

AIR EMISSION PERMIT NO. 17100094- 002

IS ISSUED TO

City of Buffalo

Buffalo Waste Water Treatment Plant
1 25th Street Southeast
Buffalo, Wright County, Minnesota 55313

The emission units, control equipment and emission stacks at the stationary source authorized in this permit are as described in the following permit application(s):

Permit Type	Application Date
Total Facility Operating Permit	01/20/2006
Major Amendment	05/17/2007

This permit supersedes Air Emission Permit No. 17100094-001, and authorizes the Permittee to construct and operate the stationary source at the address listed above unless otherwise noted in Table A. The Permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: State; Limits to Avoid Pt 70/True Minor for NSR Major Amendment

Issue Date: July 5, 2006

Issue Date: September 24, 2007

Expiration: Permit does not expire.

All Title I Conditions do not expire.

Richard J. Sandberg, Manager
Air Quality Permits Section
Industrial Division

for Brad Moore
Commissioner
Minnesota Pollution Control Agency

TABLE OF CONTENTS

Notice to the Permittee

Permit Shield

Facility Description

Permit Action 002 Description

Table A: Limits and Other Requirements

Table B: Submittals

Appendix I: Insignificant Activities

NOTICE TO THE PERMITTEE:

Your stationary source may be subject to the requirements of the Minnesota Pollution Control Agency's (MPCA) solid waste, hazardous waste, and water quality programs. If you wish to obtain information on these programs, including information on obtaining any required permits, please contact the MPCA general information number at:

Metro Area	651-296-6300
Outside Metro Area	1-800-657-3864
TTY	651-282-5332

The rules governing these programs are contained in Minn. R. chs. 7000-7105. Written questions may be sent to: Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

Questions about this air emission permit or about air quality requirements can also be directed to the telephone numbers and address listed above.

PERMIT SHIELD:

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition.

Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

FACILITY DESCRIPTION:

The City of Buffalo owns and operates a municipal Waste Water Treatment Plant (WWTP) at which they plan to construct and operate a Biosolids Heat Recovery System as a method of disposal for the sewage sludge. In this system, dewatered sludge is fed to a two stage indirect convection belt dryer for one hour. The dried sludge is then incinerated and the energy is used to heat process air for the dryer. It will be capable of processing 625 pounds of dried sludge per hour. Flue gas will be treated with the following pollution control equipment: activated carbon injection (mercury and volatile organic carbons), lime injection (sulfur dioxide), bag filter (total particulate matter), and a secondary combustion chamber (volatile organic carbons).

The City of Buffalo WWTP also has an existing 900 kilowatt diesel generator for emergency power that will be included in this permit action. This generator has operating limits to keep nitrogen oxide emissions below major source thresholds.

PERMIT ACTION 002 DESCRIPTION:

This permit action is a MPCA-initiated major amendment under Minn. R. 7007.1600, subp. 1(C), mandatory reopening to correct material mistakes in establishing emissions standards, limitations, or other terms or conditions of the permit, and Minn. R. 7007.1600, subp. 1(D), mandatory reopening that is needed in order to assure compliance with applicable requirements. This permit was reopened to adjust the due date for monitoring plan submittal from 90 days after permit issuance to 90 days after commencement of construction, and to include the following one-time submittals: notification of the date construction began, notification of the actual date of initial startup, and notification before the initial performance test.

This amendment incorporates performance test methods and procedures required by Minn. R. 7011.1310, Standards of Performance for New Sewage Sludge Incinerators, which were not included in the original permit, specifically Minn. R. 7011.1320, Performance Test Methods, and Minn. R. 7011.1325, Performance Test Procedures.

This amendment also includes pressure drop or visible emissions recordkeeping guidelines and documentation of control equipment inspection and maintenance for the baghouse (CE 003) not included in the original permit.

This amendment also corrects emission factors used in calculating total facility limited emissions to reflect that the Biosolids Heat Recovery System (EU 001) is a sewage sludge incinerator, and not a medical waste incinerator. Also, the control efficiencies used in emissions calculations for sulfur dioxide, volatile organic compounds, and lead were adjusted to reflect MPCA-approved control efficiencies.

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Buffalo WWTP
 Permit Number: 17100094 - 002

Table A contains limits and other requirements with which your facility must comply. The limits are located in the first column of the table (What To do). The limits can be emission limits or operational limits. This column also contains the actions that you must take and the records you must keep to show that you are complying with the limits. The second column of Table A (Why to do it) lists the regulatory basis for these limits. Appendices included as conditions of your permit are listed in Table A under total facility requirements.

