

The Technical Support Document is provided for informational purposes only and is not open for public comment.

There may be attachments to the technical support document that are available in hard copy only. If you wish to see this information, contact the person listed in the public notice. MPCA policy on Information Requests from Outside Parties applies.

**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**DRAFT/PROPOSED AIR EMISSION PERMIT NO. 13700027-006**

This technical support document is intended for all parties interested in the draft/proposed 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 draft/proposed permit.

**1. General Information**

**1.1. Applicant and Stationary Source Location:**

Applicant/Address	Stationary Source/Address (SIC Code: <b>4961/4911</b> )
<b>Hibbing Public Utilities Commission</b> 1902 Sixth Avenue East Box 249 Hibbing, MN 55746  <b>Laurentian Energy Authority</b> 618 Second Street South Virginia, MN 55792	1832 Sixth Avenue East Hibbing St. Louis County
Contact: Chuck Berg, 218-262-7723	

**1.2. Description of the Permit Action**

The Hibbing Public Utilities Commission (HPUC) operates a co-generation facility for the city of Hibbing. The facility generates electrical power for the city and steam for space heating of businesses, schools, and residences. The HPUC power plant is located in downtown Hibbing and was originally constructed in 1919. The emission units at the source consist of three coal/natural gas-fired boilers, a wood-fired boiler, an ash-handling system, as well as the two natural gas-fired boilers located a few blocks away at Hibbing High School that are connected to the HPUC steam distribution system. The five boilers are labeled Boiler No. 1A, Boiler No. 2A, Boiler No. 3A, High School Boiler No. 1, High School Boiler No. 2, and Wood Fired Boiler.

Other air emission sources at the facility include a railcar/truck coal unloading station and an ash transfer system. The coal unloading station is considered an insignificant activity but will be included in the facility's fugitive dust control plan.

**1.3 Description of the Activities Allowed by this Permit Action**

This action is a major amendment to the existing Part 70 operating permit. The primary purpose of this permit action was to make corrections to the requirements for continuous emissions monitors (CEMS) and to reformat the requirements for the continuous opacity monitors (COMS) for clarity.

In addition, the following changes were made:

- Requirements for initial notifications and initial performance tests were removed from the permit, since the requirements have been completed.

- Incorporated a test frequency of every 60 months for Boilers 1A, 2A, and 3A (EU001, EU002, and EU003, respectively), based on results of the January 31, 2006, performance test. This frequency was originally established through a letter dated May 18, 2006.
- Incorporated a test frequency of every 60 months for units listed in GP002 (material handling equipment), based on the results of the May 23, 2007, performance test for EU008/CE008. This test frequency was not previously established through a letter.
- Incorporated a test frequency of every 24 months for the Wood Fired Boiler (EU007), based on the results of the October 10, 2007, performance test. This frequency was originally established through the Notice of Compliance (NOC) dated January 24, 2008.
- Incorporated ESP minimum total power input for CE006, based on the results of the October 10, 2007, performance test. This rate was originally established through the January 24, 2008, NOC.
- Incorporated a maximum urea addition rate at EU007 (Wood Fired Boiler) based on the results of the October 10, 2007, performance test. This rate was originally established through the January 24, 2008, NOC.
- Incorporated recordkeeping requirements to be used when a source determines that a project or modification is not subject to New Source Review (NSR). These requirements are routinely included in all operating permits for sources that are major sources under NSR.
- Removed references to SO<sub>2</sub> limits that apply prior to startup of the wood boiler (EU007). These requirements were located at GP001, EU001, EU002, and EU003.

#### **1.4. Facility Emissions:**

There are no changes to facility emissions associated with this permit action.

## **2. Regulatory and/or Statutory Basis**

### New Source Review

The facility is an existing major source under New Source Review regulations. No changes are authorized by this permit.

### Part 70 Permit Program

The facility is a major source under the Part 70 permit program.

### New Source Performance Standards (NSPS)

The existing wood boiler (EU007) is subject to New Source Performance Standards Subpart Db. The applicability is not affected by the changes made through this permit action.

### National Emission Standards for Hazardous Air Pollutants (NESHAP)

The wood boiler (EU007) is permitted as subject to NESHAPs Subpart DDDDD, which has been vacated. All operating conditions remain the same; however, when the CEMS requirements were consolidated into a single group (GP003), any citations that were previously Subpart DDDDD requirements were changed to Minnesota Rules requirements.

### Compliance Assurance Monitoring (CAM)

Since there are no actual changes to emission units, CAM is not an issue at this time.

Minnesota State Rules

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

- Minn. R. 7011.0510 Standards of Performance for Existing Indirect Heating Equipment
- Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment
- Minn. R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines

No changes to applicable requirements result from the changes made through this permit amendment.

**3. Technical Information**

**3.1 Periodic Monitoring for Changes Made Through This Permit Action**

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 2. Periodic Monitoring**

<b>Emission Unit or Group</b>	<b>Requirement (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
CE006	Total Power Input: $\geq$ 6195 watts (Minn. R. 7017.2025)	Record power input at least every 15 minutes, reduce to a 3-hour block average	
EU007/ CE007	Urea usage rate: $\leq$ 5.0 gallons/hour (Minn. R. 7017.2025)	Record usage, calculate 3-hour block average by dividing total urea used during the 3-hour block by the operating time during the 3-hour block.	

