

217/782-2113

CONSTRUCTION PERMIT - REVISED  
NSPS SOURCE

PERMITTEE

Metropolitan Biosolids Management, LLC  
Attn: Michael L. Wheeler, President  
1007 Church Street, Suite 312  
Evanston, Illinois 60201

Application No.: 04110024

I.D. No.: 031051APL

Applicant's Designation:

Date Received: January 29, 2010

Subject: Biosolids Heat Drying Plant

Date Issued: May 4, 2010

Location: 6001 West Pershing Road, Stickney

This permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a sludge drying plant as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1.0 Source Provisions

1.1 General Source Description

The proposed plant will receive wet material (wet sludge/biosolids) by enclosed conveyors from the adjacent Metropolitan Water Reclamation District (MWRD) Stickney Works. The wet material from MWRD Stickney Works is a byproduct from the wastewater treatment process after the sewage sludge has been fully treated. The dried material that will be produced at the proposed plant would be applied to land as a fertilizer.

Because the proposed plant will be linked to the existing MWRD Stickney Works, this application has been reviewed as a modification to the MWRD Stickney Works facility. This proposed plant will have a separate permit from the MWRD Stickney Works facility. The applicant has obtained siting approval from the Village of Stickney, the local governmental authority that allows the processing of the wet material received from MWRD Stickney Works with use of reclaimed oil.

The proposed plant will consist of four enclosed drying lines. Each line will include wet material handling, dryer, and dry material handling. Three thermal oil heaters will supply heat to

the dryers. The processing equipment will be enclosed in a building with an air handling system that vents to an odor control scrubbing system.

The revision of the permit adjusts limits for particulate matter (PM) emissions of the dryers and heaters, with an overall reduction in the permitted emissions of the plant. In particular, the permitted PM emissions of the dryers are higher but this is more than compensated for by lower permitted emissions of the thermal oil heaters, with the result being that overall permitted emissions have been reduced.

1.2 General Operating Requirements

- a. The plant (four lines) shall not process more than 28,000 tons/month and 280,000 tons/year of wet material. Each line shall not process more than 220 tons/day of wet material.
- b. The plant shall be operated in accordance with good air pollution control practices in order to minimize emissions and odors, including process emissions exhausting through the scrubber system or thermal oxidizer system.

1.3 General Emissions Standards Applicability

- a. Each emission unit is subject to 35 IAC 212.123(a), which provides that 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, except as provided in 35 IAC 212.123(b).
- b. Each emission unit, other than the thermal heaters and the oil storage tanks, is subject to 35 IAC 218.301, which provides that no person shall cause or allow the discharge of more than 3.6 kg/hour (8 lbs/hour) of organic material into the atmosphere from any emission source, except as provided in the following exception: If no odor nuisance exists, this limitation shall apply only to photochemically reactive material.
- c. Each process emission unit or group of like process emission units, other than the thermal heaters and the oil storage tanks, is subject to 35 IAC 212.321(b)(1), which provides that no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit, either alone or in combination with the emission of particulate matter from all other similar process emission units for which construction or modification commenced after April 14, 1972, at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321.

1.4 Non-applicability of Source Wide Regulations

The source has addressed the applicability of 40 CFR 52.21, Prevention of Significant Deterioration (PSD), 35 IAC Part 203, Major Stationary Sources Construction and Modification, and 40 CFR 63, Subpart B Section 112 (g). The limits established by this permit are intended to ensure that the proposed construction/modification addressed in this construction permit does not constitute a major modification or major project pursuant to these rules as shown in Attachment A.

1.5 Permit Consequences

- a.
  - i. This permit for the plant does not relieve the Permittee from responsibility to comply with all applicable Local, State and Federal Regulations, which are a part of the Illinois State Implementation Plan, as well as all other Local, State and Federal requirements.
  - ii. In particular, issuance of this permit does not relieve the Permittee from:
    - A. Compliance with applicable Illinois Rules for Water Pollution Control, including the obligation to obtain a permit from the Division of Water Pollution Control.
    - B. Compliance with applicable rules governing handling of wastes generated by this plant.
    - C. Compliance with Standard For the Use or Disposal of Sewage Sludge, 40 CFR 503, as applicable.
- b. The Permittee is authorized to operate the sludge drying plant under this construction permit until a Clean Air Act Permit Program (CAAPP) permit has been issued provided a timely application for a CAAPP permit is submitted that addresses these emission units. However, if a complete CAAPP application is not submitted within 12 months after initial startup, this authorization to operate shall expire 12 months after initial startup.