Subject Item: Total Facility

What to do	Why to do it
OPERATIONAL REQUIREMENTS	hdr
Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.	Minn. R. 7011.0020
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
PERFORMANCE TESTING	hdr
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A and/or B.	Minn. R. ch. 7017
<p>Performance Test Notifications and Submittals: Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements.</p> <p>Performance Test Notification (written): due 30 days before each Performance Test</p> <p>Performance Test Plan: due 30 days before each Performance Test</p> <p>Performance Test Pre-test Meeting: due 7 days before each Performance Test</p> <p>Performance Test Report: due 45 days after each Performance Test</p> <p>Performance Test Report - Microfiche Copy: due 105 days after each Performance Test</p> <p>The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.</p>	Minn. R. 7017.2030, subp. 1-4, 7017.2018 and Minn. R. 7017.2035, subp. 1-2
Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change.	Minn. R. 7017.2025, subp. 3

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Buffalo WWTP
 Permit Number: 17100094 - 002

MONITORING REQUIREMENTS	hdr
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A and/or B, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)
RECORDKEEPING	hdr
Recordkeeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007. 1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350 subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007. 0800, subp. 5(B)
REPORTING/SUBMITTALS	hdr
Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance. To be submitted on a form approved by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3100

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Buffalo WWTP

Permit Number: 17100094 - 002

Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
---	---

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Buffalo WWTP
 Permit Number: 17100094 - 002

Subject Item: EU 001 Biosolids Heat Recovery System

- Associated Items:** CE 001 Activated Carbon Adsorption
 CE 002 Sodium Carbonate Scrubbing
 CE 003 Fabric Filter - High Temperature, i.e., T>250 Degrees F
 CE 004 Direct Flame Afterburner w/Heat Exchanger
 SV 001 Biosolids Heat Recovery System

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 1.30 lbs/ton using 24-hour Block Average dry sludge input.	40 CFR section 60.152(a)(1); Minn. R. 7011.1350; Minn. R. 7011.1310, subp. A;
Opacity: less than or equal to 20 percent opacity	40 CFR section 60.152(a)(2); Minn. R. 7011.1350; Minn. R. 7011.1310, subp. B
Mercury: less than or equal to 4 lbs/year using 12-month Rolling Sum (more stringent than 40 CFR 61.52(b))	Minn. R. 7007.0800, subp. 2 (also satisfies 40 CFR section 61.52(b))
MERCURY TRIGGER LEVEL	hdr
Mercury: less than or equal to 3 lbs/year using 12-month Rolling Sum . This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7007.0800, subp. 2
If the mercury trigger level is exceeded the permittee shall submit and begin implementing a mercury reduction plan within 60 days of exceedance. The plan shall include the reasons for the increased mercury loading and the pollution prevention and/or other relevant mercury reduction activities. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7007.0800, subp. 2
OPERATIONAL LIMITS	hdr
Sludge Feed Rate: Limited to the average hourly sludge feed rate demonstrated during the most recent compliant performance test for percent control of mercury.	Minn. R. 7017.2025; Minn. R. 7007.0800, subp 4
Material Incinerated: Limited to sewage sludge and scum, with natural gas as an auxiliary fuel.	Minn. R. 7007.0800 subp. 2
MERCURY TESTING REQUIREMENTS	hdr
Sample Analysis: due 90 days after Initial Startup. The permittee shall use Method 105 of 40 CFR section 61, Appendix B, Determination of Mercury in Wastewater Treatment Plant Sewage Sludge, to demonstrate compliance with 40 CFR section 61.52(b).	40 CFR section 61.54(a)(2); Minn. R. 7011.9950; Minn. R. 7007.0800 subp.4
The Permittee shall sample sludge according to Method 105 in 40 CFR section 61, Appendix B. A total of three composite samples shall be obtained within an operating period of 24 hours. When the 24-hour operating period is not continuous, the total sampling period shall not exceed 72 hours after the first grab sample is obtained. Samples shall not be exposed to any condition that may result in mercury contamination or loss.	40 CFR section 61.54(c)(1); Minn. R. 7011.9950; Minn. R. 7007.0800 subp. 4
The permittee shall determine the maximum 24-hour period sludge incineration rate by use of a flow rate measurement device that can measure the mass rate of sludge charged to EU 001 with an accuracy of plus or minus 5 percent over its operating range. The dry sludge charging rate shall be determined according to Minn. R. 7011.1325, subp. 3.	40 CFR section 61.54(c)(2); 40 CFR section 61.53(d); Minn. R. 7011.9950; Minn. R. 7007.0800 subp. 4; Minn. R. 7011.1315; Minn. R. 7011.1325, subp. 3
The Permittee shall sample, handle, prepare and analyze sludge samples according to 40 CFR section 61 Appendix B, Method 105 - Determination of Mercury in Wastewater Treatment Plant Sewage Sludge.	40 CFR section 61.54(c)(3); Minn. R. 7011.9950; Minn. R. 7007.0800 subp. 4; Minn. Stat. 116.85, paragraph (b), alternate sampling method
The Permittee shall determine mercury emissions using the equation in 40 CFR section 61.54(d): $EHg = (M \cdot Q \cdot F_{sm}) / 1000$ EHg = Mercury Emissions, g/day M = mercury concentration of sludge on a dry solids basis, ug/g Q = Sludge Charging Rate, kg/day Fsm = Weight fraction of solids in the collected sludge after mixing 1000 = Conversion factor, kg ug/g ²	40 CFR section 61.54(d); Minn. R. 7011.9950; Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Buffalo WWTP
 Permit Number: 17100094 - 002

