

AIR EMISSION PERMIT NO. 13700015- 002

IS ISSUED TO

Minnesota Power, Inc. and the City of Duluth

Minnesota Power, Inc. - ML Hibbard
50th Avenue West & Main Street
Duluth, St. Louis County, MN 55807

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	09/15/95
Major Amendment	05/17/2001
Administrative Amendment	07/3/2001 and 11/5/01

This permit authorizes the Permittee to operate and modify 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 as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: Federal; PSD/NSR – amendment is non-major for PSD

Issue Date: March 14, 2002

Expiration: July 14, 2002

All Title I Conditions do not expire.

Ann M. Foss
Major Facilities Section Manager
Majors and Remediation Division

for Karen A. Studders
Commissioner
Minnesota Pollution Control Agency

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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. Certain requirements which have been determined not to apply are listed in Table A of this permit. 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 Hibbard facility is jointly owned by Minnesota Power (MP) and the City of Duluth. It is located in the City of Duluth near the Stora Enso – Duluth paper mill. Hibbard has four boilers. Boilers #1 and #2 have not been operated in many years. Boilers #3 and #4 are spreader stokers with traveling grates and are rated at 590 MMBtu/hr each. They are currently permitted to burn wood, coal, natural gas, and paper mill sludge. Annually they use about 80% wood and 20% coal on a heat input basis. They vent through a common 331 foot stack.

Hibbard was restarted in 1986 upon the construction of Stora Enso – Duluth (formerly Lake Superior Paper Industries). A PSD permit was issued at that time.

The purpose of this amendment is two-fold. First, MP is requesting approval to conduct a material handling test on particleboard rejects generated at Georgia Pacific's Duluth plant. The particleboard consists primarily of wood with a small percentage of adhesive and wax.

Second, MP is requesting to change the coal sampling frequency currently outlined in the Title V permit for the facility. The change requested is to go from one daily composite sample to the collection of one sample per week.

Lastly the permit will be updated to reflect the current state policy on dispersion modeling. This addresses the item that was the subject of the July 3, 2001, administrative amendment application from MP.

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 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
Coal handling: not to exceed 241,200 tons on a 12-month rolling sum. Coal handling operations limited to 8 hours per day.	Title I Conditions: PSD total facility permit application & impacts analysis
Recordkeeping to demonstrate compliance with coal handling limit: By the 15th day of each month, the Permittee shall calculate and record the total coal handled in the previous month, and calculate and record the total coal handled during the previous 12-month period.	Title I Conditions: PSD total facility permit application & impacts analysis
Coal storage and coal conveyors and transfer points must be enclosed.	Minn. R. 7007.0800, subp. 2
Wet all ash and cover ash haul trucks leaving the facility.	Minn. R. 7007.0800, subp. 2
Operate a live-bottom hopper, truck unloading system for wood.	Minn. R. 7007.0800, subp. 2
Cover all wood hauling systems except for unloading.	Minn. R. 7007.0800, subp. 2
Access areas, roads, parking facilities (1) Install asphalt or concrete surfaces or chemical agents on all active truck haul roads of the coal handling facility when the coal throughput by truck is 200,000 tons or greater. All paved roads and areas shall be cleaned to minimize the discharge to the atmosphere of fugitive particulate emissions. Such cleaning shall be accomplished in a manner which minimizes resuspension of particulate matter. Access areas surrounding coal stockpiles and parking facilities which are located within a coal handling facility shall be treated with water or chemical agents.	Minn. R. 7011.1105
Truck and hauler unloading stations: Control fugitive particulate emissions from the unloading of trucks or haulers by dust suppression methods so that emissions from such sources are minimized.	Minn. R. 7011.1105
Enclosed coal handling facilities or emissions units not specifically covered by any other provision in these parts. If exhaust gases from any enclosed coal handling facility exceed 20 percent opacity, then the owner or operator of such facility shall select and implement one of the following further controls: (1) install exhaust air system and control exhaust gases so that particulate emissions in such gases do not exceed 0.020 gr/dscf; (2) control exhaust gases using dust suppression methods so that particulate emissions do not exhibit greater than 20 percent opacity.	Minn. R. 7011.1105
Operating practices: Clean up all coal spilled on roads or access areas as soon as practicable using methods that minimize the amount of dust suspended. Maintain air pollution control equipment in proper operating condition and utilize air pollution control systems as designed.	Minn. R. 7011.1105
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
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
Comply with the Fugitive Control Plan: The Permittee shall follow the actions and recordkeeping specified in the control plan. The plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines the Permittee is out of compliance with Minn R. 7011.0150 or the fugitive control plan, then the Permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors as requested by the Commissioner.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
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.	Minn. R. 7007.0800, subp. 14 & subp. 16(J)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, such as for system breakdowns, repairs, calibration checks, and zero and span adjustments (as applicable). Monitoring records should reflect any such periods of process shutdown.	Minn. R. 7007.0800, subp. 4(D)

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.	Minn. R. 7007.0800, subp. 4(d)
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)
For all baghouses controlling emissions from enclosed coal handling equipment including those listed as insignificant activity: 1. Inspect quarterly, or as required by manufacturing specifications, all components that are not subject to wear or plugging, including structural components, housing, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection. 2. Inspect monthly, or as required by manufacturing specifications, all components that are subject to wear or plugging. Maintain a written record of the inspection and any action resulting from the inspection. 3. Check visible emissions once every 48 hours. If visible emissions exist, inspect equipment for evidence of malfunction, including broken bags. Record the results of the inspection, and any action taken.	Minn. R. 7011.1105
Oily Floor Dry: Limit combustion to (for entire facility): 1) cellulose based only (including rags), 2) 25 tons per year, and 3) 1.25 tons per hour.	Title I Condition: to ensure that the emissions increase from the addition of the fuel type is less than significant as defined by 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2
Activated Charcoal: Limit combustion to (for entire facility): 1) material generated on site, material received from Lake Superior Paper, or material received from other off-site facilities that is representative of the same material, 2) 25 tons per year, and 3) 3 tons per hour.	Title I Condition: to ensure that the emissions increase from the addition of the fuel type is less than significant as defined by 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 2
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
Oral Notification of Deviations Endangering Human Health or the Environment: Within 24 hours of discovery, orally notify the Commissioner of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7007.0800, subp. 6(A)
Discovery of Deviations Endangering Human Health or the Environment Report (written): due two working days after discovery of deviation, submit a written description of any deviation endangering human health or the environment to the Commissioner. Include the following information in this written description: cause of the deviation; exact dates of the period of the deviation; if the deviation has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the deviation.	Minn. R. 7007.0800, subp. 6(A)
Application for Permit Amendment: If you need a permit amendment, submit 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
Shutdowns: Notify the Commissioner at least 24 hours in advance of shutdown of any process or control equipment, if the shutdown would cause an increase in the emission of air contaminants. At the time of notification, notify the Commissioner of the cause of the shutdown and the estimated duration. Notify the Commissioner again when the shutdown is over.	Minn. R. 7019.1000, subp. 1
Breakdowns: Notify the Commissioner immediately of a breakdown of more than one hour duration of any process or control equipment, if the breakdown causes an increase in the emission of air contaminants. At the time of notification or as soon thereafter as possible, the Permittee shall also notify the Commissioner of the cause of the breakdown and the estimated duration. Notify the Commissioner again when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Shutdown and Breakdown Reporting Requirements for the Dust Collector Systems for Material Handling Equipment: Shutdowns and breakdowns shall be reported on a quarterly basis to the Agency. The quarterly report shall include an identification of the dust collector that broke down or was shutdown, the time and reason for the breakdown or shutdown, a description of any repairs made, and the date and time the dust collector was placed back in service.	
Emission Fees: due 60 days after receipt of an MPCA bill	Minn. R. 7002.0065
Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises, to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location. The Permittee may require that MPCA inspectors be accompanied by MP staff during the inspection. Permittee's staff shall be available whenever the plant is operating.	Minn. R. 7007.0800, subp. 9(A)

