

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT  
RENEWAL

PERMITTEE

Metropolitan Water Reclamation District of Greater Chicago  
Attn: Chief of Maintenance and Operations  
100 East Erie Street  
Chicago, Illinois 60611

Application No.: 75060004

I.D. No.: 031820AAC

Applicant's Designation:

Date Received: June 1, 2001

Subject: John E. Egan Water Reclamation Plant

Date Issued:

Expiration Date:

Location: 550 Mecham Road, Schaumburg

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of four 21.0 mmBtu/hr natural/digester gas-fired boilers, two 24.0 mmBtu/hr digester gas flares, one 4.46 mmBtu/hr natural gas-fired electric generator, one ozone generator, and two 1,000 gallon gasoline storage tanks 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 is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., sulfur dioxide and nitrogen oxides less than 100 tons per year). As a result the source is excluded from the requirement to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.
- b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
- c. This permit supersedes all operating permits issued for this location.
- 2a. Emissions and operation of the 4 boilers (combined) shall not exceed the following limits:

Natural/Digester Gas Usage	
<u>(mmscf/Mo)</u>	<u>(mmscf/Yr)</u>

67.2

806.4

<u>Pollutant</u>	<u>Emission Factor (Lb/mmscf)</u>	<u>Emissions (Ton/Mo) (Ton/Yr)</u>
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Sulfur Dioxide (SO <sub>2</sub> )	169	5.7	68.2
Nitrogen Oxides (NO <sub>x</sub> )	100	3.4	40.4
Carbon Monoxide (CO)	84	2.9	33.9
Particulate Matter (PM)	7.6	0.3	3.1
Volatile Organic Material (VOM)	5.5	0.2	2.3

These limits are based on the maximum natural/digester gas usage, standard AP-42 emission factors for natural gas, and the submitted SO<sub>2</sub> emission factor for digester gas combustion. Compliance with annual limits shall be determined from a running total of 12 months of data.

- b. Emissions and operation of the 2 digester gas flares (combined) shall not exceed the following limits:

<u>Pollutant</u>	<u>Digester Gas Burned</u>		<u>Emission</u>	
	<u>(mmscf/Mo)</u>	<u>(mmscf/Yr)</u>	<u>Factor</u>	<u>Emissions</u>
			<u>(Lb/mmscf)</u>	<u>(Ton/Mo) (Ton/Yr)</u>
	28.8	345.6		
Sulfur Dioxide (SO <sub>2</sub> )			169	2.5    29.2
Nitrogen Oxides (NO <sub>x</sub> )			9	0.2    1.6
Carbon Monoxide (CO)			7.2	0.1    1.3
Particulate Matter (PM)			18	0.3    3.2
Volatile Organic Material (VOM)			4.2	0.1    0.8

These limits are based on the maximum amount of digester gas burned and the submitted emission factors for digester gas combustion. Compliance with annual limits shall be determined from a running total of 12 months of data.

- c. Emissions and operation of the electric generator shall not exceed the following limits:

<u>Natural Gas Usage</u>		<u>Pollutant</u>	<u>Emission Factor</u>	<u>Emissions</u>	
<u>(mmscf/Mo)</u>	<u>(mmscf/Yr)</u>		<u>(Lb/mmscf)</u>	<u>(Ton/Mo)</u>	<u>(Ton/Yr)</u>
3.2	38.3	NO <sub>x</sub>	100	0.2	1.9
		CO	84	0.2	1.6

These limits are based on the maximum firing rate (4.46 mmBtu/hr), maximum operating time (8,760 hr/yr), and standard AP-42 emission factors. Compliance with annual limits shall be determined from a running total of 12 months of data.

- d. This permit is issued based on negligible emissions of NO<sub>x</sub> and SO<sub>2</sub> from the ozone generator. For this purpose, emissions of each contaminant from each emission source shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.
- e. This permit is issued based on negligible emissions of VOM from the gasoline storage tanks. For this purpose emissions from each emission source shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/yr.

3. The Permittee shall maintain monthly records of the following items:
  - a. Natural gas usage in the boilers (mmscf/mo, mmscf/yr);
  - b. Amount of digester gas burned in the boilers (mmscf/mo, mmscf/yr);

- c. Amount of digester gas flared (mmscf/mo, mmscf/yr).
4. The emissions of carbon monoxide from the boilers shall not exceed 200 ppm corrected to 50% excess air, pursuant to 35 Ill. Adm. Code 216.121.
  5. The emissions of sulfur dioxide from the digester gas flares shall not exceed 2,000 ppm, pursuant to 35 Ill. Adm. Code 214.300.
  6. The hydrogen sulfide concentration of the digester gas shall not exceed 0.1 volume percent based on monthly testing of the digester gas.
  7. The gasoline storage tanks shall be in compliance with the conditions of 35 Ill. Adm. Code 218.583.
  8. 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.
  9. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or 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 an Illinois EPA or USEPA request for records during the course of a source inspection.
  10. If there is an exceedance of the requirements of this permit as determined by the records 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 or violation and efforts to reduce emissions and future occurrences.
  11. Two (2) 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

and one (1) 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  
9511 West Harrison  
Des Plaines, Illinois 60016

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12. The Permittee shall submit the following additional information with the Annual Emissions Report, due May 1st of each year: Natural gas usage in the boilers (mmscf/yr), amount of digester gas burned in the boilers (mmscf/yr), and amount of digester gas flared (mmscf/yr).

