCR TA SI Pump Engine	0	E6FT3S	0	209	I
2003	015	Boiler (TA-48-1) BS-1	10.5	E6FT3S	1.91E-03	209	I
2003	016	Boiler (TA-48-1) BS-2	10.5	E6FT3S	1.91E-03	209	I
2003	017	Boiler (TA-48-1) BS-6	14.1	E6FT3S	2.56E-03	209	I
2003	018	Boiler (TA-53-365) BHW-1	14	E6FT3S	2.55E-03	209	I
2003	019	Boiler (TA-53-365) BHW-2	14	E6FT3S	2.55E-03	209	I
2003	020	Boiler (TA-59-1) BHW-1	10.5	E6FT3S	1.91E-03	209	I
2003	021	Boiler (TA-59-1) BHW-2	10.5	E6FT3S	1.91E-03	209	I
2003	022	Boiler (TA-55-6) BHW-1	0	E6FT3S	0	209	I
2003	023	Boiler (TA-55-6) BHW-2	0	E6FT3S	0	209	I
2003	024	Boiler and backup, TA-16, Plant-5	18.9	E6FT3S	3.44E-03	209	I
2003	025	Boiler and Backup, Plant 6 (TA-16-1485)	0	E6FT3S	0	209	I
2003	026	Rock Crusher	0	TON	0	284	I
2003	027	SEM-1424 Disintegrator paper shredder	278460	LB	133.9	226	I
2003	028	Degreaser - cold ultrasonic bath TA-55-4	51	L	0.1	952	I
2003	029	Degreaser - cold ultrasonic bath TA-46-24	0	L	0	952	I
2003	030	Degreaser - inhouse cold batch TA-55-4	0	L	0	952	I
2003	031	Research & Development Activities -	0	TON	0	253	I
2003	032	TA3-22 Edgemoor Iron Works Boiler	306.6	E6FT3S	2.697488584474	209	I
2003	033	TA3-22 Edgemoor Iron Works Boiler	9.0	E6FT3S	2.181506849315	209	I
2003	034	TA3-22 Edgemoor Union Iron Works	264.7	E6FT3S	2.113013698630	209	I
2003	035	Tank TA-03-026 (No. 2 fuel oil)	25.5	E3GAL	2.91E-03	58	I
2003	036	Tank TA-03-779 (No. 2 fuel oil)	25.5	E3GAL	2.91E-03	58	I
2003	037	Sellers Boiler BHW-1B(TA 55, Bldg. PF6)	25.9	E6FT3S	4.71E-03	209	I
2003	038	Sellers Boiler BHW-2B(TA 55, Bldg. PF6)	1.44	E6FT3S	2.62E-04	209	I
2003	039	Air Curtain Destructor S-127	8593	TON	4.54	15	I
2003	040	Air Curtain Destructor T-350-1	251	TON	5.58	15	I
2003	041	Air Curtain Destructor T-350-2	9827	TON	5.31	15	I
2003	042	Carpenter Shop TA-3-38	2706	FT3/min	0.00	15	I
2003	043	Composite Mineral Oil Tank	10	E3GAL	1.14E-03	216	I
2003	NEW	Boiler TA-50 RLWTF	0.005	E6FT3S		209	I

Inventory Year (YYYY)	AIRS Point ID	Pollutant Code	CAS Number	Emission Numeric Value	Emission Unit Numerator	Calculation Method Code
2003	001	100414	100414	0	TY	08
2003	001	110543	110543	0	TY	08
2003	001	75070	75070	0	TY	08
2003	001	7664393	7664393	0	TY	08
2003	001	BE	7440417	0	TY	08
2003	001	BZ	71432	0	TY	08
2003	001	FORM	50000	0	TY	08
2003	001	HC81	1330207	0	TY	08
2003	001	NH3	7664417	0	TY	08
2003	001	PM10		0	TY	08
2003	001	PM25		0	TY	08
2003	001	PT		0	TY	08
2003	001	TOLU	108883	0	TY	08
2003	002	CO	630080	0	TY	08
2003	002	NH3	7664417	0	TY	08
2003	002	NO2	10102440	0	TY	08
2003	002	PM10		0	TY	08
2003	002	PM25		0	TY	08
2003	002	PT		0	TY	08
2003	002	SO2	7446095	0	TY	08
2003	002	VOC		0	TY	08
2003	003	NO2	10102440	0	TY	00
2003	004	106467	106467	1.92E-05	TY	08
2003	004	109		2.49E-07	TY	08
2003	004	110543	110543	2.87E-02	TY	08
2003	004	125	125	1.76E-05	TY	08
2003	004	136	136	2.24E-05	TY	08
2003	004	139	139	1.34E-06	TY	08
2003	004	195	195	8.15E-06	TY	08
2003	004	198	198	6.18E-06	TY	08
2003	004	199	199	4.21E-06	TY	08
2003	004	226	226	3.36E-05	TY	08
2003	004	246		1.86E-06	TY	08
2003	004	253	253	6.70E-06	TY	08
2003	004	91203	91203	9.73E-06	TY	08
2003	004	93		3.27E-06	TY	08
2003	004	BZ	71432	3.35E-05	TY	08
2003	004	CO	630080	1.34	TY	08
2003	004	FORM	50000	1.26E-04	TY	08
2003	004	NH3	7664417	0	TY	08
2003	004	NO2	10102440	1.6	TY	08
2003	004	PM10		0.12	TY	08
2003	004	PM25		0.12	TY	08
2003	004	PT		0.12	TY	08
2003	004	SO2	7446095	0.02	TY	08
2003	004	TOLU	108883	5.43E-05	TY	08
2003	004	VOC		0.09	TY	08
2003	005	CO	630080	0	TY	08
2003	005	NH3	7664417	0	TY	08
2003	005	NO2	10102440	0	TY	08
2003	005	PM10		0	TY	08
2003	005	PM25		0	TY	08
2003	005	PT		0	TY	08
2003	005	VOC		0	TY	08
2003	006	BE	7440417	4.00E-07	TY	08
2003	006	NH3	7664417	0	TY	08
2003	006	PM10		4.00E-07	TY	08
2003	006	PM25		4.00E-07	TY	08
2003	006	PT		4.00E-07	TY	08
2003	007	BE	7440417	7.00E-09	TY	08
2003	007	NH3	7664417	0	TY	08
2003	007	PM10		7.00E-09	TY	08
2003	007	PM25		7.00E-09	TY	08

