

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT -- RENEWAL

PERMITTEE

Fox Metro Water Reclamation District  
Attn: Thomas F. Muth  
682 Route 31  
Oswego, Illinois 60543-9417

<u>Application No.:</u> 96080085	<u>I.D. No.:</u> 093015AAE
<u>Applicant's Designation:</u> FOXFESOP	<u>Date Received:</u> December 17, 2007
<u>Subject:</u> Municipal Wastewater Treatment Plant	
<u>Date Issued:</u> April 16, 2008	<u>Expiration Date:</u> April 16, 2013
<u>Location:</u> 682 Route 31, Oswego, Kendall County	

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of:

A Municipal Wastewater Treatment System with Digester Gas Treated by  
Generators or Flares  
Two Natural Gas or Digester Gas Fired Generators  
Two Digester Gas Flares  
(57) Heaters Fired by Natural Gas  
(12) Boilers Fired by Natural Gas  
(2) 10.21 mmBtu/hour Boilers Fired by Digester Gas or 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 is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons per year for CO, NO<sub>x</sub> and SO<sub>2</sub>). 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 initial 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. The two 10.24 mmBtu/hour natural gas-fired boilers (Boilers M3-B1 and M3-B2) are subject to the New Source Performance Standard (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subparts A and Dc. The Illinois EPA is administering the NSPS in Illinois on behalf of the United States EPA under a delegation agreement.

- b. Pursuant to 40 CFR 60.11(d), at all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Illinois EPA or USEPA which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.
3. Pursuant to 35 Ill. Adm. Code 212.123(a) no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from any emission unit other than those emission units subject to the requirements of 35 Ill. Adm. Code 212.122, except as allowed by 35 Ill. Adm. Code 212.123(b) and 212.124.
- 4a. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion source with actual heat input smaller than, or equal to, 73.2 MW (250 mmBtu/hour), burning liquid fuel exclusively to exceed 0.46 kg of sulfur dioxide per MW-hour of actual heat input when distillate fuel oil is burned (0.3 lbs/mmBtu), pursuant to 35 IAC 214.122(b)(2).
- b. Pursuant to 35 Ill. Adm. Code 214.301, no person shall cause or allow the emissions of sulfur dioxide into the atmosphere from any process emission source to exceed 2,000 ppm.
- c. Pursuant to 35 Ill. Adm. Code 214.304, the emissions from the burning of fuel at process emission sources located in the Chicago or St. Louis (Illinois) major metropolitan areas shall comply with applicable 35 Ill. Adm. Code 214 Subparts B through F (i.e., 35 Ill. Adm. Code 214.122(b)(2)).
5. Pursuant to 35 Ill. Adm. Code 216.121 no person shall cause or allow the emission of carbon monoxide (CO) into the atmosphere from any fuel combustion emission source with actual heat input greater than 2.9 MW (10 mmBtu/hour) to exceed 200 ppm, corrected to 50 percent excess air.
6. Pursuant to 35 Ill. Adm. Code 218.141(a), no person shall use any single or multiple compartment effluent water separator which receives effluent water containing 757 liters/day (200 gallons/day) or more of organic material from any equipment processing, refining, treating, storing or handling organic material unless such effluent water separator is equipped with air pollution control equipment capable of reducing by 85 percent or more the uncontrolled organic material emitted to the atmosphere. Exception: If no odor nuisance exists the limitations of 35 Ill. Adm. Code 218.141(a) shall not apply if the vapor pressure of the organic material is below 17.24 kPa (2.5 psia) at 294.3°K (70°F).

- 7a. This permit is issued based on the use of only natural gas and digester gas as the fuels in the boilers, generators and heaters at this source. The use of any other fuel in the boilers, generators and heaters requires that the Permittee first obtain a construction permit from the Illinois EPA and then perform stack testing to verify compliance with all applicable requirements.
- b. The flares shall be in operation at all times with a flame present whenever there is flow to the flares.
- c. In the event that the operation of this source results in an odor nuisance, the Permittee shall take appropriate and necessary actions to minimize odors, including but not limited to, changes in raw material or installation of controls, in order to eliminate the nuisance.
- d. The Permittee shall, in accordance with the manufacturer(s) and/or vendor(s) recommendations, perform periodic maintenance on all the above-referenced equipment such that the equipment be kept in proper working condition and not cause a violation of the Environmental Protection Act or regulations promulgated therein.
- 8a. VOM emissions from the wastewater treatment system shall not exceed 0.74 tons/month and 7.4 tons/year. This limit is based on a throughput near the maximum capacity of the facility of 42 million gallons of influent wastewater and 44 million gallons of influent stormwater per day, emissions from Water 9 Modeling Program.
- b. Emissions and operation of the flare constructed prior to 2007 shall not exceed the following limits:

Digester Gas Burned		Pollutant	Emissions		
(10 <sup>6</sup> scf/Mo)	(10 <sup>6</sup> scf/Yr)		(lb/10 <sup>6</sup> dscf)	(Ton/Mo)	(Ton/Yr)
12.8	128	NO <sub>x</sub>	40	0.21	2.10
		CO	750	3.93	39.23
		PM	17	0.05	0.47
		SO <sub>2</sub>	290	1.17	11.66

These limits are based on 4249 hours of operation, digester gas composed of 70% methane, standard emission factors (Table 2.4-5 (for Landfill Gas), AP-42, Fifth Edition, Volume I, November 1998) and mass balance for SO<sub>2</sub>.

- c. Emissions and operation of the two (2) natural gas/digester gas-fired generators shall not exceed the following limits:

Natural/Digester Gas Fired		Pollutant	Emissions		
(mmscf/Mo)	(mmscf/Yr)		(lb/mmBtu)	(Ton/Mo)	(Ton/Yr)
0.56	5.6	NO <sub>x</sub>	2.7	0.76	7.56
		CO	1.16	0.33	3.25

Natural/Digester Gas Fired		Pollutant	(lb/mmBtu)	Emissions	
(mmscf/Mo)	(mmscf/Yr)			(Ton/Mo)	(Ton/Yr)
		SO <sub>2</sub>	0.6	0.17	1.68
		VOM	0.8	0.22	2.24

These limits are based on the maximum fuel usage, standard emission factors (Table 3.4-1, AP-42, Fifth Edition, Volume I, November 1998), and a heat content of 1,000 Btu/scf for natural gas.

- d. Emissions and operation of all 57 heaters and 12 boilers constructed prior to 2007 shall not exceed the following:

Fuel Usage		Pollutant	(lb/10 <sup>6</sup> scf)	Emissions	
(10 <sup>6</sup> scf/Mo)	(10 <sup>6</sup> scf/Yr)			(Ton/Mo)	(Ton/Yr)
30	300	NO <sub>x</sub>	100	1.50	15.00
		CO	84	1.30	12.60
		PM	7.6	0.11	1.14
		SO <sub>2</sub>	0.6	0.01	0.09
		VOM	5.0	0.08	0.75

These limits are based on the maximum fuel usage and standard emissions factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998).

- e. Emissions and operation of the two 10.21 mmBtu/hour natural/digester gas-fired boilers (Boilers M3-B1 and M3-B2) shall not exceed the following limits:

Fuel Usage		Pollutant	Emission Factor (lb/10 <sup>6</sup> scf)	Emissions	
(10 <sup>6</sup> scf/Mo)	(10 <sup>6</sup> scf/Yr)			(Ton/Mo)	(Ton/Yr)
8.8	87.2	NO <sub>x</sub>	100	0.35	3.49
		CO	84	0.18	1.74
		VOM	5.0	0.03	0.22
		SO <sub>2</sub>	678	3.00	29.55
		PM	10	0.05	0.44

These limits are based on maximum fuel usage, standard emission factors (Tables 1.4-1 and 1.4-2, AP-42, Fifth Edition, Volume I, Supplement D, July 1998), and manufacturer's emission factors for digester gas combustion.

- f. Emissions and operation of the 18,000 cfh flare shall not exceed the following limits:

Digester Gas Burned		Pollutant	(lb/10 <sup>6</sup> dscf)	Emissions	
(10 <sup>6</sup> scf/Mo)	(10 <sup>6</sup> scf/Yr)			(Ton/Mo)	(Ton/Yr)
7.8	78	NO <sub>x</sub>	40	0.11	1.09

Digester Gas Burned		Pollutant	Emissions		
(10 <sup>6</sup> scf/Mo)	(10 <sup>6</sup> scf/Yr)		(lb/10 <sup>6</sup> dscf)	(Ton/Mo)	(Ton/Yr)
		CO	750	2.00	20.00
		PM	17	0.05	0.46
		SO <sub>2</sub>	290	1.17	11.66

These limits are based on 4249 hours of operation, digester gas composed of 70% methane, standard emission factors (Table 2.4-5 (for Landfill Gas), AP-42, Fifth Edition, Volume I, November 1998), and mass balance for SO<sub>2</sub>.

