# Title V Operating Permit
# Semi-Annual Emissions Report

July 1 – December 31, 2005

## Identifying Information

Source Name: Los Alamos National Laboratory County: Los Alamos .

Source Address:
City: Los Alamos State: NM Zip Code: 87545

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Principal Company Product or Business: National Security and Nuclear Weapons Research Primary SIC Code: 9711

Permit No. P100 {IDEA/Tempo ID No. 856} Permit Issued Date: April 30, 2004

## Certification of Truth, Accuracy, and Completeness

I, Douglas M. Stavert certify that, based on information and belief formed after reasonable inquiry, the statements and information in the attached semi-annual emissions report are true, accurate, and complete.

Signature _____ Date: 1/24/06

Title: Deputy Division Leader (Acting), Environmental Stewardship Division

# Los Alamos National Laboratory
# 2005 Semi-Annual Emissions Report
# (July through December)

This report is being provided to meet the requirement set forth in permit condition 4.1 of the Los Alamos National Laboratory (LANL) Operating Permit Number P100. The emissions were calculated using operating data recorded during the second six months of 2005. The emissions from the first six months of 2005 were submitted in the previous Semi-Annual Emissions Report, but are included here to calculate annual emissions.

## Facility Emissions

The following table displays the actual facility-wide emissions compared with the facility-wide emission limits specified in permit condition 2.11 of the Operating Permit. These emissions include insignificant sources, which are included to demonstrate that facility-wide emissions are below all PSD applicability threshold limits. Also, due to the method used for calculating Hazardous Air Pollutant (HAP) and Volatile Organic Compound (VOC) emissions from chemical use, fugitive emissions are included (see permit condition 4.1).

| Pollutant | January - June Emissions (ton) | July - December Emissions (ton) | 2005 Annual Emissions (ton) | Facility-Wide Emission Limits (Permit Condition 2.11) (ton per year) |
|---|---|---|---|---|
| **Nitrogen Oxides ($NO_X$)** | 27.6 | 22.9 | 50.5 | 245 |
| **Carbon Monoxide (CO)** | 19.6 | 15.5 | 35.1 | 225 |
| **Volatile Organic Compounds (VOCs)** | 8.0 | 6.6 | 14.6 | 200 |
| **Sulfur Dioxide ($SO_2$)** | 0.9 | 1.0 | 1.9 | 150 |
| **Particulate Matter (PM)** | 2.8 | 2.3 | 5.1 | 120 |
| **Hazardous Air Pollutants (HAPs)** | 4.3 | 2.2 | 6.5 | 24 combined |
| **Highest Individual HAP (Hydrochloric Acid)** | 0.7 | 0.3 | 1.0 | 8 individual |

**Note:** NOx emissions shown for Jan-June are slightly lower than originally reported due to a correction to one of the generator meter readings after the report was submitted.

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## Source Emissions

The following are the actual emissions from permitted sources listed in permit condition 2.0 of the Operating Permit for the six month reporting period. Included with these emissions are the source specific emission limits when applicable.

### Permit Condition/Source

**2.1 Asphalt Production - BDM Asphalt Plant located at TA-60**

| Source | Pollutant | Jan-June Emissions (ton) | July-Dec Emissions (ton) | Annual Emissions (ton) | Emission Limits (Permit Condition 2.1.2) (ton per year) |
|---|---|---|---|---|---|
| BDM Asphalt Plant TA-60 | $NO_X$ | 0.0 | 0.020 | 0.020 | 1.0 |
| | $SO_2$ | 0.0 | 0.004 | 0.004 | 1.0 |
| | PM | 0.0 | 0.008 | 0.008 | No Ton Per Year Limit |
| | CO | 0.0 | 0.324 | 0.324 | 2.6 |
| | VOC | 0.0 | 0.007 | 0.007 | 1.0 |
| | HAPs | 0.0 | 0.006 | 0.006 | No Source Permit Limit |

**Note**: The new Asphalt Plant started operation in July 2005. The Asphalt Plant does not have a ton per year limit for PM. Compliance with the lb/hr emission limit was demonstrated during the initial source compliance test.