2003	007	PT		7.00E-09	TY	08
2003	008	BE	7440417	0	TY	08
2003	008	NH3	7664417	0	TY	08
2003	008	PM10		0	TY	08
2003	008	PM25		0	TY	08
2003	008	PT		0	TY	08
2003	009	BE	7440417	0	TY	08
2003	009	NH3	7664417	0	TY	08
2003	009	PM10		0	TY	08
2003	009	PM25		0	TY	08
2003	009	PT		0	TY	08
2003	010	AL-PT	7429905	1.65E-06	TY	08
2003	010	BE	7440417	1.65E-06	TY	08
2003	010	NH3	7664417	0	TY	08
2003	010	PM10		1.65E-06	TY	08
2003	010	PM25		1.65E-06	TY	08
2003	011	AL-PT	7429905	1.65E-06	TY	08
2003	011	BE	7440417	1.65E-06	TY	08
2003	011	NH3	7664417	0	TY	08
2003	011	PM10		1.65E-06	TY	08
2003	011	PM25		1.65E-06	TY	08
2003	012	PM10		0	TY	00
2003	013	100414	100414	1.32E-03	TY	08
2003	013	106514	106514	1.63E-04	TY	08
2003	013	110543	110543	0	TY	08
2003	013	246		6.62E-05	TY	08
2003	013	75070	75070	1.93E-04	TY	08
2003	013	7664393	7664393	0	TY	08
2003	013	91203	91203	2.17E-05	TY	08
2003	013	BZ	71432	1.69E-04	TY	08
2003	013	CO	630080	0.24	TY	08
2003	013	FORM	50000	4.45E-04	TY	08
2003	013	HC81	1330207	1.63E-03	TY	08
2003	013	NH3	7664417	0	TY	08
2003	013	NO2	10102440	0.015	TY	08
2003	013	PM10		0.03	TY	08
2003	013	PM25		0.03	TY	08
2003	013	PT		0.04	TY	04
2003	013	SO2	7446095	0.003	TY	08
2003	013	TOLU	108883	6.02E-04	TY	08
2003	013	VOC		0.005	TY	08
2003	014	100414	100414	0	TY	08
2003	014	110543	110543	0	TY	08
2003	014	75070	75070	0	TY	08
2003	014	7664393	7664393	0	TY	08
2003	014	BZ	71432	0	TY	08
2003	014	CO	630080	0	TY	08
2003	014	FORM	50000	0	TY	08
2003	014	HC81	1330207	0	TY	08
2003	014	NH3	7664417	0	TY	08
2003	014	NO2	10102440	0	TY	08
2003	014	PM10		0	TY	08
2003	014	PM25		0	TY	08
2003	014	PT		0	TY	08
2003	014	SO2	7446095	0	TY	08
2003	014	TOLU	108883	0	TY	08
2003	014	VOC		0	TY	08
2003	015	100414	100414	0	TY	08
2003	015	106467	106467	6.31E-06	TY	08
2003	015	109	109	6.31E-08	TY	08
2003	015	110543	110543	9.46E-03	TY	08
2003	015	125	125	5.78E-06	TY	08
2003	015	136	136	7.36E-06	TY	08
2003	015	139	139	4.41E-07	TY	08
2003	015	195	195	2.63E-06	TY	08
2003	015	198	198	2.00E-06	TY	08

2003	015	199	199	1.37E-06 TY	08
2003	015	226	226	1.10E-05 TY	08
2003	015	246	246	4.62E-07 TY	08
2003	015	253	253	1.26E-07 TY	08
2003	015	75070	75070	0 TY	08
2003	015	7664393	7664393	0 TY	08
2003	015	91203	91203	3.21E-06 TY	08
2003	015	93	93	1.05E-06 TY	08
2003	015	BZ	71432	1.10E-05 TY	08
2003	015	CO	630080	0.44 TY	08
2003	015	FORM	50000	3.94E-05 TY	08
2003	015	HC81	1330207	0 TY	08
2003	015	NH3	7664417	0 TY	08
2003	015	NO2	10102440	0.53 TY	08
2003	015	PM10		0.04 TY	08
2003	015	PM25		0.04 TY	08
2003	015	PT		0.04 TY	08
2003	015	SO2	7446095	0.003 TY	08
2003	015	TOLU	108883	1.79E-05 TY	08
2003	015	VOC		0.03 TY	08
2003	016	100414	100414	0 TY	08
2003	016	106467	106467	6.31E-06 TY	08
2003	016	109	109	6.31E-08 TY	08
2003	016	110543	110543	9.46E-03 TY	08
2003	016	125	125	5.78E-06 TY	08
2003	016	136	136	7.36E-06 TY	08
2003	016	139	139	4.41E-07 TY	08
2003	016	195	195	2.63E-06 TY	08
2003	016	198	198	2.00E-06 TY	08
2003	016	199	199	1.37E-06 TY	08
2003	016	226	226	1.10E-05 TY	08
2003	016	246	246	4.62E-07 TY	08
2003	016	253	253	1.26E-07 TY	08
2003	016	75070	75070	0 TY	08
2003	016	7664393	7664393	0 TY	08
2003	016	91203	91203	3.21E-06 TY	08
2003	016	93	93	1.05E-06 TY	08
2003	016	BZ	71432	1.10E-05 TY	08
2003	016	CO	630080	0.44 TY	08
2003	016	FORM	50000	3.94E-05 TY	08
2003	016	HC81	1330207	0 TY	08
2003	016	NH3	7664417	0 TY	08
2003	016	NO2	10102440	0.53 TY	08
2003	016	PM10		0.04 TY	08
2003	016	PM25		0.04 TY	08
2003	016	PT		0.04 TY	08
2003	016	SO2	7446095	0.003 TY	08
2003	016	TOLU	108883	1.79E-05 TY	08
2003	016	VOC		0.03 TY	08
2003	017	100414	100414	0 TY	08
2003	017	106467	106467	8.44E-06 TY	08
2003	017	109	109	8.44E-08 TY	08
2003	017	110543	110543	1.27E-02 TY	08
2003	017	125	125	7.73E-06 TY	08
2003	017	136	136	9.84E-06 TY	08
2003	017	139	139	5.91E-07 TY	08
2003	017	195	195	3.52E-06 TY	08
2003	017	198	198	2.67E-06 TY	08
2003	017	199	199	1.83E-06 TY	08
2003	017	226	226	1.48E-05 TY	08
2003	017	246	246	6.19E-07 TY	08
2003	017	253	253	1.69E-07 TY	08
2003	017	75070	75070	0 TY	08
2003	017	7664393	7664393	0 TY	08
2003	017	91203	91203	4.29E-06 TY	08
2003	017	93		1.41E-06 TY	08