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

Record keeping: 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)
Record keeping: 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 strip-chart recordings for continuous monitoring instrumentation, fuel analyses and certifications, 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)
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)
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 federally enforceable.	Minn. R. 7030.0010-7030.0080
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.	Minn. R. ch. 7017
Operating and/or production limits will be placed on emission units EU001 and EU002 based on operating conditions during compliance testing. Limits set as a result of a compliance test (conducted before or after permit issuance) apply until new operating/production limits are set following formal review of a performance test as specified by Minn. R. 7017.2025.	Minn. R. 7017.2025

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

Subject Item: GP 001 Boilers 3 and 4

Associated Items: EU 003 Boiler 3

EU 004 Boiler 4

MR 101

MR 102

MR 103

MR 104

MR 107

MR 108

What to do	Why to do it
TRIAL BURN REQUIREMENTS	hdr
Fuel Limit: The Permittee may burn up to 28,500 tons of hardboard rejects. After 28,500 tons of hardboard rejects are burned, if the Permittee wishes to continue burning hardboard rejects they shall determine what permit amendment (if any) is necessary to continue as outlined below.	Minn. 7007.0800, subp. 2
Notification/Reporting: The Permittee shall: 1) submit notification of the commencement of the trial burn, within 15 days of such date; 2) submit notification of the completion of the trial burn, within 15 days of such date; 3) complete a report within 180 days of the completion of the trial burn that examines the impact of burning hardboard rejects on emissions using records from the CEM/COM equipment at the facility and other information. After the trial burn is complete, if the Permittee wishes to continue burning hardboard rejects a permit applicability determination should be made using the information in the report required by # 3). If a permit amendment is necessary, a copy of this report shall be included with the application.	Minn. 7007.0800, subps. 5 and 6
CEM/COM REQUIREMENTS	hdr
COMS Monitoring Data: Owners or operators of all COMS shall reduce all data to six-minute averages. Opacity averages shall be calculated from all equally spaced consecutive 10-second (or shorter) data points in the averaging period.	Minn. R. 7007.0800, subp. 2
COMS Continuous Operation: Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, and boiler downtimes, all COMS shall be in continuous operation.	Minn. R. 7007.0800, subp. 2
COMS Daily Calibration Drift (CD) Check: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) opacity at least once daily. The COMS must be adjusted whenever the calibration drift (CD) exceeds twice the specification of PS-1 of 40 CFR 60, Appendix B.	Minn. R. 7007.0800, subp. 2; 40 CFR Section 60.13(d)
COMS Calibration Error Audit: due before end of each calendar half-year following COMS Certification Test . Conduct audits at least 3 months apart but not greater than 8 months apart.	Minn. R. 7007.0800, subp. 2
Notification that Continuous Opacity Monitoring System (COMS) data will be used to determine compliance with opacity standard during performance test: due 30 days prior to the date of performance test.	40 CFR Section 60.7(a)(7)
Permittee is allowed to measure the combined effluent from two or more affected facilities subject to the same emission standard.	40 CFR Section 60.13(g)
CEMS QA/QC The owner or operator of an affected facility shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 75, Appendix B as amended.	Minn. R. 7007.0800, subp. 2, 40 CFR Section 75.21
Daily Calibration Error (CE) Test: conduct daily CE testing on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75 App B.	40 CFR pt. 75 App B, section 2.1; 40 CFR pt. 60, Appendix F
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year following CEM Certification Test . Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75 App B. If the RATA results indicate a relative accuracy of 7.5% or less, the next RATA is not required for twelve months.	40 CFR pt. 75 App B, section 2.3; 40 CFR pt. 60, Appendix F
Linearity and Leak Check Test (Acid Rain Program): due before end of each calendar quarter following CEM Certification Test . Conduct a quarterly linearity test on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75 App B.	40 CFR pt. 75 App B, section 2.2; 40 CFR pt. 60, Appendix F

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

Recordkeeping: maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the facility including any malfunction of the air pollution control equipment or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR Section 60.7(b)
Recordkeeping: Keep on site at the source each of the following documents for a period of 5 years from the date the document is created: The certificate of representation, all emissions monitoring information, copies of all reports, compliance certifications, and other submissions or records made under the Acid Rain Program, copies of all documents used to complete an acid rain permit application.	40 CFR Section 72.9(f)(l)
Recordkeeping: Maintain records of all CEMS/COMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement, or report. Records shall be kept at the source.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

Subject Item: EU 001 Boiler 1

Associated Items: SV 001

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.01 lbs/million BTU heat input based on a 24-hour average	Title I Conditions: PSD Permit Application and impacts analysis
Opacity: less than or equal to 20 percent opacity except up to 60% opacity for four minutes in any 60-minute period and up to 40% opacity for four additional minutes in any 60-minute period	Minn. R. 7011.0510, subp. 2
Sulfur Dioxide: less than or equal to 0.24 lbs/million BTU heat input on a one-hour average	Title I Conditions: PSD Permit Application and impacts analysis
Nitrogen Dioxide: less than or equal to 0.49 lbs/million BTU heat input on a 30-day rolling average	Title I Conditions: PSD Permit Application and impacts analysis
Carbon Monoxide: less than or equal to 0.04 lbs/million BTU heat input on a one-hour average	Title I Conditions: PSD Permit Application and impacts analysis
Fuel limited to No. 2 Fuel oil only, except natural gas may be used as necessary for initial firing only.	Title I Conditions: PSD Permit Application and impacts analysis
No. 2 fuel oil shall have a minimum heating value of 136,598 Btu per gallon.	Title I Conditions: PSD Permit Application and impacts analysis
No. 2 fuel oil shall have a maximum ash content of 0.00141 lbs ash per gallon.	Title I Conditions: PSD Permit Application and impacts analysis
No. 2 fuel oil shall have a maximum sulfur content of 0.23% by weight.	Title I Conditions: PSD Permit Application and impacts analysis
The Permittee shall maintain records of No. 2 fuel oil sampling results or vendor certifications, for a minimum of 5 years.	Title I Condition: PSD permit application and impacts analysis
Collect and analyze a fuel oil sample from each delivery of fuel oil, or shall obtain and keep copies of vendor certifications from each delivery. The information from the vendor certification or analysis must give the fuel oil sulfur content, ash content, and heating value for the purposes of demonstrating compliance with the sulfur dioxide emission limit, the sulfur content limit, the ash content limit, and the minimum heating value limit. All analyses shall be completed no later than 30 days after the sampling date. Samples shall be collected from the fuel oil prior to the oil being placed in the storage tank. The sample shall be analyzed for sulfur wt%, heating value in Btu/lb, density in lb/gal, and ash content in wt%, following ASTM methods D-1552, D-240, D-1481, and D-482, respectively, or equivalent methods approved by the Commissioner.	Title I Condition: PSD permit application and impacts analysis
Notify: due 30 days after Startup . Written notification of startup is required to trigger the Initial Performance Test for Boiler No. 1.	Minn. R. 7007.0800, subp. 2
Initial Performance Test: due 180 days after Startup to determine compliance with the particulate matter, opacity, nitrogen oxides and carbon monoxide emission limits based on PSD modeling. Compliance shall be determined based on the average of three runs per Minn. R. 7017.2020, subp. 5.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test	Minn. R. 7017.2030, subp. 4
Boiler Alternative Operating Conditions for Performance Testing: Alternative Operating Conditions during testing are defined as 90% to 100% of the boiler's maximum normal (continuous) operating load or the maximum permitted operating rate, whichever is lower. The basis for this number must be included in the test plan. If testing is conducted at the alternative operating condition established, an operating limit will not be established as a result of performance testing. In no case will the new operating rate limit be higher than allowed by an existing permit condition.	Minn. R. 7017.2025, subp. 2.A. and 3.B.

