**TECHNICAL REVIEW DOCUMENT**
**FOR**
**OPERATING PERMIT 95OPOT071**
to be issued to:

La Junta Municipal Utilities
Otero County
Facility ID 0890003

Prepared on February 5, 1997
Revised February 20, 1997
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## I. Purpose

This document will establish the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Colorado Title V Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA, during Public Comment, and for other interested parties. Information in this report is primarily from the application received on September 21, 1995 and a revised application received on February 14, 1996. In addition, a site visit was conducted on May 14, 1996 to confirm the information in the application.

## II. Source Description

This facility generates electricity for primary, emergency, and peaking use and is classified under the Standard Industrial Classification 4911. The facility consists of nine (9) internal combustion engines driving electrical generators. Five of the engines are run on diesel fuel while the other four engines are capable of running on diesel, natural gas, or any combination of the two. Two of the engines are designated as inoperable and used for spare parts. A water jacket heater is used during the winter months to keep the engines at a constant temperature when the engines are not in use. The facility has an approximate electrical generation capacity of 18 mega-watts (MW).

The facility is located in the city of La Junta, Otero County, Colorado. It is bounded on by First Avenue, Bellview Avenue, and Highway 50. The area in which the plant operates is designated as attainment for all criteria pollutants. There are no affected states within 50 miles or Federal Class I designated areas within 100 kilometers of the plant. This facility, at approximately 18 MW, is exempt under 40 CFR 70.6 (b)(2) from the Title V (Acid Rain) program . This source is considered to be a major source for Oxides of Nitrogen (NOx) and Carbon Monoxide (CO) in an attainment area (Potential to Emit > 250 Tons Per Year) but

was constructed prior to the creation of the Prevention of Significant Deterioration (PSD) regulations on 12/5/74 and the adoption of the current regulation on 8/7/80. The facility has not undergone any major modifications which would trigger additional PSD review. Facility wide emissions are as follows:

| Pollutant | Diesel Fuel* Potential to Emit (TPY) | Diesel and Diesel/Natural Gas** Potential to Emit (TPY) | 1994 Actual Emissions (TPY) |
|---|---|---|---|
| NOx | 2161.1 | 2471.5 | 5.7 |
| CO | 470.0 | 362.8 | 1.0 |
| $SO_2$ | 145.8 | 37.0 | 0.2 |
| VOC | 147.9 | 84.5 | 0.2 |
| PM | 154.4 | 44.7 | 0.2 |
| $PM_{10}$ | 147.4 | 43.3 | 0.2 |

*All engines burning diesel fuel only
**Engines S002-S004 burning diesel, Engines S006-S009 burning a combination of diesel and natural gas

All emissions are rounded to one decimal place. Potential emissions are based upon 8760 hours/year of operation at maximum capacity. Actual emissions are based upon the last Air Pollution Emission Notices (APENs) received by the Division (2/14/96). This facility is required to provide an updated APEN in the event that actual emissions of any of the above air pollutants increase 5 tons per year or more above the level reported on the last APEN submitted to the APCD. Under the guidelines of EPA's Whitepaper for streamlining the operating permit process, actual emissions for the last data year were not required during the application process. Therefore, the Division assumes that emissions from this facility have remained the same or decreased since the last APEN submittal based upon the compliance certification in the operating permit application.

## III. Emission Sources

The following emission units are specifically regulated under terms and conditions of the Operating Permit for this site:

**S001 - Fairbanks-Morse, Model 33D16, SN: 813441, Internal Combustion Engine (ICE). Unit is inoperable.**

**S002 - Fairbanks-Morse, Model 33D16, SN: 813749, Diesel-Fired ICE rated at 1225 Maximum Horsepower, 7.84 mmBtu/Hr Maximum Fuel Design Rate, and 6,400 Btu/Hp-Hr Maximum Heat Rate.**

**S003 - Fairbanks-Morse, Model 33D16, SN: 814908, Diesel-Fired ICE rated at 700 Maximum Horsepower, 4.2 mmBtu/Hr Maximum Fuel Design Rate, and 6,000 Btu/Hp-Hr Maximum Heat Rate.**

**S004 - Fairbanks-Morse, Model 33E16, SN: 821690, Diesel Fired ICE rated at 1750 Maximum Horsepower, 8.96 mmBtu/Hr Maximum Fuel Design Rate, and 5,120 Btu/Hp-Hr Maximum Heat Rate.**

**S005 - Fairbanks-Morse, Model 33FD, SN: 919682, ICE. Unit is inoperable.**

**S006 - Worthington, Model SWGO 14, SN:V03479, Diesel and Diesel/Natural Gas Fired ICE rated at 3631 Maximum Horsepower, 22.96 mmBtu/Hr Maximum Fuel Design Rate (18.2 mmBtu/Hr for Diesel), and 6,323 Btu/Hp-Hr Maximum Heat Rate (5,012 Btu/Hp-Hr for Diesel).**

