

TA-3 Power Plant

General Description

- ❖ The TA-3 Power Plant produces steam to produce electricity in one 10-megawatt and two 5-megawatt steam turbine/generator sets. Steam is also used for space heating and for process needs.
- ❖ The plant consists of three dual-fired boilers with natural gas being the primary fuel and No. 2 fuel oil available for use as a standby fuel.
- ❖ Each boiler has a nameplate maximum heat input capacity of 210 MMBtu per hour. Given the high elevation of the Laboratory, the maximum heat input capacity of each boiler derated for altitude is 178.5 MMBtu per hour.
- ❖ The boilers were installed in the early 1950s at the Laboratory.
- ❖ Control equipment: The power plant boilers were retrofitted with an air pollution control system called flue gas recirculation to reduce NO₂ emissions by approximately 70%. The flue gas recirculation system began full operation in September 2002.
- ❖ The power plant is limited to burning no more than 4,000 MMscf of natural gas and 500,000 gallons of No. 2 fuel oil.

Applicable Requirements

- ❖ The TA-3 Power Plant is subject to the conditions of air-quality construction permit No. 2195-B, the opacity limit in 20.2.61 NMAC, and the NO₂ limits specified by 20.2.33 NMAC and 20.2.34 NMAC.
- ❖ Emission limits: Permit No. 2195-B specifies pound per hour and ton per year emission limits for NO_x, CO, SO₂, VOC, and PM. By NMED regulation, NO_x is also limited to 0.3 pound per MMBtu of heat input. Visible emissions shall not equal or exceed an opacity of 20%.
- ❖ Operational Requirements: The plant is limited to use no more than 4,000 MMscf of natural gas per 365 day rolling total and 500,000 gallons of No. 2 fuel oil per 12 month rolling total. Natural gas shall contain no more than 5 grains of total sulfur per 100 square cubic feet. No. 2 fuel oil shall contain less than 0.34% sulfur by weight.

Proposed Monitoring, Recordkeeping, and Reporting

- ❖ Monitoring: Use a flow meter to measure the total amount of natural gas used on a daily basis. Monitor total fuel-oil consumption on a monthly basis. Compliance stack tests for NO_x and CO are required if total natural gas usage exceeds 3400 MMscf per 365-day rolling total.
- ❖ Recordkeeping: Keep records of total natural gas usage daily and on a 365-day rolling total. Record total fuel-oil usage monthly and on a rolling 12-month total. Records must verify the sulfur content of natural gas and No. 2 fuel oil.
- ❖ Reporting: Submit a semi-annual emissions report and monitoring report to the NMED.

Comparison of TA-3 Power Plant and LANL Emissions