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

<p>Boiler Operating Conditions Not Meeting the Alternative Operating Conditions During Performance Testing:</p> <p>If performance testing is not conducted at or above the established alternative operating condition, then the boiler operating rate will be limited on an 8-hour block average based on the following:</p> <p>(1) If the results of the performance test are greater than 80% of any applicable emission limit for which compliance is demonstrated, then boiler operation will be limited to the tested operating rate.</p> <p>(2) If results are less than or equal to 80% of all applicable emission limits for which compliance is demonstrated, boiler operation will be limited to 110% of the tested operating rate.</p> <p>In no case will the new operating rate limit be higher than allowed by an existing permit condition.</p>	Minn. R. 7017.2025, subp. 3.B.
<p>STET (Short Term Emergency and Testing) Operating hours limit:</p> <p>The boiler may operate up to 40 hours per year to demonstrate the Uniform Rating of Generating Equipment (URGE) capacity and to meet emergency energy supply needs. Maintain documentation of all STET operation to demonstrate compliance with this limit. The boiler must meet emission limits during STET operation.</p>	Minn. R. 7007.0800, subp. 2
<p>STET Operation Definition that applies to Boilers that Meet or do Not Meet the Alternative Operating Condition for Performance Testing:</p> <p>If performance test results demonstrate compliance at 80% or less of any applicable emission limits for any tested pollutant, STET operation is defined as operation beyond 110% of the average operating rate achieved during that performance test.</p> <p>If performance test results demonstrate compliance at greater than 80% any applicable emission limit for any tested pollutant, STET operation is defined as operation beyond 100% of the average operating rate achieved during that performance test.</p> <p>In no case will STET operation be higher than allowed by an existing permit condition.</p>	Minn. R. 7007.0800, subp. 2
<p>The results of a performance test are not final until issuance of a review letter by MPCA, unless specified otherwise by Minn. R. 7017.2001 - 7017.2060.</p>	Minn. R. 7017.2020, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

Subject Item: EU 002 Boiler 2

Associated Items: SV 001

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.01 lbs/million BTU heat input based on a 24-hour average	Title I Conditions: PSD Permit Application and impacts analysis
Opacity: less than or equal to 20 percent opacity except up to 60% opacity for four minutes in any 60-minute period and up to 40% opacity for four additional minutes in any 60-minute period	Minn. R. 7011.0510, subp. 2
Sulfur Dioxide: less than or equal to 0.24 lbs/million BTU heat input on a one-hour average	Title I Conditions: PSD Permit Application and impacts analysis
Nitrogen Dioxide: less than or equal to 0.49 lbs/million BTU heat input on a 30-day rolling average	Title I Conditions: PSD Permit Application and impacts analysis
Carbon Monoxide: less than or equal to 0.04 lbs/million BTU heat input on a one-hour average	Title I Conditions: PSD Permit Application and impacts analysis
Fuel limited to No. 2 Fuel oil only, except natural gas may be used as necessary for initial firing only.	Title I Conditions: PSD Permit Application and impacts analysis
No. 2 fuel oil shall have a minimum heating value of 136,598 Btu per gallon.	Title I Conditions: PSD Permit Application and impacts analysis
No. 2 fuel oil shall have a maximum ash content of 0.00141 lbs ash per gallon.	Title I Conditions: PSD Permit Application and impacts analysis
No. 2 fuel oil shall have a maximum sulfur content of 0.23% by weight.	Title I Conditions: PSD Permit Application and impacts analysis
The Permittee shall maintain records of No. 2 fuel oil sampling results or vendor certifications, for a minimum of 5 years.	Title I Condition: PSD permit application and impacts analysis
Collect and analyze a fuel oil sample from each delivery of fuel oil, or shall obtain and keep copies of vendor certifications from each delivery. The information from the vendor certification or analysis must give the fuel oil sulfur content, ash content, and heating value for the purposes of demonstrating compliance with the sulfur dioxide emission limit, the sulfur content limit, the ash content limit, and the minimum heating value limit. All analyses shall be completed no later than 30 days after the sampling date. Samples shall be collected from the fuel oil prior to the oil being placed in the storage tank. The sample shall be analyzed for sulfur wt%, heating value in Btu/lb, density in lb/gal, and ash content in wt%, following ASTM methods D-1552, D-240, D-1481, and D-482, respectively, or equivalent methods approved by the Commissioner.	Title I Condition: PSD permit application and impacts analysis
Notify: due 30 days after Startup . Written notification of startup is required to trigger the Initial Performance Test for Boiler No. 2.	Minn. R. 7007.0800, subp. 2
Initial Performance Test: due 180 days after Startup to determine compliance with the particulate matter, opacity, nitrogen oxides and carbon monoxide emission limits based on PSD modeling. Compliance shall be determined based on the average of three runs per Minn. R. 7017.2020, subp. 5.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test	Minn. R. 7017.2030, subp. 4
Boiler Alternative Operating Conditions for Performance Testing: Alternative Operating Conditions during testing are defined as 90% to 100% of the boiler's maximum normal (continuous) operating load or the maximum permitted operating rate, whichever is lower. The basis for this number must be included in the test plan. If testing is conducted at the alternative operating condition established, an operating limit will not be established as a result of performance testing. In no case will the new operating rate limit be higher than allowed by an existing permit condition.	Minn. R. 7017.2025, subp. 2.A. and 3.B.

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

<p>Boiler Operating Conditions Not Meeting the Alternative Operating Conditions During Performance Testing:</p> <p>If performance testing is not conducted at or above the established alternative operating condition, then the boiler operating rate will be limited on an 8-hour block average based on the following:</p> <p>(1) If the results of the performance test are greater than 80% of any applicable emission limit for which compliance is demonstrated, then boiler operation will be limited to the tested operating rate.</p> <p>(2) If results are less than or equal to 80% of all applicable emission limits for which compliance is demonstrated, boiler operation will be limited to 110% of the tested operating rate.</p> <p>In no case will the new operating rate limit be higher than allowed by an existing permit condition.</p>	Minn. R. 7017.2025, subp. 3.B.
<p>STET (Short Term Emergency and Testing) Operating hours limit:</p> <p>The boiler may operate up to 40 hours per year to demonstrate the Uniform Rating of Generating Equipment (URGE) capacity and to meet emergency energy supply needs. Maintain documentation of all STET operation to demonstrate compliance with this limit. The boiler must meet emission limits during STET operation.</p>	Minn. R. 7007.0800, subp. 2
<p>STET Operation Definition that applies to Boilers that Meet or do Not Meet the Alternative Operating Condition for Performance Testing:</p> <p>If performance test results demonstrate compliance at 80% or less of any applicable emission limits for any tested pollutant, STET operation is defined as operation beyond 110% of the average operating rate achieved during that performance test.</p> <p>If performance test results demonstrate compliance at greater than 80% any applicable emission limit for any tested pollutant, STET operation is defined as operation beyond 100% of the average operating rate achieved during that performance test.</p> <p>In no case will STET operation be higher than allowed by an existing permit condition.</p>	Minn. R. 7007.0800, subp. 2
<p>The results of a performance test are not final until issuance of a review letter by MPCA, unless specified otherwise by Minn. R. 7017.2001 - 7017.2060.</p>	Minn. R. 7017.2020, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