<p>The Permittee shall not make any changes in operation of EU 001 after a sludge test has been conducted which would potentially increase emissions of mercury above the level determined by the most recent sludge test, until the new emission level has been estimated by calculation and the results reported to the Administrator.</p>	<p>40 CFR section 61.54(e); Minn. R. 7011.9950; Minn. R. 7007.0800, subp 2</p>
<p>The Permittee shall analyze all sludge samples for mercury content within 30 days after the sludge sample is collected. Each determination shall be reported to the Administrator by a registered letter dispatched within 15 calendar days following the date such determination is completed.</p>	<p>40 CFR section 61.54(f); Minn. R. 7011.9950; Minn. R. 7007.0800, subp 5</p>
<p>The Permittee shall retain records, available for inspection by the Administrator, of sludge sampling, charging rate determination and other data used to determine mercury content of wastewater treatment plant sludge at the source for minimum of 2 years.</p>	<p>40 CFR section 61.54(g); Minn. R. 7011.9950; Minn. R. 7007.0800, subp 5</p>
<p>This permit provides approval of an alternate method for determining mercury in air emissions. Sludge sampling and analysis will be used to determine mercury emissions as an alternative to quarterly stack testing. Sludge sampling and analysis shall be conducted after every 500 dry tons of sludge have been charged to EU 001.</p> <p>The control efficiency from the most recent compliant performance test will be applied to the monthly sludge testing results to determine compliance with the mercury emissions limit.</p>	<p>Minn. Stat. 116.85, paragraph (b), alternate sampling method (meets the requirements of 40 CFR 61.55(a))</p>
<p>MONITORING REQUIREMENTS</p>	<p>hdr</p>
<p>Sludge Feed Rate Monitoring: Install, calibrate, maintain, and operate a flow measuring device for recording and determining the mass or volume of the sludge charged to the dryer portion of EU 001. The flow measuring device shall be certified by the manufacturer to have an accuracy of plus or minus 5 percent over its operating range. Sludge flow to the dryer portion of EU 001 shall be measured continuously and data recorded during all periods of operation of EU 001.</p>	<p>40 CFR section 61.54(c)(2); Minn. R. 7011.9950; Minn. R. 7011.1315(A)</p>
<p>The Permittee shall provide access to the sludge charged so that a well-mixed representative grab sample of the sludge can be obtained.</p>	<p>Minn. R. 7011.1315(B)</p>
<p>Auxiliary Fuel Flow Monitoring: Install, calibrate, maintain, and operate a measuring device for recording the amount of auxiliary fuel being used by EU001. The flow measuring device shall be certified by the manufacturer to have an accuracy of plus or minus 5 percent over its operating range. Auxiliary fuel flow shall be measured continuously and data recorded during all periods of operation of EU 001.</p>	<p>Minn. R. 7007.0800, subp. 4</p>
<p>RECORDKEEPING</p>	<p>hdr</p>
<p>The Permittee shall keep a copy of the plan approved under 40 CFR section 60.153(e), as well as all records of control device operation measurements as specified in the plan approved under 40 CFR section 60.153(e), on-site. See Table A: Limits and Other Requirements for the following pieces of control equipment(CE) for more information: CE 001, CE 003, CE 004.</p>	<p>40 CFR section 60.155; Minn. R. 7011.1350</p>
<p>PERFORMANCE TESTING</p>	<p>hdr</p>
<p>Initial Performance Test: due 180 days after Initial Startup to test total particulate matter emissions. This initial performance test must be performed within 60 days after achieving the maximum production rate.</p>	<p>Minn. R. 7017.2020, subp. 1; 40 CFR Section 60.8(a); 40 CFR Section 63.7</p>
<p>Performance Test Method: The Permittee shall use the following methods for performance testing:</p> <p>A.) Method 1 for sample and velocity traverses;</p> <p>B.) Method 2 for volumetric flow rate;</p> <p>C.) Method 3 for gas analysis;</p> <p>D.) Method 5 for concentration of particulate matter and associated moisture content. The sampling time for each run shall be at least 60 minutes and the sampling rate shall be at least 0.53 dscf/min, except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the agency.</p>	<p>Minn. R. 7011.1320; Minn. R. 7011.1325, subp.2</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Buffalo WWTP
 Permit Number: 17100094 - 002

Subject Item: EU 002 Backup Generator

Associated Items: SV 002 Backup Generator

What to do	Why to do it
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
OPERATING CONDITIONS	hdr
Fuel type: Diesel fuel only	Minn. R. 7005.0100, subp. 35a
Operating Hours: less than or equal to 500 hours/year using 12-month Rolling Sum to be calculated by the 15th day of each month.	Limit to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
RECORDINGKEEPING REQUIREMENTS	hdr
Recordkeeping -- Hours of Operation: The Permittee shall maintain documentation on site that the unit is an emergency generator by design that qualifies under the U.S. EPA memorandum entitled "Calculating Potential to Emit (PTE) for Emergency Generators" dated September 6, 1995, limiting operation to 500 hours per year.	Minn. R. 7007.0800, subp. 4 & 5
Recordkeeping -- Fuel Type: The Permittee shall keep records of the type of fuel burned in EU 002 when in operation.	Minn. R. 7007.0800, subp. 4 & 5
Fuel Supplier Certification: Obtain and maintain a fuel supplier certification for each shipment of diesel fuel, certifying that the sulfur content does not exceed 0.5% by weight.	Minn. R. 7007.0800, subp. 4 & 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Buffalo WWTP
 Permit Number: 17100094 - 002