**S007 - Cooper/Bessemer, Model LSV16, SN: 6493, Diesel and Diesel/Natural Gas Fired Internal Combustion Engine rated at 4945 Maximum Horsepower, 43.32 mmBtu/Hr Maximum Fuel Design Rate (33.46 mmBtu/Hr for Diesel), and 8,760 Btu/Hp-Hr Maximum Heat Rate (6,766 Btu/Hp-Hr for Diesel).**

**S008 - Cooper/Bessemer, Model LSV16, SN: 6593, Diesel and Diesel/Natural Gas Fired Internal Combustion Engine rated at 4945 Maximum Horsepower, 43.32 mmBtu/Hr Maximum Fuel Design Rate (33.46 mmBtu/Hr for Diesel), and 8,760 Btu/Hp-Hr Maximum Heat Rate (6,766 Btu/Hp-Hr for Diesel).**

**S009 - Enterprise, Model DSG-RV-16-14, SN: 70038-2288, Diesel and Diesel/Natural Gas Fired Internal Combustion Engine rated at 7131 Maximum Horsepower, 36.2 mmBtu/Hr Maximum Fuel Design Rate (41.16 mmBtu/Hr for Diesel), and 6,076 Btu/Hp-Hr Maximum Heat Rate (5,772 Btu/Hp-Hr for Diesel).**

Discussion:

**1. Applicable Requirements-**

Units S001- S003 were installed in 1939, unit S004 was installed in 1942, unit S005 in 1950, unit S006 in 1958, unit S007 in 1962, unit S008 in 1962, and unit S009 in 1971. The units have not been modified or reconstructed since installation. No Construction Permit was required prior to 1972. Because the units are considered "grandfathered" from existing Construction Permit requirements (Colorado Regulation No. 3, Part B, Section I.A.), there are few applicable requirements. For many pollutants, the units have no limitations, however, for fee and inventory purposes actual emissions must be calculated.

Units S001 and S005 are inoperable and used for spare parts only. Units S002 - S004 are diesel fired while units S006 - S009 may use either diesel fuel or a combination of diesel and natural gas.

In general, equipment (including ICEs) burning fossil fuel containing sulfur are subject to Colorado Regulation No. 1 and No. 6 standards for $SO_2$. However, total facility emissions are below three (3) tons per day and the Division is not aware of any violations of Federal or State Ambient Air Quality Standards. Therefore, the facility is exempt from Regulation No. 1 $SO_2$ process based standards (Regulation No. 1, Section VI.A.2.). Additionally, all subject equipment was installed prior to the applicability date (January 30, 1979) for the Regulation No. 6 $SO_2$ standard. Therefore, no specific $SO_2$ limitations were included in the operating permit.

While emissions from the engines are not specifically limited, they must be tracked and recorded for inventory and fee purposes. Colorado charges a fee on each ton of NOx, $SO_2$, VOC, and non-fugitive PM emitted up to 4,000 tons/pollutant-year. Hazardous Air Pollutants (HAPs), while not specifically cited in the operating permit, are also subject to fee and inventory requirements and must be tracked as well.

All emission units at this facility are subject to the 30% opacity standard as stated in Colorado Regulation No. 1, Section II, A.4., for opacity resulting from the building of a new fire, cleaning of fire boxes, soot blowing, start-up, any process modification, or adjustment or occasional cleaning of control equipment. All emission units at this facility are also subject to the general 20% opacity standard as stated in Regulation No. 1, Section II, A.

**2. Emission Factors-**

The engines at this facility burn either diesel fuel (distillate fuel oil No. 2) or a combination of diesel fuel and natural gas. The primary pollutants from internal combustion engines are NOx, VOC, CO and to a lesser degree particulates (PM and PM10). $SO_2$ is also present and

is directly related to the amount of sulfur in the fuel. Diesel fuel typically contains less than 0.7% Sulfur by weight. Natural gas contains negligible amounts of sulfur.

The use of diesel and natural gas together creates what is known as a dual-fueled engine. These engines were developed to obtain performance benefits inherent to both fuels. The EPA Document AP-42, Compilation of Air Pollutant Emission Factors (Section 3.4 Large Stationary Diesel and All Stationary Dual-fueled Engines), contains more specifics on these engines. While AP-42 does have some emission factors developed for dual-fueled engines (95% diesel and 5% natural gas), it may be assumed that the combustion emissions are essentially the combination of each fuel's emissions. Therefore, individual emission factors for diesel and natural gas were used and the resultant emissions summed for the dual-fueled engines.