### **3.2 Insignificant Activities**

There are no changes to insignificant activities associated with this permit action.

### **3.3 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.

### **3.4 Comments Received**

Public Notice Period: <start date> - <end date>

EPA 45-day Review Period: <start date> - <end date>

Comments were <not> received from the public during the public notice period. <The comments received did <not> include adverse comments on any applicable requirements of the permit. Changes to the permit were <not> made as a result of the comments. *Provide summary of changes.*>

<The revised permit was sent to EPA for their 45-day review on <date>.> Comments were <not> received from EPA during their review period. Changes to the permit were <not> made as a result of the comments. *Provide summary of changes.*>

## **4. Conclusion**

Based on the information provided by the Permittee, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 13700027-006 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team:           Toni Volkmeier (permit writer/engineer)  
  Steve Palzkill (enforcement)  
  Andy Place (CEMS)  
  Adriane Lenshek (peer reviewer)

AQ File No. 659; DQ 1724, 1643

Attachments:   1.   Letters Dated May 18, 2006, and January 24, 2008  
                      2.   CD-01

**Attachment 1**

**MPCA Letters**



May 18, 2006

Mr. Charles Berg  
Director of Engineering  
Hibbing Public Utilities  
1902 Sixth Avenue East  
Hibbing, MN 55746

**RE: Performance Test Frequency Plan** as Required by Air Emissions Permit No. 13700027-004

Dear Mr. Berg:

Minnesota Pollution Control Agency (MPCA) staff has reviewed your test frequency plan submittal received May 4, 2006, for the Hibbing Public Utilities facility located in Hibbing, Minnesota.

The MPCA has approved the following schedules for the referenced units:

Units	Pollutant	Most Recent Test Date	Established Test Frequency	Expected Test Date
Boiler 1A EU001	Particulate Matter < 10 microns (PM <sub>10</sub> )	January 31, 2006	Every 60 months from most recent test date	January 31, 2011
Boiler 2A EU002				
Boiler 3A EU003				

The schedules are effective on issuance of this letter and the established test frequencies are indicated in the table above. The schedule will be formally incorporated in the above referenced permit at the next available opportunity (next amendment or re-issuance). The MPCA also supports the plan to test PM<sub>10</sub> during the next Total Particulate tests in order to have all boiler particulate testing on the same schedule.

If you have questions or comments regarding the content of this letter, please contact me at (651) 296-7169.

Sincerely,

Andy Place  
Performance Test Coordinator  
Compliance and Enforcement Section  
Industrial Division

AP:lao

cc: Bob Beresford, MPCA, Duluth Office  
AQ Permit File No. 659  
AQ Correspondence File No. 659

January 24, 2008

Mr. Charles Berg  
Director of Engineering  
Hibbing Public Utilities Commission  
1902 Sixth Avenue East  
PO Box 249  
Hibbing, MN 55746

RE: **(1) Notice of Compliance** for October 10, 2007, Total Particulate Matter and Particulate Matter Less Than Ten Microns (PM10) Performance Retest and the Ammonia Slip Performance Test on the Wood Fired Boiler (EU007) Pursuant to Air Emission Permit No. 13700027-005 (Permit), Notice of Noncompliance Dated September 4, 2007, and Test Plan Approval Letter Sent September 28, 2007;  
**(2) Acceptance Determination** of the May 10, 2007, Nitrogen Oxides, Carbon Monoxide, and Oxygen Continuous Emission Monitoring System Certification Test Serving EU007;  
**(3) Acceptance Determination** of the May 7 through 15, 2007, Continuous Opacity Monitoring System Certification Test Serving EU007; and,  
**(4) Performance Test Frequency Plan** as Required by Permit

Dear Mr. Berg:

The Minnesota Pollution Control Agency (MPCA) staff has reviewed the final test reports for the tests conducted on the emission unit referenced above at the Hibbing Public Utilities Commission (Company) facility located in Hibbing, Minnesota. The test stack test report was postmarked November 27, 2007, and the certification test reports were postmarked June 20, 2007.

The MPCA staff has determined that the test results demonstrate the following under test conditions:

#### SUMMARY OF PERFORMANCE TEST RESULTS

<b>Emission Unit Tested</b>	<b>Limitation Basis</b>	<b>Pollutant and Emission Limit</b>	<b>Test Result</b>	<b>Compliance Status</b>
Wood Fired Boiler (EU007)	Title I Condition: BACT Limit, 40 CFR 52.21(j), also meets requirements of 40 CFR § 63.7500 and 40 CFR § 60.43b(c)(1)	Particulate (B): 0.025 pounds/million BTU heat input (lbs/MMBTU)	Particulate (B): 0.014 lbs/MMBTU	Compliant
	Title I Condition: BACT limit; 40 CFR 52.21(j)	PM10 (C): 0.025 lbs/MMBTU	PM10 (C): 0.016 lbs/MMBTU	Compliant
	Minn. R. 7007.0800, subp. 2	Ammonia Slip: 25 parts per million (ppm)	Ammonia Slip: 18.5 ppm	Compliant

Table References:

(A) Filterable particulate matter as determined by U.S. Environmental Protection Agency (EPA) Method 5.

