AIR EMISSION PERMIT NO. 06100004-005
Major Amendment

IS ISSUED TO

Minnesota Power Division of ALLETE Inc.
WPPI Energy
MINNESOTA POWER INC. - BOSWELL ENERGY CENTER
1210 Northwest 3rd Street
Cohasset, Itasca County, Minnesota 55721

The emission units, control equipment and emission stacks at the stationary source authorized in this permit amendment are as described in the Permit Applications Table.

Upon the Authorization to Construct and Operate (40 CFR § 52.21) Effective Date, this permit amendment will supersede Air Emission Permit No. 06100004-004 and authorize 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 are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Unless otherwise indicated, all the Minnesota rules cited as the origin of the permit terms are incorporated into the State Implementation Plan under 40 CFR § 52.1220, and as such are enforceable by U.S. Environmental Protection Agency (EPA) Administrator or citizens under the Clean Air Act.

Permit Type: Federal; Part 70/Major for New Source Review
Operating Permit Issue Date: 03/28/2007
Major Amendment Issue Date: July 16, 2010
Authorization to Construct and Operate (40 CFR § 52.21) Effective Date: August 19, 2010
Expiration Date: 03/28/2012– Title I Conditions do not expire.

Don Smith, P.E., Manager
Air Quality Permits Section
Industrial Division

for Paul Eger
Commissioner
Minnesota Pollution Control Agency

Permit Applications Table

Permit Type	Application Date	Permit Action
Total Facility Operating Permit - Reissuance	September 24, 2001	003
Major Amendment	June 26, 2008	004
Major Amendment	September 15, 2008	004
Major Amendment	December 3, 2008	004
Major Amendment	September 5, 2008	004
Reopening	January 22, 2009	004
Reopening	October 9, 2008	004
Reopening	June 5, 2008	004
Major Amendment	February 5, 2010 with supplement <> 2010	005

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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. 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 Boswell Energy Center (facility) is a coal-fired electric utility steam generating plant. Emission units at the facility include four power boilers, emergency engine generators, and fuel, additive and ash handling equipment. The main fuel for all boilers is sub-bituminous coal. They may also burn pipeline natural gas, distillate oil, limited amounts of boiler cleaning agents, used oil, oily coal, oily paper-based floor dry, wastewater treatment plant sludge, and oily materials (earth substrate with petroleum product).

Boilers 1 and 2 emissions are controlled by baghouses, over-fire air, and selective non-catalytic reduction. Boiler 3 emissions are controlled by Low Nitrogen Oxide Burners (LNB), over-fire air, selective catalytic reduction, a baghouse filter, activated carbon injection, and wet flue gas desulfurization. Boiler 4 emissions are controlled by a wet venturi scrubber/electrostatic precipitator, selective non-catalytic reduction, and a sulfur dioxide spray tower scrubber.

AMENDMENT DESCRIPTION:

This amendment authorizes changes to Power Boiler No. 4 (EU 004). The project will replace the original over-fire air system with an upgraded Separated Over-Fire Air (SOFA) system and LNB. No changes to Units 1, 2, or 3 or ancillary operations (coal pile, coal and ash handling, etc) at Boswell Energy Center will occur as a result of this modification. Although the LNB will reduce Nitrogen Oxides (NO_X) emissions, there is a projected actual increase in carbon monoxide (CO) emissions. The projected CO emissions increase will trigger Prevention of Significant Deterioration (PSD) and require Best Available Control Technology (BACT) for CO emissions on Power Boiler No. 4. Increases in emissions of other pollutants due to this modification are below the PSD significant emission thresholds and therefore do not trigger PSD review.

BACT for Power Boiler No. 4 is determined to be best combustion practices (combustion controls) and limits of 0.15 lbs CO/mmBtu of heat input, with compliance determined on a 30-day rolling average basis except during startup, shutdown, or malfunction. During startup and shutdown, a separate limit (based on ambient air modeling) of 28,826 pounds per hour applies. This permit amendment also requires certification of MR 045, a previously installed CO Continuous Emissions Monitoring System (CEMS) for Unit No. 4.

No New Source Performance Standards or National Emissions Standards for Hazardous Air Pollutants requirements are triggered by this modification. The increase in CO emissions from this modification will not result in a violation of the National Ambient Air Quality Standards.

This permit action also incorporates changes to Boiler No. 4 CEMS. Specifically, CEMS MR 006, MR 007, and MR 008 (Carbon Dioxide (CO_2), Sulfur Dioxide (SO_2), and NO_X, respectively) are replaced by the newly certified CEMS MR 042, MR 043, and MR 044 (SO_2, NO_X, and CO_2, respectively).

TABLE B: SUBMITTALS

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:
- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

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

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

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

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

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

Send any application for a permit or permit amendment to:

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

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

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

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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Notification	due 15 days after Startup of EU 004 after completion of modifications authorized by permit No. 06100004-005. The notification shall specify the EU 004 post-modification startup date.	EU004
Plans and Specifications	due before 07/01/2011 for mercury removal. The plan shall contain the information specified in Minn. Stat. 216B.682, subd. 3.	EU004
Testing Frequency Plan	due 60 days after Initial Performance Test for Hydrogen Fluoride emissions.	EU003
Testing Frequency Plan	due 60 days after Initial Performance Test for Lead emissions.	EU003
Testing Frequency Plan	due 60 days after Initial Performance Test for PM and PM10 emissions.	EU003

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What to send	When to send	Portion of Facility Affected
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar quarter following CEM Certification Test, if a CGA was conducted during the previous calendar quarter.	MR024, MR045
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter following Initial Startup of the Monitor. Submit Deviations Reporting Form DRF-1 as amended. The EER shall indicate all periods of monitor bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e. during startup, shutdown, and malfunctions. The EER must be submitted even if there were no excess emissions, downtime or bypasses during the quarter.	Total Facility
Linearity Test Results Summary	due 30 days after end of each calendar quarter following CEM Certification Test in which a Linearity and Leak Check Test was conducted.	MR028, MR029, MR032, MR033, MR036, MR037
Linearity Test Results Summary	due 30 days after end of each calendar quarter following Linearity and Leak Check Test (Acid Rain Program), if performed.	MR043
Linearity Test Results Summary	due 30 days after end of each calendar quarter following Permit Issuance, if performed on MR 042, Boiler 4 SO2.	MR042
Quarterly Report	due 30 days after end of each calendar quarter starting 01/01/2009 as referenced by 40 CFR Section 75.84(f).	MR026
Quarterly Report	due 30 days after end of each calendar quarter starting 01/01/2009 as required by 40 CFR Section 75.84(f).	MR025
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar quarter following CEM Certification Test in which the CEMS RATA was conducted.	MR028, MR029, MR032, MR033, MR036, MR037
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar quarter following CEM Certification Test.	MR045
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA)	MR025, MR026
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar half-year following COMS Certification Test for MR027, Boiler 3 Opacity.	MR027
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar half-year starting 02/04/2008 for MR 040, Boiler 4 Opacity.	MR040
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar half-year starting 03/28/2007 for MR 020, Boiler 1 Opacity.	MR020
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar half-year starting 03/28/2007 for MR 021, Boiler 2 Opacity.	MR021
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar half-year following Permit Issuance in which the CEMs RATA was conducted for MR 042, Boiler 4 SO2.	MR042
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar half-year starting 09/21/2006 in which the CEMs RATA was conducted for MR 043, Boiler 4 NOx.	MR043

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Semiannual Deviations Report	due 30 days after end of each calendar half-year starting 03/28/2007 . The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.	Total Facility
Annual Report	due 60 days after end of each calendar year following Initial Startup of EU 004 after the completion of EU 004 modifications allowed by permit No. 06100004-005. This requirement terminates upon submittal of the fifth required calendar year report following resumption of EU 004 normal operation. The Permittee shall submit an annual report stating the EU 004 SO2 emissions tons for the previous calendar year. The report shall be generated using the same EU 004 SO2 CEMS-based data that is reported to the EPA Clean Air Markets program. If calendar year SO2 emissions exceed 3145 tons (future projected actual emissions plus excludable emissions determined for permit No. 06100004-005, plus 50 percent of the 40 ton per year SO2 significant emission rate), the Permittee shall also submit with the report an explanation of why the calendar year SO2 emissions exceeded 3145 tons.	EU004
Compliance Certification	due 31 days after end of each calendar year starting 03/28/2007 (for the previous calendar year). To be submitted on a form approved by the Commissioner, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.	Total Facility
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar year starting 10/03/2006 in which the CEMs RATA was conducted for MR 024, Boiler 3 CO.	MR024

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

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
DETERMINING IF A PROJECT/MODIFICATION IS SUBJECT TO NEW SOURCE REVIEW	hdr
These requirements apply if a reasonable possibility (RP) as defined in 40 CFR Section 52.21(r)(6)(vi) exists that a proposed project, analyzed using the actual-to-projected-actual (ATPA) test (either by itself or as part of the hybrid test at Section 52.21(a)(2)(iv)(f)) and found to not be part of a major modification, may result in a significant emissions increase (SEI). If the ATPA test is not used for the project, or if there is no RP that the proposed project could result in a SEI, these requirements do not apply to that project. The Permittee is only subject to the Preconstruction Documentation requirement for a project where a RP occurs only within the meaning of Section 52.21(r)(6)(vi)(b). Even though a particular modification is not subject to New Source Review (NSR), or where there isn't a RP that a proposed project could result in a SEI, a permit amendment, recordkeeping, or notification may still be required by Minn. R. 7007.1150 - 7007.1500.	Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2
Preconstruction Documentation -- Before beginning actual construction on a project, the Permittee shall document the following: 1. Project description 2. Identification of any emission unit (EU) whose emissions of an NSR pollutant could be affected 3. Pre-change potential emissions of any affected existing EU, and the projected post-change potential emissions of any affected existing or new EU. 4. A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded due to increases not associated with the modification and that the EU could have accommodated during the baseline period, an explanation of why the amounts were excluded, and any creditable contemporaneous increases and decreases that were considered in the determination. The Permittee shall maintain records of this documentation.	Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.1200, subp. 4; Minn. R. 7007.0800, subps. 4 & 5
The Permittee shall monitor the actual emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using the ATPA test, and the potential emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using potential emissions in the hybrid test. The Permittee shall calculate and maintain a record of the sum of the actual and potential (if the hybrid test was used in the analysis) emissions of the regulated pollutant, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity of or potential to emit of any unit associated with the project.	Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 4 & 5
Before beginning actual construction of any project which includes any electric utility steam generating unit (EUSGU), the Permittee shall submit a copy of the preconstruction documentation (items 1-4 under Preconstruction Documentation, above) to the Agency.	Title I Condition: 40 CFR Section 52.21(r)(6)(ii) and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 & 5
For any project which includes any EUSGU, the Permittee must submit an annual report to the Agency, within 60 days after the end of the calendar year. The report shall contain: a. The name and ID number of the facility, and the name and telephone number of the facility contact person b. The quantified annual emissions analyzed using the ATPA test, plus the potential emissions associated with the same project analyzed as part of a hybrid test. c. Any other information, such as an explanation as to why the summed emissions differ from the preconstruction projection, if that is the case.	Title I Condition: 40 CFR Section 52.21(r)(6) and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 & 5

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For any project which does not include any EUSGU, the Permittee must submit a report to the Agency if the annual summed (actual, plus potential used in hybrid test) emissions differ from the preconstruction projection and exceed the baseline actual emissions by a significant amount as listed at 40 CFR Section 52.21(b)(23). Such report shall be submitted to the Agency within 60 days after the end of the year in which the exceedances occur. The report shall contain: a. The name and ID number of the facility, and the name and telephone number of the facility contact person b. The annual emissions (actual, plus potential if any part of the project was analyzed using the hybrid test) for each pollutant for which the preconstruction projection and significant emissions rate is exceeded. c. Any other information, such as an explanation as to why the summed emissions differ from the preconstruction projection.	Title I Condition: 40 CFR Section 52.21(r)(6) and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 & 5
OPERATIONAL REQUIREMENTS	hdr
Permit Appendices: This permit contains appendices as listed in the permit Table of Contents. The Permittee shall comply with all requirements contained in Appendices A and C. Notwithstanding the previous paragraph, modeling parameters in Appendces B-1 and B-2 are included for reference only and compliance with these parameters is achieved through meeting the requirement(s) under the header 'DISPERSION MODELING REQUIREMENTS' listed on pages A-4 and A-5 in the total facility section of table A of this permit.	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
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state requirement only and is not federally enforceable.	Minn. R. 7030.0010-7030.0080
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)
Comply with general conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
Comply with Fugitive Emissions Control Plan: Follow the actions and record keeping specified in the control plan. The plan may be amended with the Commissioner's approval. If the Commissioner determines that you are out of compliance with Minn. R. 7011.0150 or the control plan, then you may be required to amend the control plan and/or install and operate particulate matter ambient monitors.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0100; Minn. R. 7007.0800, subp. 2; Minn. R. 7011.0150; Minn. R. 7009.0020
Oily Floor Dry: Limit combustion to: 1) cellulose based only, 2) 25 tons per year, and 3) 1.25 tons per hour.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21and Minn. R. 7007.3000

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The following does not apply to Boilers No. 001, 002, 003, and 004. These units contain specific operating and/or production limits requirements. Operating and/or production limits will be placed on emission units 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
PERFORMANCE TESTING	hdr
Performance Test Notifications and Submittals: Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements. Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.	Minn. R. 7017.2030, subp. 1-4, 7017.2018 and Minn. R. 7017.2035, subp. 1-2
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
MONITORING REQUIREMENTS	hdr
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)
RECORDKEEPING	hdr
Recordkeeping: 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)
Recordkeeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
REPORTING	hdr
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
Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000 subp. 1