La Junta will be using general EPA approved emission factors. EPA emission factors are generally representative for these engines. EPA Document 450/4-90-003, AIRS Facility Subsystem- Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, essentially places AP-42 data into easily used tables. While the engines are not identical, they fall within the same general classification and have similar emission rates. The factors, for each fuel, are listed below[1]:

| FUEL: Diesel Fuel | | FUEL: Natural Gas |
|---|---|---|
| SCC:2-01-001-02 | | SCC:2-01-002-02 |
| Pollutant | Emission Factor (lb/1000 gallons) | Emission Factor (lb/mmScf) |
| NOx | 469 | 3400 |
| CO | 102 | 430 |
| $SO_2$ | 31.2 | 0.6 |
| VOC | 32.1 | 82.9 |
| PM | 33.5 | 10 |
| $PM_{10}$ | 32 | 10 |

[1] Dual-fueled engine emissions are the sum of the diesel and natural gas components.

**3. Monitoring Plan-** Condition 1.1 of the operating permit deals with the inoperable engines S001 and S005. The condition essentially disallows operation without first obtaining a modification to the operating permit. Conditions 2.1 to 2.4 of the operating permit list the

Monitoring and Recording provisions necessary to verify compliance with the applicable requirements for the diesel-fired engines (S002 - S004). Conditions 3.1 to 3.4 do the same for the engines which burn both diesel and diesel/natural gas (S006 - S009).

As stated above, the engines have no criteria or HAP pollutant limitations. However, all sources are required to record emissions for fee and inventory purposes. To this end, the Division has included the emission factors for all pertinent criteria pollutants in the Operating Permit to be used by the facility to calculate their annual emissions. The source will also monitor and record fuel consumed for use in calculating emissions.

The Division has determined, based upon AP-42 emission factors and engineering judgement, that visible emissions from internal combustion engines when solely burning diesel fuel and diesel/natural gas will be minimal. Additionally, the units are used sparingly. Therefore, a visual observation of emissions will be performed once per year within one hour of the commencement of startup for the 30% opacity requirement and every 6 months within 24 hours of startup and then again during normal operations for the 20% opacity requirement. All opacity observations must be performed using EPA Method 9. Observations are not required for units which are not run during the year.

**4. Compliance Status-** A historical review of the facility's master file revealed some early problems with emission notice submittals but no enforcement action. This facility certified that they were in compliance with all applicable requirements at the time of their Title V Operating Permit Submittal. Based upon the information provided and an inspection of the equipment covered in the application, this facility is considered to be in compliance with all applicable requirements.

## IV. Insignificant Activities

A list of insignificant activities was provided with the application. These activities do not pose a significant threat to air quality. These items were placed in an appendix in the proposed permit so that they would be of use during inspections. Of specific interest:

1. Diesel fuel tank (less than 400,000 gallon annual throughput)

## V. Alternative Operating Scenarios

No alternative operating scenarios were proposed for this facility.

## VI. Permit Shield

Items requested by the facility and determined to be inapplicable are:

**Colorado Regulation No. 6, Part B.II.C.; Colorado Regulation No. 1, Section III.A.; Standard for Particulate Matter for Fuel-Burning Equipment.** Internal combustion engines do not meet the definition of "fuel-burning equipment".

**40 CFR Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced After August 17, 1971. Adopted by Reference into Colorado Regulation No. 6.** All units were constructed prior to the applicability due date (8/17/71). The units have not been modified or reconstructed since installation.

**40 CFR Subpart Da, Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978. Adopted by Reference into Colorado Regulation No. 6.** Units S001 - S009 are below the 250 mmBtu/hr heat input rate required for this subpart to be applicable.

**Colorado Regulation No. 1, Section VI. Sulfur Dioxide Standard for Existing Equipment.** The facility and units S001 - S009 are exempt from sulfur dioxide process based emission standards under Colorado Regulation No. 1, Section VI.A.2. Total facility potential uncontrolled $SO_2$ emissions are below 3 Tons/Day and the Division is not aware of any Federal or State Ambient Air Quality violations.

**Colorado Regulation No. 1, Part B, Section IV. Standards of Performance for New Sources of Sulfur Dioxide.** All units were constructed prior to the applicability due date (1/30/79). The units have not been modified or reconstructed since installation.

## VII. Accidental Release - 112(r)

A provision under Part 70 of the Clean Air Act (amended) is the Accidental Release provisions of section 112(r). Under this program, EPA established a list of substances which pose the greatest risk of death or serious injury to humans or extreme harm to the environment. Additionally, a list of flammable substances and high explosives were set forth. Each substance was given a threshold or deminimis level by considering their individual toxicity, reactivity, volatility, flammability, explosiveness, and dispersiveness. Facilities using any of these substances in greater-than-threshold quantities are required to prepare and implement a Risk Management/Prevention Plan for those substances.

This facility has notified the Division in their Title V application (Form 607) that they are not subject to the requirements of 112(r).