If you have any questions on this, please call Jim Kallmeyer at 217/782-2113.

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

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cc: Illinois EPA, FOS Region 1  
Illinois EPA, Compliance Section  
Lotus Notes

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from the plant operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant at rated capacity. The facility would limit combustion of natural gas and digester gas. The resulting maximum emissions are well below the levels of sulfur dioxide and nitrogen oxides at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less wastewater is processed and control measures are more effective than required in this permit.

- 1a. Emissions and operation of the 4 boilers (combined) shall not exceed the following limits:

Natural/Digester Gas Usage	
<u>(mmscf/Mo)</u>	<u>(mmscf/Yr)</u>
67.2	806.4

<u>Pollutant</u>	<u>Emission Factor (Lb/mmscf)</u>	<u>Emissions (Ton/Mo)</u>	<u>(Ton/Yr)</u>
Sulfur Dioxide (SO <sub>2</sub> )	169	5.7	68.2
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Carbon Monoxide (CO)	84	2.9	33.9
Particulate Matter (PM)	7.6	0.3	3.1
Volatile Organic Material (VOM)	5.5	0.2	

2.3 These limits are based on the maximum natural/digester gas usage, standard AP-42 emission factors for natural gas, and the submitted SO<sub>2</sub> emission factor for digester gas combustion. Compliance with annual limits shall be determined from a running total of 12 months of data.

- b. Emissions and operation of the 2 digester gas flares (combined) shall not exceed the following limits:

Digester Gas Burned	
<u>(mmscf/Mo)</u>	<u>(mmscf/Yr)</u>
28.8	345.6

<u>Pollutant</u>	<u>Emission Factor (Lb/mmscf)</u>	<u>Emissions (Ton/Mo)</u>	<u>(Ton/Yr)</u>
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These limits are based on the maximum amount of digester gas burned and the submitted emission factors for digester gas combustion. Compliance with annual limits shall be determined from a running total of 12 months of data.

- c. Emissions and operation of the electric generator shall not exceed the following limits:

Natural Gas Usage		Pollutant	Emission Factor (Lb/mmscf)	Emissions	
(mmscf/Mo)	(mmscf/Yr)			(Ton/Mo)	(Ton/Yr)
3.2	38.3	NO <sub>x</sub>	100	0.2	1.9
		CO	84	0.2	1.6

These limits are based on the maximum firing rate (4.46 mmBtu/hr), maximum operating time (8,760 hr/yr), and standard AP-42 emission factors. Compliance with annual limits shall be determined from a running total of 12 months of data.

- d. This permit is issued based on negligible emissions of NO<sub>x</sub> and SO<sub>2</sub> from the ozone generator. For this purpose, emissions of each contaminant from each emission source shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 ton/year.
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## PROJECT SUMMARY

### I. INTRODUCTION

An application has been submitted by the Metropolitan Water Reclamation District of Greater Chicago to renew their Federally Enforceable State Operating Permit (FESOP) for their John E. Egan Water Reclamation Plant. These FESOP limits would prevent the water reclamation facility from being a major source of emissions so that an operating permit does not have to be obtained under the Clean Air Act Permit Program. The proposed limits would be accompanied by recordkeeping requirements to assure that the plant is operated as a non-major source. These conditions would be enforceable by both the State of Illinois and USEPA.

### II. SOURCE DESCRIPTION

This plant receives and treats municipal wastewater using biological treatment and physical separation to remove contaminants.

Air emissions come from the following units: four boilers fired with digester gas and natural gas, two flares burning digester gas, one natural gas-fired electric generator, one ozone generator, and two 1,000 gallon gasoline storage tanks.

### III. EMISSIONS

The principal air contaminant of concern are nitrogen oxides (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>) which are created by the combustion of natural gas and digester gas. The facility has limited their combustion of these gases so as to keep the NO<sub>x</sub> and SO<sub>2</sub> emissions below the major source threshold levels of 100 tons per year.

Other emissions of carbon monoxide (CO), volatile organic material (VOM), and particulate matter (PM) also occur, however, their levels are dependent on the amount of fuel combusted and will remain below the 100 ton per year major source threshold level.

### 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 source in Illinois. This site readily complies with all applicable Board standards.

### V. PROPOSED PERMIT

The conditions of the proposed permit contain limitations and requirements to assure that this plant will be operated as a non-major source. The permit sets limitations on the amount of fuel used at this facility. These limitations are consistent with the historical operation and capacity of the plant.

The permit conditions also establish appropriate compliance procedures, including recordkeeping requirements. The Permittee must carry out these procedures on an ongoing basis to demonstrate that the wastewater treatment plant is operating within the limitations set by the permit and is properly controlling emissions.

VI. REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that this wastewater treatment plant meets all applicable state and federal air pollution control requirements, subject to the conditions proposed in the draft permit. The Illinois EPA is therefore proposing to issue a permit with federally enforceable limits for this operation.

Comments are requested on this proposed action by the Illinois EPA and the proposed conditions on the draft permit. If substantial public concern is shown in this matter, the Illinois EPA will consider holding a public hearing in accordance with 35 Ill. Adm. Code Part 164.

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