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Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Shutdown and Breakdown Reporting Requirement 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.	Minn. R. 7019.1000, subp. 2
Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance. To be submitted on a form approved by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3100
Emission Fees: due 60 days after receipt of an MPCA bill	Minn. R. 7002.0005 through Minn. R. 7002.0095
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)
ACID RAIN PROGRAM REQUIREMENTS	hdr
Emissions from the stationary source cannot exceed any allowances that the source lawfully holds under federal acid rain regulations, except as allowed by Minn. R. 7007.0800, subp. 7.	Minn. R. 7007.0800, subp. 7
Acid Rain Certification Report: due 60 days after end of each calendar year.	40 CFR Section 72.90(b) and 40 CFR Section 72.90(c)
If the unit has excess emissions, the designated representative shall submit a proposed offset plan in accordance with 40 CFR Section 72.9(e).	40 CFR Section 72.9(e)
Keep the certificate of representation, all emissions monitoring information, copies of all reports, compliance certifications and related submissions and all records made or required under the Acid Rain Program on site for a period of 5 years from the date the document was created.	40 CFR Section 72.9(f)
Hold allowances as of the allowance transfer deadline, in the facility's compliance account. Allowances may not be less than the total annual emissions of sulfur dioxide from the previous calendar year from the facility.	40 CFR Section 72.9(c)
DISPERSION MODELING REQUIREMENTS	hdr
The Permittee shall comply with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0080. Compliance shall be demonstrated upon written request by the MPCA.	40 CFR pt. 50; Minn. Stat. Sec. 116.07, subds. 4a and 9; Minn. R. 7007.0100, subps. 7A, 7L and 7M; Minn. R. 7007.0800, subps. 1, 2, and 4; Minn. R. 7009.0010-7009.0080
The parameters used in SO2 and PM10 modeling for permit No. 06100004-004 are listed in Appendix B-1 of this permit.	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7009.0020; Minn. R. 7007.0100; Minn. R. 7007.0800, subp. 2
The parameters used in CO modeling for permit No. 06100004-005 are listed in Appendix B-2 of this permit and for CO modeling for permit No. 06100004-004 are listed in Appendix B-1 of this permit.	Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000; Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7009.0020; Minn. R. 7007.0100; Minn. R. 7007.0800, subp. 2

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The parameters used in NOx modeling for permit No. 06100004-004 are listed in Appendix B-1 of this permit. NOx Modeling Triggers: For changes that do not require a permit amendment or that require a minor permit amendment, and that affect any modeled parameter or emission rate, a Remodeling Submittal requirement is not triggered. The Permittee shall keep updated records on site of all parameters and emission rates. The Permittee shall submit any changes to parameters and emission rates with the next required remodeling submittal. For changes that require a moderate or major permit amendment and affect any modeled parameter or increase in an emission rate, a Remodeling Submittal requirement is triggered. The Permittee shall include previously made changes to parameters and emission rates that did not trigger a remodeling submittal with this modeling submittal.	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7009.0020; Minn. R. 7007.0100; Minn. R. 7007.0800, subp. 2
NOx Remodeling Submittal: The Permittee must submit to the Commissioner for approval changes meeting the above criteria and must wait for a written approval (in the form of an issued permit amendment) before making such changes. The information submitted must include, for stack and vent sources, source emission rate, location, height, diameters, exit velocity, exit temperature, discharge direction, use of rain caps or rain hats, and, if applicable, locations and dimensions of nearby buildings. For non-stack/vent sources, this includes the source emission rate, location, size and shape, release height, and, if applicable, any emissions rate scalars, and the initial lateral dimensions and initial vertical dimensions and adjacent building heights. (continued)	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7009.0020; Minn. R. 7007.0100; Minn. R. 7007.0800, subp. 2
NOx Remodeling Submittal (continued): The plume dispersion characteristics due to the revisions of the information must be equivalent to or better than the latest dispersion characteristics modeled. The Permittee shall demonstrate this equivalency in the proposal. If the information does not demonstrate equivalent or better dispersion characteristics, or if a conclusion cannot readily be made about the dispersion, the Permittee must submit full remodeling.	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7009.0020; Minn. R. 7007.0100; Minn. R. 7007.0800, subp. 2
CLEAN AIR INTERSTATE RULE	hdr
At the present time, the permittee must comply with all the applicable requirements in 40 CFR pt. 97 for a CAIR NOx source, a CAIR SO2 source, a CAIR NOx unit, and a CAIR SO2 unit as defined in 40 CFR Sections 97.102 and 97.202. If the US Environmental Protection Agency promulgates a rule to stay 40 CFR pt. 97 in Minnesota, this requirement will be of no further force and effect upon the effective date of the rule.	40 CFR pt. 97; 40 CFR Section 52.1240; Minn. R. 7007. 0800, subp. 2.
OIL & NATURAL GAS CARBON MONOXIDE LIMIT	hdr
Carbon Monoxide: less than or equal to 319 tons/year using 12-month Rolling Sum. This limit was taken to avoid an Air Emissions Increase Analysis when installing natural gas ignitor/heat guns. This limit is derived to limit the potential to emit increase to 95 tons/yr of CO. Combined CO emissions from oil and natural gas combustion used in all igniters and warm-up guns in EU 001, EU 002, EU 003, and EU 004 shall not exceed 319 tons per year of CO. This excludes CO emissions from coal combustion and other permitted fuels. This limit applies on a 12-month rolling sum basis and must be evaluated monthly. The following emission factors shall be used: Fuel Oil - 5 lbs CO/1000 gallons; Natural Gas - 84 lbs CO/million cubic feet.	Minn. R. 7007.0800 subp. 2
Recordkeeping: by the last day of each month calculate and record the CO emissions for the previous month and the previous 12-month period (12-month rolling sum) from the combustion of natural gas and fuel oil in the boilers ignitor guns.	Minn. R. 7007.0800 subp. 5

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **GP 002 Opacity Monitors**

Associated Items: MR 020 Blr 1 Opacity

MR 021 Blr 2 Opacity

MR 027 Blr 3 Opacity

MR 040 Blr 4 Opacity

What to do	Why to do it
CONTINUOUS OPACITY MONITORING SYSTEMS (COMS) Requirements (Additional requirements are located under the associated MR subject items and in Table B)	hdr
All COMS shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data for each successive 6-minute period.	Minn. R. 7017.1200, subp. 1, 2 & 3; 40 CFR Section 60.13(e)(1); 40 CFR Section 60.13(h)
Continuous Operation: COMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A COMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. Acceptable monitor downtime includes reasonable periods as listed in Items A, B, C and D of Minn. R. 7017.1090, subp. 2.	Minn. R. 7017.1090, subp. 1; 40 CFR Section 60.13(e)
COMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each COMS according to the QA/QC procedures in Minn. R. 7017.1210.	40 CFR Section 60.13(a); Minn. R. 7017.1210
COMS Daily Calibration Drift Check: The Permittee must automatically, intrinsic to the opacity monitor, check the zero and upscale (span) calibration drifts at least once daily. The acceptable range is as defined in 40 CFR pt. 60, Appendix B, PS-1. The optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds 4 percent opacity. Minimum procedures must include an automated method for producing a simulated zero opacity condition and an upscale opacity condition as specified in 40 CFR 60.13(d)(2).	Minn. R. 7017.1210, subp. 2; 40 CFR Section 60.13(d)(l) regarding COMS and 60.13(d)(2)
Attenuator Calibration: The Permittee shall have an independent testing company conduct calibrations of each of the neutral density filters used in the calibration error audit according to the procedure in Code of Federal Regulations, Title 40, Part 60, Appendix B, Section 7.1.3.1 within the time frame of opacity stability guaranteed by the attenuator manufacturer. The manufacturer's guarantee of stability shall be on site available for inspection.	Minn. R. 7017.1210, subp. 4
Recordkeeping: The owner or operator must retain records of all 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. 7017.1130

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Permit Number: 06100004 - 005

Subject Item: **GP 003 NOx and SO2 Monitors**

Associated Items: MR 028 Blr 1 SO2

MR 029 Blr 1 NOx

MR 032 Blr 2 SO2

MR 033 Blr 2 NOx

MR 036 Blr 3 SO2

MR 037 Blr 3 NOx

MR 042 Blr 4 SO2

MR 043 Blr 4 NOx

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) REQUIREMENTS Additional requirements are located under the associated MR subject items and in Table B	hdr
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.	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, appendix B.	40 CFR pt. 75, Appendix B, section 2.1
Relative Accuracy Test Audit (RATA) Notification: due 30 days before CEMS Relative Accuracy Test Audit (RATA)).	Minn. R. 7017.1180, subp. 2
Recordkeeping: The owner or operator must retain records of all CEMS 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. 7017.1130; and 40 CFR pt. 75, subp. F
Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment.	40 CFR Section 60.13(e); Minn. R. 7017.1090
SO2 Monitoring: Use MR 028, MR 032, and MR 036 to continuously monitor SO2 emissions from EU 001, EU 002, and EU 003, respectively. NOx Monitoring: Use MR 029, MR 033, and MR 037 to continuously monitor NOx emissions from EU 001, EU 002, and EU 003, respectively.	Minn. R. 7007.0800, subp. 4

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **GP 004 Boilers 1-4 Sulfur Dioxide Limits**

Associated Items: EU 001 Power Boiler 1

EU 002 Power Boiler 2

EU 003 Power Boiler 3

EU 004 Power Boiler 4

What to do	Why to do it
BOILER 3 AND 4 COMBINED LIMITS	hdr
When EU 001 and EU 002 are not operating, sulfur dioxide emissions are limited to less than or equal to the following: Condition 1) 3.52 lb/mmBtu for SV 003 and 1.2 lb/mmBtu for SV 004, both on a one-hour average; OR, Condition 2) 4.0 lb/mmBtu for SV 003 and 0.88 lb/mmBtu for SV 004, both on a one-hour average; OR, Condition 3) 3.67 lb/mmBtu for SV 003 and 1.10 lb/mmBtu for SV 004, both on a one-hour average.	Minn. R. ch. 7009; 40 CFR pt. 50
BOILER 1 EMISSION LIMITS	hdr
When the EU 001 flue gasses are vented through SV 001: Sulfur Dioxide: less than or equal to 1.18 lbs/million BTU heat input using 1 Hour Average	Minn. R. 7009.0020
Sulfur Dioxide: less than or equal to 4.0 lbs/million Btu heat input using 1-Hour Average and a 3-Hour Average for solid fuels, and 2.0 lbs/mmBtu when burning liquid fuels. When solid and liquid fossil fuels are burned simultaneously in any combination, the applicable standard shall be determined by proration using the following formula: w=[2y+4z]/(y+z) where y is the % heat input from liquid fossil fuel and z is the % heat from solid fuels. This limit applies only when EU001 is vented through SV003.	Minn. R. 7011.0510, subp. 1 Minn. R. 7009
BOILER 2 EMISSION LIMITS	hdr
When EU 002 flue gasses are vented through SV 001. Sulfur Dioxide: less than or equal to 1.18 lbs/million Btu heat input using 1-Hour Average	Minn. R. 7009.0020
Sulfur Dioxide: less than or equal to 4.0 lbs/million Btu heat input using 1-Hour Average and a 3-Hour Average for solid fuels, and 2.0 lbs/mmBtu when burning liquid fuels. When liquid and solid fossil fuels are burned simultaneously in any combination, the applicable standard shall be determined by proration using the following formula: w=[2y+4z]/(y+z) where y is the % heat input from liquid fossil fuel and z is the % heat from solid fuels. This limit applies only when EU 002 is vented through SV 003.	Minn. R. 7011.0510, subp. 1 Minn. R. 7009
BOILER 3 LIMITS	hdr
Sulfur Dioxide: less than or equal to 2.97 lbs/million Btu heat input using 1-Hour Average when EU 001 and EU 002 are operating, and the EU 001 and EU 002 emissions are vented through SV 001.	Minn. R. 7009.0020
Sulfur Dioxide: less than or equal to 0.09 lbs/million Btu heat input based on a 30-day rolling average. This limit does not apply during times of startup, shutdown or malfunction. (Boiler 3 limit). This limit applies regardless of the operation and venting of the other boilers.	Minn. R. 7007.0800, subp. 2
Sulfur Dioxide: less than or equal to 4.0 lbs/million Btu heat input using 1-Hour Average and a 3-Hour Average for solid fuels, and 2.0 lbs/mmBtu when burning liquid fuels. When solid and liquid fossil fuels are burned simultaneously in any combination, the applicable standard shall be determined by proration using the following formula: w=[2y+4z]/(y+z) where y is the % heat input from liquid fossil fuel and z is the % heat from solid fuels. The EU003 sulfur dioxide limit applies regardless if EU001 and EU002 are operating.	Minn. R. 7011.0510, subp. 1 Minn. R. 7009
BOILER 4 EMISSION LIMITS	hdr
Sulfur Dioxide: less than or equal to 1.2 lbs/million Btu heat input using 1-Hour Average period for solid fossil fuel, and 0.8 lb/million BTU using 1 Hour Average period for liquid fossil fuel. When solid and liquid fossil fuels are burned simultaneously in any combination, the applicable standard shall be determined by proration using the following formula: w=[0.8y+1.2z]/(y+z) where y is the % heat input from liquid fossil fuel and z is the % heat from solid fuels.	Title I Condition: 40 CFR Section 52.21(j) PSD BACT limit and ambient impacts analysis; 40 CFR Section 60.43