2003	017	BZ	71432	1.48E-05	TY	08
2003	017	CO	630080	0.59	TY	08
2003	017	FORM	50000	5.27E-05	TY	08
2003	017	HC81	1330207	0	TY	08
2003	017	NH3	7664417	0	TY	08
2003	017	NO2	10102440	0.70	TY	08
2003	017	PM10		0.05	TY	08
2003	017	PM25		0.05	TY	08
2003	017	PT		0.05	TY	08
2003	017	SO2	7446095	0.004	TY	08
2003	017	TOLU	108883	2.39E-05	TY	08
2003	017	VOC		0.04	TY	08
2003	018	100414	100414	0	TY	08
2003	018	106467	106467	8.41E-06	TY	08
2003	018	109	109	8.41E-08	TY	08
2003	018	110543	110543	1.26E-02	TY	08
2003	018	125	125	7.71E-06	TY	08
2003	018	136	136	9.81E-06	TY	08
2003	018	139	139	5.89E-07	TY	08
2003	018	195	195	3.50E-06	TY	08
2003	018	198	198	2.66E-06	TY	08
2003	018	199	199	1.82E-06	TY	08
2003	018	226	226	1.47E-05	TY	08
2003	018	246	246	6.17E-07	TY	08
2003	018	253	253	1.68E-07	TY	08
2003	018	75070	75070	0	TY	08
2003	018	7664393	7664393	0	TY	08
2003	018	91203	91203	4.27E-06	TY	08
2003	018	93	93	1.40E-06	TY	08
2003	018	BZ	71432	1.47E-05	TY	08
2003	018	CO	630080	0.59	TY	08
2003	018	FORM	50000	5.25E-05	TY	08
2003	018	HC81	1330207	0	TY	08
2003	018	NH3	7664417	0	TY	08
2003	018	NO2	10102440	0.70	TY	08
2003	018	PM10		0.053	TY	08
2003	018	PM25		0.053	TY	08
2003	018	PT		0.053	TY	08
2003	018	SO2	7446095	0.004	TY	08
2003	018	TOLU	108883	2.38E-05	TY	08
2003	018	VOC		0.04	TY	08
2003	019	106467	106467	8.41E-06	TY	08
2003	019	109	109	8.41E-08	TY	08
2003	019	110543	110543	1.26E-02	TY	08
2003	019	125	125	7.71E-06	TY	08
2003	019	136	136	9.81E-06	TY	08
2003	019	139	139	5.89E-07	TY	08
2003	019	195	195	3.50E-06	TY	08
2003	019	198	198	2.66E-06	TY	08
2003	019	199	199	1.82E-06	TY	08
2003	019	226	226	1.47E-05	TY	08
2003	019	246	246	6.17E-07	TY	08
2003	019	253	253	1.68E-07	TY	08
2003	019	91203	91203	4.27E-06	TY	08
2003	019	93	93	1.40E-06	TY	08
2003	019	BZ	71432	1.47E-05	TY	08
2003	019	CO	630080	0.59	TY	08
2003	019	FORM	50000	5.25E-05	TY	08
2003	019	NH3	7664417	0	TY	08
2003	019	NO2	10102440	0.70	TY	08
2003	019	PM10		0.053	TY	08
2003	019	PM25		0.053	TY	08
2003	019	PT		0.053	TY	08
2003	019	SO2	7446095	0.004	TY	08
2003	019	TOLU	108883	2.38E-05	TY	08
2003	019	VOC		0.04	TY	08



2003	020	106467	106467	6.31E-06	TY	08
2003	020	109	109	6.31E-08	TY	08
2003	020	110543	110543	9.46E-03	TY	08
2003	020	125	125	5.78E-06	TY	08
2003	020	136	136	7.36E-06	TY	08
2003	020	139	139	4.41E-07	TY	08
2003	020	195	195	2.63E-06	TY	08
2003	020	198	198	2.00E-06	TY	08
2003	020	199	199	1.37E-06	TY	08
2003	020	226	226	1.10E-05	TY	08
2003	020	246	246	4.62E-07	TY	08
2003	020	253	253	1.26E-07	TY	08
2003	020	91203	91203	3.21E-06	TY	08
2003	020	93	93	1.05E-06	TY	08
2003	020	BZ	71432	1.10E-05	TY	08
2003	020	CO	630080	0.44	TY	08
2003	020	FORM	50000	3.94E-05	TY	08
2003	020	NH3	7664417	0	TY	08
2003	020	NO2	10102440	0.525	TY	08
2003	020	PM10		0.04	TY	08
2003	020	PM25		0.04	TY	08
2003	020	PT		0.04	TY	08
2003	020	SO2	7446095	0.003	TY	08
2003	020	TOLU	108883	1.79E-05	TY	08
2003	020	VOC		0.03	TY	08
2003	021	106467	106467	6.31E-06	TY	08
2003	021	109	109	6.31E-08	TY	08
2003	021	110543	110543	9.46E-03	TY	08
2003	021	125	125	5.78E-06	TY	08
2003	021	136	136	7.36E-06	TY	08
2003	021	139	139	4.41E-07	TY	08
2003	021	195	195	2.63E-06	TY	08
2003	021	198	198	2.00E-06	TY	08
2003	021	199	199	1.37E-06	TY	08
2003	021	226	226	1.10E-05	TY	08
2003	021	246	246	4.62E-07	TY	08
2003	021	253	253	1.26E-07	TY	08
2003	021	91203	91203	3.21E-06	TY	08
2003	021	93	93	1.05E-06	TY	08
2003	021	BZ	71432	1.10E-05	TY	08
2003	021	CO	630080	0.44	TY	08
2003	021	FORM	50000	3.94E-05	TY	08
2003	021	NH3	7664417	0	TY	08
2003	021	NO2	10102440	0.525	TY	08
2003	021	PM10		0.04	TY	08
2003	021	PM25		0.04	TY	08
2003	021	PT		0.04	TY	08
2003	021	SO2	7446095	0.003	TY	08
2003	021	TOLU	108883	1.79E-05	TY	08
2003	021	VOC		0.03	TY	08
2003	022	CO	630080	0	TY	08
2003	022	NH3	7664417	0	TY	08
2003	022	NO2	10102440	0	TY	08
2003	022	PM10		0	TY	08
2003	022	PM25		0	TY	08
2003	022	PT		0	TY	08
2003	022	SO2	7446095	0	TY	08
2003	022	VOC		0	TY	08
2003	023	CO	630080	0	TY	08
2003	023	NH3	7664417	0	TY	08
2003	023	NO2	10102440	0	TY	08
2003	023	PM10		0	TY	08
2003	023	PM25		0	TY	08
2003	023	PT		0	TY	08
2003	023	SO2	7446095	0	TY	08
2003	023	VOC		0	TY	08