Subject Item: EU 003 Boiler 3

Associated Items: CE 001 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

CE 002 Electrostatic Precipitator - High Efficiency

GP 001 Boilers 3 and 4

SV 001

What to do	Why to do it
<p>Particulate Matter not to exceed $(0.025x + 0.027y)/(x+y)$ lb/mmBtu based on a 24-hour average, where:</p> <p>x = heat derived from the burning of coal over any hour in mmBtu y = heat derived from the burning of wood and wood waste portion of sludge and railroad ties over any hour in mmBtu</p>	<p>Title I Conditions: Limit to restrict potential emission increases to less than significant as defined by 40 CFR pt. 51 and 40 CFR Section 52.24. Also ensures compliance with 40 CFR Section 60.43b.</p>
<p>Opacity: less than or equal to 20 percent opacity using 6 Minute Average except for one 6-minute period per hour of not greater than 27% opacity.</p>	<p>40 CFR Section 60.43b(f)</p>
<p>Nitrogen Oxides not to exceed $(0.6x + 0.4y + 0.1z)/(x+y+z)$ lb/mmBtu based on a 30 day rolling average, where:</p> <p>x = heat derived from the burning of coal over any hour in mmBtu y = heat derived from the burning of wood and wood waste portion of sludge and railroad ties over any hour in mmBtu z = heat input from natural gas in mmBtu</p> <p>Once each hour, the Permittee shall use the NOx emission limit equation to calculate the effective NOx emission limit.</p>	<p>Title I Conditions: 40 CFR Section 52.21 BACT Limit; 40 CFR pt. 50. Also ensures compliance with 40 CFR Section 60.44b.</p>
<p>Carbon Monoxide not to exceed $(0.35x + 0.45y + 0.04z)/(x+y+z)$ lb/mmBtu based on a one-hour average, where:</p> <p>x = heat derived from the burning of coal over any hour in mmBtu y = heat derived from the burning of wood and wood waste portion of sludge and railroad ties over any hour in mmBtu z = heat input from natural gas in mmBtu</p>	<p>Title I Conditions: 40 CFR Section 52.21 BACT Limit; 40 CFR pt. 50</p>
<p>Sulfur Dioxide not to exceed $(2.03Sx + 0.17y)/(x+y)$ lb/mmBtu based on a one hour averaging period, where:</p> <p>S = the allowed sulfur content in coal in percent by weight determined by fuel sampling and analysis (see the following requirement for more detail) x = heat derived from the burning of coal over any hour in mmBtu y = heat derived from the burning of wood and wood waste portion of sludge and railroad ties over any hour in mmBtu</p> <p>Once each hour, the Permittee shall use the SO2 emission limit equation to calculate the effective SO2 emission limit.</p>	<p>Title I Conditions: 40 CFR Section 52.21 BACT Limit; 40 CFR pt. 50. Also ensures compliance with 40 CFR Section 60.43(a)</p>
<p>Limit of coal sulfur content (by weight):</p> <ul style="list-style-type: none"> - 0.58% when burned alone or with natural gas or sludge, - may not exceed 0.9% at any time - When coal is being burned in combination with wood, the sulfur content limit shall vary as follows: <p>$S = 8.13 \times r^E$</p> <p>S = allowable percent sulfur by weight r = coal feed rate in tons per hour. E = the exponent (-0.88) of "r" For use of this equation, r must be greater than or equal to 12. When r is less than 12, S = 0.9%.</p>	<p>Title I Conditions: PSD permit application and impacts analysis</p>
<p>The Permittee shall only burn wood (including creosoted railroad ties), coal, natural gas, sludge from LSPI/SRFI clarifier, oily cellulose-based sorbents (including oily rags), oily coal and oily wood (coal or wood with oil spilled on it), boiler cleaning agents, activated charcoal, and hardboard rejects in EU003. Other materials may be combusted in this emission unit for a short period of time during a trial burn as approved by an amendment to this permit.</p>	<p>Title I Conditions: PSD permit application and impacts analysis</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

<p>Boiler cleaning agents burn requirements: agents must be EDTA type or Ammonium Bromate, agents generated on-site, maximum of 5% of total fuel mass input, oxygen must be 3% or greater, and agents may be burned only while the boiler is operating at 75 percent of rated capacity or greater.</p> <p>During the initial burn (after issuance of this permit) in EU 003 of boiler cleaning agents, the Permittee shall monitor CO and opacity emissions to determine the compliance status of CO and opacity emissions during the burn. Monitoring results for the initial burn shall be submitted to the Agency. If compliance with the EU 003 CO and opacity limitations is shown, CO monitoring is not required during subsequent boiler cleaning agent combustion events.</p>	Minn. R. 7007.0800, subp. 2
<p>Fuel usage limits:</p> <ul style="list-style-type: none"> - 22 tons per hour for coal; - 67 tons per hour for wood; - 0.305 MMCF per hour for natural gas. 	Title I Conditions: PSD permit application and impacts analysis
<p>Fuel Sampling: The Permittee shall sample solid fuel as follows: 1) Daily composite sampling for wood fuel; and 2) sample one coal delivery each week according to the Permittee's sampling plans approved by the MPCA on November 18, 1987 (except the need for a duplicate gross 240 pound sample is not required).</p>	Title I Conditions: PSD permit application and impacts analysis
<p>Fuel Analysis: The Permittee shall analyze solid fuel samples using ASTM methods or equivalent methods approved by the Commissioner. Samples shall be analyzed for the following parameters:</p> <p>Coal: Sulfur content in wt. %, heating value in Btus per lb. Wood: Heating value in Btus per lb.</p> <p>The average heating value for natural gas may be obtained from the vendor.</p> <p>The Permittee shall maintain the records of all analyses for a period of 5 years from the date of recording.</p>	Title I Conditions: PSD permit application and impacts analysis
<p>Maximum allowable heat input (based on 8-hour block averages):</p> <ul style="list-style-type: none"> - 590 mmBtu/hour at any time - 380 mmBtu/hr from coal - 590 mmBtu/hr from wood - When wood fuel = 100% chipped railroad ties: maximum total heat input from all fuels = 326 mmBtu/hr, chipped railroad tie heat input shall not exceed 86% of total heat input, and coal heat input shall not be less than 14% of total heat input. - 305 mmBtu/hr from natural gas 	Title I Conditions: PSD permit application and impacts analysis
<p>Total heat input shall be determined using the following equations: Total heat input to EU003 = x + y + z (not to exceed 590 mmBtu/hr) x = 380 - [(22-r) X (17.2)] y = 590 - [(67-s) X (8.8)] z = 305 - [(0.305-t) X (1000)] x= heat derived from the burning of coal over any hour in mmBtu y= heat derived from the burning of wood and wood waste portion of sludge and railroad ties over any hour in mmBtu z= heat derived from the burning of natural gas over any hour in mmBtu r = coal feed rate to boiler in tons per hour s = wood feed rate to boiler in tons per hour t = natural gas feed rate to boiler in million cubic feet per hour</p>	Title I Conditions: PSD permit application and impacts analysis
<p>Monitoring and Recordkeeping for fuel usage and heat input:</p> <p>The Permittee shall record the usage rate of each solid fuel on a daily basis, and calculate and record the hourly average fuel use for each solid fuel by dividing the daily fuel use by the number of hours of operation for that day. The Permittee shall measure the natural gas usage rate, in million cubic feet per hour, using a fuel meter.</p> <p>The Permittee shall calculate and record the heat input during any hour from each fuel, as well as the total heat input for that hour.</p> <p>Heat content value of solid fuel shall be obtained from fuel sampling as required in this permit. Heat content value of natural gas shall be obtained from the natural gas vendor.</p> <p>The Permittee shall maintain all fuel usage and heat input records for five years from the date of recording.</p>	Title I Conditions: PSD permit application and impacts analysis
<p>Record type and usage rate of each fuel on a daily basis, and calculate the hourly average fuel use for each fuel type by dividing the daily fuel use by the number of hours of operation for that day. Records shall be maintained for a minimum of 5 years.</p>	Title I Conditions: PSD permit application and impacts analysis