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Sulfur Dioxide: less than or equal to 0.33 lbs/million Btu heat input based on an annual average.	Minn. R. 7021.0050, subp. 5

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **GP 005 Low Temperature Fabric Filters**

Associated Items: CE 007 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 008 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 009 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 010 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 013 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 015 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 016 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 017 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 018 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

What to do	Why to do it
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 99 percent control efficiency	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subp. 2 and 14
Visible Emissions: The Permittee shall check the fabric filter stacks for any visible emissions once each day of operation during daylight hours.	Minn. R. 7007.0800, subp. 4 and 5
The Permittee shall operate and maintain the fabric filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - visible emissions are observed; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall eliminate visible emissions, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.	Minn. R. 7007.0800, subp. 4, 5 and 14

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 001 Power Boiler 1**

Associated Items: CE 001 Fabric Filter - High Temperature, i.e., T>250 Degrees F

CE 023 ROTA-Mix SNCR

CE 025 ROFA

GP 004 Boilers 1-4 Sulfur Dioxide Limits

MR 020 Blr 1 Opacity

MR 028 Blr 1 SO2

MR 029 Blr 1 NOx

MR 030 Blr 1 CO2

MR 031 Blr 1 Air Flow

SV 001

SV 003

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.1 lbs/million BTU heat input	Title I condition: 40 CFR Section 52.21(k) (ambient air impacts analysis); also meets the requirements of Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity using 6-minute Average except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2
See GP004 for sulfur dioxide limits.	hdr
Comply with the applicable Acid Rain emissions limitation for sulfur dioxide.	40 CFR Section 72.9(c)(1)(ii), 40 CFR Section 72.9(g)(4)
NOx Averaging Plan Maintain an annual average NOx emission rate of 0.46 lbs/MMBtu and limit the annual heat input to less than or equal to 3,500,000 mmBtu per year. OR Maintain a Btu-weighted annual average emission rate in lbs/mmBtu, averaged over the units specified in the NOx averaging plan, that is less than or equal to the Btu-weighted annual average emission rate averaged over the same units had they each been operated during the same period of time in compliance with the applicable emission limitations in 40 CFR Sections 76.5, 76.6, or 76.7. Units covered in the plan are: Plant Boiler ID# Clay Boswell 1, 2, 3, 4 Syl Laskin 1, 2 Taconite Harbor 1, 2, 3	40 CFR Section 76.11 Minn. R. 7011.0553
OPERATIONAL LIMITS AND REQUIREMENTS	hdr
Fuel use: limited to sub-bituminous coal, boiler cleaning agents, distillate oil, oily coal, used oil, oily paper-based floor dry, pipeline natural gas, and propane.	Minn. R. 7007.0800, subp. 2
Boiler cleaning agents limited to: EDTA type and Ammonium Bromate, are generated on-site, 5% of total mass input, oxygen limited to 3% or greater, agents may only be burned while the boiler is operating at 75 percent of rated capacity or greater.	Minn. R. 7007.0800, subp. 2
Burn off-specification and on-specification used oil in accordance with Minn. R. ch. 7045, not to exceed 17.5% of rated heat input on an hourly basis (equal to 963 gallons/hr.).	Minn. R. 7007.0800, subp. 2
Vent all emissions to a fabric filter that meets the requirements of CE001 for particulate matter control when burning coal. The fabric filter may be bypassed during startup. Bypassing of the fabric filter shall be for as short a time as is practicable while avoiding damage to the fabric filter and it components, but shall not exceed 8 hours.	Title I Condition: control of particulate emissions.

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

CONTINUOUS MONITORING REQUIREMENTS	hdr
The owner or operator shall measure opacity, and all SO2, NOx, and CO2 emissions from affected units in accordance with 40 CFR Section 75.10. See GP002 for requirements regarding opacity monitoring, and GP003 for requirements regarding SO2 and NOx monitoring. The SO2 and NOx monitors shall be capable of producing emission rates in units of lb/mmBtu on a one-hour average, a three-hour average and on a 30-day rolling average.	40 CFR Section 75.10 Minn. R. 7017.1020
Operate and maintain the continuous opacity monitor as a partial indicator of compliance with the particulate matter limit.	40 CFR pt. 64
PERFORMANCE TESTING	hdr
Performance Test: due before end of each 60 months starting 09/16/1997 to determine compliance with the Title I condition particulate matter emission limit. The tests shall be conducted at an interval not to exceed 60 months between test dates.	Title I Condition: monitoring for the particulate matter emission limit set under 40 CFR 52.21; Minn. R. 7017.2020, subp. 1, and 40 CFR pt. 64
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.

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 002 Power Boiler 2**

Associated Items: CE 002 Fabric Filter - High Temperature, i.e., T>250 Degrees F

CE 024 ROTA-Mix SNCR

CE 026 ROFA

GP 004 Boilers 1-4 Sulfur Dioxide Limits

MR 021 Blr 2 Opacity

MR 032 Blr 2 SO2

MR 033 Blr 2 NOx

MR 034 Blr 2 CO2

MR 035 Blr 2 Air Flow

SV 001

SV 003

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.1 lbs/million BTU heat input	Title I condition: 40 CFR Section 52.21(k) (ambient air impacts analysis); also meets the requirements of Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity using 6-minute Average except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2
See GP004 for sulfur dioxide limits.	hdr
Comply with the applicable Acid Rain emissions limitation for sulfur dioxide.	40 CFR Section 72.9(c)(1)(ii), 40 CFR Section 72.9(g)(4)
NOx Averaging Plan Maintain an annual average NOx emission rate of 0.46 lbs/MMBtu and limit the annual heat input to less than or equal to 3,500,000 mmBtu per year. OR Maintain a Btu-weighted annual average emission rate in lbs/mmBtu, averaged over the units specified in the NOx averaging plan, that is less than or equal to the Btu-weighted annual average emission rate averaged over the same units had they each been operated during the same period of time in compliance with the applicable emission limitations in 40 CFR Sections 76.5, 76.6, or 76.7. Units covered in the plan are: Plant Boiler ID# Clay Boswell 1, 2, 3, 4 Syl Laskin 1, 2 Taconite Harbor 1, 2, 3	40 CFR Section 76.11 Minn. R. 7011.0553
OPERATIONAL LIMITS AND REQUIREMENTS	hdr
Fuel use: limited to sub-bituminous coal, boiler cleaning agents, distillate oil, oily coal, used oil, oily paper-based floor dry, pipeline natural gas, and propane.	Minn. R. 7007.0800, subp. 2
Boiler cleaning agents limited to: EDTA type and Ammonium Bromate, are generated on-site, 5% of total mass input, oxygen limited to 3% or greater, agents may only be burned while the boiler is operating at 75 percent of rated capacity or greater.	Minn. R. 7007.0800, subp. 2
Burn off-specification and on-specification used oil in accordance with Minn. R. ch. 7045, not to exceed 17.5% of rated heat input on an hourly basis (equal to 963 gallons/hr.).	Minn. R. 7007.0800, subp. 2
Vent all emissions to a fabric filter that meets the requirements of CE002 for particulate matter control when burning coal. The fabric filter may be bypassed during startup. Bypassing of the fabric filter shall be for as short a time as is practicable while avoiding damage to the fabric filter and it components, but shall not exceed 8 hours.	Title I Condition: control of particulate emissions.

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

CONTINUOUS MONITORING REQUIREMENTS	hdr
The owner or operator shall measure opacity, and all SO2, NOx, and CO2 emissions from affected units in accordance with 40 CFR Section 75.10. See GP002 for requirements regarding opacity monitoring, and GP003 for requirements regarding SO2 and NOx monitoring. The SO2 and NOx monitors shall be capable of producing emission rates in units of lb/mmBtu on a one-hour average, a three-hour average and on a 30-day rolling average.	40 CFR Section 75.10 Minn. R. 7017.1020
Operate and maintain the continuous opacity monitor as a partial indicator of compliance with the particulate matter limit.	40 CFR pt. 64
PERFORMANCE TESTING	hdr
Performance Test: due before end of each 60 months starting 09/16/1997 to determine compliance with the Title I condition particulate matter emission limit. The tests shall be conducted at an interval not to exceed 60 months between test dates.	Title I Condition: monitoring for the particulate matter emission limit set under 40 CFR 52.21; Minn. R. 7017.2020, subp. 1, and 40 CFR pt. 64
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.

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 003 Power Boiler 3**

Associated Items: CE 019 Low NOx Burners/Over-Fire Air

CE 020 SCR (Selective Catalytic Reduction)

CE 021 Fabric Filter - High Temperature, i.e., T>250 Degrees F

CE 022 Wet Flue Gas Desulfurization

CE 029 Carbon Injection

GP 004 Boilers 1-4 Sulfur Dioxide Limits

MR 024 Blr 3 CO

MR 025 Blr 3 Mercury

MR 027 Blr 3 Opacity

MR 036 Blr 3 SO2

MR 037 Blr 3 NOx

MR 038 Blr 3 CO2

MR 039 Blr 3 Air Flow

SV 003

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Total Particulate Matter: less than or equal to 0.014 lbs/million Btu heat input for filterable PM.	Minn. R. 7007.0800, subp. 2
PM < 10 micron: less than or equal to 0.035 lbs/million Btu heat input filterable plus organic and inorganic condensables.	Minn. R. 7007.0800, subp. 2
Opacity: less than or equal to 20 percent opacity using 6-minute Average except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2
NOx Averaging Plan Maintain an annual average NOx emission rate of 0.40 lbs/MMBtu and limit the annual heat input to less than or equal to 19,000,000 mmBtu per year. OR Maintain a Btu-weighted annual average emission rate in lbs/mmBtu, averaged over the units specified in the NOx averaging plan, that is less than or equal to the Btu-weighted annual average emission rate averaged over the same units had they each been operated during the same period of time in compliance with the applicable emission limitations in 40 CFR Sections 76.5, 76.6, or 76.7. Units covered in the plan are: Plant Boiler ID# Clay Boswell 1, 2, 3, 4 Syl Laskin 1, 2 Taconite Harbor 1, 2, 3	40 CFR Section 76.8 Early election for Group 1, Phase II boilers and 40 CFR Section 76.5(a)(1) Minn. R. 7011.0553
Nitrogen Oxides: less than or equal to 0.07 lbs/million Btu heat input based on a 30-day rolling average. This limit does not apply during times of startup, shutdown or malfunction.	Minn. R. 7007.0800, subp. 2
See GP004 for sulfur dioxide limits.	hdr
Hydrogen fluoride: less than or equal to 0.0018 lbs/million Btu heat input .	Title I Condition: to avoid major modification classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Carbon Monoxide: less than or equal to 0.15 lbs/million Btu heat input on a 24-hour rolling average. This limit does not apply during periods of startup, shutdown, or malfunction.	Title I Condition: 40 CFR Section 52.21 BACT limit

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

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Lead: less than or equal to 0.00004 lbs/million Btu heat input .	Title I Condition: to avoid major modification classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
OPERATING REQUIREMENTS	hdr
Fuel use: limited to sub-bituminous coal, boiler cleaning agents, distillate oil, oily coal, used oil, wastewater treatment plant sludge, oily paper-based floor dry, pipeline natural gas, propane, and oily materials (includes mixtures of earth substrate (soil, rocks, sod, etc.) or man-made petroleum adsorption material and various petroleum derived fuels (hydraulic, transformer (less than 50 ppm PCB), crankcase or lubricating oils, diesel fuel, and crude oil)). Note: the Permittee is prohibited from using oily materials or wastewater treatment plant sludge as fuel until the Permittee satisfactorily completes the performance testing requirements for these fuels under EU003.	Minn. R. 7007.0800, subp. 2
Boiler cleaning agents limited to: EDTA type and Ammonium Bromate, are generated on-site, 5% of total mass input, oxygen limited to 3% or greater, agents may only be burned while the boiler is operating at 75 percent of rated capacity or greater.	Minn. R. 7007.0800, subp. 2
Burn off-specification and on-specification used oil in accordance with Minn. R. ch. 7045, and not to exceed 2,456 gallons per hour.	Minn. R. 7007.0800, subp. 2
Vent all emissions to a selective catalytic reduction system (CE 020), a fabric filter (CE 021), and a wet flue gas desufurization system (CE 022).	Minn. R. 7007.0800, subp. 2
CONTINUOUS MONITORING	hdr
Measure all opacity, SO2, NOx, and CO2 emissions from affected units in accordance with 40 CFR Section 75.10. See GP 002 for requirements regarding opacity monitoring, and GP 003 for requirements regarding SO2 and NOx monitoring. The SO2 and NOx monitors shall be capable of producing emission rates in units of lb/mmBtu on a one-hour average, a three-hour average and on a 30-day rolling average. The opacity monitor required by this permit shall be located after the fabric filter and prior to the flue gas desulfurization unit.	40 CFR Section 75.10; Minn. R. 7017.1020; 40 CFR pt. 64
Operate a continuous emission monitor to measure all EU 003 CO emissions. The monitor shall be capable of producing emission rates in units of lb/mmBtu on a 24-hour rolling average. See MR 024 for requirements regarding CO monitoring.	Title I Condition: monitoring for BACT limit; Minn. R. 7007.0800, subp. 4
Operate and maintain the continuous opacity monitor as a partial indicator of compliance with the particulate matter limit.	40 CFR pt. 64
Mercury Emissions Monitoring: Use a Hg CEMS to measure Hg emissions from EU 003 by July 1, 2007. Additional Hg monitoring requirements are located under subject item MR 025.	Minn. Stat. Section 216B.681
Establish Baseline Mercury Emission Rate: Use mercury monitors to establish the baseline mercury emission rate for EU 003. This is a state only requirement and is not enforceable by the EPA administrator and citizens under the Clean Air Act.	Minn. Stat. Section 216B.681
PERFORMANCE TESTING	hdr
Initial Performance Test: due 180 days after achieving maximum capacity for PM and PM10 after modification of Boiler 3 and its pollution control equipment stream. This testing was completed March 30 - April 1, 2010.	Minn. R. 7017.2020, subp. 1 40 CFR pt. 64
Initial Performance Test: due 180 days after achieving maximum capacity for hydrogen fluoride after modification of Boiler 3 and its pollution control equipment stream. This testing was completed March 30 - April 1, 2010.	Title I Condition: to avoid major modification classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Initial Performance Test: due 180 days after achieving maximum capacity for Lead after modification of Boiler 3 and its pollution control equipment stream. This testing was completed March 30 - April 1, 2010.	Title I Condition: to avoid major modification classification under 40 CFR Section 52.21 and Minn. R. 7007.3000