2003	024	106467	106467	1.13E-05 TY	08
2003	024	109	109	1.13E-07 TY	08
2003	024	110543	110543	1.70E-02 TY	08
2003	024	125	125	1.04E-05 TY	08
2003	024	136	136	1.32E-05 TY	08
2003	024	139	139	7.92E-07 TY	08
2003	024	195	195	4.72E-06 TY	08
2003	024	198	198	3.58E-06 TY	08
2003	024	199	199	2.45E-06 TY	08
2003	024	226	226	1.98E-05 TY	08
2003	024	246	246	8.30E-07 TY	08
2003	024	253	253	2.26E-07 TY	08
2003	024	91203	91203	5.75E-06 TY	08
2003	024	93	93	1.89E-06 TY	08
2003	024	BZ	71432	1.98E-05 TY	08
2003	024	CO	630080	0.35 TY	07
2003	024	FORM	50000	7.07E-05 TY	08
2003	024	NH3	7664417	0 TY	08
2003	024	NO2	10102440	0.35 TY	07
2003	024	PM10		0.07 TY	08
2003	024	PM25		0.07 TY	08
2003	024	PT		0.07 TY	08
2003	024	SO2	7446095	0.006 TY	08
2003	024	TOLU	108883	3.21E-05 TY	08
2003	024	VOC		0.05 TY	08
2003	025	106467	106467	0 TY	08
2003	025	109	109	0 TY	08
2003	025	110543	110543	0 TY	08
2003	025	125	125	0 TY	08
2003	025	136	136	0 TY	08
2003	025	139	139	0 TY	08
2003	025	195	195	0 TY	08
2003	025	198	198	0 TY	08
2003	025	199	199	0 TY	08
2003	025	226	226	0 TY	08
2003	025	246	246	0 TY	08
2003	025	253	253	0 TY	08
2003	025	91203	91203	0 TY	08
2003	025	93	93	0 TY	08
2003	025	BZ	71432	0 TY	08
2003	025	CO	630080	0 TY	07
2003	025	FORM	50000	0 TY	08
2003	025	NH3	7664417	0 TY	08
2003	025	NO2	10102440	0 TY	07
2003	025	PM10		0 TY	08
2003	025	PM25		0 TY	08
2003	025	PT		0 TY	08
2003	025	SO2	7446095	0 TY	08
2003	025	TOLU	108883	0 TY	08
2003	025	VOC		0 TY	08
2003	026	CO	630080	0 TY	08
2003	026	NH3	7664417	0 TY	08
2003	026	NO2	10102440	0 TY	08
2003	026	PM10		0 TY	08
2003	026	PM25		0 TY	08
2003	026	PT		0 TY	08
2003	026	SO2	7446095	0 TY	08
2003	026	VOC		0 TY	08
2003	027	NH3	7664417	0 TY	08
2003	027	PM10		1.39E-03 TY	11
2003	027	PM25		1.39E-03 TY	11
2003	027	PT		1.39E-03 TY	11
2003	028	3CLET	79016	0.012 TY	03
2003	028	NH3	7664417	0 TY	08
2003	028	PM10		0 TY	08
2003	028	PM25		0 TY	08

2003	029	3CLET	79016	0 TY	08
2003	029	NH3	7664417	0 TY	08
2003	029	PM10		0 TY	08
2003	029	PM25		0 TY	08
2003	030	3CLET	79016	0 TY	08
2003	030	NH3	7664417	0 TY	08
2003	030	PM10		0 TY	08
2003	030	PM25		0 TY	08
2003	031	100027	100027	0 TY	03
2003	031	100414	100414	0 TY	03
2003	031	100425	100425	2.35E-03 TY	03
2003	031	100447	100447	0 TY	03
2003	031	101688	101688	0 TY	03
2003	031	106423	106423	1.62E-03 TY	03
2003	031	106445	106445	0 TY	03
2003	031	106503	106503	0 TY	03
2003	031	106514	106514	2.76E-05 TY	03
2003	031	106887	106887	0 TY	03
2003	031	106898	106898	1.10E-04 TY	03
2003	031	106934	106934	2.40E-04 TY	03
2003	031	106990	106990	0 TY	03
2003	031	107028	107028	0 TY	03
2003	031	107062	107062	5.68E-02 TY	03
2003	031	107131	107131	6.21E-04 TY	03
2003	031	107211	107211	0 TY	03
2003	031	107302	107302	2.76E-05 TY	03
2003	031	108054	108054	0 TY	03
2003	031	108101	108101	2.46E-02 TY	03
2003	031	108383	108383	9.53E-05 TY	03
2003	031	108394	108394	2.76E-04 TY	03
2003	031	108907	108907	8.65E-03 TY	03
2003	031	108952	108952	2.88E-03 TY	03
2003	031	109	109	0 TY	03
2003	031	110543	110543	5.69E-01 TY	03
2003	031	111422	111422	0 TY	03
2003	031	1120714	1120714	0 TY	03
2003	031	117817	117817	0 TY	03
2003	031	120809	120809	0 TY	03
2003	031	120821	120821	0 TY	03
2003	031	121448	121448	5.43E-03 TY	03
2003	031	121697	121697	0 TY	03
2003	031	122667	122667	0 TY	03
2003	031	123319	123319	1.15E-02 TY	03
2003	031	123386	123386	0 TY	03
2003	031	123911	123911	1.71E-03 TY	03
2003	031	125	125	6.92E-03 TY	03
2003	031	127184	127184	6.04E-03 TY	03
2003	031	136	136	3.62E-02 TY	03
2003	031	139	139	3.35E-03 TY	03
2003	031	140885	140885	0 TY	03
2003	031	144	144	1.65E-02 TY	03
2003	031	156627	156627	0 TY	03
2003	031	1634044	1634044	0 TY	03
2003	031	171	171	4.35E-02 TY	03
2003	031	195	195	1.44E-03 TY	03
2003	031	198	198	1.15 TY	03
2003	031	199	199	6.96E-04 TY	03
2003	031	226	226	7.77E-03 TY	03
2003	031	234	234	0 TY	03
2003	031	246	246	1.02E-03 TY	03
2003	031	253	253	1.14E-03 TY	03
2003	031	302012	302012	6.64E-04 TY	03
2003	031	3CLET	79016	0 TY	03
2003	031	383	383	2.56E-02 TY	03
2003	031	463581	463581	0 TY	03
2003	031	51285	51285	0 TY	03