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

Initial Performance Test: due 180 days after 12/31/01 to determine compliance with the Title I particulate matter and CO emissions limits while burning coal, wood chips (including railroad ties), sludge, or any combination thereof. Particulate emissions testing shall be conducted in accordance with the procedures in 40 CFR Section 60.46b(d) and Minn. R. 7017.2001 - 7017.2060 so that test results can also be used to determine compliance with 40 CFR Section 60.43b.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test	Minn. R. 7017.2030, subp. 4
Performance Test: due before end of each 60 months following Initial Performance Test to determine compliance with Title I particulate matter and CO emissions limit while burning coal, wood chips (including railroad ties), sludge, or any combination thereof. Tests shall be conducted at intervals not to exceed 60 months between tests. Particulate emissions testing shall be conducted in accordance with the procedures in 40 CFR Section 60.46b(d) and Minn. R. 7017.2001 - 7017.2060 so that test results can also be used to determine compliance with 40 CFR Section 60.43b.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before end of each 60 months following Performance Test (7 days before each Performance Test)	Minn. R. 7017.2030, subp. 4
Boiler Alternative Operating Conditions for Performance Testing: Alternative Operating Conditions during testing are defined as 90% to 100% of the boiler's maximum normal (continuous) operating load or the maximum permitted operating rate, whichever is lower. The basis for this number must be included in the test plan. If testing is conducted at the alternative operating condition established, an operating limit will not be established as a result of performance testing. In no case will the new operating rate limit be higher than allowed by an existing permit condition.	Minn. R. 7017.2025, subp. 2(A) and 3(B)
Boiler Operating Conditions Not Meeting the Alternative Operating Conditions During Performance Testing: If performance testing is not conducted at or above the established alternative operating condition, then the boiler operating rate will be limited on an 8-hour block average based on the following: (1) If the results of the performance test are greater than 80% of any applicable emission limit for which compliance is demonstrated, then boiler operation will be limited to the tested operating rate. (2) If results are less than or equal to 80% of all applicable emission limits for which compliance is demonstrated, boiler operation will be limited to 110% of the tested operating rate. In no case will the new operating rate limit be higher than allowed by an existing permit condition.	Minn. R. 7017.2025, subp. 3(B)
STET (Short Term Emergency and Testing) Operating hours limit: The boiler may operate up to 40 hours per year to demonstrate the Uniform Rating of Generating Equipment (URGE) capacity and to meet emergency energy supply needs. Maintain documentation of all STET operation to demonstrate compliance with this limit. The boiler must meet emission limits during STET operation.	Minn. R. 7007.0800, subp. 2
STET Operation Definition that applies to Boilers that Meet or do Not Meet the Alternative Operating Condition for Performance Testing: If performance test results demonstrate compliance at 80% or less of any applicable emission limits for any tested pollutant, STET operation is defined as operation beyond 110% of the average operating rate achieved during that performance test. If performance test results demonstrate compliance at greater than 80% any applicable emission limit for any tested pollutant, STET operation is defined as operation beyond 100% of the average operating rate achieved during that performance test. In no case will STET operation be higher than allowed by an existing permit condition.	Minn. R. 7007.0800, subp. 2
The results of a performance test are not final until issuance of a review letter by MPCA, unless specified otherwise by Minn. R. 7017.2001 - 7017.2060.	Minn. R. 7017.2020, subp. 4
The owner or operator of an affected facility (EU003) shall install, calibrate, maintain, and operate a continuous monitoring system for measuring and recording nitrogen oxides emissions.	40 CFR Section 60.48b(b)

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

The owner or operator of an affected facility (EU003) shall install, calibrate, maintain, and operate a continuous emission monitoring system for measuring and recording sulfur dioxide emissions.	40 CFR Section 60.45(a)
The owner or operator of an affected facility (EU003) shall install, calibrate, maintain and operate a continuous monitoring system for measuring and recording opacity emissions.	40 CFR Section 60.48b(a)
The Permittee shall use the data from the NOx CEM on SV001 to determine compliance with the NOx emission limit.	40 CFR Section 60.46b(e)(2)
The owner or operator shall measure opacity, and all SO ₂ , NO _x , and CO ₂ emissions for each affect unit in accordance with 40 CFR Section 75.10.	40 CFR Section 75.10

