

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT - REVISED
NSPS SOURCE

PERMITTEE

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

Application No.: 75050146

Applicant's Designation: CALUMET WRP

Subject: Publicly Owned Treatment Works

Date Issued: October 21, 2005

Location: 400 East 130th Street, Chicago, 60628

I.D. No.: 031600DQO

Date Received: April 20, 2005

Expiration Date: July 18, 2006

Permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of 2 ozonators, one storage tank, CBF boilers (Nos. 1, 2, 3, and 4), digester boiler (Nos. 1, 2, 3, 4, 5, and 6), centrifuge boiler (Nos. 1 and 2), Tarp boiler, 10 unit heaters, digester flare (Nos. 1, 2, 3, 4, 5, 6, and 7), and machining operation as described in 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 the levels at which the source would be a major source, (i.e., 100 tons/year for nitrogen oxide (NO_x) and carbon monoxide (CO) and 25 tons/year for volatile organic material (VOM)) as further described in Attachment A. As a result the source is excluded from the requirements to obtain a Clean Air Act Permit Program permit.
 - b. Prior to initial issuance, a draft of this permit has undergone a public notice and comment period.
 - c. This permit supersedes the current permit(s) issued for this location.
2. 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.

- 3a. Natural gas-fired fuel combustion emissions of nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic material (VOM), sulfur dioxide (SO₂), and particulate matter (PM) from the 4 CBF boilers, 6 digester boilers, 2 centrifuge boilers, tarp boiler and 10 unit heaters shall not exceed the following limits:

<u>Pollutant</u>	<u>Fuel Usage</u>		<u>Emission Factor</u> (Lb/10 ⁶ scf)	<u>Emissions</u>	
	<u>(10⁶ scf/Mo)</u>	<u>(10⁶ scf/Yr)</u>		<u>(T/Mo)</u>	<u>(T/Yr)</u>
NO _x	95.5	955	100	4.78	47.75
CO	95.5	955	84	4.02	40.11
VOM	95.5	955	5.5	0.27	2.63
SO ₂	95.5	955	0.6	0.03	0.29
PM	95.5	955	7.6	0.37	3.63

- b. These limits are based on maximum fuel usage and standard emission factors AP-42. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months.

- 4a. Digester gas-fired combustion emissions of nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic material (VOM), sulfur dioxide (SO₂), and particulate matter (PM) from the 4 CBF boilers and 6 digester boilers shall not exceed the following limits:

<u>Pollutant</u>	<u>Fuel Usage</u>		<u>Emission Factor</u> (Lb/mmscf)	<u>Emissions</u>	
	<u>(mmscf/Mo)</u>	<u>(mmscf/Yr)</u>		<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
NO _x	46.0	468	60.0	1.41	14.04
CO	46.0	468	50.4	1.18	11.79
VOM	46.0	468	3.3	0.08	0.77
SO ₂	46.0	468	42.0	0.99	9.83
PM	46.0	468	4.6	0.11	1.08

- b. These limits are based on maximum fuel usage, 600 Btu/scf, alternative emission factors, except SO₂ which is based upon stack testing of similar equipment. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the proceeding 11 months.

5. Digester gas-fired fuel combustion emission of nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic material (VOM), sulfur dioxide (SO₂), and particulate matter (PM) from the 7 digester flares shall not exceed the following limits:

<u>Pollutant</u>	<u>Fuel Usage</u>		<u>Emission Factor</u> (Lb/mmscf)	<u>Emissions</u>	
	<u>(mmscf/Mo)</u>	<u>(mmscf/Yr)</u>		<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
NO _x	29	290	40.8	0.66	5.92
CO	29	290	330.0	4.80	47.90
VOM	29	290	84.0	1.30	12.20
SO ₂	29	290	42.0	0.61	6.09

These limits are based on the maximum fuel usage, 600 Btu/scf, and alternative emission factors. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the proceeding 11 months.

6. Emissions and operation of 2 ozonators shall not exceed the following limits:

<u>Item of Equipment</u>	<u>Ozone Produced</u>		<u>NO_x Emissions</u>		<u>SO₂ Emissions</u>	
	<u>(Lb/Mo)</u>	<u>(T/Yr)</u>	<u>(Lb/Mo)</u>	<u>(T/Yr)</u>	<u>(Lb/Mo)</u>	<u>(T/Yr)</u>
2 Ozonators	3,000	15.00	90	0.45	5,950	35.7

These limits are based on maximum ozone production. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the proceeding 11 months.

7. This permit is issued based on negligible emissions of volatile organic material from the storage tank. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.
8. This permit is issued based on negligible emissions of particulate matter from machining operation. For this purpose, emissions shall not exceed nominal emission rates of 0.1 lb/hour and 0.44 tons/year.
- 9a. The CBF boilers are subject to a 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 NSPS in Illinois on behalf of the United States EPA under a delegation agreement.
- b. Sulfur dioxide emissions from the boiler shall not exceed the applicable limit, pursuant to the NSPS, 40 CFR 60.44(c).
- c. At all times, the Permittee shall maintain and operate the boiler, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, as required by the NSPS, 40 CFR 60.11(d).
10. The Permittee shall maintain records of the following items:
- a. Ozone produced in the ozonators (lb/month and tons/year).
 - b. Natural gas usage (10^6 scf/month and 10^6 scf/year) for the equipment specified in Condition 3(a).
 - c. Digester gas usage (10^6 scf/month and 10^6 scf/year) for the equipment specified in Condition 3(b).
 - d. Digester gas usage (10^6 scf/month and 10^6 scf/year) for the equipment specified in Condition 3(c).

- e. Detailed calculations of all emissions for the fuel combustion emissions units as calculated by the actual natural gas and digester gas usage and the emission factors specified in Condition 4 (lb/month and tons/year).
 - f. NO_x and SO₂ emissions from the ozonators as calculated by the ozone produced and an emission factor of 0.03 pounds of NO_x per pound of ozone produced (lb/month and tons/year).
11. 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 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 request for records during the course of a source inspection.
12. 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 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.
13. 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

It should be noted that the two diesel storage tanks are exempt from state permit requirements, pursuant to 35 Ill. Adm. Code 201.146(n).

It should be noted that this permit has been revised to incorporated Construction Permit 05040044 for construction of 4 CBF boilers.

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

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

DES:GMK:psj

cc: Region 1

Attachment A - Emissions Summary

This attachment provides a summary of the maximum emissions from the water reclamation 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. The resulting maximum emissions are below the levels, e.g., 100 tons/yr for NO_x, CO, VOM 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>	<u>Fuel</u>	E M I S S I O N S (Tons/Year)				
		<u>NO_x</u>	<u>CO</u>	<u>VOM</u>	<u>SO₂</u>	<u>PM</u>
CBF Boilers, Digester Boilers, Centrifute Boilers, Tap Boiler, & Unite Heaters	Natural Gas	47.75	40.11	2.63	0.29	3.63
CBF Boilers and Digester Boilers	Digester Gas	14.04	11.79	0.77	9.83	1.08
Digester Flares	Digester Gas	5.92	47.90	12.20	6.09	
Ozonators		0.45			35.70	
Storage Tank				0.44		
Machining Operation						<u>0.44</u>
	Totals	<u>68.16</u>	<u>99.76</u>	<u>16.02</u>	<u>51.91</u>	<u>5.15</u>

GMK:psj