- g. Compliance with the annual limits of this permit shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).
- 9. This permit is issued based on the potential to emit (PTE) for hazardous air pollutants (HAPs) as listed in Section 112(b) of the Clean Air Act being less than 10 tons/year of any single HAP or 25 tons/year of any combination of such HAPs, or such less quantity as USEPA may establish by rule which would require the Permittee to obtain a Clean Air Act Permit Program (CAAPP) permit from the Illinois EPA.
- 10a. Pursuant to 35 Ill. Adm. Code 201.282, every emission source or air pollution control equipment shall be subject to the following testing requirements for the purpose of determining the nature and quantities of specified air contaminant emissions and for the purpose of determining ground level and ambient air concentrations of such air contaminants:
  - i. Testing by Owner or Operator. The Illinois EPA may require the owner or operator of the emission source or air pollution control equipment to conduct such tests in accordance with procedures adopted by the Illinois EPA, at such reasonable times as may be specified by the Illinois EPA and at the expense of the owner or operator of the emission source or air pollution control equipment. The Illinois EPA may adopt procedures detailing methods of testing and formats for reporting results of testing. Such procedures and revisions thereto, shall not become effective until filed with the Secretary of State, as required by the APA Act. All such tests shall be made by or under the direction of a person qualified by training and/or experience in the field of air pollution testing. The Illinois EPA shall have the right to observe all aspects of such tests.
  - ii. Testing by the Illinois EPA. The Illinois EPA shall have the right to conduct such tests at any time at its own expense. Upon request of the Illinois EPA, the owner or operator of the emission source or air pollution control equipment shall provide, without charge to the Illinois EPA, necessary holes in stacks or ducts and other safe and proper testing facilities, including

scaffolding, but excluding instruments and sensing devices, as may be necessary.

- b. Testing required by Condition 11 shall be performed upon a written request from the Illinois EPA by a qualified independent testing service.
- 11a Pursuant to 35 Ill. Adm. Code 212.107, for both fugitive and nonfugitive particulate matter emissions, a determination as to the presence or absence of visible emissions from emission units shall be conducted in accordance with Method 22, 40 CFR Part 60, Appendix A, except that the length of the observing period shall be at the discretion of the observer, but not less than one minute. This Condition shall not apply to 35 Ill. Adm. Code 212.301.
- b. Pursuant to 35 Ill. Adm. Code 212.109, except as otherwise provided in 35 Ill. Adm. Code Part 212, and except for the methods of data reduction when applied to 35 Ill. Adm. Code 212.122 and 212.123, measurements of opacity shall be conducted in accordance with Method 9, 40 CFR Part 60, Appendix A, and the procedures in 40 CFR 60.675(c) and (d), if applicable, except that for roadways and parking areas the number of readings required for each vehicle pass will be three taken at 5-second intervals. The first reading shall be at the point of maximum opacity and second and third readings shall be made at the same point, the observer standing at right angles to the plume at least 15 feet away from the plume and observing 4 feet above the surface of the roadway or parking area. After four vehicles have passed, the 12 readings will be averaged.
- c. Pursuant to 35 Ill. Adm. Code 212.110(a), measurement of particulate matter emissions from stationary emission units subject to 35 Ill. Adm. Code Part 212 shall be conducted in accordance with 40 CFR Part 60, Appendix A, Methods 5, 5A, 5D, or 5E.
- d. Pursuant to 35 Ill. Adm. Code 212.110(b), the volumetric flow rate and gas velocity shall be determined in accordance with 40 CFR Part 60, Appendix A, Methods 1, 1A, 2, 2A, 2C, 2D, 3, and 4.
- e. Pursuant to 35 Ill. Adm. Code 212.110(c), upon a written notification by the Illinois EPA, the owner or operator of a particulate matter emission unit subject to 35 Ill. Adm. Code Part 212 shall conduct the applicable testing for particulate matter emissions, opacity, or visible emissions at such person's own expense, to demonstrate compliance. Such test results shall be submitted to the Illinois EPA within thirty (30) days after conducting the test unless an alternative time for submittal is agreed to by the Illinois EPA.
- 12a. Pursuant to 40 CFR 60.7(b), any owner or operator subject to the provisions of 40 CFR Part 60 shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control

- equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.
- b. Pursuant to 40 CFR 60.48c(g) (1), except as provided under 40 CFR 60.48c(g)(2) and (g)(3), the owner or operator of each affected facility shall record and maintain records of the amounts of each fuel combusted during each operating day.
  - c. Pursuant to 40 CFR 60.48c(i), all records required under 40 CFR 60.48 shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.
13. Pursuant to 40 CFR 63.10(b)(3), if an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f) of the Clean Air Act, and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under 40 CFR Part 63) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the USEPA and/or Illinois EPA to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of 40 CFR Part 63 for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with USEPA guidance materials published to assist sources in making applicability determinations under Section 112 of the Clean Air Act, if any. The requirements to determine applicability of a standard under 40 CFR 63.1(b)(3) and to record the results of that determination under 40 CFR 63.10(b)(3) shall not by themselves create an obligation for the owner or operator to obtain a Title V permit.
14. Pursuant to 35 Ill. Adm. Code 212.110(e), the owner or operator of an emission unit subject to 35 Ill. Adm. Code Part 212 shall retain records of all tests which are performed. These records shall be retained for at least three (3) years after the date a test is performed.
- 15a. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:

- i. Records addressing use of good operating practices for the flares:
    - A. Records for periodic inspection of the flares with date, individual performing the inspection, and nature of inspection;
    - B. Records for prompt repair of defects, with identification and description of defect, effect on emissions, date identified, date repaired, and nature of repair; and
    - C. An operating log for the flares which at a minimum includes any adjustments of the equipment's operating parameters.
  - ii. Natural gas used for boilers, heaters and generators (mmscf/month and mmscf/year);
  - iii. Digester gas burned in boilers and generators (mmscf/month and mmscf/year);
  - iv. Digester gas burned in flares and generators (mmscf/month and mmscf/year);
  - v. Operating hours of the flares (hours/month and hours/year); and
  - vi. Monthly and annual NO<sub>x</sub>, CO, PM, SO<sub>2</sub>, and VOM emissions with supporting calculations (tons/month and tons/year).
- b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five (5) 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.
16. If there is an exceedance of or deviation from 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/deviation. 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 deviation and efforts to reduce emissions and future occurrences.
- 17a. Pursuant to 40 CFR 60.7(a), any owner or operator subject to the provisions of 40 CFR Part 60 shall furnish the Illinois EPA or USEPA written notification or, if acceptable to both the Illinois EPA or USEPA and the owner or operator of a source, electronic notification, as follows:

- i. A notification of the date construction (or reconstruction as defined under 40 CFR 60.15) of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.
    - ii. A notification of the actual date of initial startup of an affected facility postmarked within 15 days after such date.
    - iii. A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is specifically exempted under an applicable subpart or in 40 CFR 60.14(e). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Illinois EPA or USEPA may request additional relevant information subsequent to this notice.
  - b. Pursuant to 40 CFR 60.48c(a), the owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and actual startup, as provided by 40 CFR 60.7. This notification shall include:
    - i. The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.
    - ii. If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under 40 CFR 60.42c, or 40 CFR 60.43c.
    - iii. The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.
  - c. Pursuant to 40 CFR 60.48c(j) the reporting period for the reports required under this 40 CFR 60 Subpart Dc is each six-month period. All reports shall be submitted to the Illinois EPA or USEPA and shall be postmarked by the 30th day following the end of the reporting period.
18. Pursuant to 35 Ill. Adm. Code 212.110(d), a person planning to conduct testing for particulate matter emissions to demonstrate compliance shall give written notice to the Illinois EPA of that intent. Such notification shall be given at least thirty (30) days prior to the initiation of the test unless a shorter period is agreed to by the Illinois EPA. Such notification shall state the specific test methods from 35 Ill. Adm. Code 212.110 that will be used.

19. Two (2) copies of required reports and notifications 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

It should be noted that this permit has been revised to incorporate operation of the equipment specified in Construction Permit 07100088.

If you have any questions on this permit, please contact George Kennedy at 217/782-2113.

Edwin C. Bakowski, P.E.  
Acting Manager, Permit Section  
Division of Air Pollution Control

Date Signed: \_\_\_\_\_

ECB:GMK:psj

cc: IEPA, FOS Region 1  
Lotus Notes

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from the municipal wastewater treatment 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. This is handling 42 million gallons of wastewater influent and 44 million gallons of stormwater influent per day. The resulting maximum emissions are below the levels (e.g., 100 tons per year of NO<sub>x</sub>, CO, and SO<sub>2</sub>) 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 material is handled and control measures are more effective than required in this permit.

<u>Equipment</u>	E NO <sub>x</sub> (T/Yr)	M CO (T/Yr)	I VOM (T/Yr)	S PM (T/Yr)	O SO <sub>2</sub> (T/Yr)	N SO <sub>2</sub> (T/Yr)
1 Flare	2.10	39.23	----	0.47	11.66	
2 Generators	7.56	3.25	2.24	----	1.68	
12 Boilers and 57 Heaters	15.00	12.60	0.75	1.14	0.09	
Boilers M3-B1 and M3-B2	3.49	1.74	0.22	0.44	29.55	
18,000 cfh Flare	1.09	20.00	----	0.46	11.66	
Wastewater Treatment			7.40			
Totals:	29.24	76.82	10.61	2.51	54.64	

GMK:psj