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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
Performance Test: due 30 days after Performance Test Notification (written) of intent to conduct a performance test while burning waste water sludge. The test shall be for determining compliance with the particulate matter emission limit in Minn. R. 7011.0510, subp. 1. The Permittee shall also concurrently measure CO emissions. Except for the purpose of conducting this performance test, the Permittee shall not use this material as a fuel until the Permittee receives notification from the agency that compliance was demonstrated during the Waste Water Sludge Performance Test.	Minn. R. 7017.2020, subp. 1
Performance Test: due 30 days after Performance Test Notification (written) of intent to conduct a performance test while burning oily materials. The test shall be for determining compliance with the particulate matter emission limit in Minn. R. 7011.0510, subp. 1. The Permittee shall also concurrently measure CO emissions. Except for the purpose of conducting this performance test, the Permittee shall not use this material as a fuel until the Permittee receives notification from the agency that compliance was demonstrated during the Oily Materials Performance Test.	Minn. R. 7017.2020, subp. 1.

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Compliance Assurance Monitoring Plan: Sixty days after return to regular operation as defined in this permit, submit a plan for developing opacity magnitude and duration levels to be used as triggers for fabric filter investigation. This plan will also identify specific investigation actions to be taken by plant personnel when the triggers are reached. Submit trigger levels and related specific actions with 180 days after return to regular operation in the form of a major amendment application. Implement plan upon submittal. Terms identified in the permit application will be incorporated as permit conditions.	Minn. R. 7007.0800, subp. 4; 40 CFR pt. 64

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 004 Power Boiler 4**

Associated Items: CE 004 Venturi Scrubber

CE 005 Electrostatic Precipitator - High Efficiency

CE 006 Spray Tower

CE 027 LNB/SOFA

CE 028 ROTA-Mix SNCR

GP 004 Boilers 1-4 Sulfur Dioxide Limits

MR 026 Blr 4 Mercury

MR 040 Blr 4 Opacity

MR 041 Blr 4 Air Flow

MR 042 Blr 4 SO2

MR 043 Blr 4 NOx

MR 044 Blr 4 CO2

MR 045 Blr 4 CO

SV 004

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.10 lbs/million Btu heat input	Title I Condition: 40 CFR Section 52.21(j) PSD BACT limit and ambient impacts analysis; 40 CFR Section 60.42(a)(1)
Opacity: less than or equal to 20 percent opacity based on a six-minute average, except for one six-minute average per hour not to exceed 27%.	40 CFR Section 60.42(a)(2); Minn. R. 7011.0555
See GP 004 for sulfur dioxide limits.	hdr
Comply with the applicable Acid Rain emissions limitation for sulfur dioxide. Takes effect for years beginning January 1, 2000.	40 CFR Section 72.9(c)(1)(ii), 40 CFR Section 72.9(g)(4)
Nitrogen Oxides: less than or equal to 0.7 lbs/million Btu heat input using 3-hour Average for solid fossil fuels, less than 0.3 lb/mmBtu from liquid fossil fuels, and less then 0.2 lb/mmBtu for gaseous fossil fuels. When fossil fuels are burned simultaneously in any combination, the applicable standard shall be determined by proration using the following formula: PS = [0.2x + 0.3y + 0.7z]/(x+y+z) where PS is the prorated NOx standard, x is the % heat input from gaseous fossil fuels, y is the % heat input from liquid fossil fuels, and z is the % heat input from solid fossil fuels.	Title I Condition: 40 CFR Section 52.21(j) PSD BACT limit and ambient impacts analysis; 40 CFR Section 60.44
NOx Averaging Plan Maintain an annual average NOx emission rate of 0.40 lbs/MMBtu and limit the annual heat input to less than or equal to 33,000,000 mmBtu per year. OR Maintain a Btu-weighted annual average emission rate in lbs/mmBtu, averaged over the units specified in the NOx averaging plan, that is less than or equal to the Btu-weighted annual average emission rate averaged over the same units had they each been operated during the same period of time in compliance with the applicable emission limitations in 40 CFR Sections 76.5, 76.6, or 76.7. Units covered in the plan are: Plant — Boiler ID# Clay Boswell — 1, 2, 3, 4 Syl Laskin — 1, 2 Taconite Harbor — 1, 2, 3	40 CFR Section 76.11; Minn. R. 7011.0553
Carbon Monoxide: less than or equal to 0.15 lbs/million Btu heat input using 30-day Rolling Average . This limit does not apply during periods of startup, shutdown, or malfunction. This limit applies upon return of EU 004 to regular operation (as defined in this permit) following modification of the boiler as authorized by permit No. 06100004-005.	Title I Condition: 40 CFR Section 52.21(j) PSD BACT limit

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Carbon Monoxide: less than or equal to 28,826 lbs/hour using 1-Hour Average . This limit applies only during startup and shutdown upon return of EU 004 to regular operation (as defined in this permit) following modification of the boiler as authorized by permit No. 06100004-005.	Title I Condition: 40 CFR Section 52.21(j) PSD BACT limit
OPERATING REQUIREMENTS	hdr
Fuel use: limited to sub-bituminous coal, boiler cleaning agents, distillate oil, oily coal, oily paper-based floor dry, used oil, pipeline natural gas, and propane.	Minn. R. 7007.0800, subp. 2
Boiler cleaning agents limited to: EDTA type and Ammonium Bromate, are generated on-site, 5% of total mass input, oxygen limited to 3% or greater, agents may only be burned while the boiler is operating at 75 percent of rated capacity or greater.	Minn. R. 7007.0800, subp. 2
Burn off-specification and on-specification used oil in accordance with Minn. R. ch. 7045, not to exceed 3824 gallons/hour (approximately 10 percent of rated capacity of 5,109 mmBtu/hour) on an hourly basis.	Minn. R. 7007.0800, subp. 2
Maintain SV 004 exit flue gas temperature at a minimum of 135 degrees F.	Minn. R. ch. 7009
Vent all emissions to a venturi scrubber, electrostatic precipitator and spray tower.	Title I Condition: control of particulate matter and sulfur dioxide
Regular Operation for Unit 4 is defined as operation at more than 320 gross MW of load for more than 14 consecutive days after start-up of the unit is completed after installation of LNB/OFA equipment.	Minn. R. 7007.0800, subp. 2
Startup and Shutdown Operations: EU 004 startup and shutdown operation is defined as all EU 004 operation during which the gross MW electric production is less than or equal to 320 MW.	Title I Condition: 40 CFR Section 52.21(j) PSD BACT limit
PERFORMANCE TESTING	hdr
Performance Test: due before end of each 60 months starting 09/27/1997 to determine compliance with the Title I condition particulate matter emission limit. The tests shall be conducted at an interval not to exceed 60 months between test dates.	Title I Condition: monitoring for the particulate emission limit set under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
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.	Miinn. 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.
CONTINUOUS MONITORING REQUIREMENTS	hdr
Measure all Opacity, SO2, NOx, and CO2 emissions from affected units in accordance with 40 CFR Section 75.10. See GP 002 for requirements regarding opacity monitoring, and GP 003 for requirements regarding SO2 and NOx monitoring. The SO2 and NOx monitors shall be capable of producing emission rates in units of lb/mmBtu on a one-hour average, a three hour average and on a 30-day rolling average. Using the 30-day averages for SO2, calculate and submit the annual SO2 emission rate along with the annual compliance certification.	40 CFR Section 75.10 and Minn. R. ch. 7017
Operate and maintain the continuous opacity monitor as a partial indicator of compliance with the particulate matter limit.	40 CFR pt. 64
Measure stack gas exit temperature.	Minn. R. ch. 7009
Mercury Emissions Monitoring: Use a Hg CEMS to measure Hg emissions from EU 004 by July 1, 2007. Additional Hg monitoring requirements are located under subject item MR 026.	Minn. Stat. Section 216B.681
Establish Baseline Mercury Emission Rate: Use mercury monitors to establish the baseline mercury emission rate for EU 004. This is a state only requirement and is not enforceable by the EPA administrator and citizens under the Clean Air Act.	Minn. Stat. Section 216B.681
Install and operate a CO continuous emission monitor (CEMS) according to 40 CFR pt. 60, Appendix B, Performance Standard 4 to measure all CO emissions. The monitor shall produce emission rates in units of lb/mmBtu on a 30-day rolling average and lb/hr on a 1-hour average. The CO CEMS shall be installed upon Unit #4 startup following the modifications authorized by this permit (No. 06100004-005). See subject item MR 045 for requirements regarding CO monitoring.	Title I Condition: 40 CFR Section 52.21 monitoring for BACT limit; 40 CFR pt. 60, Appendix B; Minn. R. 7017.1006; Minn. R. 7017.1160, subp. 3
Determination of CO lb/mmBtu and lb/hr Emission Rates: The Permittee shall determine CO lb/mmBtu 30-day rolling emission rates by first determining the one-minute CO emissions on a lb/mmBtu basis using the following equation: CO lb/mmBtu = [(CO ppmv) * (CO mol wt) * (2.59E-09) * (Fc-factor)] * [100/(CO2 %)] where: CO ppmv = CO measured by MR 045 (ppmv) CO mol wt = CO molecular weight (28) 2.59E-09 = combustion calculation formula constant (lb/dscf) Fc-Factor = subbituminous coal CO2-based Fc-factor, dscf CO2/mmBtu established by EPA (1840 as of 02/2009) 100 = percent correction factor CO2 % = CO2 % (by volume) measured by EU 004 CO2 CEMS (MR 044) One-minute lb/mmBtu CO emissions are used to calculate the hourly block average CO lb/mmBtu emission rate. Hourly average emission rates are averaged over each 30-day period to determine the 30-day rolling average CO lb/mmBtu emission rate. (continued)	Minn. R. 7007.0800, subp. 4.B

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Determination of CO lb/mmBtu and lb/hr Emission Rates (continued): Hourly CO lb/hr emission rates are determined once each hour using the following equation: CO lb/hr = [CO lb/mmBtu (hourly)] * [Heat Input (hourly)] where: CO lb/hr = hourly CO emissions in pounds per hour CO lb/mmBtu (hourly) = lb/mmBtu CO hourly emission rate determined with CO CEMS (MR 045) Heat Input (hourly) = heat input during the hour corresponding to the lb/mmBtu CO emission rate determined with the Data Acquisition Handling and System	Minn. R. 7007.0800, subp. 4.B
REPORTING - refer to Table B for additional EU 004 reporting requirements	hdr
Submit the calculations and annual average emission rate of sulfur dioxide along with the annual compliance certification.	Minn. R. 7021.0050

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 007 Emergency Generator 1**

Associated Items: SV 007

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Fuel type: liquid propane only	Minn. R. 7005.0100, subp. 35a

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 009 Emergency Generator 3**

Associated Items: SV 009 Diesel Emergency Generator 3

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Fuel type: Diesel fuel oil or distillate fuel oil only	Minn. R. 7005.0100, subp. 35a
Fuel Supplier Certification: The Permittee shall obtain and maintain a fuel supplier certification for each shipment of fuel oil, certifying that the sulfur content does not exceed 0.5% by weight.	Minn. R. 7007.0800, subps. 4 & 5

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 010 Emergency Generator 4**

Associated Items: SV 010

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Fuel type: Diesel fuel oil or distillate fuel oil only	Minn. R. 7005.0100, subp. 35a
Fuel Supplier Certification: The Permittee shall obtain and maintain a fuel supplier certification for each shipment of fuel oil, certifying that the sulfur content does not exceed 0.5% by weight.	Minn. R. 7007.0800, subps. 4 & 5

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 011 Coal Handling-Crusher Building**

Associated Items: CE 007 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 011

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Operate fabric filter when emissions from the equipment are vented to the atmosphere that meets the requirements of GP005.	Minn. Stat. Section 116.07, subd. 4(a); Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 012 Coal Handling-Crusher & Sampler House**

Associated Items: CE 008 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 012

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Operate fabric filter when emissions from the equipment are vented to the atmosphere that meets the requirements of GP005.	Minn. Stat. Section 116.07, subd. 4(a); Minn. R. 7007.0800, subp. 2