Subject Item: CE 001 Activated Carbon Adsorption

Associated Items: EU 001 Biosolids Heat Recovery System

What to do	Why to do it
Mercury: greater than or equal to 80 percent control efficiency for mercury. Sludge sampling shall be used to determine the inlet concentration and stack sampling shall be used to determine the outlet concentration.	Minn. R. 7007.0800, subp. 2
Mercury additive feedrate: greater than or equal to 0.9 lbs/hour of activated carbon, unless a new range is required to be set pursuant to Minn. R. 7017.2025, subp. 3. If a new range is required to be set, it will be based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Minn. R. 7011.1272, subp. 1
The Permittee shall operate and maintain the activated carbon injection system at all times that EU 001 is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subp. 2 and 14
MONITORING, RECORDKEEPING AND TESTING	hdr
Monitoring Equipment: The Permittee shall install, operate, and maintain the necessary monitoring equipment for measuring and recording the activated carbon injection rate as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored activated carbon absorption system is in operation.	Minn. R. 7011.1272, subp. 2
Monitoring and Recordkeeping: The Permittee shall monitor and record the average activated carbon mass feed rate for each hour that EU 001 is operational. The records shall be maintained on site and available for immediate inspection.	Minn. R. 7011.1272, subp. 3(A)
During each calendar quarter, the Permittee shall estimate the total activated carbon used at the waste combustor in pounds by two independent means: 1) The weight of activated carbon delivered to the plant; 2) Estimating the average activated carbon mass feed rate in pounds per hour, for each hour of operation for each unit.	Minn. R. 7011.1272, subp. 3(B)
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the activated carbon injection rate falls below the required minimum operating rate; or - the activated carbon absorption system or any of its components are found during the inspections to need repair. Corrective actions shall return the activated carbon injection rate to above the permitted rate, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the activated carbon absorption system. The Permittee shall keep a record of the type and date of any corrective action taken.	Minn. R. 7007.0800, subp. 4, 5, and 14
The Permittee shall maintain each piece of control equipment according to the manufacturer's specification, shall conduct inspections, and maintain documentation of those actions as required by Minn. R. 7011.0075, subp. 2(A) to 2(l).	Minn. R. 7007.0800, subp. 4, 5 and 14
Performance Test: due 90 days after Initial Startup to determine the percent control of mercury. The inlet concentration of mercury shall be determined through sludge sampling to be performed concurrently with mercury performance tests on the outlet concentration. The tested percent control will be used in conjunction with mercury sludge testing to determine monthly mercury emissions.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Buffalo WWTP
 Permit Number: 17100094 - 002

Subject Item: CE 003 Fabric Filter - High Temperature, i.e., T>250 Degrees F

Associated Items: EU 001 Biosolids Heat Recovery System

What to do	Why to do it
The control equipment is considered listed control equipment under Minn. R. 7011.0060 to 7011.0080. The Permittee shall operate and maintain the fabric filter at all times that any process equipment controlled by the fabric filter is operating. The Permittee shall document periods of non-operation of the control equipment.	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as a major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7011.0075, subp. 1
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 99 percent control efficiency	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. R. 7011.0065, subp. 1(A)
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as a major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7011.0065, subp. 1(A)
Pressure Drop: within the range proposed by the Permittee and confirmed with a compliant performance test, unless a new range is required to be set pursuant to Minn. R. 7017.2025, subp. 3. If a new range is required to be set, it will be based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated. The Permittee shall record the pressure drop once every 24 hours when in operation.	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as a major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7011.0080
Visible Emissions/Pressure Drop Monitoring: Once each day, if EU 001 is operating, the Permittee shall check the outlet of the fabric filter during daylight hours for any visible emissions (VE). If inclement weather prohibits a VE check, the Permittee shall observe and record the pressure drop across the fabric filter.	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as a major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7011.0080
MONITORING, RECORDKEEPING AND TESTING	hdr
Recordkeeping of Pressure Drop: The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as a major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7011.0080
Recordkeeping of Visible Emissions and Pressure Drop: The Permittee shall record the time and date of each visible emission inspection and pressure drop reading, and whether or not any visible emissions were observed, and whether or not the observed pressure drop was within the range specified in this permit.	Title I Condition: To avoid classification as a major source and modification under 40 CFR Section 52.21 and Minn. R. 7007.3000; To avoid classification as a major source under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7011.0080
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - visible emissions are observed; - the recorded pressure drop is outside the required operating range; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range, eliminate visible emissions, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation.	Minn. R. 7011.0075, subp. 3
The Permittee shall maintain each piece of control equipment according to the manufacturer's specification, shall conduct inspections, and maintain documentation of those actions as required by Minn. R. 7011.0075, subp. 2(A) to 2(I).	Minn. R. 7007.0800, subp. 4,5, and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Buffalo WWTP
 Permit Number: 17100094 - 002