2003	031	540841	540841	0 TY	03
2003	031	542881	542881	0 TY	03
2003	031	56235	56235	7.20E-03 TY	03
2003	031	57125	57125	0 TY	03
2003	031	57147	57147	0 TY	03
2003	031	584849	584849	0 TY	03
2003	031	60344	60344	0 TY	03
2003	031	60355	60355	4.13E-04 TY	08
2003	031	62533	62533	1.16E-04 TY	03
2003	031	67561	67561	7.32E-01 TY	03
2003	031	67663	67663	1.46E-01 TY	03
2003	031	680319	680319	0 TY	03
2003	031	68122	68122	4.77E-02 TY	03
2003	031	71556	71556	5.90E-03 TY	03
2003	031	7439921	7439921	0 TY	03
2003	031	7439976	7439976	0 TY	03
2003	031	7440020	7440020	0 TY	03
2003	031	7440360	7440360	0 TY	03
2003	031	7440382	7440382	0 TY	03
2003	031	7440417	7440417	0 TY	03
2003	031	7440439	7440439	0 TY	03
2003	031	7440473	7440473	0 TY	03
2003	031	7440484	7440484	0 TY	03
2003	031	74839	74839	9.35E-07 TY	03
2003	031	74873	74873	2.57E-03 TY	03
2003	031	74884	74884	1.21E-03 TY	03
2003	031	75003	75003	0 TY	03
2003	031	75058	75058	6.33E-01 TY	03
2003	031	75070	75070	1.20E-05 TY	03
2003	031	75092	75092	9.53E-01 TY	03
2003	031	75150	75150	1.67E-03 TY	03
2003	031	75252	75252	8.76E-04 TY	03
2003	031	75343	75343	0 TY	03
2003	031	75354	75354	0 TY	03
2003	031	75445	75445	3.70E-04 TY	03
2003	031	7550450	7550450	9.51E-04 TY	03
2003	031	75558	75558	0 TY	03
2003	031	75569	75569	1.49E-03 TY	03
2003	031	7664393	7664393	2.25E-02 TY	03
2003	031	7723140	7723140	2.58E-04 TY	03
2003	031	77474	77474	0 TY	03
2003	031	77781	77781	1.47E-04 TY	03
2003	031	7782492	7782492	0 TY	03
2003	031	7803512	7803512	0 TY	03
2003	031	79005	79005	9.60E-03 TY	03
2003	031	79016	79016	6.62E-03 TY	03
2003	031	79061	79061	9.58E-03 TY	03
2003	031	79107	79107	1.27E-03 TY	03
2003	031	79118	79118	0 TY	03
2003	031	79345	79345	8.88E-04 TY	03
2003	031	80626	80626	1.09E-03 TY	03
2003	031	822060	822060	0 TY	03
2003	031	84742	84742	5.77E-06 TY	03
2003	031	85449	85449	0 TY	03
2003	031	91203	91203	8.54E-04 TY	03
2003	031	92		9.03E-04 TY	03
2003	031	92524	92524	0 TY	03
2003	031	92671	92671	0 TY	03
2003	031	93	93	2.67E-03 TY	03
2003	031	95476	95476	7.76E-03 TY	03
2003	031	96093	96093	5.51E-05 TY	03
2003	031	98828	98828	3.59E-03 TY	03
2003	031	98862	98862	0 TY	03
2003	031	98953	98953	2.09E-03 TY	03
2003	031	BZ	71432	1.96E-02 TY	03
2003	031	CL	7782505	6.95E-03 TY	03