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 013 Fly Ash - #1&2 Storage Silo**

Associated Items: CE 009 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 013

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Operate fabric filter when emissions from the equipment are vented to the atmosphere that meets the requirements of GP005.	Minn. Stat. Section 116.07, subd. 4(a); Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 014 Fly Ash - #1&2 Ash Hoppers**

Associated Items: CE 010 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 014

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Operate fabric filter when emissions from the equipment are vented to the atmosphere that meets the requirements of GP005.	Minn. Stat. Section 116.07, subd. 4(a); Minn. R. 7007.0800, subp. 2

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 015 Hg Additive Handling and Storage**

Associated Items: CE 013 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 015 Additive Handling and Storage

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.01 grains/dry standard cubic foot unless required to further reduce emissions to comply with the less stringent of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Title I Condition: to avoid major modification classification under 40 CFR Section 52.21 and Minn. R. 7007.3000, also meets the requirements of Minn. R. 7011.0715 subp. 1(A)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)
OPERATING CONDITIONS	hdr
Vent all emissions to a fabric filter that meets the requirements of GP005.	Title I Condition: to avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 017 Fly Ash Storage - Bin Vent**

Associated Items: CE 015 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 017 Fly Ash Storage-Bin Vent

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.005 grains/dry standard cubic foot unless required to further reduce emissions to comply with the less stringent of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Title I Condition: to limit potential emission increases to less than significant under 40 CFR 52.21 and Minn. R. 7007.3000, also meets the requirements of Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)
OPERATING CONDITIONS	hdr
Vent all emissions to a fabric filter that meets the requirements of GP005.	Title I Condition: to avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 018 Fly Ash Loadout**

Associated Items: SV 018 Fly Ash Loadout via general vent

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.30 grains/dry standard cubic foot unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)
OPERATING REQUIREMENTS	hdr
Add moisture to the flyash prior to loadout. Operation of the unit without moisture addition shall be a reportable deviation.	Minn. R. 7007.0800, subp. 2

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 019 Limestone Storage - Bin Vent**

Associated Items: CE 016 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 019 Limestone Storage - Bin Vent

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.005 grains/dry standard cubic foot unless required to further reduce emissions to comply with the less stringent of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Title I Condition: to limit potential emission increases to less than significant under 40 CFR 52.21 and Minn. R. 7007.3000, also meets the requirements of Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)
OPERATING CONDITIONS	hdr
Vent all emissions to a fabric filter that meets the requirements of GP005.	Title I Condition: to avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 020 Limestone Day Bin 1**

Associated Items: CE 017 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 020 Limestone Day Bin 1 - Bin Vent

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.005 grains/dry standard cubic foot unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Title I Condition: to limit potential emissions increases to less than significant under 40 CFR 52.21 and Minn. R. 7007.3000, also meets Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)
OPERATING REQUIREMENTS	hdr
Vent all emissions to a fabric filter that meets the requirements of GP005.	Title I Condition: to avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 021 Limestone Day Bin 2**

Associated Items: CE 018 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 021 Limestone Day Bin 2 - Bin Vent

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.005 grains/dry standard cubic foot unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Title I Condition: to limit potential emission increases to less than significant under 40 CFR 52.21 and Minn. R. 7007.3000 , also meets Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)
OPERATING REQUIREMENTS	hdr
Vent all emissions to a fabric filter that meets the requirements of GP005.	Title I Condition: to avoid major source classification under 40 CFR Section 52.21 and Minn. R. 7007.3000

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **EU 023 Emergency Gen. Unit 3 - 300Kw - CI**

Associated Items: SV 022 Emergency Generator - Unit 3

What to do	Why to do it
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Opacity: less than or equal to 20 percent during accelartion mode; 15 percent during lugging mode; and 50 percent during the peaks in either the acceleration or lugging modes.	40 CFR Section 60.4205(b)
Carbon Monoxide: less than or equal to 3.0 grams per kilowatt-hour.	Title I Condition: 40 CFR Section 52.21(j), BACT emission limit, also meets the requirements of 40 CFR Section 60.4205(b)
Non-methane Hydrocarbons plus Nitrogen Oxides: Less than or equal to 4.0 grams per kilowatt-hour	40 CFR Section 60.4205(b)
Total Particulate Matter: less than or equal to 0.20 grams per kilowatt-hour.	40 CFR Section 60.4205(b)
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input . Combustion of fuel with a sulfur content of 0.5 percent by weight or less meets this requirement.	Minn. R. 7011.2300, subp. 2
OPERATING REQUIREMENTS	hdr
Beginning October 1, 2007, use diesel fuel that meets the requirements of 40 CFR Section 80.510(a): (1) Sulfur content. 500 parts per million (ppm) maximum. (2) Cetane index or aromatic content, as follows: (i) A minimum cetane index of 40; or (ii) A maximum aromatic content of 35 volume percent.	40 CFR Section 60.4207(a)
Beginning October 1, 2010, use diesel fuel that meets the requirements of 40 CFR Section 80.510(b): (1) Sulfur content. 15 ppm maximum for Non-Road diesel fuel. (2) Cetane index or aromatic content, as follows: (i) A minimum cetane index of 40; or (ii) A maximum aromatic content of 35 volume percent.	40 CFR Section 60.4207(b)
Owners and operators of pre-2011 model year stationary CI ICE subject to this subpart may petition the Administrator for approval to use remaining non-compliant fuel that does not meet the fuel requirements of paragraphs (a) and (b) of this section beyond the dates required for the purpose of using up existing fuel inventories. If approved, the petition will be valid for a period of up to 6 months. If additional time is needed, the owner or operator is required to submit a new petition to the Administrator.	40 CFR Section 60.4207(c)
Operate and maintain the engine according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. Only change those settings that are permitted by the manufacturer. The permittee shall also meet the requirements of 40 CFR parts 89, 94, and 1068 as they apply to you.	40 CFR Section 60.4211(a)
Meet the definition of "Emergency stationary internal combustion engine" - any stationary internal combustion engine whose operation is limited to emergency situations and required testing and maintenance. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc. Stationary CI ICE used to supply power to an electric grid or that supply power as part of a financial arrangement with another entity are not considered to be emergency engines.	40 CFR Section 60.4219

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Operate the emergency engine for the purpose of maintenance checks and readiness testing provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor; or the insurance company associated with the engine. Maintenance checks and readiness testing for the emergency engine is limited to 100 hours per year. Anyone may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing. A petition is not required if the owner or operator maintains records indicating that the Federal State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. There is no time limit of the use of emergency stationary ICE in emergency situations. Any operation other than emergency operation, maintenance and testing, as permitted in Section 60.4211, is prohibited.	40 CFR Section 60.4211(e)
After December 31, 2008, the permittee may not install a stationary CI ICE that does not meet the applicable requirements for 2007 model year engines.	40 CFR Section 60.4208(a)
MONITORING	hdr
Install a non-resettable hour meter prior to startup of the engine.	40 CFR Section 60.4209(a)
PERFORMANCE TESTING	hdr
If the permittee conduct performance tests, the tests must be completed in accordance with 40 CFR Section 60.4212(a) through 40 CFR Section 60.4212(d).	40 CFR Section 60.4212
Performance Test: due 180 days after achieving maximum capacity for CO emissions.	Title I Condition: monitoring for CO BACT limit
COMPLIANCE DEMONSTRATION	hdr
Operate and maintain the unit in accordance with the standards as required by 40 CFR Section 60.4205, according to the manufacturer's written instructions, or according to the procedures developed by the owner or operator that are approved by the engine manufacturer, for the entire life of the engine. Settings for the unit may not be changed unless permitted by the manufacturer.	40 CFR Section 60.4206 and 40 CFR Section 60.4211(a)
The permittee must demonstrate compliance by purchasing an engine certified to conform with the emission standards listed in 40 CFR Section 52.05(b) for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.	40 CFR Section 60.4211(c)
Recordkeeping - Hours of operation: The permittee shall maintain documentation on-site that the unit is to be used for emergency (including training and testing) purposes, only that qualifies under the limitation above of 100 hours per year for checks and readiness testing. (40 CFR Section 60.4211(e)).	Minn. R. 7007.0800, subps. 4 and 5
Recordkeeping - Fuel Type: The permittee shall keep records of the type of fuel burned in this unit when in operation.	Minn. R. 7007.0800, subp. 4 and 5
The permittee shall maintain records of the operation of the engine in emergency service that is recorded through the non-resettable hour meter. The record must include the time of operation and the reason the generator was in operation during that time. This requirement is applicable when using a generator whose model year is 2012 or later, if the emergency engine also does not meet the standards for non-emergency engines for the 2012 model.	40 CFR Section 60.4214(b)
40 CFR Part 63, Subp. ZZZZ	hdr
Initial Notification: Submit an initial notification to the administrator as required by 40 CFR Section 63.9 within 120 days of initial startup. The initial notification shall include the following information: (i) The name and address of the owner or operator; (ii) The address (i.e., physical location) of the affected source; (iii) An identification of the relevant standard, or other requirement, that is the basis of the notification and the source's compliance date; (iv) A brief description of the nature, size, design, and method of operation of the source and an identification of the types of emission points within the affected source subject to the relevant standard and types of hazardous air pollutants emitted; and (v) A statement of whether the affected source is a major source or an area source.	40 CFR Section 63.9(b)(2)

In addition, the notification shall contain a statement that the facilities stationary RICE has no additional requirements and explain the basis of the exclusion of the unit from the requirements of 40 CFR Part 63, Subp. ZZZZ (for example, that it operates exclusively as an emergency/limited use stationary RICE or is less than 500 hp).	continued from above

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **CE 001 Fabric Filter - High Temperature, i.e., T>250 Degrees F**

Associated Items: EU 001 Power Boiler 1

What to do	Why to do it
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 99 percent collection efficiency	Title I Condition and Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the fabric filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the recorded opacity is outside the permitted range; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the opacity to within the permitted range, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14
COMPLIANCE ASSURANCE MONITORING	hdr
The owner or operator shall comply with the approved monitoring for opacity. The owner or operator shall measure the opacity by means of a COM. Parameter range indicating normal operation is opacity as a six-minute average less than or equal to 20 percent opacity.	40 CFR Section 64.3(b) or (d) 40 CFR Section 64.6(c)(1)(i) 40 CFR Section 64.6)c)(1)(ii) Minn. R. 7017.0200
The owner or operator shall conduct the monitoring required under this part upon permit issuance.	40 CFR Section 64.7(a) Minn. R. 7017.0200
The owner or operator shall maintain the monitoring instruments and recorders, including but not limited to maintaining necessary parts for routine repairs of the monitoring equipment.	40 CFR Section 64.7(b) Minn. R. 7017.0200
Continuous Operation: Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities, the owner or operator shall conduct all monitoring in continuous operation at all times the pollutant-specific emissions unit is operating.	40 CFR Section 64.7(c) Minn. R. 7017.0200
Response to excursions or exceedances: Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.	40 CFR Section 64.7(d)(1) Minn. R. 7017.0200
Documentation of need for improved monitoring: After approval of monitoring under this part, if the owner or operator identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the owner or operator shall promptly notify the permitting authority and, if necessary, submit a proposed modification to the part 70 permit to address the necessary monitoring changes.	40 CFR Section 64.7(e) Minn. R. 7017.0200
The owner or operator shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to 64.8 and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained. The owner or operator may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.	40 CFR Section 64.9(b) Minn. R. 7017.0200
The owner or operator shall report exceedances or excursions under Section 64.7 and Section 64.8 when the exceedance or excursion are greater than the limit and averaging period with the Semiannual Deviations Report.	40 CFR Section 64.9(a)(2)(i) Minn. R. 7017.0200

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **CE 002 Fabric Filter - High Temperature, i.e., T>250 Degrees F**

Associated Items: EU 002 Power Boiler 2

What to do	Why to do it
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 99 percent collection efficiency	Title I Condition and Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the fabric filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the recorded opacity is outside the permitted operating range; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the opacity to within the permitted range, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14
COMPLIANCE ASSURANCE MONITORING	hdr
The owner or operator shall comply with the approved monitoring for opacity. The owner or operator shall measure the opacity by means of a COM. Parameter range indicating normal operation is opacity as a six-minute average less than or equal to 20 percent opacity.	40 CFR Section 64.3(b) or (d) 40 CFR Section 64.6(c)(1)(i) 40 CFR Section 64.6)c)(1)(ii) Minn. R. 7017.0200
The owner or operator shall conduct the monitoring required under this part upon permit issuance.	40 CFR Section 64.7(a) Minn. R. 7017.0200
The owner or operator shall maintain the monitoring instruments and recorders, including but not limited to maintaining necessary parts for routine repairs of the monitoring equipment.	40 CFR Section 64.7(b) Minn. R. 7017.0200
Continuous Operation: Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities, the owner or operator shall conduct all monitoring in continuous operation at all times the pollutant-specific emissions unit is operating.	40 CFR Section 64.7(c) Minn. R. 7017.0200
Response to excursions or exceedances: Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.	40 CFR Section 64.7(d)(1) Minn. R. 7017.0200
Documentation of need for improved monitoring: After approval of monitoring under this part, if the owner or operator identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the owner or operator shall promptly notify the permitting authority and, if necessary, submit a proposed modification to the part 70 permit to address the necessary monitoring changes.	40 CFR Section 64.7(e) Minn. R. 7017.0200
The owner or operator shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to 64.8 and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained. The owner or operator may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.	40 CFR Section 64.9(b) Minn. R. 7017.0200
The owner or operator shall report exceedances or excursions under Section 64.7 and Section 64.8 when the exceedance or excursion are greater than the limit and averaging period with the Semiannual Deviations Report.	40 CFR Section 64.9(a)(2)(i) Minn. R. 7017.0200