Subject Item: CE 004 Direct Flame Afterburner w/Heat Exchanger

Associated Items: EU 001 Biosolids Heat Recovery System

What to do	Why to do it
The Permittee shall operate and maintain the direct flame afterburner any time that EU 001 is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subp. 2 and 14
Temperature: greater than or equal to 1200 degrees F using 3-hour Rolling Average for a retention time of 0.3 seconds.	Minn. 7011.1310
Daily Monitoring: The Permittee shall physically verify the operation of the temperature recording device at least once each operating day to verify that it is working and recording properly. The Permittee shall maintain a written record of the daily verifications.	Minn. R. 7007.0800, subp. 4 and 5
Monitoring Equipment: The Permittee shall install and maintain thermocouples to conduct temperature monitoring required by this permit. The monitoring equipment must be installed, in use, and properly maintained whenever operation of the monitored control equipment is required.	Minn. R. 7007.0800, subp. 4
The Permittee shall maintain and operate a thermocouple monitoring device that continuously indicates and records combustion zone temperatures of the afterburner. The monitoring device shall have a margin of error less than the greater of +/- 0.75 percent of the temperature being measured or +/- 2.5 degrees Celsius.	Minn. R. 7007.0800, subp. 4 and 5
Quarterly Inspections: At least once per calendar quarter, or more frequently if required by the manufacturer specifications, the Permittee shall inspect the control equipment internal and external system components, including but not limited to the heat exchanger, and electrical systems. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection.	Minn. R. 7007.0800, subp. 4, 5, and 14
Annual Calibration: The Permittee shall calibrate the temperature monitor at least annually and shall maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 4, 5, and 14
Corrective Actions: If the temperature is below the minimum specified by this permit or if the direct flame afterburner or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the direct flame afterburner. The Permittee shall keep a record of the type and date of any corrective action taken	Minn. R. 7007.0800, subp. 4, 5, and 14
Fuel Usage: Only natural gas may be used as a fuel in the direct flame afterburner.	Minn. R. 7007.0800, subp. 2
The Permittee shall maintain each piece of control equipment according to the manufacturer's specification, shall conduct inspections, and maintain documentation of those actions as required by Minn. R. 7011.0075, subp. 2(A) to 2(I).	Minn. R. 7007.0800, subp. 4, 5, and 14

TABLE B: SUBMITTALS

B-1 09/24/07

Facility Name: Buffalo WWTP
Permit Number: 17100094 - 002

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:

- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Mr. George Czerniak
Air and Radiation Branch
EPA Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency
Clean Air Markets Division
1200 Pennsylvania Avenue NW (6204N)
Washington, D.C. 20460

Send any application for a permit or permit amendment to:

AQ Permit Technical Advisor
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Unless another person is identified in the applicable Table, send all other submittals to:

AQ Compliance Tracking Coordinator
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

B-2 09/24/07

Facility Name: Buffalo WWTP
Permit Number: 17100094 - 002

What to send	When to send	Portion of Facility Affected
Monitoring Plan	due 90 days after Notification of commencement of construction. The permittee shall submit to the Administrator for approval a plan for monitoring and recording EU 001 and associated control device operation parameters. The plan shall be submitted to the Administrator. A copy of the monitoring plan must be kept at the facility and available for inspection.	EU001
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup of EU 001.	EU001
Notification of the Date Construction Began	due 30 days after Start Of Construction of EU 001.	EU001
Notification	due 30 days before Performance Test. The permittee shall notify the Administrator in writing at least 30 days prior to the sludge sampling test, so that he may at his option observe the test.	EU001
Testing Frequency Plan	due 60 days after Initial Performance Test for percent control of mercury emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on one-year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of the MPCA.	CE001
Testing Frequency Plan	due 60 days after Initial Performance Test for total particulate matter emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on one-year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of the MPCA.	EU001

TABLE B: RECURRENT SUBMITTALS

Facility Name: Buffalo WWTP
 Permit Number: 17100094 - 002

What to send	When to send	Portion of Facility Affected
Report	<p>due 30 days after end of each calendar half-year following Initial Startup of EU 001. The report shall include a record of control device operation measurements as specified in the Monitoring Plan required by 40 CFR section 60.153(e).</p> <p>The first semiannual report submitted by the Permittee shall cover the calendar half-year in which EU 001 is put into operation. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. The report shall contain the mercury sample analysis of the sludge charged to EU 001.</p>	EU001
Report	<p>due 30 days after end of each half-year following Initial Startup of EU 001. The report shall contain the following information for EU 001:</p> <ol style="list-style-type: none"> 1) The mercury sample analysis of the mixed sludge samples; 2) Records of the quantity of sludge charged and when; 3) Calculation of the 12-month sum for mercury emissions. <p>The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31.</p>	EU001
Semiannual Deviations Report	<p>due 30 days after end of each calendar half-year starting 07/05/2006 . The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.</p>	Total Facility
Compliance Certification	<p>due 31 days after end of each calendar year starting 07/05/2006 (for the previous calendar year). To be submitted to the Commissioner on a form approved by the Commissioner. This report covers all deviations experienced during the calendar year.</p>	Total Facility

APPENDIX I

Facility Name: Buffalo WWTP

Permit Number: 17100094-002

Insignificant Activities and General Applicable Requirements

The table below lists the insignificant activities that are currently at the Facility and their associated general applicable requirements.