2003	031	FORM	50000	1.72E-03 TY	03
2003	031	HC36	78933	4.57E-01 TY	03
2003	031	HC81	1330207	8.93E-03 TY	03
2003	031	HCL	7647010	2.05 TY	03
2003	031	MN-PT	7439965	0 TY	03
2003	031	NH3	7664417	2.22E-01 TY	03
2003	031	PM10		0 TY	08
2003	031	PM25		0 TY	08
2003	031	TOLU	108883	1.79E-01 TY	03
2003	031	VOC		11.2 TY	03
2003	032	106467	106467	1.84E-04 TY	08
2003	032	109	109	4.24E-06 TY	08
2003	032	110543	110543	2.76E-01 TY	08
2003	032	125	125	1.71E-04 TY	08
2003	032	136	136	2.17E-04 TY	08
2003	032	139	139	1.29E-05 TY	08
2003	032	195	195	8.39E-05 TY	08
2003	032	198	198	6.31E-05 TY	08
2003	032	199	199	4.23E-05 TY	08
2003	032	226	226	3.24E-04 TY	08
2003	032	246	246	3.27E-05 TY	08
2003	032	253	253	1.57E-05 TY	08
2003	032	91203	91203	9.35E-05 TY	08
2003	032	93	93	3.39E-05 TY	08
2003	032	BZ	71432	3.22E-04 TY	08
2003	032	CO	630080	6.2 TY	08
2003	032	FORM	50000	1.43E-03 TY	08
2003	032	NH3	7664417	0 TY	08
2003	032	NO2	10102440	8.94 TY	04
2003	032	PM10		1.18 TY	08
2003	032	PM25		1.17 TY	08
2003	032	PT		1.18 TY	08
2003	032	SO2	7446095	0.14 TY	08
2003	032	TOLU	108883	5.21E-04 TY	08
2003	032	VOC		0.84 TY	08
2003	033	106467	106467	5.40E-06 TY	08
2003	033	109	109	2.43E-06 TY	08
2003	033	110543	110543	8.09E-03 TY	08
2003	033	125	125	7.32E-06 TY	08
2003	033	136	136	8.67E-06 TY	08
2003	033	139	139	3.78E-07 TY	08
2003	033	195	195	9.37E-06 TY	08
2003	033	198	198	6.46E-06 TY	08
2003	033	199	199	3.54E-06 TY	08
2003	033	226	226	1.18E-05 TY	08
2003	033	246	246	1.95E-05 TY	08
2003	033	253	253	1.20E-05 TY	08
2003	033	91203	91203	2.74E-06 TY	08
2003	033	93	93	4.07E-06 TY	08
2003	033	BZ	71432	9.44E-06 TY	08
2003	033	CO	630080	0.21 TY	08
2003	033	FORM	50000	3.11E-04 TY	08
2003	033	NH3	7664417	0 TY	08
2003	033	NO2	10102440	0.31 TY	04
2003	033	PM10		0.05 TY	08
2003	033	PM25		0.04 TY	08
2003	033	PT		0.05 TY	08
2003	033	SO2	7446095	0.05 TY	08
2003	033	TOLU	108883	1.53E-05 TY	08
2003	033	VOC		0.03 TY	08
2003	034	106467	10102440	1.59E-04 TY	08
2003	034	109	109	2.06E-06 TY	08
2003	034	110543	110543	2.38E-01 TY	08
2003	034	125	7446095	1.46E-04 TY	08
2003	034	136	136	1.86E-04 TY	08
2003	034	139	139	1.11E-05 TY	08

2003	034	195	195	6.76E-05	TY	08
2003	034	198	198	5.12E-05	TY	08
2003	034	199	199	3.49E-05	TY	08
2003	034	226	226	2.78E-04	TY	08
2003	034	246	7446095	1.54E-05	TY	08
2003	034	253	253	5.53E-06	TY	08
2003	034	91203	91203	8.07E-05	TY	08
2003	034	93	93	2.71E-05	TY	08
2003	034	BZ	71432	2.78E-04	TY	08
2003	034	CO	630080	5.3	TY	08
2003	034	FORM	50000	1.05E-03	TY	08
2003	034	NH3	7664417	0	TY	08
2003	034	NO2	10102440	7.69	TY	04
2003	034	PM10		1.0	TY	08
2003	034	PM25		1.0	TY	08
2003	034	PT		1.01	TY	08
2003	034	SO2	7446095	0.09	TY	08
2003	034	TOLU	108883	4.50E-04	TY	08
2003	034	VOC		0.73	TY	08
2003	035	VOC		0.007	TY	08
2003	036	VOC		0.033	TY	08
2003	037	106467	106467	1.56E-05	TY	08
2003	037	109	109	1.56E-07	TY	08
2003	037	110543	110543	2.33E-02	TY	08
2003	037	125	125	1.43E-05	TY	08
2003	037	136	136	1.81E-05	TY	08
2003	037	139	139	1.09E-06	TY	08
2003	037	195	195	6.48E-06	TY	08
2003	037	198	198	4.92E-06	TY	08
2003	037	199	199	3.37E-06	TY	08
2003	037	226	226	2.72E-05	TY	08
2003	037	246	246	1.14E-06	TY	08
2003	037	253	253	3.11E-07	TY	08
2003	037	91203	91203	7.90E-06	TY	08
2003	037	93	93	2.59E-06	TY	08
2003	037	BZ	71432	2.72E-05	TY	08
2003	037	CO	630080	0.5	TY	07
2003	037	FORM	50000	9.72E-05	TY	08
2003	037	NH3	7664417	0	TY	07
2003	037	NO2	10102440	1.79	TY	04
2003	037	PM10		0.184	TY	07
2003	037	PM25		0.184	TY	07
2003	037	PT		0.184	TY	07
2003	037	SO2	7446095	0.008	TY	08
2003	037	TOLU	108883	4.41E-05	TY	08
2003	037	VOC		0.08	TY	07
2003	038	106467	106467	8.64E-07	TY	08
2003	038	109	109	8.64E-09	TY	08
2003	038	110543	110543	1.30E-03	TY	08
2003	038	125	125	7.92E-07	TY	08
2003	038	136	136	1.01E-06	TY	08
2003	038	139	139	6.05E-08	TY	08
2003	038	195	195	3.60E-07	TY	08
2003	038	198	198	2.74E-07	TY	08
2003	038	199	199	1.87E-07	TY	08
2003	038	226	226	1.51E-06	TY	08
2003	038	246	246	6.34E-08	TY	08
2003	038	253	253	1.73E-08	TY	08
2003	038	91203	91203	4.39E-07	TY	08
2003	038	93	93	1.44E-07	TY	08
2003	038	BZ	71432	1.51E-06	TY	08
2003	038	CO	630080	0.03	TY	07
2003	038	FORM	50000	5.40E-06	TY	08
2003	038	NH3	7664417	0	TY	07
2003	038	NO2	10102440	0.1	TY	04
2003	038	PM10		0.01	TY	07