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **CE 004 Venturi Scrubber**

Associated Items: EU 004 Power Boiler 4

What to do	Why to do it
A minimum of one venturi slurry pump for each particulate scrubber module in service shall be operated at all times during the operation of EU004.	Title 1 Condition: monitoring for the particulate matter emission limit set under 40 CFR Section 52.21 and 40 CFR Section 60.42(a)(1)
COMPLIANCE ASSURANCE MONITORING	hdr
The owner or operator shall comply with the approved monitoring for opacity. The owner or operator shall measure the opacity by means of a COM. Parameter range indicating normal operation is opacity as a six-minute average less than or equal to 20 percent opacity.	40 CFR Section 64.3(b) or (d) 40 CFR Section 64.6(c)(1)(i) 40 CFR Section 64.6)c)(1)(ii) Minn. R. 7017.0200
The owner or operator shall conduct the monitoring required under this part upon permit issuance.	40 CFR Section 64.7(a) Minn. R. 7017.0200
The owner or operator shall maintain the monitoring instruments and recorders, including but not limited to maintaining necessary parts for routine repairs of the monitoring equipment.	40 CFR Section 64.7(b) Minn. R. 7017.0200
Continuous Operation: Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities, the owner or operator shall conduct all monitoring in continuous operation at all times the pollutant-specific emissions unit is operating.	40 CFR Section 64.7(c) Minn. R. 7017.0200
Response to excursions or exceedances: Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.	40 CFR Section 64.7(d)(1) Minn. R. 7017.0200
Documentation of need for improved monitoring: After approval of monitoring under this part, if the owner or operator identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the owner or operator shall promptly notify the permitting authority and, if necessary, submit a proposed modification to the part 70 permit to address the necessary monitoring changes.	40 CFR Section 64.7(e) Minn. R. 7017.0200
The owner or operator shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to 64.8 and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained. The owner or operator may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.	40 CFR Section 64.9(b) Minn. R. 7017.0200
The owner or operator shall report exceedances or excursions under Section 64.7 and Section 64.8 when the exceedance or excursion are greater than the limit and averaging period with the Semiannual Deviations Report.	40 CFR Section 64.9(a)(2)(i) Minn. R. 7017.0200

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **CE 005 Electrostatic Precipitator - High Efficiency**

Associated Items: EU 004 Power Boiler 4

What to do	Why to do it
When bypass reheat is required to maintain compliance with the minimum flue gas exit temperature specified under SV004 in this permit, a portion of the total flue gas from EU004 may bypass the particulate matter emissions scrubber (CE004) and sulfur dioxide absorber (CE006), and be treated by a minimum of one unit of CE005 (electrostatic precipitator). When required to operate, CE005 shall not be operated with more than three of the bus-sections de-energized. When bypass reheat is not required to maintain compliance with the minimum flue gas exit temperature, all of the EU004 flue gas shall be treated by the particulate matter emissions scrubber (CE004) and sulfur dioxide absorber (CE006). After closing the inlet and outlet dampers to CE005, the Permittee may de-energize CE005.	Title 1 Condition: To ensure compliance with the particulate matter emission limit set under 40 CFR Section 52.21 and 40 CFR Section 60.42(a)(1)
COMPLIANCE ASSURANCE MONITORING	hdr
The owner or operator shall comply with the approved monitoring for opacity. The owner or operator shall measure the opacity by means of a COM. Parameter range indicating normal operation is opacity as a six-minute average less than or equal to 20 percent opacity	40 CFR Section 64.3(b) or (d) 40 CFR Section 64.6(c)(1)(i) 40 CFR Section 64.6)c)(1)(ii) Minn. R. 7017.0200
The owner or operator shall conduct the monitoring required under this part upon permit issuance.	40 CFR Section 64.7(a) Minn. R. 7017.0200
The owner or operator shall maintain the monitoring instruments and recorders, including but not limited to maintaining necessary parts for routine repairs of the monitoring equipment.	40 CFR Section 64.7(b) Minn. R. 7017.0200
Continuous Operation: Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities, the owner or operator shall conduct all monitoring in continuous operation at all times the pollutant-specific emissions unit is operating.	40 CFR Section 64.7(c) Minn. R. 7017.0200
Response to excursions or exceedances: Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.	40 CFR Section 64.7(d)(1) Minn. R. 7017.0200
Documentation of need for improved monitoring: After approval of monitoring under this part, if the owner or operator identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the owner or operator shall promptly notify the permitting authority and, if necessary, submit a proposed modification to the part 70 permit to address the necessary monitoring changes.	40 CFR Section 64.7(e) Minn. R. 7017.0200
The owner or operator shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to 64.8 and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained. The owner or operator may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.	40 CFR Section 64.9(b) Minn. R. 7017.0200
The owner or operator shall report exceedances or excursions under Section 64.7 and Section 64.8 when the exceedance or excursion are greater than the limit and averaging period with the Semiannual Deviations Report.	40 CFR Section 64.9(a)(2)(i) Minn. R. 7017.0200

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **CE 021 Fabric Filter - High Temperature, i.e., T>250 Degrees F**

Associated Items: EU 003 Power Boiler 3

What to do	Why to do it
The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 99 percent collection efficiency	Minn. R. 7007.0800, subp. 2 and 14
The Permittee shall operate and maintain the fabric filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - the recorded opacity is outside the permitted range; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the opacity to within the permitted range, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14
COMPLIANCE ASSURANCE MONITORING	hdr
The owner or operator shall comply with the approved monitoring for opacity. The owner or operator shall measure the opacity by means of a COM. Parameter range indicating normal operation is opacity as a six-minute average less than or equal to 20 percent opacity.	40 CFR Section 64.3(b) or (d) 40 CFR Section 64.6(c)(1)(i) 40 CFR Section 64.6)c)(1)(ii) Minn. R. 7017.0200
An excursion or exceedance from the specified parameter range occurs when: 1. the measured pressure drop (observed once per operating day) deviates from the specified minimum or maximum by 0.1 inch WC or more.	40 CFR Section 64.6(c)(2)
The owner or operator shall conduct the monitoring required under this part upon permit issuance.	40 CFR Section 64.7(a) Minn. R. 7017.0200
The owner or operator shall maintain the monitoring instruments and recorders, including but not limited to maintaining necessary parts for routine repairs of the monitoring equipment.	40 CFR Section 64.7(b) Minn. R. 7017.0200
Continuous Operation: Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities, the owner or operator shall conduct all monitoring in continuous operation at all times the pollutant-specific emissions unit is operating.	40 CFR Section 64.7(c) Minn. R. 7017.0200
Response to excursions or exceedances: Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.	40 CFR Section 64.7(d)(1) Minn. R. 7017.0200
Documentation of need for improved monitoring: After approval of monitoring under this part, if the owner or operator identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the owner or operator shall promptly notify the permitting authority and, if necessary, submit a proposed modification to the part 70 permit to address the necessary monitoring changes.	40 CFR Section 64.7(e) Minn. R. 7017.0200
The owner or operator shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to 64.8 and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained. The owner or operator may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.	40 CFR Section 64.9(b) Minn. R. 7017.0200
The owner or operator shall report exceedances or excursions under 64.7 and 64.8 when the exceedance or excursion are greater than the limit and averaging period with the Semiannual Deviations Report.	40 CFR Section 64.9(a)(2)(i) Minn. R. 7017.0200

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: FS 004 Unpaved Roads

What to do	Why to do it
OPERATING CONDITIONS These requirements apply after 4/1/2007.	hdr
Fugitive Dust Control - EU003 dry fly ash haul roads: - apply at least 3 gallons for each 100 square feet every 24 hours, - a rainfall of at least 0.1 inch during the previous 24 hours shall substitute for one water application, - if the road cannot be watered because the ambient air temperature is less than 35 degrees F or if conditions due to weather, in combination with the application of water, could create hazardous driving conditions, then watering shall be postponed and accomplished as soon as the conditions preventing water application have abated, - water application is not required on days when there is no vehicle traffic, and - following any day when water is not applied based on the absence of traffic, water shall be applied within 3 hours of commencement of vehicle traffic, unless another criterion for not watering is met.	Minn. R. 7011.0150
RECORDKEEPING	hdr
Maintain daily records of: - whether there was 0.1 inch or more of rainfall in the last 24 hours, - temperature, - if conditions exist where watering would create hazardous driving, - dates of watering and areas watered, and - amounts of water applied.	Minn. R. 7007.0800, subp. 4

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: FS 007 Paved Roads

What to do	Why to do it
OPERATING REQUIREMENTS These requirements apply after 4/1/2007.	hdr
Under dry pavement conditions, if the temperature is less than 35 degrees, or if conditions due to weather in combination with the application of water, could create hazardous driving conditions, paved plant roads shall be swept weekly. Sweeping is not required if the pavement is snow or ice covered. Under dry pavement conditions, if the temperature is greater than 35 degrees, and conditions due to weather in combination with the application of water will not create hazardous driving conditions, paved plant roads shall be swept and flushed weekly.	Title I Condition: to avoid major modification classification under 40 CFR Section 52.21 and Minn. R. 7007.3000
RECORDKEEPING	hdr
Maintain daily records of: - whether and which areas are snow and ice covered, - whether and which areas are dry, - dates of sweeping and areas swept, - dates of flushing and areas flushed, and - amounts of water applied when flushing.	Minn. R. 7007.0800, subp. 4

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 020 Blr 1 Opacity**

Associated Items: CM 004 Boiler 1: 20% Opacity, EU001, 6-min ave.

EU 001 Power Boiler 1

GP 002 Opacity Monitors

What to do	Why to do it
CONTINUOUS OPACITY MONITORING SYSTEMS (COMS) Requirements (Additional requirements are located under the associated GP subject item)	hdr
COMS Calibration Error Audit: due before end of each calendar half-year starting 03/28/2007 for MR020. Conduct three point calibration error audits at least 3 months apart but no greater than 8 months apart. Conduct audits in accordance with Minn. R. 7017.1210, subp. 3.	Minn. R. 7017.1210, subp. 3

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 021 Blr 2 Opacity**

Associated Items: CM 005 Boiler 2: 20% Opacity, EU002, 6-min ave.

EU 002 Power Boiler 2

GP 002 Opacity Monitors

What to do	Why to do it
CONTINUOUS OPACITY MONITORING SYSTEMS (COMS) Requirements (Additional requirements are located under the associated GP subject item and in Table B.)	hdr
COMS Calibration Error Audit: due before end of each calendar half-year starting 03/28/2007 for MR021. Conduct three point calibration error audits at least 3 months apart but no greater than 8 months apart. Conduct audits in accordance with Minn. R. 7017.1210, subp. 3.	Minn. R. 7017.1210, subp. 3

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 024 Blr 3 CO**

Associated Items: EU 003 Power Boiler 3

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (Additional requirements are located in Table B.)	hdr
Emissions Monitoring: The owner or operator shall use a CO CEMS to measure EU 003 CO emissions.	Minn. R. 7017.1006
CEMS Relative Accuracy Test Audit (RATA): due before end of each year following CEM Certification Test. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR pt. 60, Appendix F, section 5.1.1.	Minn. R. 7017.1170, subp. 5
Relative Accuracy Test Audit (RATA) Notification: due 30 days before CEMS Relative Accuracy Test Audit (RATA)).	Minn. R. 7017.1180, subp. 2
Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment.	Minn. R. 7017.1090
Monitoring Data: All data points collected by a CEMS shall be used to calculate individual hourly emission averages unless another applicable requirement requires more frequent averaging. In order for an hour of data to be considered, it must contain the following minimum number of data points: A. four data points, equally spaced, if the emission unit operated during the entire hour; B. two data points, at least 15 minutes apart, during periods of monitor calibration or routine maintenance; C. one data point if the emission unit operated for 15 minutes or less during the hour.	Minn. R. 7017.1160, subp. 1 and 2
Quality Assurance Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list.	Minn. R. 7017.1170, subp. 2
CEMS Daily Calibration Drift (CD) Test: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) gas concentrations at least once daily according to the procedures listed in Minn. R. 7017.1170, subp. 3(A) or 3(B) as applicable, and 40 CFR Section 60.13(d)(1) for each pollutant concentration, each diluent monitor, and for each monitor range. The CEMS shall be adjusted whenever the CD exceeds twice the specification of 40 CFR pt. 60, Appendix B. If no span value is specified in the applicable requirement or in a compliance document, the Permittee shall use a span value equivalent to 1.5 times the emission limit. 40 CFR pt. 60, Appendix F, shall be used to determine out-of-control periods for CEMS. Follow the procedures in 40 CFR pt. 60, Appendix F.	Minn. R. 7017.1170, subp. 3
Cylinder Gas Audit: due before end of each calendar half-year following CEM Certification Test, except that a cylinder gas audit (CGA) is not required during any calendar half-year in which a RATA was performed. The initial CGA must be performed within 180 days following certification of the CEMS. The CGAs shall be conducted at least three months apart but no more than eight months apart. A CGA shall be conducted according to the procedures in 40 CFR pt. 60, Appendix F, section 5.1.2. If the monitored emission unit was operated for less than 24 hours during the calendar half-year, a CGA is not required for that calendar half-year.	Minn. R. 7017.1170, subp. 4
Recordkeeping: The owner or operator must retain records of all CEMS 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. 7017.1130