Minn. R. 7007.1300, subp.	Rule Description of the Activity	General Applicable Requirement
3(A)	Fuel use: space heaters fueled by kerosene, natural gas, or propane. <i>Buffalo WWTP has four space heaters with a total capacity of 0.150 MMBtu/hr total (2-0.025 MMBtu/hr, 2-0.05 MMBtu/hr).</i>	Minn. R. 7011.0515 (PM, SO ₂ , NO _x , and opacity)
3(I)	Individual emissions units at a stationary source, each of which have a PTE of the following pollutants in amounts less than: 2 tpy of CO and 1 tpy each of NO _x , SO ₂ , PM/PM ₁₀ , VOC, and ozone. <i>Buffalo WWTP has three makeup air units with a total capacity of 1.01 MMBtu/hr total (1-0.348 MMBtu/hr, 1-0.607 MMBtu/hr, 1-0.059 MMBTU/hr).</i>	Minn. R. 7011.0715 (PM and opacity)
3(H)	Miscellaneous brazing, soldering, or welding equipment. <i>Buffalo WWTP uses welding equipment.</i>	Minn. R. 7011.0715 (PM and opacity)

TECHNICAL SUPPORT DOCUMENT
AIR EMISSION PERMIT NO. 17100094-002

This Technical Support Document (TSD) is intended for all parties interested in the permit and to meet the requirements that have been set forth by the federal and state regulations (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp.1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the permit.

1. General Information

1.1. Applicant and Stationary Source Location:

Applicant/Address	Stationary Source/Address (SIC Code: 4952)
City of Buffalo 212 Central Avenue Buffalo, MN 55313	1 25th St SE Buffalo Wright County
Contact: Tom Klett Phone: (763) 682-1181	

1.2. Facility Description

The City of Buffalo owns and operates a municipal Waste Water Treatment Plant (WWTP) at which they plan to construct and operate a Biosolids Heat Recovery System as a method of disposal for the sewage sludge. In this system, dewatered sludge is fed to a two stage indirect convection belt dryer for one hour. The dried sludge is then incinerated and the energy is used to heat process air for the dryer. It will be capable of processing 625 pounds of dried sludge per hour. Flue gas will be treated with the following pollution control equipment: activated carbon injection (mercury and VOC), lime injection (SO₂), bag filter (PM, PM₁₀, Lead), and a secondary combustion chamber (VOC).

The City of Buffalo WWTP also has an existing 900kW diesel generator for emergency power. This generator has operating limits to keep NO_x emissions below major source thresholds.

1.3. Basis for Reopening

This permit amendment is a Minnesota Pollution Control Agency(MPCA)-initiated Major Amendment under Minn. R. 7007.1600, subp. 1(C) (mandatory reopening that is needed to correct material mistakes or inaccurate statements made in establishing emissions standards, limitations, or other terms or conditions of the permit), and Minn. R. 7007.1600, subp. 1(D)

(mandatory reopening that is needed in order to assure compliance with applicable requirements.)

1.4. Description of the changes made by this Permit Action

This permit reopening corrects the due date for the submittal of a Monitoring Plan and adds a requirement that the Permittee must notify the Minnesota Pollution Control Agency (MPCA) no more than 15 days following the initial startup of EU 001, Biosolids Heat Recovery System. The original permit required the Permittee to submit a Monitoring Plan 90 days after permit issuance. This amendment requires the Permittee to submit a Monitoring Plan 90 days after notification of commencement of construction.

This permit reopening, Permit Number 17100094-002, contains the following updates:

- Citations regarding Title I were updated to use language consistent with air permitting policy.
- Language of Limits, Requirements, and Submittals were updated to reflect current agency practices.

The changes made to specific Emission Units (EU) or Control Equipment (CE) in Table A: Limits and Other Requirements:

- Control Equipment inspection and maintenance requirements (Minn. R. 7011.0075) moved from the Total Facility level to Control Equipment level.
- EU 001-Biosolids Heat Recovery System: The original permit required the Permittee to submit a Monitoring Plan 90 days after permit issuance. This amendment requires the Permittee to submit a Monitoring Plan 90 days after notification of commencement of construction. The original permit did not contain performance test methods or procedures required by Minn. R. 7011.1320 (Performance Test Methods for Sewage Sludge Incinerators) and Minn. R. 7011.1325 (Performance Test Procedures for Sewage Sludge Incinerators.)
- CE 003-Fabric Filter-High Temperature, i.e., T>250 Degrees F: The original permit did not include recordkeeping guidelines for visible emissions or pressure drop. The original permit did not include documentation of control equipment inspection and maintenance. These recordkeeping requirements were added per MPCA DELTA requirement guidance.
- CE 004-Direct Flame Afterburner w/Heat Exchanger: Specified that only natural gas shall be used in the direct flame afterburner.

The changes made to One Time Submittals or Notifications or Recurrent Submittals in Table B:

- EU 001-Biosolids Heat Recovery System: The original permit set a due date for a Monitoring Plan 90 days after permit issuance. This permit changes the due date to 90 days after commencement of construction. The following One Time Submittals or Notifications were missing from the original permit, and added to reflect current agency

practices: Notification of the Date Construction Began, Notification of the Actual Date of Initial Startup, and Notification before the Initial Performance Test. The due date for the first Semiannual Report was changed from the half-year in which the permit is issued to the half-year in which EU 001 is put into operation. The word “monthly” was removed from semiannual mercury sample analysis reporting requirements to reflect the agreed upon sampling frequency of one mercury test every 500 dry tons of sewage which enters the incinerator.

Changes were made in calculating the total facility Potential to Emit (PTE) and total facility limited emissions (see Table 1 in Section 1.5. Facility Emissions.)