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

Subject Item: EU 004 Boiler 4

Associated Items: CE 003 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

CE 004 Electrostatic Precipitator - High Efficiency

GP 001 Boilers 3 and 4

SV 001

What to do	Why to do it
<p>Particulate Matter not to exceed $(0.025x + 0.027y)/(x+y)$ lb/mmBtu based on a 24-hour average, where:</p> <p>x = heat derived from the burning of coal over any hour in mmBtu y = heat derived from the burning of wood and wood waste portion of sludge and railroad ties over any hour in mmBtu</p>	<p>Title I Condition: Limit to restrict potential emission increases to less than significant as defined by 40 CFR pt. 51 and 40 CFR Section 52.24. Also ensures compliance with 40 CFR Section 60.43b.</p>
<p>Opacity: less than or equal to 20 percent opacity using 6 Minute Average except for one 6-minute period per hour of not greater than 27% opacity.</p>	<p>40 CFR Section 60.43b(f)</p>
<p>Nitrogen Oxides not to exceed $(0.6x + 0.4y + 0.1z)/(x+y+z)$ lb/mmBtu based on a 30 day rolling average, where:</p> <p>x = heat derived from the burning of coal over any hour in mmBtu y = heat derived from the burning of wood and wood waste portion of sludge and railroad ties over any hour in mmBtu z = heat input from natural gas in mmBtu</p> <p>Once each hour, the Permittee shall use the NOx emission limit equation to calculate the effective NOx emission limit.</p>	<p>Title I Condition: 40 CFR Section 52.21 BACT Limit; 40 CFR pt. 50. Also ensures compliance with 40 CFR Section 60.44b.</p>
<p>Carbon Monoxide not to exceed $(0.35x + 0.45y + 0.04z)/(x+y+z)$ lb/mmBtu based on a one-hour average, where:</p> <p>x = heat derived from the burning of coal over any hour in mmBtu y = heat derived from the burning of wood and wood waste portion of sludge and railroad ties over any hour in mmBtu z = heat input from natural gas in mmBtu</p>	<p>Title I Condition: 40 CFR Section 52.21 BACT Limit; 40 CFR pt. 50</p>
<p>Sulfur Dioxide not to exceed $(2.03Sx + 0.17y)/(x+y)$ lb/mmBtu based on a one hour averaging period, where:</p> <p>S = the allowed sulfur content in coal in percent by weight determined by fuel sampling and analysis (see the following requirement for more detail). x = heat derived from the burning of coal over any hour in mmBtu y = heat derived from the burning of wood and wood waste portion of sludge and railroad ties over any hour in mmBtu</p> <p>Once each hour, the Permittee shall use the SO2 emission limit equation to calculate the effective SO2 emission limit.</p>	<p>Title I Condition: 40 CFR Section 52.21 BACT Limit; 40 CFR pt. 50. Also ensures compliance with 40 CFR Section 60.43(a)</p>
<p>Limit of coal sulfur content (by weight):</p> <ul style="list-style-type: none"> - 0.58% when burned alone or with natural gas or sludge, - may not exceed 0.9% at any time - When coal is being burned in combination with wood, the sulfur content limit shall vary as follows: <p>$S = 8.13 \times r^E$</p> <p>S = allowable percent sulfur by weight r = coal feed rate in tons per hour. E = the exponent (-0.88) of "r" For use of this equation, r must be greater than or equal to 12. When r is less than 12, S = 0.9%.</p>	<p>Title I Conditions: PSD permit application and impacts analysis</p>
<p>The Permittee shall only burn wood (including creosoted railroad ties), coal, natural gas, sludge from LSPI/SRFI clarifier, oily cellulose-based sorbents (including oily rags), oily coal and oily wood (coal or wood with oil spilled on it), boiler cleaning agents, activated charcoal, and hardboard rejects in EU004. Other materials may be combusted in this emission unit for a short period of time during a trial burn as approved by an amendment to this permit.</p>	<p>Title I Conditions: PSD permit application and impacts analysis</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

<p>Boiler cleaning agents burn requirements: agents must be EDTA type or Ammonium Bromate, agents generated on-site, maximum of 5% of total fuel mass input, oxygen must be 3% or greater, and agents may be burned only while the boiler is operating at 75 percent of rated capacity or greater.</p> <p>During the initial burn (after issuance of this permit) in EU 004 of boiler cleaning agents, the Permittee shall monitor CO and opacity emissions to determine the compliance status of CO and opacity emissions during the burn. Monitoring results for the initial burn shall be submitted to the Agency. If compliance with the EU 004 CO and opacity limitations is shown, CO monitoring is not required during subsequent boiler cleaning agent combustion events.</p>	Minn. R. 7007.0800, subp. 2
<p>Fuel usage rate limits:</p> <ul style="list-style-type: none"> - 22 tons per hour for coal; - 67 tons per hour for wood; - 0.305 MMCF per hour for natural gas. 	Title I Conditions: PSD permit application and impacts analysis
<p>Fuel Sampling: The Permittee shall sample solid fuel as follows: 1) Daily composite sampling for wood fuel; and 2) sample one coal delivery each week according to the Permittee's sampling plans approved by the MPCA on November 18, 1987 (except the need for a duplicate gross 240 pound sample is not required).</p>	Title I Conditions: PSD permit application and impacts analysis
<p>Fuel Analysis: The Permittee shall analyze solid fuel samples using ASTM methods or equivalent methods approved by the Commissioner. Samples shall be analyzed for the following parameters:</p> <p>Coal: Sulfur content in wt. %, heating value in Btus per lb. Wood: Heating value in Btus per lb.</p> <p>The average heating value for natural gas may be obtained from the vendor.</p> <p>The Permittee shall maintain the records of all analyses for a period of 5 years from the date of recording.</p>	Minn. R. 7007.0800, subp. 2 and subp. 4
<p>Maximum allowable heat input (based on 8-hour block averages):</p> <ul style="list-style-type: none"> - 590 mmBtu/hour at any time - 380 mmBtu/hr from coal - 590 mmBtu/hr from wood - When wood fuel = 100% chipped railroad ties: maximum total heat input from all fuels = 326 mmBtu/hr, chipped railroad tie heat input shall not exceed 86% of total heat input, and coal heat input shall not be less than 14% of total heat input. - 305 mmBtu/hr from natural gas 	Title I Conditions: PSD permit application and impacts analysis
<p>Total heat input shall be determined using the following equations: Total heat input to EU003 = x + y + z (not to exceed 590 mmBtu/hr) x = 380 - [(22-r) X (17.2)] y = 590 - [(67-s) X (8.8)] z = 305 - [(0.305-t) X (1000)] x= heat derived from the burning of coal over any hour in mmBtu y= heat derived from the burning of wood and wood waste portion of sludge and railroad ties over any hour in mmBtu z= heat derived from the burning of natural gas over any hour in mmBtu r = coal feed rate to boiler in tons per hour s = wood feed rate to boiler in tons per hour t = natural gas feed rate to boiler in million cubic feet per hour</p>	Title I Conditions: PSD permit application and impacts analysis
<p>Monitoring and Recordkeeping for fuel usage and heat input:</p> <p>The Permittee shall record the usage rate of each solid fuel on a daily basis, and calculate and record the hourly average fuel use for each solid fuel by dividing the daily fuel use by the number of hours of operation for that day. The Permittee shall measure the natural gas usage rate, in million cubic feet per hour, using a fuel meter.</p> <p>The Permittee shall calculate and record the heat input during any hour from each fuel, as well as the total heat input for that hour.</p> <p>Heat content value of solid fuel shall be obtained from fuel sampling as required in this permit. Heat content value of natural gas shall be obtained from the natural gas vendor.</p> <p>The Permittee shall maintain all fuel usage and heat input records for five years from the date of recording.</p>	Title I Conditions: PSD permit application and impacts analysis
<p>Record type and usage rate of each fuel on a daily basis, and calculate the hourly average fuel use for each fuel type by dividing the daily fuel use by the number of hours of operation for that day. Records shall be maintained for a minimum of 5 years.</p>	Title I Conditions: PSD permit application and impacts analysis

