

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT - NSPS SOURCE - RENEWAL

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

I.D. No.: 031600DQO

Applicant's Designation: CALUMET WRP

Date Received: November 28, 2005

Subject: Publicly Owned Treatment Works

Date Issued: September 6, 2007

Expiration Date: September 6, 2012

Location: 400 East 130th Street, Cook County, 60628

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, plant boilers (Nos. 1, 2 and 3), 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:
 - i. 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) carbon monoxide (CO) and 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.
 - ii. To limit the potential emissions of VOM from the source to less than 25 tons/year. As a result, the source is excluded from the requirement of 35 Ill. Adm. Code Part 205, Emission Reduction Market System. 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 the current permit(s) issued for this location.
- 2a. 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. 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.
- 3a. 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, pursuant to 35 IAC 212.123(a), except as allowed by 35 IAC 212.123(b) and 212.124.
 - b. The emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 meter (1000 foot) radius from the center point of any other such emission unit owned or operated by such person and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period, pursuant to 35 IAC 212.123(b).
- 4. 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).
- 5. Pursuant to 35 Ill. Adm. Code Section 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 10 mmBtu/hour to exceed 200 ppm, corrected to 50 percent excess air.
- 6a. The Permittee shall not utilize distillate fuel oil (Grades No. 1 and 2) at this source with a sulfur content greater than the larger of the following two values:
 - i. 0.28 weight percent; or
 - ii. The wt. percent given by the formula: Maximum wt. percent sulfur = $(0.00015) \times (\text{Gross heating value of oil, Btu/lb})$.

- b. Organic liquid by-products or waste materials shall not be used in these fuel combustion emission sources.
- c. The Illinois EPA shall be allowed to sample all fuels stored at the above location.
- 7a. 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, 3 plant boilers, 6 digester boilers, 2 centrifuge boilers, tarp boiler and 10 unit heaters shall not exceed the following limits:

Pollutant	Fuel Usage		Emission Factor (Lbs/10 ⁶ scf)	Emissions	
	(10 ⁶ scf/Mo)	(10 ⁶ scf/Yr)		(Tons/Mo)	(Tons/Yr)
NO _x	30.1	301	100	1.51	15.05
CO	30.1	301	84	1.27	12.64
VOM	30.1	301	5.5	0.10	0.83
SO ₂	30.1	301	0.6	0.01	0.10
PM	30.1	301	7.6	0.12	1.14

These limits are based on maximum fuel usage and standard emission factors AP-42 tables 1.4-1 and 1.4-2.

- b. 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, plant boilers (Nos. 1 and 2), and 6 digester boilers shall not exceed the following limits:

Pollutant	Fuel Usage		Emission Factor (Lbs/mmscf)	Emissions	
	(mmscf/Mo)	(mmscf/Yr)		(Tons/Mo)	(Tons/Yr)
NO _x	156	1,560	60.0	4.70	46.80
CO	156	1,560	50.4	4.00	39.31
VOM	156	1,560	3.3	2.60	2.57
SO ₂	156	1,560	42.0	3.30	32.76
PM	156	1,560	4.6	0.40	3.56

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.

- c. 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>	<u>Emissions</u>	
	<u>(mmscf/Mo)</u>	<u>(mmscf/Yr)</u>	<u>(Lbs/mmscf)</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.

- d. 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>(Lbs/Mo)</u>	<u>(T/Yr)</u>	<u>(Lbs/Mo)</u>	<u>(T/Yr)</u>	<u>(Lbs/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.

- e. 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 lbs/hour and 0.44 tons/year.
- f. 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 lbs/hour and 0.44 tons/year.
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. 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.
- 10a. Pursuant to 35 Ill. Adm. Code 212.107, 212.109, and 212.110, testing for particulate matter emissions shall be performed as follows:
- i. 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, incorporated by reference in 35 Ill. Adm. Code 212.113, 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, pursuant to 35 Ill. Adm. Code 212.107.

- ii. 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, incorporated by reference in 35 Ill. Adm. Code 212.113, 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, pursuant to 35 Ill. Adm. Code 212.109.
 - iii. 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, pursuant to 35 Ill. Adm. Code 212.110(a).
 - iv. 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, pursuant to 35 Ill. Adm. Code 212.110(b).
 - v. 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, pursuant to 35 Ill. Adm. Code 212.110(c).
- b. Testing required by Condition 10(a) shall be performed by a qualified independent testing service.
- 11a. 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.

- b. 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.
- c. The Permittee shall maintain records of the following items so as to demonstrate compliance with the conditions of this permit:
 - i. Ozone produced in the ozonators (lbs/month and tons/year);
 - ii. Natural gas usage (10^6 scf/month and 10^6 scf/year) for the source;
 - iii. Digester gas usage (10^6 scf/month and 10^6 scf/year) for the 4 CBF boilers, plant boilers 1 and 2, and digester boilers;
 - iv. Digester gas usage (10^6 scf/month and 10^6 scf/year) for the flares;
 - v. Sulfur content of diesel fuel (percent by weight); and
 - vi. Monthly and annual emissions of CO, NO_x, PM, SO₂, VOM and HAPs, with supporting calculations (tons/month and tons/year).
12. 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.

13. If there is an exceedance of or a deviation from 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/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.
14. 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.
15. 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

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

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

Date Signed: _____

ECB:GMK:jws

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/year for NO_x, CO, and 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, Plant Boilers, Digester Boilers, Centrifuge Boilers, Tap Boiler, & Unit Heaters	Natural Gas	15.05	12.64	0.83	0.10	1.14
CBF Boilers, Plant Boilers and Digester Boilers	Digester Gas	46.80	39.31	2.57	32.76	3.56
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>68.22</u>	<u>99.85</u>	<u>16.04</u>	<u>74.65</u>	<u>5.14</u>

GMK:jws