- The total facility PTE for nitrogen oxides and carbon monoxide were recalculated for EU 001. The original permit used AP 42 factors from Medical Waste Incineration (AP 42 Section 2.3) to calculate the PTE for these pollutants. Buffalo WWTP is a sewage sludge incinerator, so all emission factors used in calculating PTE are taken from AP-42 Section 2.2, Sewage Sludge Incineration.
- The original permit did not use 40% control efficiency for sulfur dioxide for dry lime injection used to calculate the total facility limited emissions (see Table GI-05A.1 in the MPCA Pollution Control Equipment Information form GI-05A).
- The original permit did not use the correct control efficiency in calculating the total facility limited emissions for Volatile Organic Compounds (VOC). VOC is controlled by activated carbon adsorption (Control Efficiency = 85% for VOC) and afterburner (Control Efficiency = 95%) for an overall control efficiency of 99% for VOC (see Table GI-05A.1 in the MPCA Pollution Control Equipment Information form GI-05A).
- An incorrect emission factor for mercury was used to calculate the Potential to Emit for mercury for EU 001. The emission factor for mercury taken from AP-42 Section 2.2, Sewage Sludge Incineration, was entered in the calculations spreadsheet.
- An incorrect control efficiency for lead was used to calculate the total facility limited emissions for lead for EU 001. A control efficiency of 79% for a Fabric Filter-High Temperature, i.e., T>250 Degrees F was entered in the calculations spreadsheet (see Table GI-05A.1 in the MPCA Pollution Control Equipment Information form GI-05A).

1.5. Facility Emissions:

Table 1. Total Facility Potential to Emit Summary

	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	Single HAP tpy	All HAPs tpy	Lead tpy
Total Facility Potential To Emit	140.62	140.62	23.13	135.10	71.93	6.08	2.05	3.60	0.14
Total Facility Limited Emissions	1.58	1.58	2.27	15.57	44.54	0.23	2.05	2.08	0.03

Where: PM = Particulate Matter PM₁₀ = PM smaller than 10 microns
 SO₂ = Sulfur Dioxide NO_x = Nitrogen Oxides
 CO = Carbon Monoxide VOC = Volatile Organic Compounds
 HAP = Hazardous Air Pollutant tpy = tons per year

Table 2. Facility Classification

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD			PM, PM ₁₀ , SO ₂ , NO _x , CO, VOC
Part 70 Permit Program		PM, PM ₁₀ , NO _x	SO ₂ , CO, VOC
Part 63 NESHAP			X

2. Regulatory and/or Statutory Basis

2.1. New Source Review

Buffalo WWTP emissions are below the threshold for New Source Review.

2.2. Part 70 Permit Program

Buffalo WWTP is using controls and limits on operation to achieve synthetic minor status for Part 70.

2.3. New Source Performance Standards (NSPS)

The facility is subject to 40 CFR Part 60, Subpart O-Standards of Performance for Sewage Treatment Plants.

2.4. National Emission Standards for Hazardous Air Pollutants (NESHAP)

The facility is subject to 40 CFR Part 61, Subpart E-National Emission Standard for Mercury.

2.5. Minnesota State Rules

Portions of the facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.1272 Mercury or PCDD/PCDF Additive Equipment Operation, Monitoring, and Reporting.
- Minn. R. 7011.9950 Mercury
- Minn. R. 7011.1310 Standards of Performance for New Sewage Sludge Incinerators
- Minn. R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engine

Table 3. Regulatory Overview of Facility

EU, GP, CE, or SV	Applicable Regulations	Comments
EU 001	40 CFR pt. 60, subp. O; Minn. R. 7011.1310	New Source Performance Standards (NSPS) for Sewage Treatment Plants; Standards of Performance for New Sewage Sludge Incinerators: <i>Buffalo WWTP combusts sewage sludge produced by a municipal sewage treatment plant.</i>
EU 001	40 CFR pt. 61, subp. E; Minn. R. 7011.9950	National Emission Standard for Mercury: <i>Buffalo WWTP combusts sewage sludge produced by a municipal sewage treatment plant.</i>
EU 002	Minn. R. 7011.2300	Standards of Performance for Stationary Internal Combustion Engines: <i>Buffalo WWTP has a backup generator which is subject to this standard.</i>
CE 001	Minn. R. 7011.1272	Mercury or PCDD/PCDF Additive Equipment, Operation, Monitoring, and Reporting: <i>Buffalo WWTP is a waste combustor that uses addition of activated carbon to control mercury emissions.</i>

3. Technical Information

3.1. Mercury Emission Limits

The Mercury NESHAP (40 CFR Part 61 Subpart E) contains mercury limits for sludge incineration at Buffalo WWTP that would permit emission far higher than the Facility's uncontrolled PTE. A significantly lower mercury emissions limit was placed in the permit under Minn. R. 7007.0800, subp. 2 that will require the use of activated carbon adsorption.

Performance testing will be used to establish the control efficiency of the carbon adsorption. Sludge sampling will be conducted and, along with the control efficiency, be used to show compliance with the mercury limit. This is an alternative compliance method that is allowed by the Mercury NESHAP.

A mercury trigger level was set at 75 percent of the mercury emission limit. If the trigger level is ever exceeded, the Permittee will be required to develop and implement a Mercury Reduction Plan. This plan will include an analysis of the reason(s) for the increase and steps that will be taken to reduce mercury coming into the facility.