1.6 Annual Emission Report

- a. With its Annual Emission Report required by 35 IAC Part 254, the Permittee shall report the following information for the previous year:

- i. The amount of wet material processed by the plant (tons).
- ii. If fuel(s) other than natural gas were used in the thermal oil heaters, the amount(s) of such other fuel(s) that were used, by type of fuel, and the percentage of the total heat input to the heaters provided by each type of fuel.

2.0 Unit Specific Conditions

2.1 Unit: Wet Material Handling

2.1.1 Description

The wet material will be received by enclosed conveyors from MWRD Stickney Works and will have a moisture content of approximately 75 percent. The wet material will first be stored in silos. The wet material will then be pumped from the silos to hoppers and then to mixers or "coaters," which will combine the wet material with material that has already been dried. The coaters will feed the dryers. The emissions associated with handling wet material in the transfer station, silos and the hoppers will be controlled by a common scrubber system.

2.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Wet Material Systems	Wet Material Stations (ST1-4), Silos (WBS1-4), Hoppers (DH1-4)	Odor Control Scrubber System (S-1)

2.1.3 Applicability Provisions and Applicable Regulations

- a. An "affected unit" for the purpose of these unit-specific conditions is an emission unit described in Conditions 2.1.1 and 2.1.2.

2.1.4 Non-Applicability of Regulations of Concern

None

2.1.5 Operational Limits and Control Requirements

None

2.1.6 Emission Limitations

- a. This permit is issued based on negligible emissions of volatile organic material (VOM), particulate matter (PM), and hydrogen sulfide (H<sub>2</sub>S) from the affected units as controlled by the odor control scrubber system. For this purpose, emissions of each pollutant shall not exceed the nominal emission rates of 0.1 lbs/hour and 0.44 tons/year.

2.1.7 Testing Requirements

- a. Within 90 days of initial startup of the affected units, the VOM, PM, and H<sub>2</sub>S emissions from the scrubber system for the affected units, the inlet and outlet emissions from the scrubber system shall be measured by an approved testing service at the Permittee's expense during conditions that are representative of maximum emissions.
- b.
  - i. This testing shall be conducted in accordance with the general testing methods identified in Condition 3.1(a).
  - ii. The Permittee shall provide notification for testing in accordance with Conditions 3.1 (b) and (c).
  - iii. The Permittee shall submit the Final report in accordance with Condition 3.1 (d) and shall include the information specified in Condition 2.1.7.

2.1.8 Monitoring Requirements

- a. The Permittee shall monitor the following operating parameter for the scrubber system for the affected units:
  - i. Scrubbant flow rate (gallons/minute); and
  - ii. Pressure drop across the scrubber.

2.1.9 Recordkeeping Requirements

- a. The Permittee shall keep records of the amount of wet material received by the plant (tons/month and tons/year) and moisture content (% by weight), with supporting documentation.
- b. The Permittee shall maintain a file that contains records of sampling and analysis that it conducts for the wet material received from MWRD Stickney Works for organics and heavy metal content, including lead. These records shall address both analyses conducted using standard USEPA Methods for the analysis of the sludge, as well as any alternative methodologies used by the Permittee for working purposes.
- c. The Permittee shall maintain an operating and maintenance log for the affected units and associated scrubber system.

- d. The Permittee shall maintain the following records related to emissions of VOM, PM, and H<sub>2</sub>S from the affected units:
  - i. A current file containing the maximum emission rates from the affected units based on emission rates and control efficiencies obtained through most recent emissions testing, provided that compliance was demonstrated (lbs/hour).
  - ii. Monthly and annual emissions (tons/month and tons/year), with supporting calculations.

2.1.10 Reporting Requirements

- a. The Permittee shall notify the Illinois EPA within 30 days of deviations of the affected units with applicable requirements. Reports shall describe the incident, the probable cause of such deviations, and any corrective actions or preventive measures taken.

2.2 Unit: Dryers and Coaters

2.2.1 Description

The wet material will be dried in four identical indirectly heated dryers in which wet material will not come into contact with combustion gases. Instead, the dryers will be heated by circulating a hot thermal oil through tubes in each dryer.

The exhaust from each dryer will be vented to a condenser, separate Venturi scrubber, and then through a common thermal oxidizer system, which has a primary and back-up thermal oxidizer.

The four coaters are used to mix previously dried material with new wet material, which produces a feed material for the dryers with a moderate moisture content, suitable for effective drying. The emissions from each coater will also be vented through the associated dryer control system.

The separation hoppers receive the dried material coming out of each dryer, some of which is sent on to the pellet coolers with the remainder sent back to the coaters.