(B) Filterable plus organic condensable particulate matter as determined by EPA Method 5 and Method 202/Minn. R. 7011.0725

(C) Particles with an aerodynamic diameter less than or equal to a nominal ten micrometers as determined by EPA Method 5 and 202.

The test on EU007 was conducted while combusting wood at a rate of 23.3 tons/hour, for a heat input rate of 221.35 MMBTU/hour and steam flow production rate of 121,000 pounds/hour, with the electrostatic precipitator (CE006) operating at an average total power of 6,195.7 watts. Urea injection rate utilized to minimize Nitrogen Oxides (NO<sub>x</sub>) emissions was 5 gallons per hour. These parameters are within the ranges defined in the approved test plan and operating limits based on these results are defined in Item 1 below.

The MPCA staff have determined that the Company has demonstrated that the following Continuous Emission Monitoring System (CEMS) and Continuous Opacity Monitoring System (COMS) are in compliance with the requirements of the appropriate Performance Specifications in accordance with 40 CFR Part 60.

Emission Unit Monitored	Manufacturer	Model Number	Pollutant	Serial Number
EU007	Teledyn	TMLM4102	NO <sub>x</sub>	N0171
	Teledyn	TML30	CO	C01012
	Teledyn	TMLM4102	O <sub>2</sub>	N0171
	Teledyn	LightHawk 560	Opacity	5601052

Accordingly, the data generated by this system will become a continuous record that may be used for determining compliance with applicable emission limits.

The MPCA staff has reviewed the test frequency plan submittal dated November 26, 2006, for the Company.

The MPCA has approved the following schedule for the referenced unit:

Unit	Pollutant	Most Recent Test Date	Established Test Frequency	Expected Test Date
EU007	Total Particulate Matter	October 10, 2007	Every 24 months from most recent test date*	October 10, 2009
	Particulate Matter < 10 microns			

\* Upon completion of the next performance test the Company may propose a new test frequency.

The schedule is effective upon issuance of this letter. The schedule will be formally incorporated into the Permit at the next available opportunity (next amendment or re-issuance).

**In addition, please be advised of the following:**

- 1. The following operating limit applies pursuant to Minn. R. 7017.2025, subp. 3.** The limit applies in addition to any operating limit or requirement that already exists and does not serve to relax any limit or requirement except where prior authorization has been given by the MPCA staff. Note: The Company has a Title V (Part 70) Permit; therefore the Permit will be reopened (under Minn. R. 7007.1600, subp. 1(D)) in order to add the new operating limit. This letter serves as the 30-day notice of the MPCA's intent to amend the Permit. This letter also grants preliminary instruction to operate at the new rate until the new amendment is issued. Final approval will be given when the Permit is amended.

Emission Unit	Production Limit	Averaging Method
---------------	------------------	------------------

CE006	<b>ESP Total Power:</b> ≥ 6195 watts based on the rate experienced during the test.	<b>Three-Hour Block Average:</b> Record at least every 15 minutes and reduce to three hour block average based on number of readings taken. 40 CFR § 62.7525(c) provides further instruction.
EU007	<b>Maximum Urea Addition Rate:</b> ≤ 5 gallons per hour urea addition rate	<b>Three-Hour Block Average:</b> Divide total urea added by total operating time in each three hour-block. Down time of 15 or more minutes is not to be included as operating time

**The Company may not operate at a less stringent rate than listed in the above table, unless it conducts a performance test at an alternate rate and the MPCA staff determines compliance at that rate for the emission unit.**

If the above limit is exceeded, it must be reported in accordance with the deviation reporting requirements of Minn. R. 7007.0800, subp. 6(A).

2. The Emission Inventory rule, Minn. R. 7019.3000 to 7019.3100, requires the calculation of emissions based on an established hierarchy. In the absence of Continuous Emission Monitor data meeting the requirements of Minn. R. 7019.3040, the next method of calculation, a performance test, must be used. When a performance test for particulate matter or PM10 is conducted and meets the requirements of Minn. R. 7017.2001 to 7017.2060, the results must be used to calculate emissions, unless specified otherwise by Minn. R. 7019.3000 to 7019.3100. It is the Company's responsibility to ensure the results of performance tests are accounted for in their annual emission inventory submittal. Note that the final decision to approve the emission factor for any given inventory year will be made by the Emission Inventory Coordinator.

If you have questions or comments regarding the content of this letter, please feel free to contact me at 651-296-7169.

Your continued cooperation is appreciated.

Sincerely,

Andy Place  
Pollution Control Specialist  
Compliance and Enforcement Section  
Industrial Division

AP:map

cc: Steve Palzkill, MPCA  
Bob Beresford, MPCA  
AQ Enforcement File No. 659

# **Attachment 2**

**CD-01**