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 025 Blr 3 Mercury**

Associated Items: EU 003 Power Boiler 3

GP 006 Boilers 3 and 4 Mercury Monitors

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements: (Additional requirements are located under the Subject Item EU 003 and in Table B.)	hdr
CEMS QA/QC: The owner or operator shall meet the applicable QA/QC requirements in 40 CFR Section 75.80(e) or as approved by the MPCA.	Minn. Stat. 216B.681
CEMS Relative Accuracy Test Audit (RATA): due before end of each year following CEM Certification Test A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs may be conducted using an alternate test method as approved by the MPCA.	40 CFR Section 75.80(e); Minn. R. 7017.1170, subp. 5
Recordkeeping and Recording: Follow the provisions listed under 40 CFR Section 75.84. This requirement is effective beginning January 1, 2009.	Minn. Stat. 216B.681

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 026 Blr 4 Mercury**

Associated Items: EU 004 Power Boiler 4

GP 006 Boilers 3 and 4 Mercury Monitors

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (Additional requirements are found under the Subject Item EU 004 and in Table B)	hdr
CEMS QA/QC: The owner or operator shall meet the applicable QA/QC requirements in 40 CFR Section 75.80(e) or as approved by the MPCA.	Minn. Stat. 216B.681
CEMS Relative Accuracy Test Audit (RATA): due before end of each year starting 03/28/2007 A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs may be conducted using an alternative test method as approved by the MPCA.	40 CFR Section 75.80(e); Minn. R. 7017.1170, subp. 5
Recordkeeping and Recording: Follow the provisions listed under 40 CFR Section 75.84. This requirement is effective beginning January 1, 2009.	Minn. Stat. 216B.681

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 027 Blr 3 Opacity**

Associated Items: EU 003 Power Boiler 3

GP 002 Opacity Monitors

What to do	Why to do it
CONTINUOUS OPACITY MONITORING SYSTEMS (COMS) Requirements (Additional requirements are located under GP 002 in Tables A and B.)	hdr
COMS Calibration Error Audit: due before end of each calendar half-year starting 03/28/2007 for MR 027. Conduct three point calibration error audits at least 3 months apart but no greater than 8 months apart. Conduct audits in accordance with Minn. R. 7017.1210, subp. 3.	Minn. R. 7017.1210, subp. 3

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 028 Blr 1 SO2**

Associated Items: CM 009 Boilers 1, 2 & 3: SO2, 1-hr ave.

EU 001 Power Boiler 1

GP 003 NOx and SO2 Monitors

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (additional requirements are located under the associated GP subject item and in Table B.)	hdr
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year following CEM Certification Test, i.e., once every two successive QA operating quarters (calendar quarter in which there are at least 168 unit operating hours). Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B. Relative accuracy test audits may be performed annually (i.e., once every four successive QA operating quarters, rather than once every two successive QA operating quarters) if any of the conditions listed in 40 CFR pt. 75, Appendix B, Section 2.3.1.2(a) through Section 2.3.1.2(i) are met.	40 CFR pt. 75, Appendix B, section 2.3.1; Minn. R. 7017.1020
Linearity and Leak Check Test (Acid Rain Program): due before end of each QA operating quarter (as defined in Section 72.) in accordance with procedures in 40 CFR pt. 75, Appendix B, Sections 2.2.1 and 2.2.2, and Appendix A, Section 6.2. Perform a leak check at least once during each QA operating quarter (calendar quarter in which there are at least 168 unit operating hours) and no less than 30 days apart.	40 CFR pt. 75, Appendix B, section 2.2.1 & section 2.2.2; Minn. R. 7017.1020
CEM Certification Test: due 60 days after achieving normal operation but not later than 180 days after initial startup or within 90 days after the due date of the first excess emissions report, whichever is more stringent.	Minn. R. 7017.1050, subp. 1
CEMS Certification Test Plan: due 30 days before CEMS Certification Test.	Minn. R. 7017.1080, subp. 1, 2, & 4
CEMS Certification Test Pretest Meeting: due 7 days before CEMS Certification Test.	Minn. R. 7017.1060, subp. 3
CEMS Certification Test Report - Microfiche or CD Copy: due 105 days after CEMS Certification Test.	Minn. R. 7017.1080, subp. 3
CEMS Certification Test Report - Microfiche or CD Copy: due 105 days after CEMS Certification Test.	Minn. R. 7017.1080, subp. 3

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 029 Blr 1 NOx**

Associated Items: CM 010 Boilers 1 & 2: NOx Title IV

EU 001 Power Boiler 1

GP 003 NOx and SO2 Monitors

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (additional requirements are located under the associated GP subject item and in Table B.)	hdr
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year following CEM Certification Test, i.e., once every two successive QA operating quarters (calendar quarter in which there are at least 168 unit operating hours). Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B. Relative accuracy test audits may be performed annually (i.e., once every four successive QA operating quarters, rather than once every two successive QA operating quarters) if any of the conditions listed in 40 CFR pt. 75, Appendix B, Section 2.3.1.2(a) through Section 2.3.1.2(i) are met.	40 CFR pt. 75, Appendix B, section 2.3.1; Minn. R. 7017.1020
Linearity and Leak Check Test (Acid Rain Program): due before end of each QA operating quarter (as defined in Section 72.) in accordance with procedures in 40 CFR pt. 75, Appendix B, Sections 2.2.1 and 2.2.2, and Appendix A, Section 6.2. Perform a leak check at least once during each QA operating quarter (calendar quarter in which there are at least 168 unit operating hours) and no less than 30 days apart.	40 CFR pt. 75, Appendix B, section 2.2.1 & section 2.2.2; Minn. R. 7017.1020
CEM Certification Test: due 60 days after achieving normal operation but not later than 180 days after initial startup or within 90 days after the due date of the first excess emissions report, whichever is more stringent.	Minn. R. 7017.1050, subp. 1
CEMS Certification Test Plan: due 30 days before CEMS Certification Test.	Minn. R. 7017.1080, subp. 1, 2, & 4
CEMS Certification Test Pretest Meeting: due 7 days before CEMS Certification Test.	Minn. R. 7017.1060, subp. 3
CEMS Certification Test Report - Microfiche or CD Copy: due 105 days after CEMS Certification Test.	Minn. R. 7017.1080, subp. 3
CEMS Certification Test Report - Microfiche or CD Copy: due 105 days after CEMS Certification Test.	Minn. R. 7017.1080, subp. 3

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 032 Blr 2 SO2**

Associated Items: CM 009 Boilers 1, 2 & 3: SO2, 1-hr ave.

EU 002 Power Boiler 2

GP 003 NOx and SO2 Monitors

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (additional requirements are located under the associated GP subject item and in Table B.)	hdr
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year following CEM Certification Test, i.e., once every two successive QA operating quarters (calendar quarter in which there are at least 168 unit operating hours). Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B. Relative accuracy test audits may be performed annually (i.e., once every four successive QA operating quarters, rather than once every two successive QA operating quarters) if any of the conditions listed in 40 CFR pt. 75, Appendix B, Section 2.3.1.2(a) through Section 2.3.1.2(i) are met.	40 CFR pt. 75, Appendix B, section 2.3.1; Minn. R. 7017.1020
Linearity and Leak Check Test (Acid Rain Program): due before end of each QA operating quarter (as defined in Section 72.) in accordance with procedures in 40 CFR pt. 75, Appendix B, Sections 2.2.1 and 2.2.2, and Appendix A, Section 6.2. Perform a leak check at least once during each QA operating quarter (calendar quarter in which there are at least 168 unit operating hours) and no less than 30 days apart.	40 CFR pt. 75, Appendix B, section 2.2.1 & section 2.2.2; Minn. R. 7017.1020
CEM Certification Test: due 60 days after achieving normal operation but not later than 180 days after initial startup or within 90 days after the due date of the first excess emissions report, whichever is more stringent.	Minn. R. 7017.1050, subp. 1
CEMS Certification Test Plan: due 30 days before CEMS Certification Test.	Minn. R. 7017.1080, subp. 1, 2, & 4
CEMS Certification Test Pretest Meeting: due 7 days before CEMS Certification Test.	Minn. R. 7017.1060, subp. 3
CEMS Certification Test Report - Microfiche or CD Copy: due 105 days after CEMS Certification Test.	Minn. R. 7017.1080, subp. 3
CEMS Certification Test Report - Microfiche or CD Copy: due 105 days after CEMS Certification Test.	Minn. R. 7017.1080, subp. 3

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 033 Blr 2 NOx**

Associated Items: CM 010 Boilers 1 & 2: NOx Title IV

EU 002 Power Boiler 2

GP 003 NOx and SO2 Monitors

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (additional requirements are located under the associated GP subject item and in Table B.)	hdr
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year following CEM Certification Test, i.e., once every two successive QA operating quarters (calendar quarter in which there are at least 168 unit operating hours). Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B. Relative accuracy test audits may be performed annually (i.e., once every four successive QA operating quarters, rather than once every two successive QA operating quarters) if any of the conditions listed in 40 CFR pt. 75, Appendix B, Section 2.3.1.2(a) through Section 2.3.1.2(i) are met.	40 CFR pt. 75, Appendix B, section 2.3.1; Minn. R. 7017.1020
Linearity and Leak Check Test (Acid Rain Program): due before end of each QA operating quarter (as defined in Section 72.) in accordance with procedures in 40 CFR pt. 75, Appendix B, Sections 2.2.1 and 2.2.2, and Appendix A, Section 6.2. Perform a leak check at least once during each QA operating quarter (calendar quarter in which there are at least 168 unit operating hours) and no less than 30 days apart.	40 CFR pt. 75, Appendix B, section 2.2.1 & section 2.2.2; Minn. R. 7017.1020
CEM Certification Test: due 60 days after achieving normal operation but not later than 180 days after initial startup or within 90 days after the due date of the first excess emissions report, whichever is more stringent.	Minn. R. 7017.1050, subp. 1
CEMS Certification Test Plan: due 30 days before CEMS Certification Test.	Minn. R. 7017.1080, subp. 1, 2, & 4
CEMS Certification Test Pretest Meeting: due 7 days before CEMS Certification Test.	Minn. R. 7017.1060, subp. 3
CEMS Certification Test Report - Microfiche or CD Copy: due 105 days after CEMS Certification Test.	Minn. R. 7017.1080, subp. 3
CEMS Certification Test Report - Microfiche or CD Copy: due 105 days after CEMS Certification Test.	Minn. R. 7017.1080, subp. 3

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 036 Blr 3 SO2**

Associated Items: CM 009 Boilers 1, 2 & 3: SO2, 1-hr ave.

EU 003 Power Boiler 3

GP 003 NOx and SO2 Monitors

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (additional requirements are located under the associated GP subject item and in Table B.)	hdr
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year following CEM Certification Test, i.e., once every two successive QA operating quarters (calendar quarter in which there are at least 168 unit operating hours). Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B. Relative accuracy test audits may be performed annually (i.e., once every four successive QA operating quarters, rather than once every two successive QA operating quarters) if any of the conditions listed in 40 CFR pt. 75, Appendix B, Section 2.3.1.2(a) through Section 2.3.1.2(i) are met.	40 CFR pt. 75, Appendix B, section 2.3.1; Minn. R. 7017.1020
Linearity and Leak Check Test (Acid Rain Program): due before end of each QA operating quarter (as defined in Section 72.) in accordance with procedures in 40 CFR pt. 75, Appendix B, Sections 2.2.1 and 2.2.2, and Appendix A, Section 6.2. Perform a leak check at least once during each QA operating quarter (calendar quarter in which there are at least 168 unit operating hours) and no less than 30 days apart.	40 CFR pt. 75, Appendix B, section 2.2.1 & section 2.2.2; Minn. R. 7017.1020
CEM Certification Test: due 60 days after achieving normal operation but not later than 180 days after initial startup or within 90 days after the due date of the first excess emissions report, whichever is more stringent.	Minn. R. 7017.1050, subp. 1
CEMS Certification Test Plan: due 30 days before CEMS Certification Test.	Minn. R. 7017.1080, subp. 1, 2, & 4
CEMS Certification Test Pretest Meeting: due 7 days before CEMS Certification Test.	Minn. R. 7017.1060, subp. 3
CEMS Certification Test Report - Microfiche or CD Copy: due 105 days after CEMS Certification Test.	Minn. R. 7017.1080, subp. 3
CEMS Certification Test Report - Microfiche or CD Copy: due 105 days after CEMS Certification Test.	Minn. R. 7017.1080, subp. 3

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 037 Blr 3 NOx**

Associated Items: CM 008 Boiler 3, Title IV NOx

EU 003 Power Boiler 3

GP 003 NOx and SO2 Monitors

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (additional requirements are located under the associated GP subject item and in Table B.)	hdr
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year following CEM Certification Test, i.e., once every two successive QA operating quarters (calendar quarter in which there are at least 168 unit operating hours). Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B. Relative accuracy test audits may be performed annually (i.e., once every four successive QA operating quarters, rather than once every two successive QA operating quarters) if any of the conditions listed in 40 CFR pt. 75, Appendix B, Section 2.3.1.2(a) through Section 2.3.1.2(i) are met.	40 CFR pt. 75, Appendix B, section 2.3.1; Minn. R. 7017.1020
Linearity and Leak Check Test (Acid Rain Program): due before end of each QA operating quarter (as defined in Section 72.) in accordance with procedures in 40 CFR pt. 75, Appendix B, Sections 2.2.1 and 2.2.2, and Appendix A, Section 6.2. Perform a leak check at least once during each QA operating quarter (calendar quarter in which there are at least 168 unit operating hours) and no less than 30 days apart.	40 CFR pt. 75, Appendix B, section 2.2.1 & section 2.2.2; Minn. R. 7017.1020
CEM Certification Test: due 60 days after achieving normal operation but not later than 180 days after initial startup or within 90 days after the due date of the first excess emissions report, whichever is more stringent.	Minn. R. 7017.1050, subp. 1
CEMS Certification Test Plan: due 30 days before CEMS Certification Test.	Minn. R. 7017.1080, subp. 1, 2, & 4
CEMS Certification Test Pretest Meeting: due 7 days before CEMS Certification Test.	Minn. R. 7017.1060, subp. 3
CEMS Certification Test Report - Microfiche or CD Copy: due 105 days after CEMS Certification Test.	Minn. R. 7017.1080, subp. 3
CEMS Certification Test Report - Microfiche or CD Copy: due 105 days after CEMS Certification Test.	Minn. R. 7017.1080, subp. 3

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 040 Blr 4 Opacity**

Associated Items: EU 004 Power Boiler 4

GP 002 Opacity Monitors

What to do	Why to do it
CONTINUOUS OPACITY MONITORING SYSTEMS (COMS) Requirements (Additional requirements are located under GP 002 in Table A and MR 040 in Table B.)	hdr
COMS Calibration Error Audit: due before end of each calendar half-year starting 02/14/2008 for MR 040. Conduct three point calibration error audits at least 3 months apart but no greater than 8 months apart. Conduct audits in accordance with Minn. R. 7017.1210, subp. 3.	Minn. R. 7017.1210, subp. 3

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 042 Blr 4 SO2**

Associated Items: CM 002 Boiler 4: 1.2 lbs SO2/mmBtu, EU004, 1-hr ave.