2.2.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Drying System	Dryers (HD1-4), Coaters (CT1-4), Separation Hoppers (SH-1-4)	Condensers (CD1-4), Venturi Scrubbers (VS1-4), Thermal Oxidizer (TO1 or TO2)

2.2.3 Applicability Provisions and Applicable Regulations

- a. An "affected unit" for the purpose of these unit-specific conditions is a unit as described in Conditions 2.2.1 and 2.2.2.

2.2.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected dryers not being subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Mercury, 40 CFR Part 61, Subpart E, because the dryers are heated indirectly.

2.2.5 Operational Limits and Control Requirements

- a. The affected dryers shall be heated indirectly.
- b. The control system for each affected unit shall be in operation at all times when the affected unit is being operated.
- c. The thermal oxidizer combustion chamber shall be preheated to working temperature before beginning operation of the affected units. Until emission testing is performed, the minimum working temperature shall be at least 1400°F or the manufacturer's recommended temperature, whichever is higher. After testing is performed, the minimum temperature shall be the temperature during testing that demonstrates compliance. This temperature shall be maintained during operation of the affected units.

2.2.6 Emission Limitations

Emissions from the affected units, including combustion emissions from the associated thermal oxidizer, shall not exceed the following limits:

<u>Pollutant</u>	<u>Limit</u>	
	<u>(Lbs/Hour)</u>	<u>(Tons/Year)</u>
VOM	0.10	0.44
PM*	0.50	2.19
PM <sub>10</sub> **	1.15	5.04
NO <sub>x</sub>	1.91	8.35
CO	1.00	4.33
SO <sub>2</sub>	1.52	6.66
Lead	0.01	0.05

\* Filterable particulate only

\*\* Including both filterable and condensable particulate

2.2.7 Testing Requirements

- a. i. Within 90 days of initial startup of the affected units, the VOM, PM, PM<sub>10</sub>, NO<sub>x</sub>, SO<sub>2</sub> and metals emissions from the thermal oxidizer system for the affected units shall be measured by an approved testing service at the Permittee's expense during conditions that are representative of maximum emissions.
- ii. In addition to the emission testing required above, the Permittee shall perform emission tests as requested by the Illinois EPA for the

affected units within 90 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.

Note: Revised requirements for periodic emission testing may be established in the CAAPP Permit for the plant.

- b. i. This testing shall be conducted in accordance with general testing methods identified in Condition 3.1(a).
- ii. The Permittee shall provide notification for testing in accordance with Conditions 3.1(b) and (c).
- iii. The Permittee shall submit the Final report in accordance with Condition 3.1 (d) and shall include the information specified in Condition 2.2.7.

#### 2.2.8 Monitoring Requirements

- a. The Permittee shall monitor temperature of the exhaust gas leaving each condenser.
- b. The Permittee shall monitor the following operating parameters for the Venturi scrubber for each affected dryer:
  - i. Scrubbant flow rate (gallons/minute); and
  - ii. Pressure drop across the scrubber.
- c. The Permittee shall install, calibrate, operate and maintain a continuous monitoring device on the thermal oxidizers according to vendor specifications at all times the thermal oxidizer is in use. The monitoring device shall monitor the combustion chamber temperature of the thermal oxidizers.

#### 2.2.9 Recordkeeping Requirements

- a. The Permittee shall maintain records of the amount of wet material processed by the affected dryers, measured as wet material delivered to the coaters (tons/day, tons/month, and tons/year).
- b. The Permittee shall maintain an operating and maintenance log for each control device.

- c. The Permittee shall collect and record all of the following information each day for the thermal oxidizer, pursuant to 35 IAC 218.105:
  - i. Temperature monitoring data;
  - ii. A log of the operating time for the capture system, control device, monitoring equipment and the associated emission units; and
  - iii. A maintenance log for the capture system, control device and monitoring equipment detailing all routine and nonroutine maintenance performed including dates and duration of any outages.
- d. The Permittee shall maintain the following records related to emissions of VOM, PM, PM<sub>10</sub>, NO<sub>x</sub>, CO SO<sub>2</sub> and lead from the affected units:
  - i. A current file containing the maximum emission rates from the affected units based on emission rates and control efficiencies obtained through most recent emissions testing, provided that compliance was demonstrated (lbs/hour); and
  - ii. Monthly and annual emissions, (tons/month and tons/year), along with supporting calculations.

#### 2.2.10 Reporting Requirements

- a. The Permittee shall notify the Illinois EPA, within 30 days, of deviations of the affected units with applicable requirements and within 10 days of a failure of the interlock system or alarm, which allowed continued operation without control devices in operation. Reports shall describe the incident, the probable cause of such deviations, and any corrective actions or preventive measures taken.
- b. The Permittee shall submit semi-annual reports to the Illinois EPA for the amount of wet material processed by the dryers, total tons and tons per day, monthly average (operating days only) for each month during the reporting period.