2003	038	PM25		0.01	TY	07
2003	038	PT		0.01	TY	07
2003	038	SO2	7446095	0.0001	TY	08
2003	038	TOLU	108883	2.45E-06	TY	08
2003	038	VOC		0.004	TY	08
2003	039	100027	100027	4.25E-06	TY	08
2003	039	100414	100414	1.20E-03	TY	08
2003	039	100425	100425	7.35E-02	TY	08
2003	039	106990	106990	1.51E-06	TY	08
2003	039	107028	107028	1.55E-01	TY	08
2003	039	107062	107062	1.12E-03	TY	08
2003	039	108907	108907	1.28E-03	TY	08
2003	039	108952	108952	1.97E-03	TY	08
2003	039	109	109	4.25E-05	TY	08
2003	039	117817	117817	1.82E-06	TY	08
2003	039	123386	123386	2.36E-03	TY	08
2003	039	125	125	1.59E-04	TY	08
2003	039	127184	127184	1.47E-03	TY	08
2003	039	136	136	8.12E-04	TY	08
2003	039	139	139	2.51E-04	TY	08
2003	039	1746016	1746016	3.33E-10	TY	08
2003	039	18540299	18540299	1.35E-04	TY	08
2003	039	195	195	1.86E-03	TY	08
2003	039	198	198	6.19E-02	TY	08
2003	039	199	199	1.35E-04	TY	08
2003	039	226	226	1.28E-03	TY	08
2003	039	246	246	1.08E-03	TY	08
2003	039	253	253	1.08E-04	TY	08
2003	039	51285	51285	6.96E-06	TY	08
2003	039	56235	56235	1.74E-03	TY	08
2003	039	624	624	3.48E-09	TY	08
2003	039	67663	67663	1.08E-03	TY	08
2003	039	71556	71556	1.20E-03	TY	08
2003	039	74839	74839	5.80E-04	TY	08
2003	039	74873	74873	8.89E-04	TY	08
2003	039	75014	75014	6.96E-04	TY	08
2003	039	75070	75070	3.21E-02	TY	08
2003	039	75092	75092	1.12E-02	TY	08
2003	039	7723140	7723140	1.04E-03	TY	08
2003	039	78875	78875	1.28E-03	TY	08
2003	039	78933	78933	2.09E-04	TY	08
2003	039	79016	79016	1.16E-03	TY	08
2003	039	87865	87865	1.97E-06	TY	08
2003	039	88062	88062	8.51E-07	TY	08
2003	039	92	92	3.05E-04	TY	08
2003	039	93	93	8.51E-04	TY	08
2003	039	95476	95476	9.78E-04	TY	08
2003	039	98862	98862	1.24E-07	TY	08
2003	039	BZ	71432	1.62E-01	TY	08
2003	039	CL	7782505	3.05E-02	TY	08
2003	039	CO	630080	6.5	TY	11
2003	039	FORM	50000	1.70E-01	TY	08
2003	039	HCL	7647010	7.35E-01	TY	08
2003	039	NO2	10102440	10.8	TY	08
2003	039	PM10		6.6	TY	08
2003	039	PM25		6.2	TY	08
2003	039	PT		8.8	TY	09
2003	039	SO2	7446095	0.6	TY	08
2003	039	TOLU	108883	3.56E-02	TY	08
2003	039	VOC		16.5	TY	08
2003	040	100027	100027	1.24E-07	TY	08
2003	040	100414	100414	3.50E-05	TY	08
2003	040	100425	100425	2.15E-03	TY	08
2003	040	106990	106990	4.02E-08	TY	08
2003	040	107028	107028	4.52E-03	TY	08
2003	040	107062	107062	3.28E-05	TY	08

2003	040	108907	108907	3.73E-05 TY	08
2003	040	108952	108952	5.76E-05 TY	08
2003	040	109	109	1.24E-06 TY	08
2003	040	117817	117817	5.31E-08 TY	08
2003	040	123386	123386	6.89E-05 TY	08
2003	040	125	125	4.63E-06 TY	08
2003	040	127184	127184	4.29E-05 TY	08
2003	040	136	136	2.37E-05 TY	08
2003	040	139	139	7.34E-06 TY	08
2003	040	1746016	1746016	9.71E-12 TY	08
2003	040	18540299	18540299	3.95E-06 TY	08
2003	040	195	195	5.42E-05 TY	08
2003	040	198	198	1.81E-03 TY	08
2003	040	199	199	3.95E-06 TY	08
2003	040	226	226	3.73E-05 TY	08
2003	040	246	246	3.16E-05 TY	08
2003	040	253	253	3.16E-06 TY	08
2003	040	51285	51285	2.03E-07 TY	08
2003	040	56235	56235	5.08E-05 TY	08
2003	040	624	624	1.02E-10 TY	08
2003	040	67663	67663	3.16E-05 TY	08
2003	040	71556	71556	3.50E-05 TY	08
2003	040	74839	74839	1.69E-05 TY	08
2003	040	74873	74873	2.60E-05 TY	08
2003	040	75014	75014	2.03E-05 TY	08
2003	040	75070	75070	9.38E-04 TY	08
2003	040	75092	75092	3.28E-04 TY	08
2003	040	7723140	7723140	3.05E-05 TY	08
2003	040	78875	78875	3.73E-05 TY	08
2003	040	78933	78933	6.10E-06 TY	08
2003	040	79016	79016	3.39E-05 TY	08
2003	040	87865	87865	5.76E-08 TY	08
2003	040	88062	88062	2.48E-08 TY	08
2003	040	92	92	8.92E-06 TY	08
2003	040	93	93	2.48E-05 TY	08
2003	040	95476	95476	2.85E-05 TY	08
2003	040	98862	98862	3.61E-09 TY	08
2003	040	BZ	71432	4.74E-03 TY	08
2003	040	CL	7782505	8.92E-04 TY	08
2003	040	CO	630080	0.2 TY	11
2003	040	FORM	50000	4.97E-03 TY	08
2003	040	HCL	7647010	2.15E-02 TY	08
2003	040	NO2	10102440	0.3 TY	08
2003	040	PM10		0.2 TY	08
2003	040	PM25		0.2 TY	08
2003	040	PT		0.3 TY	09
2003	040	SO2	7446095	0.01 TY	08
2003	040	TOLU	108883	1.04E-03 TY	08
2003	040	VOC		0.5 TY	08
2003	041	100027	100027	4.86E-06 TY	08
2003	041	100414	100414	1.37E-03 TY	08
2003	041	100425	100425	8.40E-02 TY	08
2003	041	106990	106990	1.27E-06 TY	08
2003	041	107028	107028	1.77E-01 TY	08
2003	041	107062	107062	1.28E-03 TY	08
2003	041	108907	108907	1.46E-03 TY	08
2003	041	108952	108952	2.26E-03 TY	08
2003	041	109	109	4.86E-05 TY	08
2003	041	117817	117817	2.08E-06 TY	08
2003	041	123386	123386	2.70E-03 TY	08
2003	041	125	125	1.81E-04 TY	08
2003	041	127184	127184	1.68E-03 TY	08
2003	041	136	136	9.29E-04 TY	08
2003	041	139	139	2.87E-04 TY	08
2003	041	1746016	1746016	3.80E-10 TY	08
2003	041	18540299	18540299	1.55E-04 TY	08