It should be noted that a decrease of mercury influent concentrations can cause a decrease in the percent control. At some point in the future it may be necessary to lower the percent control requirement to ensure compliance. This should not be seen as an increase in mercury emission, but rather as a sign of mercury reductions upstream of the Facility.

3.2. Mercury Performance Testing

The Facility must show compliance with both the Mercury NESHAP and state imposed mercury limits through sludge testing. For the state imposed limit, the Facility will be required to perform periodic stack tests to determine the control efficiency of the activated carbon adsorption. This efficiency will then be used in conjunction with the sludge testing results to show compliance with the limit. The Mercury NESHAP also allows for sludge testing as an alternative means of showing compliance.

3.3. Calculation of Potential to Emit (PTE)

Attachment 1 contains detailed spreadsheets and supporting information prepared by the MPCA and the Permittee. Some changes made to calculations from the previous permit are as follows:

- 40 % control efficiency for dry lime injection omitted in calculation of Limited Emissions calculations for SO₂ emitted by EU 001 in previous permit (Permit #17100094-001).
- Incorrect emission factors used in calculation of PTE/Limited Emissions calculations for NO_x and CO from EU 001 in previous permit (Permit #17100094-001). AP-42 emission factors for medical waste incineration were used to calculate Total Facility Limited Emissions for NO_x and CO. Buffalo WWTP is a sewage sludge incinerator, and emission factors should be taken from AP-42, Sewage Sludge Incineration. PM, PM₁₀, SO₂, VOC, and HAP emission factors used were taken from AP-42, Sewage Sludge Incineration.

- Incorrect control efficiency used in calculation of Total Facility Limited Emissions of VOC's from EU 001. The emission of VOC's are controlled by activated carbon injection (Pollution Control Efficiency for VOC = 85 %), followed by a secondary combustion chamber (Pollution Control Efficiency for VOC = 95 %). This leads to an overall Pollution Control Efficiency of >99% for VOCs. A Control Efficiency of 99% was used in Table 1 of this permit.

3.4. Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

In evaluating the monitoring included in the permit, the MPCA considers the following:

- The likelihood of violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limits;
- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic feasibility of possible periodic monitoring methods; and
- The kind of monitoring found on similar units elsewhere.

Table 4 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

Table 4. Periodic Monitoring

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
EU 001	PM: ≤ 1.30 lb/ton dry sludge Opacity: $\leq 20\%$ (40 CFR pt. 60, subp. O; Minn. R. 7011.1310)	Recordkeeping: Daily records of pressure drop across the fabric filter when EU 001 is in operation.	The facility shall maintain the same pressure drop range across the fabric filter as determined during the most recent compliance test. The Facility's emissions after controls are estimated to be 77% of the limit.
EU 001	Mercury: ≤ 4 lb/yr (40 CFR pt. 61, subp. E; Minn. R. 7007.0800, subp. 2)	Recordkeeping: Daily records of the flow rate of the activated carbon feed rate. Sludge Testing: The facility shall test the mercury content of the sludge every 500 dry tons charged, consistent with 40 CFR § 61.54.	The facility will operate the carbon absorption system in the same manner as the most recent stack emission test. The control efficiency will be confirmed with a performance test and used along with monthly sludge testing to determine emissions.
EU 002	SO ₂ : ≤ 0.5 ln/MMbtu Opacity: $\leq 20\%$ (Minn. R. 7011.2300)	Recordkeeping: Monthly fuel records showing the type of fuel purchased for EU 002 and fuel supplier certification for each shipment of diesel fuel, showing sulfur content $\leq 0.5\%$ by weight.	The emergency generator will combust only diesel fuel; therefore, it is not expected to exceed either the SO ₂ or opacity limits.
CE 001	Control Efficiency: $\geq 80\%$ (Minn. R. 7007.0800, subp. 2)	Recordkeeping: Hourly records of the activated carbon feed rate.	The feed rate shall be set by the most recent compliant performance test for control efficiency.

3.5. Permit Organization

In general, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements. One area where this permit deviates slightly from Delta guidance is in the use of appendices. While appendices are fully enforceable parts of the permit, in general, any requirement that the MPCA thinks should be tracked (e.g., limits, submittals, etc.), should be in Table A or B. The main reason is that the appendices are word processing sections and are not part of the tracking system. Violation of the appendices can be enforced, but the computer

system will not automatically generate the necessary enforcement notices or documents. Staff must generate these.

3.6. Comments Received

The EPA review period was concurrent with the public notice period because this permit action was a standard major amendment to a state total facility operating permit with no operational/production changes since the previous permit action(original permit issuance,) no actual emissions increases, and no contest expected from the public.

No comments were received during the public notice period nor were comments received during EPA's review period. The only change made to the permit since the draft was prepared for public notice and EPA review was that a description of Permit Action 002 was added to the permit cover page.

Public Notice Period: 08/16/2007 – 09/17/2007
EPA 45-day Review Period: 08/16/2007 - 09/17/2007

4. Conclusion

Based on the information provided by the City of Buffalo, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 17100094-002, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Chrissy Thole (permit writer/engineer)
Christian Norman (enforcement)
Bonnie Nelson (peer reviewer)

AQ File No. 4283

DQ File No. 1473

Attachments: 1. Emissions Calculation Spreadsheets
2. CD-01 Forms

Attachment 1
Emissions Calculations Spreadsheets

Attachment 2
CD-01 Forms