2.3 Unit: Dried Material Handling

2.3.1 Description

The dried material from each separation hopper will be transferred to a pellet cooler and classifying screen. Dry material pellets of the proper size will then be sent to a pellet storage silo. Oversized and undersized biosolids will be sent to a collection hopper and recycled back to the coaters. The emissions from the pellet coolers will be controlled by dedicated bag filters, which are ducted to the thermal oxidizer system for the dryers (refer to Condition 2.2). The emissions from the classifying screens, collection hoppers, pellet silos, and truck loading building will be controlled by two bag filter systems which are ducted to the odor control scrubber system for wet material handling (refer to Condition 2.1).

2.3.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Dry Material Operations	Pellet Coolers (PC01-4),	Bag Filters (BF1-4), Thermal Oxidizer (TO1 or TO2)
	Truck Loading Building, Classifying Screens (CS1-4), Collection Hoppers (CH1-4), Pellet Storage Silos (PS1-4)	Bag Filter (BF1A or BF2A), Odor Control Scrubber System

2.3.3 Applicability Provisions and Applicable Regulations

- a. An "affected unit" for the purpose of these unit-specific conditions is an emission unit described in Conditions 2.3.1 and 2.3.2.

2.3.4 Non-Applicability of Regulations of Concern

None

2.3.5 Operational Limits and Control Requirements

None

2.3.6 Emission Limitations

None

(Emissions from these affected units are addressed in the emission limitations of Conditions 2.1.6 and 2.2.6.)

2.3.7 Testing Requirements

None

2.3.8 Instrumentation Requirements

- a. i. The Permittee shall equip baghouse(s) for the affected unit with instrumentation to measure the pressure drop across the baghouse.
- ii. The Permittee shall record the pressure drop of each baghouse on at least a daily basis.

2.3.9 Recordkeeping Requirements

- a. The Permittee shall maintain operating log(s) and maintenance inspection, and repair log(s) for the affected units and filter systems.

2.3.10 Reporting Requirements

- a. The Permittee shall notify the Illinois EPA, within 30 days, of deviations of the affected units with applicable requirements. Reports shall describe the incident, the probable cause of such deviations, and any corrective actions or preventive measures taken.

2.4 Unit: Thermal Oil Heaters

2.4.1 Description

The thermal oil circulated through the dryers will be heated in heaters that are capable of being fired with fuel oil, gaseous fuel, or a combination of these fuels. The heaters were originally designed to burn fuel oil, which could be reclaimed or virgin fuel oil. The ability to burn gaseous fuels, i.e., natural gas and digester gas, was subsequently added to the design of the heaters. The digester gas would be supplied by the MWRD's Stickney Works, where digester gas is currently being produced and being used as fuel for certain operations.

The heaters will be equipped with low NO<sub>x</sub> burners for the control of nitrogen oxide (NO<sub>x</sub>) emissions. The exhaust from the heaters will be vented to a two-stage scrubber system, which will serve to control emissions when digester gas or reclaimed oil is being burned.

2.4.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
3 Heaters (TOH 1 - 3)	Thermal Oil Heaters, fired with natural gas, digester gas or oil nominal capacity 27 mmBtu/hr each	Low-NO <sub>x</sub> burners, Venturi Scrubber and Wet Scrubber (VS & S)

2.4.3 Applicability Provisions and Applicable Regulations

- a. An "affected heater" for the purpose of these unit-specific conditions is a heater described in Conditions 2.4.1 and 2.4.2.
- b. Each affected heater is subject to the New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60 Subparts A and Dc. The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA.
- c. Each affected heater is subject to 35 IAC 212.206, which provides that no person shall cause or allow the emission of particulate matter (PM) into the atmosphere in any one hour period to exceed 0.15 kg of particulate matter per MW-hr of actual heat input from combustion units using liquid fuel (0.10 lbs/mmBtu).

- d. Each affected heater is subject 35 IAC 214.122(b), which provides that no person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from the combustion units, to exceed 1.55 kg of sulfur dioxide (SO<sub>2</sub>) per MW-hour of actual heat input when residual fuel oil is burned (1.0 lbs/mmBtu) or 0.46 kg of sulfur dioxide (SO<sub>2</sub>) per MW-hr of actual heat input when distillate fuel oil is burned (0.3 lbs/mmBtu).
- e. Each affected heater is subject to 35 IAC 216.121, which provides that no person shall cause or allow the emission of carbon monoxide (CO) into the atmosphere from any fuel combustion emission unit to exceed 200 ppm, corrected to 50 percent excess air.