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**2.2 Beryllium Activities**

| Source | Pollutant | Jan-June Emissions | July-Dec Emissions | Annual Emissions | Emission Limits (Permit Condition 2.2.2) |
|---|---|---|---|---|---|
| **Beryllium Test Facility TA-3-141** | Beryllium (gram) | 3.30E-03 | 3.30E-03 | 0.007 | 3.5 gm/yr |
| **Target Fabrication Facility TA-35-213** | Beryllium (gram) | 9.44E-03 | 9.00E-03 | 0.018 | 0.36 gm/yr |
| **Plutonium Facility TA-55-PF4** | | | | | |
| Machining Operation | Beryllium (gram) | 1.495 | 1.41 | 2.91 | 2.99 gm/yr |
| | Aluminum (gram) | 1.495 | 1.41 | 2.91 | 2.99 gm/yr |
| Foundry Operation | Beryllium (gram) | 0 | 0 | 0 | $8.73 \times 10^{-4}$ gm/yr |
| | Aluminum (gram) | 0 | 0 | 0 | $8.73 \times 10^{-4}$ gm/yr |
| **Beryllium Total (tons) =** | | **1.66E-06** | **1.57E-06** | **3.23E-06** | |
| **Aluminum Total (tons) =** | | **1.65E-06** | **1.55E-06** | **3.20E-06** | |

**Note**: Emission values shown for the Beryllium Test Facility are from actual stack emission measurements. Emissions for the Target Fabrication Facility are based on initial compliance testing of that source and a conservative use of maximum hours of operation. Emissions for the Plutonium Facility Machining Operation are based on initial compliance testing of the source and a conservative use of maximum throughput. The Plutonium Facility Foundry Operations did not operate during 2005. Other beryllium sources listed in section 2.2 of the permit do not require reporting in the Semi-Annual Emissions Report.

**2.3 Boilers and Heaters**

| Source | Pollutant | January - June Emissions (ton) | July - December Emissions (ton) | Annual Emissions (ton) | Emission Limits (Permit Condition 2.3.2) (ton per year) |
|---|---|---|---|---|---|
| **Boilers and Heaters** | **$NO_X$** | 15.9 | 11.4 | 27.3 | 80 |
| | **$SO_2$** | 0.1 | 0.1 | 0.2 | 50 |
| | **PM** | 1.3 | 0.9 | 2.2 | 50 |
| | **$PM_{10}$** | 1.3 | 0.9 | 2.2 | 50 |
| | **CO** | 12.8 | 9.1 | 21.9 | 80 |
| | **VOC** | 0.9 | 0.6 | 1.5 | 50 |
| | **HAPs** | 0.3 | 0.2 | 0.5 | No Source Limit |

**Note**: The emissions shown in this table include significant and insignificant sources. This section does not include the TA-3-22 Power Plant boilers (see section 2.9). The TA-21 steam plant boilers are included in this table.

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**2.4 Carpenter Shops**

| Source | Pollutant | January - June Emissions (ton) | July - December Emission (ton) | Annual Emissions (ton) | Emission Limits (Permit Condition 2.4.2) (ton per year) |
|---|---|---|---|---|---|
| **TA-3-38** | **$PM_{10}$** | 0.027 | 0.017 | 0.044 | 3.07 |
| **TA-15-563** | **$PM_{10}$** | 0.009 | 0.032 | 0.041 | 2.81 |

**2.5 Chemical Usage**

| Source | Pollutant | January - June Emissions (ton) | July - December Emissions (ton) | Annual Emissions (ton) | Emission Limits (Permit Condition 2.5.3.1) |
|---|---|---|---|---|---|
| **Chemical Usage** | **VOCs** | 6.1 | 5.1 | 11.2 | Source limits refer to facility-wide limits. (See Facility Emissions Table on Page 1) |
| | **HAPs** | 3.7 | 1.8 | 5.5 | |
| | **HAP (Hydrochloric** | 0.7 | 0.3 | 1.0 | |

**2.6 Degreasers**

| Source | Pollutant | January - June Emissions (ton) | July - December Emissions (ton) | Annual Emissions (ton) | Emission Limits (Permit Condition 2.6.2.1) (ton per year) |
|---|---|---|---|---|---|
| **Degreaser TA-55-DG-1** | **VOCs** | 0.006 | 0.005 | 0.011 | Source limits refer to facility-wide limits. (See Facility Emissions Table on Page 1) |
| | **HAPs** | 0.006 | 0.005 | 0.011 | |

Note: Degreasers TA-55-DG-2 and TA-55-DG-3 were not used in 2005. These degreasers are not expected to be used in the near future and are in storage.