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

Initial Performance Test: due 180 days after 12/31/01 to determine compliance with the Title I particulate matter and CO emissions limit while burning coal, wood chips (including railroad ties), sludge, or any combination thereof. Particulate testing shall be conducted in accordance with the procedures in 40 CFR 60.46b(d) and Minn. R. 7017.2001 - 7017.2060 so that test results can also be used to determine compliance with 40 Section CFR 60.43b.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test	Minn. R. 7017.2030, subp. 4
Performance Test: due before end of each 60 months following Initial Performance Test to determine compliance with Title I particulate matter and CO emissions limit while burning coal, wood chips (including railroad ties), sludge, or any combination thereof. Tests shall be conducted at intervals not to exceed 60 months between tests. Particulate testing shall be conducted in accordance with the procedures in 40 Section CFR 60.46b(d) and Minn. R. 7017.2001 - 7017.2060 so that test results can also be used to determine compliance with 40 CFR 60.43b.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before end of each 60 months following Performance Test (7 days before each Performance Test)	Minn. R. 7017.2030, subp. 4
Boiler Alternative Operating Conditions for Performance Testing: Alternative Operating Conditions during testing are defined as 90% to 100% of the boiler's maximum normal (continuous) operating load or the maximum permitted operating rate, whichever is lower. The basis for this number must be included in the test plan. If testing is conducted at the alternative operating condition established, an operating limit will not be established as a result of performance testing. In no case will the new operating rate limit be higher than allowed by an existing permit condition.	Minn. R. 7017.2025, subp. 2(A) and 3(B)
Boiler Operating Conditions Not Meeting the Alternative Operating Conditions During Performance Testing: If performance testing is not conducted at or above the established alternative operating condition, then the boiler operating rate will be limited on an 8-hour block average based on the following: (1) If the results of the performance test are greater than 80% of any applicable emission limit for which compliance is demonstrated, then boiler operation will be limited to the tested operating rate. (2) If results are less than or equal to 80% of all applicable emission limits for which compliance is demonstrated, boiler operation will be limited to 110% of the tested operating rate. In no case will the new operating rate limit be higher than allowed by an existing permit condition.	Minn. R. 7017.2025, subp. 3(B)
STET (Short Term Emergency and Testing) Operating hours limit: The boiler may operate up to 40 hours per year to demonstrate the Uniform Rating of Generating Equipment (URGE) capacity and to meet emergency energy supply needs. Maintain documentation of all STET operation to demonstrate compliance with this limit. The boiler must meet emission limits during STET operation.	Minn. R. 7007.0800, subp. 2
STET Operation Definition that applies to Boilers that Meet or do Not Meet the Alternative Operating Condition for Performance Testing: If performance test results demonstrate compliance at 80% or less of any applicable emission limits for any tested pollutant, STET operation is defined as operation beyond 110% of the average operating rate achieved during that performance test. If performance test results demonstrate compliance at greater than 80% any applicable emission limit for any tested pollutant, STET operation is defined as operation beyond 100% of the average operating rate achieved during that performance test. In no case will STET operation be higher than allowed by an existing permit condition.	Minn. R. 7007.0800, subp. 2
The results of a performance test are not final until issuance of a review letter by MPCA, unless specified otherwise by Minn. R. 7017.2001 - 7017.2060.	Minn. R. 7017.2020, subp. 4
The owner or operator of an affected facility (EU004) shall install, calibrate, maintain, and operate a continuous emission monitoring system for measuring and recording sulfur dioxide emissions.	40 CFR Section 60.45(a)
The owner or operator of an affected facility (EU004) shall install, calibrate, maintain, and operate a continuous monitoring system for measuring and recording nitrogen oxides emissions.	40 CFR Section 60.48b(b)

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

The owner or operator of an affected facility (EU004) shall install, calibrate, maintain and operate a continuous monitoring system for measuring and recording opacity emissions.	40 CFR Section 60.48b(a)
The Permittee shall use the data from the NOx CEM on SV001 to determine compliance with the NOx emission limit.	40 CFR Section 60.46b(e)(2)
The owner or operator shall measure opacity, and all SO ₂ , NO _x , and CO ₂ emissions for each affect unit in accordance with 40 CFR Section 75.10	40 CFR Section 75.10

TABLE B: SUBMITTALS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard
Permit Number: 13700015 - 002

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.

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 any application for a permit or permit amendment to:

Permit Technical Advisor
Permit Section
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

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.

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

Supervisor
Compliance Determination Unit
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

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

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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Computer Dispersion Modeling Information	due 180 days after Permit Issuance submit modeling data as specified in MPCA guidance for Modeling Information Requests for PM-10, SO ₂ , and NO _x . This modeling information is for data collection purposes, no modeling analysis is required at this time. This is a state only requirement and is not enforceable by the EPA administrator or citizens under the Clean Air Act.	Total Facility
Performance Test Notification (written)	due 30 days before Initial Performance Test	EU001, EU002, EU003, EU004
Performance Test Plan	due 30 days before Initial Performance Test	EU001, EU002, EU003, EU004
Performance Test Report - Microfiche Copy	due 105 days after Initial Performance Test	EU001, EU002, EU003, EU004
Performance Test Report	due 45 days after Initial Performance Test	EU001, EU002, EU003, EU004
Relative Accuracy Test Audit (RATA) Notification	due 30 days before CEMS Relative Accuracy Test Audit (RATA) .	GP001
Testing Frequency Plan	due 60 days after Initial Performance Test for particulate matter, nitrogen oxide, opacity and carbon monoxide emission limits required by PSD modeling. The plan shall specify a testing frequency using the test data based on MPCA guidance. Future performance tests based on year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required on written approval of MPCA per Minn. R. 7017.2020, subp. 1.	EU001, EU002

TABLE B: RECURRENT SUBMITTALS

03/14/02

Facility Name: Minnesota Power Inc - ML Hibbard

Permit Number: 13700015 - 002

What to send	When to send	Portion of Facility Affected
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter following Permit Issuance (Submit Deviations Reporting Form DRF-1). The EER shall indicate all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e. during startup, shutdown, and malfunctions.	GP001
Linearity Test Results Summary	due 30 days after end of each calendar quarter following Linearity and Leak Check Test (Acid Rain Program) if performed.	GP001
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA) .	GP001
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar half-year following COMS Calibration Error Audit .	GP001
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance . A mid-year report, covering deviations which occurred during the period from January 1 through June 30, is due by July 30 of each year. An end-of-year report, covering deviations which occurred during the period from July 1 through December 31, is due by January 30 of each year. The report must be submitted even if there were no deviations for the reporting period. To be submitted on a form approved by the Commissioner.	Total Facility
Compliance Certification	due 30 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner.	Total Facility
Emissions Inventory Report	due 91 days after end of each calendar year following Permit Issuance (April 1st). To be submitted on a form approved by the Commissioner.	Total Facility
Performance Test Notification (written)	due 30 days before end of each 60 months following Initial Performance Test (30 days before each Performance Test)	EU003
Performance Test Notification (written)	due 30 days before end of each 60 months following Initial Performance Test (30 days before each Performance Test)	EU004
Performance Test Plan	due 30 days before end of each 60 months following Initial Performance Test (30 days before each Performance Test)	EU003
Performance Test Plan	due 30 days before end of each 60 months following Initial Performance Test (30 days before each Performance Test)	EU004
Performance Test Report - Microfiche Copy	due 105 days after end of each 60 months following Initial Performance Test (105 days after each Performance Test)	EU003
Performance Test Report - Microfiche Copy	due 105 days after end of each 60 months following Initial Performance Test (105 days after each Performance Test)	EU004
Performance Test Report	due 45 days after end of each 60 months following Initial Performance Test (45 days after each Performance Test)	EU003
Performance Test Report	due 45 days after end of each 60 months following Initial Performance Test (45 days after each Performance Test)	EU004

TECHNICAL SUPPORT DOCUMENT
For
DRAFT AIR EMISSION PERMIT NO. 13700015-002

This technical support document is for all the interested parties of the draft permit. The purpose of this document is to set forth the legal and factual basis for the draft permit conditions, including references to the applicable statutory or regulatory provisions.

1. General Information

1.1. Applicant and Stationary Source Location:

Owner and Operator Address and Phone Number (list both if different)	Facility Address (SIC Code: 4961)
30 W Superior St Duluth, Minnesota 55802 Dennis Niemi, 218/722-5642	50th Ave W & Main St Duluth, Minnesota 55802 St. Louis County

1.2. Description of the facility

The Hibbard facility is jointly owned by Minnesota Power (MP) and the City of Duluth. It is located in the City of Duluth near the Stora Enso – Duluth paper mill. Hibbard has four boilers. Boilers #1 and #2 have not been operated in many years. Boilers #3 and #4 are spreader stokers with traveling grates and are rated at 590 MMBtu/hr each. They are currently permitted to burn wood, coal, natural gas, and paper mill sludge. Annually they use about 80% wood and 20% coal on a heat input basis. They vent through a common 331 foot stack.