#### 2.4.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on the affected heaters not being subject to the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63, Subpart DDDDD, since this plant and MWRD Stickney Works together are not a major source of hazardous pollutants.

#### 2.4.5 Operational Limits and Control Requirements

- a.
  - i. The maximum heat input rate of each affected heater shall not exceed 27 million Btu/hour.
  - ii.
    - A. The total amount of fuel fired in the affected heaters shall not exceed 62,490 million Btu/month and 624,900 million Btu/year.
    - B. The amount of oil fired in the affected heaters shall not exceed 437,000 gallons/month and 4,370,000 gallons/year.
- b.
  - i. Each affected heater shall be equipped, operated, and maintained with low NO<sub>x</sub> burners.
  - ii. The affected heaters, including the burners and associated control system, shall be operated and maintained in accordance with good air pollution control practices to minimize emissions.
  - iii. The affected heaters shall be operated and maintained in accordance with written procedures developed and maintained by the

Permittee, which procedures shall appropriately address the firing of different fuels in the heaters and require operation of the scrubber system in a manner that is consistent with the operating conditions of the system during emissions testing, as addressed by Condition 2.4.7-1.

- c. The affected heaters shall not combust fuel that contains greater than 0.5 weight percent sulfur, pursuant to the NSPS [40 CFR 60.42c(d)].
- d. The reclaimed oil fired in the affected heaters shall not constitute a mixture of used oil and hazardous waste that is regulated as hazardous waste, as provided by 35 IAC 739.110(b), and shall not exceed any of the following specifications:
  - i. Total halogens content:
    - A. 1000 ppm by weight; or
    - B. 4000 ppm by weight, provided that the Permittee demonstrates that the oil does not contain hazardous waste (for example, by showing that the oil does not contain significant concentrations of halogenated hazardous constituents listed in Appendix H of 35 IAC Part 721).
  - ii. Maximum ash content: 0.1 percent weight.
  - iii. Maximum lead content: 100 ppm by weight.

2.4.6 Emission Limitations

- a. Emissions from each affected heater shall not exceed the following limits:

Pollutant	Limit (Lbs/million Btu)	
	Oil	Gas
VOM	0.002	0.006
PM/PM <sub>10</sub> *	0.0082	0.008
NO <sub>x</sub>	0.100	0.050
CO	0.035	0.082
SO <sub>2</sub>	0.052	0.010
Lead	0.001	----
Hydrogen Chloride (HCl)	0.0005	----
Formaldehyde	0.00043	0.0001

\* Including both filterable and condensable emissions.

- b. Total emissions from affected heaters shall not exceed the following limits:

<u>Pollutant</u>	<u>Limit</u>	
	<u>(Tons/Mo)</u>	<u>(Tons/Yr)</u>
VOM	0.19	1.86
PM/PM <sub>10</sub> *	0.26	2.56
NO <sub>x</sub>	3.12	31.25
CO	2.83	28.33
SO <sub>2</sub>	1.63	16.25
Lead	0.03	0.30
Hydrogen Chloride	0.016	0.16
Formaldehyde	0.013	0.13

\* Including both filterable and condensable particulates.

#### 2.4.7-1 Emission Testing Requirements

- a. i. The VOM, PM, PM<sub>10</sub>, NO<sub>x</sub>, CO, SO<sub>2</sub>, metals, hydrogen chloride and formaldehyde emissions from the affected heaters while burning reclaimed oil shall be measured if reclaimed oil is fired in an affected heater after July 31, 2008. The Permittee shall have this testing performed within 90 days of the date after July 31, 2008 when reclaimed oil is first burned in a heater.
- ii. The VOM, NO<sub>x</sub>, CO, SO<sub>2</sub> and formaldehyde emissions from the affected heaters while burning digester gas shall be measured if the heat input to the heaters from digester gas in a calendar year is 10 percent or more of the total heat input to the affected heaters. The Permittee shall have this testing performed by the end of the following calendar year.
- iii. In addition to the emission testing required above, the Permittee shall have emission tests performed for the affected heaters for firing of fuel(s) specified by the Illinois EPA within 90 days of a written request by the Illinois EPA or such later date agreed to by the Illinois EPA.
- b. i. These tests shall be performed by an approved testing service at the Permittee's expense during conditions that are representative of maximum emissions. For purposes of testing when firing reclaimed oil or digester gas, if

during the time period within which testing must be performed a fuel cannot yet be fired in an affected heater at the maximum firing rate, the Permittee shall have testing performed while the fuel is being fired at a rate that is at least 90 percent of the rate that has been reliably achieved during normal operation of the heater with such fuel.

