

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT

PERMITTEE

City of Geneseo - Geneseo Municipal Utilities  
Attn: James Roberts, Electric Department Superintendent  
433 East North Street  
Geneseo, Illinois 61254

Application No.: 73090137                      I.D. No.: 073050AAA  
Applicant's Designation: ELEC DEPT      Date Received: September 29, 2000  
Subject: Electric Generating Plant  
Date Issued:                                      Expiration Date:  
Location: Geneseo Municipal Utilities, 433 E. North Street, Geneseo, Henry County

Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of seven Cooper-Bessemer dual fuel fired stationary engine generators (engines 1, 2, 3, 4, 5A, 6A and 7), one Caterpillar diesel fuel fired stationary engine generator (Engine 10) and one Kewanee natural gas fired boiler that combusts only natural gas, pursuant to the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This Federally Enforceable State Operating Permit (FESOP) is issued to limit the emissions of air pollutants from all the emission units combined, as listed in the above paragraph to less than major source thresholds, for example, less than 100 tons per year of nitrogen oxide (NO<sub>x</sub>), as further described in Attachment A. As a result, the source is excluded from requirements to obtain a Clean Air Act Permit Program (CAAPP) permit.
- b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
- 2a. i. Total monthly fuel consumption by the engines shall be limited by the following equation:

$$(X) + 3.224(Y) + 1.3733(Z) \leq 78,341$$

X = Gal/mo of diesel fuel used by Units 1, 2, 3, 4, 5A, 6A and 7.

Y = 1,000 scf/mo of natural gas used by Units 1, 2, 3, 4, 5A, 6A and 7.

Z = Gal/mo of diesel fuel used by Unit 10.

- ii. Total annual fuel consumption by the engines shall be limited by the following equation:

$$(X) + 3.224(Y) + 1.3733(Z) \leq 313,364$$

X = Gal/yr of diesel fuel used by Units 1, 2, 3, 4, 5A, 6A and 7.

Y = 1,000 scf/yr of natural gas used by Units 1, 2, 3, 4, 5A, 6A and 7.

Z = Gal/yr of diesel fuel used by Unit 10.

- b.
  - i. Total monthly natural gas consumption by the boiler shall not exceed 2,445,500 standard cubic feet.
  - ii. Total annual natural gas consumption by the boiler shall not exceed 29,346,000 standard cubic feet.
  - iii. Natural gas shall be the only fuel combusted in the boiler.
- c. These limitations are based on information submitted in the application and restrict the potential emissions of the electric generating plant to below the levels at which the plant would be major as further explained in Attachment A.

- 3a. Emission of equipment shall not exceed the following limits:

Item of Equipment	NO <sub>x</sub> Emissions (Tons/Year)
Engines	95.0 (Total)
Boiler	1.5

- b. Compliance with annual limits shall be determined from a running total of twelve months of data.
- 4. The emissions of Hazardous Air Pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act shall not equal or exceed 10 tons per year of any single HAP or 25 tons per year of any combination of such HAPs, or such lesser quantity as USEPA may establish in rule which would require the Permittee to obtain a CAAPP permit from the Illinois EPA. As a result of this condition, this permit is issued based on the emissions of any HAP from this source not triggering the requirement to obtain a CAAPP permit from the Illinois EPA.
- 5. At all times, the Permittee shall to the extent practicable, maintain and operate the above referenced emission sources, in a manner consistent with good air pollution control practice for minimizing emissions.

6. Organic liquid by-products or waste materials shall not be used in any internal combustion engine without written approval from the Illinois EPA.
7. The Illinois EPA shall be allowed to sample all fuels stored at the above location.
- 8a. The Permittee shall maintain inspection and maintenance logs for the engines and boiler.
- b. The Permittee shall maintain monthly records of the following items:
  - i. Natural gas consumed by Units 1, 2, 3, 4, 5A, 6A and 7 (standard cubic feet per month and standard cubic feet per year).
  - ii. Diesel fuel consumed by Units 1, 2, 3, 4, 5A, 6A and 7 (gallons per month and gallons per year).
  - iii. Diesel fuel consumed by Unit 10 (gallons per month and gallons per year).
  - iv. Natural gas consumed by the boiler (standard cubic feet per month and standard cubic feet per year).
- c. The Permittee shall maintain the following emissions records on an annual basis:
  - i. Emissions for NO<sub>x</sub>, CO, SO<sub>2</sub>, and VOM (tons per year) for the engines, with supporting calculations.
9. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least 3 years from the date of entry and shall be made available for inspection and copying by the Illinois EPA and USEPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to the Illinois EPA or USEPA request for records during the course of a source inspection.
- 10a. The Permittee shall submit an Annual Emissions Report to the Illinois EPA by May 1st of each year. With this report, the Permittee shall submit the following information: annual fuel usage of the engines and annual fuel usage of the boilers, dual fuel oil consumption and natural gas consumption. If there has been no exceedance during the prior calendar year, the Annual Emissions Report shall include a statement to that effect.
- b. If there is an exceedance of the requirements of this permit as determined by the record required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the

recordkeeping requirements, a copy of the relevant records, and a description of the exceedance(s) or violation and efforts to reduce emissions and future occurrences.