Hibbard was restarted in 1986 upon the construction of Stora Enso – Duluth (formerly Lake Superior Paper Industries). A PSD permit was issued at that time.

1.3. Description of any changes allowed with this permit issuance

The purpose of this amendment is three-fold. First, MP is requesting approval to conduct a material handling test on hardboard rejects generated at Georgia Pacific's Duluth plant. The hardboard consists primarily of wood with a small percentage of adhesive and wax.

Second, MP is requesting to change the coal sampling frequency currently outlined in the Title V permit for the facility. The change requested is to go from one daily composite sample to the collection of one sample per week.

Lastly the permit will be updated to reflect the current state policy on dispersion modeling. This addresses the item that was the subject of the July 3, 2001 administrative amendment application from MP.

1.4. Facility Emissions:

Table 1. Total Facility Potential to Emit Summary and Attainment Status:*

Pollutant	Potential to Emit (Tons/year)	Actual Emissions (Tons/year)	Attainment or Unclassified? (Yes or No)
Particulate Matter less than 10 micron (PM ₁₀)	227	39.3	Yes
Sulfur Dioxide (SO ₂)	7,151	97.5	Yes
Nitrogen Oxides (NO _x)	4,513	448.6	Yes
Carbon Monoxide (CO)	2,504	171.5	Yes
Lead	2.6	<0.1	Yes
Volatile Organic Compounds	828	165.7	Yes (ozone)
Combined HAPs	31.6	NA	NA

*Potential emissions based on permit limits, actual emissions taken from 1999 emission inventory

Table 2. Facility Classification

Classification	Major	Synthetic Minor	Minor	N/A
Prevention of Significant Deterioration	x			
Non Attainment Area (SO ₂ and CO)				x
Operating Permit Program	x			

2. Regulatory and/or Statutory Basis

Summary Regulatory and/or Statutory Basis of the Emission or operational Limit

Regulatory Overview of Facility

EU#	Applicable Regulations	Comments:
EU001	40 CFR 60 Subp. Db	Standards of Performance for Industrial, Commercial, and Institutional Steam Generating Units
Facility	40 CFR 52.21	Prevention of Significant Deterioration permit issued when facility was restarted
Facility	40 CFR 72 through 78	Federal Acid Rain Program

Permit Action Number:

Date: 2/23/2004

3. Technical Information

Trial Burn of Hardboard Rejects

One of the purposes of this permit is to allow MP to conduct a trial burn to determine the long-term feasibility of burning hardboard rejects from Georgia-Pacific - Duluth and also to gather emissions data to determine the change in air emissions to determine permit applicability. MP will use the NO_x, SO₂, and CO CEMS and a COM to monitor the change in emissions when burning the hardboard rejects. After the trial burn is complete MP will submit a report outlining the affect the hardboard had on air emissions. If MP decides they want to continue burning this material they will submit the appropriate permit amendment, provided that one is necessary.

This hardboard material is composed primarily of wood fiber along with ~ 1% phenol-formaldehyde resin, ~ 1% wax emulsion, and ~0.2 polyaluminum chloride (all are measured dry weight of additive per dry weight of wood). Ultimate and proximate analyses for the hardboard along with Material Safety Data Sheets (MSDS) for the hardboard itself and its additives are all included as attachment 1 to this document.

The length of the trial burn will be restricted by placing a limit on the amount of hardboard rejects that can be combusted – 28,500 tons. MP submitted emissions calculations as a part of its permit application (attachment 2), using the best available information, showing that this quantity of wood fuel should keep the emission change below PSD significant increase thresholds. Based on these calculations the MPCA believes that this trial burn will not violate PSD.

MPCA staff in the waste combustor program gave the opinion that burning this material would not make the Hibbard facility subject to the waste combustor rule. Some items that factored into that decision include:

- Hibbard is already permitted to burn railroad ties.
- Changes in emission characteristics can be tracked by the NO_x, SO₂, and CO CEMs in place on the boilers. In regards to particulate, hardboard has less ash/BTU than the wood waste they burn now.
- On an annual basis the facility burns 80% wood waste, 20% coal. The hardboard is proposed to be burned at a maximum input rate that is 3.5% of the rated heat input of the two boilers.
- The burning of excess/trim OSB/hardboard is ongoing at the orientated strandboard (OSB) plants and at GP – Duluth, GP just can't burn all of their material on-site.
- It is not believed to be possible to detect any change in HAP emissions due to addition of the hardboard when it is only ~3.5 % of the heat input of the units and it is so chemically similar to the wood they will be burning to make up the other 96.5% of the heat requirements (along with coal).

The material will be trucked to the facility and mixed with other currently permitted fuels such as wood waste from Stora Enso and coal. The existing fuel handling equipment will be used and no physical changes to the system will be made during this trial.

In issuing this permit the draft MPCA guidance concerning trial burns was followed. This guidance was developed with the guidance of EPA Region V permit staff. This facility has been

Permit Action Number:

Date: 2/23/2004

issued a Title V permit with permit conditions limiting the types of fuel that can be used in its boilers. For these reasons, the permit to authorize this trial burn must proceed along the major amendment path.

Change in Coal Sampling Frequency

MP also proposes to change the coal sampling frequency currently outlined in the Title V permit for the facility. The change requested is to go from one daily composite sample to the collection of one sample per week. The following outlines how the coal sample is analyzed and the resulting data is used at the facility.

Current Procedure

- MP takes one coal sample for every coal shipment (each truck), which is anywhere from 0 to 20 per day.
- A composite sample is prepared from the daily samples and is sent off for analysis (heat content in MMBtu/lb and %S, which is not really relevant information anymore since the facility has an SO₂ CEM - something it did not have when the original PSD permit was issued in 1986).
- All analytical results for a two-week period are averaged and this figure is loaded into their DAS. This figure is then applied to the coal used for the next two-week period.

Proposed Procedure

- MP takes one coal sample per week.
- The weekly sample is sent off for analysis (again MMBtu/lb and %S).
- The two analytical results for the two-week period are averaged and this figure is loaded into their DAS. This figure is then applied to the coal for the next two-week period.

It does not appear that the results of the two approaches will be markedly different, or at a minimum, different in any way that can be quantified or predicted. The first approach takes more samples but the samples are all composited and then the results are averaged over a two-week period. This approach drives the final value toward the average of the population. The new proposal may actually show more variation over time since these weekly samples are just grabs and not composites.

Title V Dispersion Modeling

Recently the state policy on dispersion modeling was changed. Previously all facilities that had PTEs over 100 tons per year for PM₁₀, SO₂, or NO_x had to submit dispersion modeling results for their facility. The thresholds have now been increased to ACTUAL emissions of greater than: 1000, 250, 100 tons per year for NO_x, SO₂, and PM₁₀, respectively. Facilities with actual emissions below these thresholds but potential emissions above 100 tons per year will only have to submit modeling information to the PCA. The memo explaining this change is available upon request.

4. Conclusion

Based on the information provided by the Minnesota Power, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 13700015-002 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: Trent Wickman, Bob Beresford, and Dennis Becker.

Peer Review: Craig Thorstenson

Attachment: 1. Ultimate and proximate analyses and MSDS for the hardboard additive
 2. Emission calculations