- ii. This emission testing shall be conducted in accordance with general testing methods identified in Condition 3.1(a).
  - iii. The Permittee shall provide notification for testing in accordance with Conditions 3.1(b) and (c).
  - iv. The Permittee shall submit the Final report in accordance with Condition 3.1(d) and shall include the information specified in Condition 2.4.7.
- c. When emission testing is conducted for the burning of reclaimed oil or digester gas in the heaters, the Permittee shall have representative samples of the fuel being burned by the affected heaters taken and analyzed in accordance with Condition 2.4.7-2.

#### 2.4.7-2 Fuel Sampling and Analysis Requirements

- a. i. A. The Permittee shall take representative samples of the reclaimed oil fired in the affected heaters and have the samples analyzed for heat content (Btu/gallon and Btu/pound) and sulfur, ash, total halogens, lead and other heavy metals contents (percent or ppm by weight) by a qualified laboratory using appropriate ASTM or equivalent methods.
- B. If a sample contains more than 1000 ppm total halogens, the sample shall also be analyzed for the presence of hazardous waste, for example, by analyzing for halogenated hazardous constituents as listed in Appendix H of 35 IAC Part 721
- ii. For this purpose, separate sample shall be taken for the oil provided by each supplier of reclaimed oil, with an initial sample collected and analyzed when such oil is first accepted from a particular supplier and

subsequent samples collected and analyzed on an annual basis for as long as a supplier is providing reclaimed oil for the heaters.

- b. The Permittee shall take representative samples of the digester gas fired in the affected heaters on a regular basis and have the samples analyzed for heat content (Btu/scf and pound) and sulfur content (ppm by weight) by a qualified laboratory using appropriate ASTM or equivalent methods. For this purpose, the initial sample shall be taken prior to firing digester gas and subsequent samples shall be taken on at least an annual basis for as long as digester gas is routinely fired in the heaters.
- c. The Permittee shall keep records for the results of these analyses and the collection of samples.

#### 2.4.8 Monitoring Requirements

- a. The Permittee shall monitor the following operating parameters for each scrubber for the affected heaters:
  - i. Scrubbant flow rate (gallons/minute);
  - ii. Pressure drop across the scrubber; and
  - iii. pH of the scrubbant, for the caustic scrubber.
- b. In addition to the data automatically recorded by these monitoring systems, the Permittee shall keep records for the operation, maintenance and repair of these systems.

#### 2.4.9 Recordkeeping Requirements

- a. The Permittee shall keep a file with documentation for the maximum firing rate(s) of each affected heater (million Btu/hour), with supporting documentation.
- b. The Permittee shall maintain a file, which shall be kept current, containing fuel certifications from each fuel supplier for reclaimed oil detailing the following specifications for the oil supplied to the plant:
  - i. Maximum and minimum heat content (Btu/gallon and Btu/pound);

- ii. Maximum ash and sulfur contents (percents by weight);
  - iii. Maximum contents of lead and other individual heavy metals (ppm by weight);
  - iv. Maximum total halogen content (ppm by weight);
  - v. If the specification for total halogen content is greater than 1000 ppm by weight, a certification that hazardous waste has not been mixed with the oil and the oil does not otherwise constitute hazardous waste, as provided by 35 IAC 739.110(b), with supporting material explaining how the supplier assures that this requirements is met.
- c. The Permittee shall keep the following records for each shipment of fuel oil received at the plant:
- i. Name of supplier;
  - ii. Date received;
  - iii. Type of oil; and
  - iv. Amount received.
- d. The Permittee shall maintain records of fuel usage of the affected heaters by type of fuel (gallons or cubic feet/month and gallons or cubic feet/year) and the percentage of the heat input, on a Btu basis, provided to the affected heaters by different fuels on a calendar year basis, with supporting calculations.
- e. The Permittee shall maintain the following records for the additives (caustics) used in the scrubbant:
- i. Type of additive, if other than caustic;
  - ii. Amount of additive used in the scrubbant (daily);
  - iii. Flow rate make-up water for scrubbant (4 times/shift); and
  - iv. Flow rate of scrubbant additive (Caustic), if any (4 times/shift).