2003	041	195	195	2.12E-03 TY	08
2003	041	198	198	7.08E-02 TY	08
2003	041	199	199	1.55E-04 TY	08
2003	041	226	226	1.46E-03 TY	08
2003	041	246	246	1.23E-03 TY	08
2003	041	253	253	1.24E-04 TY	08
2003	041	51285	51285	7.96E-06 TY	08
2003	041	56235	56235	1.99E-03 TY	08
2003	041	624	624	3.98E-09 TY	08
2003	041	67663	67663	1.24E-03 TY	08
2003	041	71556	71556	1.37E-03 TY	08
2003	041	74839	74839	6.63E-04 TY	08
2003	041	74873	74873	1.02E-03 TY	08
2003	041	75014	75014	7.96E-04 TY	08
2003	041	75070	75070	3.67E-02 TY	08
2003	041	75092	75092	1.28E-02 TY	08
2003	041	7723140	7723140	1.19E-03 TY	08
2003	041	78875	78875	1.46E-03 TY	08
2003	041	78933	78933	2.39E-04 TY	08
2003	041	79016	79016	1.33E-03 TY	08
2003	041	87865	87865	2.26E-06 TY	08
2003	041	88062	88062	9.73E-07 TY	08
2003	041	92	92	3.49E-04 TY	08
2003	041	93	93	9.73E-04 TY	08
2003	041	95476	95476	1.11E-03 TY	08
2003	041	98862	98862	1.42E-07 TY	08
2003	041	BZ	71432	1.86E-01 TY	08
2003	041	CL	7782505	3.49E-02 TY	08
2003	041	CO	630080	7.7 TY	11
2003	041	FORM	50000	1.95E-01 TY	08
2003	041	HCL	7647010	8.40E-01 TY	08
2003	041	NO2	10102440	13.4 TY	08
2003	041	PM10		7.6 TY	08
2003	041	PM25		7.1 TY	08
2003	041	PT		10.1 TY	09
2003	041	SO2	7446095	0.7 TY	08
2003	041	TOLU	108883	4.07E-02 TY	08
2003	041	VOC		19.0 TY	08
2003	042	PM10		0.018 TY	08
2003	042	PM25		0.017 TY	08
2003	042	PT		0.038 TY	08
2003	043	VOC		0.007 TY	08
2003	NEW	106467	106467	3.04E-09 TY	08
2003	NEW	109	109	3.04E-11 TY	08
2003	NEW	110543	110543	4.55E-06 TY	08
2003	NEW	125	7446095	2.78E-09 TY	08
2003	NEW	136	136	3.54E-09 TY	08
2003	NEW	139	139	2.13E-08 TY	08
2003	NEW	195	195	1.27E-09 TY	08
2003	NEW	198	198	9.61E-10 TY	08
2003	NEW	199	199	6.58E-10 TY	08
2003	NEW	226	226	5.31E-09 TY	08
2003	NEW	246	246	2.23E-10 TY	08
2003	NEW	253	253	6.07E-11 TY	08
2003	NEW	91203	91203	1.54E-09 TY	08
2003	NEW	93	93	5.06E-10 TY	08
2003	NEW	BZ	71432	5.31E-09 TY	08
2003	NEW	CO	630080	2.13E-04 TY	08
2003	NEW	FORM	50000	1.90E-08 TY	08
2003	NEW	NO2	10102440	2.53E-04 TY	08
2003	NEW	PM10		1.92E-05 TY	08
2003	NEW	PM25		1.92E-05 TY	08
2003	NEW	PT		1.92E-05 TY	08
2003	NEW	SO2	7446095	1.52E-06 TY	08
2003	NEW	TOLU	108883	8.60E-09 TY	08
2003	NEW	VOC		1.39E-05 TY	08

Inventory Year (YYYY)	Facility Name	AIRS Point ID	AIRS Stack ID	Pollutant Code	Primary PCT Control Efficiency	Primary Device Type	Secondary Device Type	Description
2003	Los Alamos National	001	001	BE	99.9	101	101	HIGH-EFFICIENCY PARTICULATE AIR FILTER
2003	Los Alamos National	006	006	BE	99.9	101	101	HIGH-EFFICIENCY PARTICULATE AIR FILTER
2003	Los Alamos National	007	007	BE	99.95	101	101	HIGH-EFFICIENCY PARTICULATE AIR FILTER
2003	Los Alamos National	008	008	BE	99.97	101	101	HIGH-EFFICIENCY PARTICULATE AIR FILTER
2003	Los Alamos National	009	009	BE	99.96	101	101	HIGH-EFFICIENCY PARTICULATE AIR FILTER
2003	Los Alamos National	010	010	AL-PT	99.95	101	101	HIGH-EFFICIENCY PARTICULATE AIR FILTER
2003	Los Alamos National	010	010	BE	99.95	101	101	HIGH-EFFICIENCY PARTICULATE AIR FILTER
2003	Los Alamos National	011	011	BE	99.95	101	101	HIGH-EFFICIENCY PARTICULATE AIR FILTER
2003	Los Alamos National	013	013	PM10	93	008	002	CENTRIFUGAL COLLECTOR (CYCLONE) -
2003	Los Alamos National	013	013	PT	93	008	002	CENTRIFUGAL COLLECTOR (CYCLONE) -
2003	Los Alamos National	024	024	NO2	63	205		LOW NOX BURNERS
2003	Los Alamos National	025	025	NO2	63	205		LOW NOX BURNERS
2003	Los Alamos National	026	026	PM10	92	153		WATER SPRAYS
2003	Los Alamos National	026	026	PT	92	153		WATER SPRAYS
2003	Los Alamos National	027	027	PM10	90	075	100	SINGLE CYCLONE
2003	Los Alamos National	027	027	PT	90	075	100	SINGLE CYCLONE
2003	Los Alamos National	032	032	NO2	64	026		FLUE GAS RECIRCULATION
2003	Los Alamos National	033	033	NO2	64	026	127	FLUE GAS RECIRCULATION
2003	Los Alamos National	034	034	NO2	64	026		FLUE GAS RECIRCULATION
2003	Los Alamos National	042	042	PM10	65	075		SINGLE CYCLONE
2003	Los Alamos National	042	042	PM25	45	075		SINGLE CYCLONE
2003	Los Alamos National	042	042	PT	95	075		SINGLE CYCLONE

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