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**2.7 Internal Combustion Sources**

| Source | Pollutant | Jan-June Emissions (ton) | July-Dec Emissions (ton) | Annual Emissions (ton) | Emission Limits (Permit Condition 2.7.2) (ton per year) |
|---|---|---|---|---|---|
| Generator TA-33-G-1 | TSP | 0.0 | 0.0 | 0.0 | 0.6 |
| | $PM_{10}$ | 0.0 | 0.0 | 0.0 | 0.6 |
| | $NO_X$ | 0.0 | 0.0 | 0.0 | 18.1 |
| | CO | 0.0 | 0.0 | 0.0 | 15.2 |
| | VOC | 0.0 | 0.0 | 0.0 | 0.3 |
| | $SO_X$ | 0.0 | 0.0 | 0.0 | 2.5 |
| | HAPs | 0.0 | 0.0 | 0.0 | No Source Limit |

**Note**: The TA-33-G-1 generator did not operate during 2005.

| Source | Pollutant | Jan-June Emissions (ton) | July-Dec Emissions (ton) | Annual Emissions (ton) | Emission Limits |
|---|---|---|---|---|---|
| Standby Generators | TSP | 0.1 | 0.2 | 0.3 | No Source Specific Emission Limits for Standby Generators |
| | $PM_{10}$ | 0.1 | 0.2 | 0.3 | |
| | $NO_X$ | 2.9 | 4.0 | 7.0 | |
| | CO | 0.7 | 1.0 | 1.7 | |
| | VOC | 0.1 | 0.2 | 0.3 | |
| | $SO_X$ | 0.7 | 0.9 | 1.5 | |
| | HAPs | 0.0 | 0.0 | 0.0 | |

**Note 1:** Standby Generators are insignificant sources. Insignificant source information is provided to demonstrate compliance with PSD applicability thresholds.

**Note 2:** Emissions shown for Jan-June are slightly lower than originally reported due to a correction to one of the generator meter readings after the report was submitted.

**2.8.a Paper Shredder**

| Source | Pollutant | January - June Emissions (ton) | July - December Emissions (ton) | Annual Emissions (ton) | Emission Limit (Permit Condition 2.8.2.1) (ton per year) |
|---|---|---|---|---|---|
| Paper Shredder TA-52-11 | TSP | 0.00 | 0.00 | 0.00 | 13 |

**Note**: The paper shredder was shutdown in July 2004 and was replaced with a new data disintegrator (see data disintegrator - section 2.8.b).

**2.8.b Data Disintegrator (Unit replaced paper shredder)**

| Source | Pollutant | January - June Emissions (ton) | July - December Emissions (ton) | Annual Emissions (ton) | Emission Limits (NSR Permit No. 2195-H) (ton) |
|---|---|---|---|---|---|
| Data Disinterator TA-52-11 | TSP | 0.20 | 0.12 | 0.32 | 9.9 |
| | $PM_{10}$ | 0.18 | 0.11 | 0.29 | 9.9 |

**Note:** The data disintegrator was started on August 18, 2004, and replaced the old paper shredder. This unit and its allowable emissions were included in LANL's Title V operating permit application modification submitted to NMED on July, 2005. The data disintegrator was installed under Air Quality Permit No. 2195-H. The emissions from this unit are included in the facility-wide total.

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

| Source | Pollutant | January - June Emissions (ton) | July - December Emissions (ton) | Annual Emissions (ton) | Emission Limits (Permit Condition 2.9.2) 12 mo. rolling total (ton) | Emission Limits (NSR Permit No. 2195BM1) 12 mo. rolling total (ton) |
|---|---|---|---|---|---|---|
| Power Plant Boilers TA-3-22 | $NO_X$ | 8.8 | 7.5 | 16.3 | 99.6 | 60.2 |
| | $SO_2$ | 0.1 | 0.1 | 0.2 | 36.9 | 7.9 |
| | TSP | 1.2 | 1.0 | 2.1 | 15.7 | 8.4 |
| | $PM_{10}$ | 1.2 | 1.0 | 2.1 | 15.7 | 8.2 |
| | CO | 6.1 | 5.1 | 11.2 | 81.3 | 41.3 |
| | VOC | 0.8 | 0.7 | 1.5 | 11.1 | 5.6 |
| | HAPs | 0.3 | 0.2 | 0.5 | No Source Limit | No Source Limit |

**Note:** The allowable emission limits from Air Quality Permit No. 2195BM1 are included above. This permit was issued on July 30, 2004, for the installation of a combustion turbine. Installation of the turbine is not yet complete. These limits are the most current applicable limits for the power plant boilers. These new limits will be included in the next LANL Title V operating permit modification.

**2.10 Rock Crusher**

The Rock Crusher was not used in 2005. The unit was retired June 10, 2004.