- f. The Permittee shall maintain the following logs or other records for the affected heaters and associated control system:
  - i. Operating log(s) that, at a minimum, shall include the following information:
    - A. Information identifying periods when heater(s) were not in service.
    - B. For periods when heater(s) were in service and operating normally, relevant process information to generally confirm normal operation.
    - C. For periods when heater(s) were in service and not operating normally, identification of each such period, with detailed information describing the operation of the unit(s) and the potential consequences for additional emissions from the unit(s), with explanation.
  - ii. Inspection, maintenance and repair log(s) that, at minimum, shall include the following information:
    - A. Identification of equipment, with date, time, responsible employee and type of activity.
    - B. For inspections, a description of the inspection, findings, and any recommended actions, with reason.
    - C. For maintenance and repair activity, a description actions taken, reason for action, e.g., preventative measure or corrective action as a result of inspection, and the condition of equipment following completion of the activity.
- g. The Permittee shall maintain the following records related to emissions of VOM, CO, NO<sub>x</sub>, SO<sub>2</sub>, PM, PM<sub>10</sub>, lead, hydrogen chloride and formaldehyde from the affected heaters:
  - i. A current file containing the maximum emission rates from the affected units based on emission rates and control efficiencies

obtained through most recent emissions testing, provided that compliance was demonstrated (lbs/million Btu).

- ii. Monthly and annual emissions, (tons/month and tons/year) along with supporting calculations.

#### 2.4.10 Reporting Requirements

- a. The Permittee shall notify the Illinois EPA within 30 days of deviations of the affected heaters with applicable requirements. Reports shall describe the incident, the probable cause of such deviations, and any corrective actions or preventive measures taken.
- b. The Permittee shall notify the Illinois EPA within 30 days of the following dates:
  - i. The date that digester gas is first fired in an affected heater.
  - ii. The first date after July 31, 2008 that reclaimed oil is fired in an affected heater.
- c. The Permittee shall notify the Illinois EPA within 30 days after receiving a shipment of reclaimed oil that does not meet the requirements of Condition 2.4.5(d), which notification shall describe the shipment of oil that was received and the action that were taken by the Permittee.

2.5 Unit: Oil Storage Tanks

2.5.1 Description

The oil storage tanks will store fuel for the heaters addressed in Condition 2.4. This condition addresses the storage of the fuel, whereas Condition 2.4 addresses the use of the oil and combustion emissions.

2.5.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
Tanks	Oil Storage Tanks, Nominal Capacity of 50,000 Gallons Each (ROS1-2)	None

2.5.3 Applicability Provisions and Applicable Regulations

- a. An "affected tank" for the purpose of these unit-specific conditions, is an oil storage tank described in Conditions 2.5.1 and 2.5.2.
- b. Each affected tank is subject to the NSPS for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, 40 CFR 60 Subparts Kb and A. The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA.

2.5.4 Non-Applicability of Regulations of Concern

- a. Except as provided in Condition 2.5.9(a) (see also 40 CFR 60.116b), pursuant to 40 CFR 60.110b(b) the affected tanks are not subject to the general provisions of NSPS Subpart Kb, since the storage vessels are used to store a volatile organic liquid with a maximum true vapor pressure less than 3.5 kPa.

2.5.5 Operational Limits and Control Requirements

- a. The affected tanks shall be operated in accordance with good air pollution control practices in order to minimize emissions and odors.

2.5.6 Emission Limitations

- a. This permit is issued based on negligible emissions of VOM from the affected tanks. For this purpose,

emissions from all such units shall not exceed a nominal emission rate of 0.44 tons/year.

2.5.7 Testing Requirements

None

2.5.8 Monitoring Requirements

None

2.5.9 Recordkeeping Requirements

- a. The Permittee shall keep readily accessible records showing the dimension of the two tanks (ROS1-2) and an analysis showing the capacity of the storage vessels. This record shall be kept for the life of the source pursuant to 40 CFR 60.116b(a) and 60.116b(b).
- b. The permit shall maintain a file that contains the identification and maximum vapor pressure of the materials stored in the affected tanks.
- c. The Permittee shall maintain records of VOM emissions for the affected tanks, (lbs/month and tons/year) determined by published USEPA Methods e.g., Tanks, with supporting documentation.
- d. The Permittee shall maintain an operating and maintenance log for the affected tanks.

2.4.10 Reporting Requirements

- a. The Permittee shall notify the Illinois EPA, within 30 days, of deviations of the affected tanks with applicable requirements. Reports shall describe the incident, the probable cause of such deviations, and any corrective actions or preventive measures taken.

3.0 General Requirements

- 3.1 a. The following methods and procedures shall be used for testing of emissions, unless another USEPA Method is approved by the Illinois EPA: Refer to 40 CFR 60, Appendix A, for USEPA test methods.