11. The Permittee shall submit the following additional information with the Annual Emissions Report, due May 1st of each year: The records required by Condition 8(b) from the prior calendar year.
12. Two copies of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system shall be sent to:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
Compliance Section (#40)  
P.O. Box 19276  
Springfield, Illinois 62794-9276

Telephone: 217/782-5811      Facsimile: 217/782-6348

and one copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency  
Division of Air Pollution Control  
5415 North University  
Peoria, Illinois 61614

Telephone: 309/693-5467      Facsimile: 309/693-5467

It should be noted that this permit includes a new Cooper Bessemer dual fuel engine (Unit 6A), which was installed pursuant to Construction Permit 01090032 to replace a Fairbanks-Morse engine (Unit 6).

If you have any questions concerning this permit, please call Youra Benofamil at 217/782-2113.

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:YB:psj

cc: Region 2  
IEPA, FOS - CMU  
Lotus Notes

I.D. No.: 073050AAA  
 Application No.: 73090137  
 Facility: City of Geneseo - Geneseo Municipal Utilities

Attachment A - Emissions Summary

1a. Emissions from the stationary engine generators:

<u>Fuel Usage</u>	<u>Combined Engine Capacity</u>	<u>Pollutant</u>	<u>Emission Rate</u>	<u>Annual Emissions</u>
313,364 gallons per year of equivalent gallons per year	36,000 Horsepower	PM	14.0 lb/1000 gal	2.2 ton/year
		VOM	46.6 lb/1000 gal	7.3 ton/year
		CO	79.3 lb/1000 gal	12.4 ton/year
		SO <sub>2</sub>	23.3 lb/1000 gal	3.7 ton/year
		NO <sub>x</sub>	606.3 lb/1000 gal	95.0 ton/year

This table describes the maximum emissions of the engines and is based on the actual emissions determined from maximum fuel usage, manufacturer's emission rates converted from grams per brake horsepower-hour to pounds per 1000 gallon by calculating maximum fuel used at combined maximum engine load and 210 hours per year, and the information provided in the permit application.

b. Emissions from the boiler combusting natural gas exclusively:

<u>Fuel Usage</u>	<u>Maximum Firing Rate</u>	<u>Pollutant</u>	<u>Emission Rate</u>	<u>Annual Emissions</u>
29,346,000 scf	3.35 mmBtu/hr	NO <sub>x</sub>	100 lb/mmscf	1.5 ton/year

This table defines the potential emissions of the natural gas fired boiler and are based on the actual emissions determined from maximum firing rate, the combustion of natural gas, 8760 hours per year, and standard emission factors.

YB:psj

## PROJECT SUMMARY

### I. INTRODUCTION

City of Geneseo - Geneseo Municipal Utilities (Geneseo) has submitted an application for renewal of their federally enforceable state operating permit covering an electric power plant consisting of eight engine generators and one natural gas fired boiler. This permit prevents the site from being classified as a major source of emissions under the Clean Air Act. Therefore, Geneseo will not have to obtain a federal permit under the Clean Air Act Permit Program. The renewal permit would contain limitations and accompanying recordkeeping and reporting requirements to assure that the site is operated as a non-major source.

### II. SOURCE DESCRIPTION

These eight generators and boiler are used by the City of Geneseo - Geneseo Municipal Utilities to generate electrical power for residents of Geneseo and other municipalities when normal supplies of power are unavailable or inadequate. Each generator consists of a reciprocating engine which drives an electric generator by means of a rotating shaft. The reciprocating engines are driven by the combustion of distillate diesel fuel oil and natural gas.

### III. EMISSIONS

Air pollutants are generated when the reciprocating engines are in operation. These emissions occur from the combustion of diesel fuel and natural gas and are exhausted through a pipe to a vent located on the roof.

The primary air pollutants from the reciprocating engines are nitrogen oxide (NO<sub>x</sub>), carbon monoxide (CO), volatile organic material (VOM), sulfur dioxide (SO<sub>2</sub>), and particulate matter (PM).

NO<sub>x</sub> is formed thermally by the combination of oxygen and nitrogen in the air at the temperature at which the fuel is burned. CO, VOM, and PM are formed from incomplete combustion of the fuel. Emissions of SO<sub>2</sub> are found in varying amounts from the combustion of diesel fuel, depending on the sulfur content of the oil.

The proposed permit includes limitations that restrict the potential annual emissions of NO<sub>x</sub>, CO, VOM, and SO<sub>2</sub> to levels below major source thresholds.

### IV. APPLICABLE EMISSION STANDARDS

All emission sources in Illinois must comply with the Illinois Pollution Control Board's emission standards. The Board's emission standards represent the basic requirements for sources in Illinois. The Board has standards for sources of particulate matter, volatile organic material, and sulfur dioxide for reciprocating engines. This site readily complies with those Board standards.

V. PROPOSED PERMIT

The conditions of the proposed permit contain limitations and requirements to assure that this site will be operated as a non-major source. The permit establishes limitations on the amount of fuel which may be burned.

The permit conditions also establish appropriate compliance procedures, including record keeping requirements and reporting requirements. Geneseo must carry out these procedures on a continual basis to demonstrate that the generators are operating within the limitations established by the permit.

VI. REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that these generators meet all applicable state and federal air pollution control requirements, subject to the conditions of the draft permit. The Illinois EPA is therefore proposing to issue a permit with federally enforceable limits for the above referenced equipment to the Geneseo.

Comments are requested on this proposed action by the Illinois EPA and the proposed conditions on the draft permit. If there is significant public interest in this matter, the Illinois EPA may hold a public hearing in accordance with 35 Ill. Adm. Code Part 166.

YB:73090137:jar