Location of Sample Points:	USEPA Method 1
Gas Flow and Velocity:	USEPA Method 2
Flue Gas Weight:	USEPA Method 3
Moisture:	USEPA Method 4
Particulate Matter	USEPA Method 5
PM <sub>10</sub>	USEPA Methods 5 and 202
Sulfur Dioxide	USEPA Method 6, 6a, 6b, or 6c
Nitrogen Oxides	USEPA Method 7
Opacity	USEPA Method 9
Carbon Monoxide	USEPA Method 10
Hydrogen Sulfide	USEPA Method 15
Volatile Organic Material	USEPA Method 18 and 25 or 25A (if outlet VOM cont. < 50 ppmv as carbon, non-methane)
Hydrogen Chloride	USEPA Method 26
Metals, Including Lead	USEPA Method 29
Formaldehyde	USEPA Method 320*

\* Equivalent test methods may be proposed by the Permittee and approved by the Illinois EPA.

- b. At least 60 days prior to the actual date of testing, a written test plan shall be submitted to the Illinois EPA for review. This plan shall describe the specific procedures for testing, including as a minimum:
- i. The person(s) who will be performing sampling and analysis and their experience with similar tests.
  - ii. The specific conditions under which testing will be performed, including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for the emission unit and any control equipment will be determined.
  - iii. The specific determinations of emissions and operations that will be made, including sampling and monitoring locations.
  - iv. The test method(s) that will be used, with the specific analysis method, if the method can be used with different analysis methods.
  - v. The format and content of the Source Test Report.

- c. The Illinois EPA shall be notified prior to the testing to enable the Illinois EPA to observe these tests. Notification of the expected date of testing shall be submitted a minimum of thirty days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of five working days prior to the actual date of the test. The Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.
  - d. Copies of the Final Report(s) for the completed testing shall be submitted to the Illinois EPA within 45 days after the test results are compiled and finalized. The Final Report shall include as a minimum:
    - i. A summary of results;
    - ii. General information;
    - iii. Description of test method(s), including description of sampling points, sampling train, analysis equipment, and test schedule;
    - iv. Detailed description of test conditions, including the following:
      - A. Process information, i.e., mode(s) of operation, process rate, fuel usage rates, raw material composition e.g. fuel or raw material consumption.
      - B. Specific control equipment information, i.e., equipment condition and operating parameters during testing.
    - v. Data and calculations, including copies of all raw data sheets and records of laboratory analyses, sample calculations, and data on equipment calibration.
- 3.2
- a. Each required continuous monitoring device shall be equipped with a data recording device.
  - b.
    - i. The required continuous monitoring systems shall be connected to interlocks that discontinue operation of the associated emission units in the event of failure of the control device.

- ii. Each required continuous monitoring system shall be equipped with an alarm (audio or visual) that can be set to go off at a particular value of the monitored parameter. These alarm(s) shall be used if operation of the associated emission unit is not interlocked with the data recorded by the continuous monitoring system.
  - b. The Permittee shall keep a log for the operation and maintenance for each continuous monitoring device.
- 3.3 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.
- 3.4 a. Two copies of reports and notifications required by this permit 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 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
- b. One copy of each test notification or final test reports shall be sent to the Illinois EPA's source monitoring unit at the following address unless otherwise indicated:
- Illinois Environmental Protection Agency  
Division of Air Pollution Control  
Source Monitoring Unit 9511  
9511 West Harrison  
Des Plaines, Illinois 60016

Please note that this permit has been revised at the request of the Permittee to (1) lower the permitted ash content in the reclaimed oil, (2) reduce the permitted particulate emissions from the thermal oil heaters, (3) increase

Page 28

the allowable particulate emissions from the dryers, and (4) reduce the permitted particulate emissions of the facility overall.

If you have any questions on this permit, please call Bob Smet at 217/782-2113.

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

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

ECB:RPS:psj

cc: Region 1  
CES

## Attachment A

## Summary of Permitted Emissions

<u>Equipment/Process</u>	Emissions (Tons/Yr)							
	<u>PM/PM<sub>10</sub>*</u>	<u>NO<sub>x</sub></u>	<u>CO</u>	<u>SO<sub>2</sub></u>	<u>VOM</u>	<u>Lead</u>	<u>HCL</u>	<u>Formaldehyde</u>
Sewage Sludge Handling	0.44	----	----	----	0.44	----	----	----
Dryers	5.04	8.35	4.33	6.66	0.44	0.05	----	----
Thermal Heaters	2.56	31.25	28.33	16.25	1.86	0.30	0.16	0.13
Oil Storage Tanks	----	-----	-----	-----	0.44	----	----	----
Road Dust	<u>1.00</u>	<u>-----</u>	<u>-----</u>	<u>-----</u>	<u>-----</u>	<u>-----</u>	<u>-----</u>	<u>-----</u>
Total	9.04	39.60	32.64	22.91	3.18	0.35	0.16	0.13

\* These limits also ensure that emissions of PM<sub>2.5</sub> are not significant, i.e., 10 tons per year or more