EU 004 Power Boiler 4

GP 003 NOx and SO2 Monitors

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (Additional requirements are located under the associated GP subject item and in Table B.)	hdr
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year for MR 042 (Boiler 4 SO2) following CEM Certification Test, i.e., once every two successive QA operating quarters (calendar quarter in which there are at least 168 unit operating hours). Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B. Relative accuracy test audits may be performed annually (i.e., once every four successive QA operating quarters, rather than once every two successive QA operating quarters) if any of the conditions listed in 40 CFR pt. 75, Appendix B, Section 2.3.1.2(a) through Section 2.3.1.2(i) are met.	40 CFR pt. 75, Appendix B, Section 2.3.1, Minn. R. 7017.1020
Linearity and Leak Check Test (Acid Rain Program): due before end of each QA operating quarter (as defined in Section 72.) in accordance with procedures in 40 CFR pt. 75, Appendix B, Sections 2.2.1 and 2.2.2, and Appendix A, Section 6.2. Perform a leak check at least once during each QA operating quarter (calendar quarter in which there are at least 168 unit operating hours) and no less than 30 days apart.	40 CFR pt. 75, Appendix B, Section 2.2.1 & Section 2.2.2; Minn. R. 7017.1020

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 043 Blr 4 NOx**

Associated Items: CM 003 Boiler 4: 0.7 lbs NOx/mmBtu, EU004, 3-hr ave.

EU 004 Power Boiler 4

GP 003 NOx and SO2 Monitors

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (Additional requirements are located under the associated GP subject item and in Table B.)	hdr
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year for MR 043 (Boiler 4 NOx) following CEM Certification Test, i.e., once every two successive QA operating quarters (calendar quarter in which there are at least 168 unit operating hours). Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B. Relative accuracy test audits may be performed annually (i.e., once every four successive QA operating quarters, rather than once every two successive QA operating quarters) if any of the conditions listed in 40 CFR pt. 75, Appendix B, Section 2.3.1.2(a) through Section 2.3.1.2(i) are met.	40 CFR pt. 75, Appendix B, Section 2.3.1, Minn. R. 7017.1020
Linearity and Leak Check Test (Acid Rain Program): due before end of each QA operating quarter (as defined in Section 72.) in accordance with procedures in 40 CFR pt. 75, Appendix B, Sections 2.2.1 and 2.2.2, and Appendix A, Section 6.2. Perform a leak check at least once during each QA operating quarter (calendar quarter in which there are at least 168 unit operating hours) and no less than 30 days apart.	40 CFR pt. 75, Appendix B, Section 2.2.1 & Section 2.2.2; Minn. R. 7017.1020

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Subject Item: **MR 045 Blr 4 CO**

Associated Items: CM 011 Boiler 4 CO

EU 004 Power Boiler 4

What to do	Why to do it
CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS) Requirements (Additional requirements are located in Table B.)	hdr
Emissions Monitoring: The owner or operator shall use a CO CEMS to measure EU 004 CO emissions.	Minn. R. 7017.1006
CEM Certification Test: due 90 days after Excess Emissions/Downtime Reports (EER's) are first required for MR 045 Boiler 4 CO CEMS. The first EER is due 30 days after the end of the calendar quarter following permit issuance. Follow the Performance Specifications listed in 40 CFR pt. 60, Appendix B.	Minn. R. 7017.1050, subp. 1
CEMS Test Notification and Submittals: CEMS Certification Test Plan: due 30 days before CEMS Certification Test; CEMS Certification Test Pretest Meeting: due 7 days before CEMS Certification Test; CEMS Certification Test Report: due 45 days after CEMS Certification Test; CEMS Certification Test Report - Microfiche Copy: due 105 days after CEMS Certification Test. The Notification, Test Plan, and Test Report may be submitted in alternate format as allowed by Minn. R. 7017.1120, subp. 2	Minn. R. 7017.1060, subp. 1-3; and Minn. R. 7017.1080, subp. 1-4
Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment.	Minn. R. 7017.1090
Monitoring Data: All data points collected by a CEMS shall be used to calculate individual hourly emission averages unless another applicable requirement requires more frequent averaging. In order for an hour of data to be considered, it must contain the following minimum number of data points: A. four data points, equally spaced, if the emission unit operated during the entire hour; B. two data points, at least 15 minutes apart, during periods of monitor calibration or routine maintenance; C. one data point if the emission unit operated for 15 minutes or less during the hour.	Minn. R. 7017.1160, subp. 1 and 2
CEMS Relative Accuracy Test Audit (RATA): due before end of each year following CEM Certification Test. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR pt. 60, Appendix F, section 5.1.1.	Minn. R. 7017.1170, subp. 5
Relative Accuracy Test Audit (RATA) Notification: due 30 days before CEMS RATA.	Minn. R. 7017.1180, subp. 2
Quality Assurance Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR pt. 60, Appendix F, section 3. The plan shall include the manufacturer's spare parts list for each CEMS and require that those parts be kept at the facility unless the Commissioner gives written approval to exclude specific spare parts from the list.	Minn. R. 7017.1170, subp. 2
CEMS Daily Calibration Drift (CD) Test: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) gas concentrations at least once daily according to the procedures listed in Minn. R. 7017.1170, subp. 3(A) or 3(B) as applicable, and 40 CFR Section 60.13(d)(1) for each pollutant concentration, each diluent monitor, and for each monitor range. The CEMS shall be adjusted whenever the CD exceeds twice the specification of 40 CFR pt. 60, Appendix B. If no span value is specified in the applicable requirement or in a compliance document, the Permittee shall use a span value equivalent to 1.5 times the emission limit. 40 CFR pt. 60, Appendix F, shall be used to determine out-of-control periods for CEMS. Follow the procedures in 40 CFR pt. 60, Appendix F.	Minn. R. 7017.1170, subp. 3

Facility Name: Minnesota Power Inc - Boswell Energy Ctr

Permit Number: 06100004 - 005

Cylinder Gas Audit: due before end of each calendar half-year following CEM Certification Test, except that a cylinder gas audit (CGA) is not required during any calendar half-year in which a RATA was performed. The initial CGA must be performed within 180 days following certification of the CEMS. The CGAs shall be conducted at least three months apart but no more than eight months apart. A CGA shall be conducted according to the procedures in 40 CFR pt. 60, Appendix F, section 5.1.2. If the monitored emission unit was operated for less than 24 hours during the calendar half-year, a CGA is not required for that calendar half-year.	Minn. R. 7017.1170, subp. 4
Recordkeeping: The owner or operator must retain records of all CEMS 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. 7017.1130

APPENDIX A
Insignificant Activities
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

Activity	Rule Citation	Applicable Regulations
Grinders	Minn. R. 7007.1300, subp. 3.D.(2)	Minn. R. 7011.0715
Gasoline Tanks	Minn. R. 7007.1300, subp. 3.E(1)	NA
Welding Equipment	Minn. R. 7007.1300, subp. 3.H(4)	Minn. R. 7011.0715
Sandblasting	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0715
Coal Stockpile loading	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0150
Coal Stockpile, equipment traffic	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0150
Conveyor drop onto stockpile, reclaimer	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0150
Conveyor Drop onto Stockpile –Side Chute	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0150
Rail Car Unloading	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0150
Rail Car Load Out	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0150
Lab Hoods (4)	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0715
Coal Transfer Tower A	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0150
Coal Transfer Tower B	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0150
Coal Conveyer Belt C3	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0150
Coal Rotary Car Dumper	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0150
Coal Rotary Car TP	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0150
Coal Transfer and Sampling House	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0150
Coal Storage Silo	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0715
Coal Tripper Transfer	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0715
#4 Coal Bunker	Minn. R. 7007.1300, subp. 4.B(2)	Minn. R. 7011.0715

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

CONC DFAULT ELEV

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BLDG EXISTS	URBAN SOURCE	CAP/ HOR	EMIS RATE SCALAR VARY BY
BEC_SV03	0	0.11653E+03	450543.2	5234354.5	392.6	192.44	361.48	12.64	8.84	YES	NO	NO	
BEC_SV04	0	0.25749E+03	450653.8	5234624.5	394.6	170.31	343.15	35.85	6.10	YES	NO	NO	
BEC_SV09	0	0.63000E-01	450631.3	5234411.0	396.2	13.72	699.82	20.21	0.24	YES	NO	NO	
BEC_SV10	0	0.60480E+01	450683.1	5234583.0	395.4	8.23	699.82	8.80	0.64	YES	NO	NO	
BEC_SV22	0	0.60000E-02	450555.3	5234413.5	394.3	9.14	847.04	10.49	0.20	YES	NO	NO	

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS 59.05281	AT (450572.66, 5234629.00, 392.04, 392.04, 0.00)	DC	

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

CONC DFAULT ELEV

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BLDG EXISTS	URBAN SOURCE	CAP/ HOR	EMIS RATE SCALAR VARY BY
BEC_SV03	0	0.29590E+02	450543.2	5234354.5	392.6	192.44	329.26	8.50	8.84	YES	NO	NO	
BEC_SV04	0	0.25749E+03	450653.8	5234624.5	394.6	170.31	343.15	35.85	6.10	YES	NO	NO	
BEC_SV09	0	0.63000E-01	450631.3	5234411.0	396.2	13.72	699.82	20.21	0.24	YES	NO	NO	
BEC_SV10	0	0.60480E+01	450683.1	5234583.0	395.4	8.23	699.82	8.80	0.64	YES	NO	NO	
BEC_SV22	0	0.60000E-02	450555.3	5234413.5	394.3	9.14	847.04	10.49	0.20	YES	NO	NO	

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF NOX IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	59.05276 AT (450572.66, 5234629.00, 392.04, 392.04, 0.00)	DC	

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

CONC DFAULT ELEV MULTYR

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BLDG EXISTS	URBAN SOURCE	CAP/ HOR	EMIS RATE SCALAR VARY BY
BEC_SV03	0	0.33695E+02	450543.2	5234354.5	392.6	192.44	361.48	12.64	8.84	YES	NO	NO	
BEC_SV04	0	0.64372E+02	450653.8	5234624.5	394.6	170.31	343.15	35.85	6.10	YES	NO	NO	
BEC_SV09	0	0.78000E-01	450631.3	5234411.0	396.2	13.72	699.82	20.21	0.24	YES	NO	NO	
BEC_SV10	0	0.94000E-01	450683.1	5234583.0	395.4	8.23	699.82	8.80	0.64	YES	NO	NO	
BEC_SV15	0	0.27000E-01	450581.8	5234460.0	394.4	17.98	294.26	0.00	0.15	YES	NO	NO	
BEC_SV16	0	0.43000E-01	450296.8	5234813.5	396.2	46.33	294.26	0.00	0.15	YES	NO	NO	
BEC_SV17	0	0.15000E-01	450303.2	5234810.0	396.2	46.33	294.26	0.00	0.15	YES	NO	NO	
BEC_SV18	0	0.12000E-01	450298.0	5234808.0	396.2	46.33	294.26	0.00	0.15	YES	NO	NO	
BEC_SV20	0	0.18000E-01	450620.7	5234623.5	394.4	17.22	294.26	0.00	1.23	YES	NO	NO	
BEC_SV21	0	0.18000E-01	450617.9	5234627.0	394.4	17.22	294.26	0.00	1.23	YES	NO	NO	
BEC_SV22	0	0.80000E-02	450555.3	5234413.5	394.3	9.14	847.04	10.49	0.20	YES	NO	NO	
BEC_SV23	0	0.25200E+00	450736.8	5234139.0	397.5	6.40	294.26	46.04	1.42	YES	NO	NO	

*** THE SUMMARY OF MAXIMUM PERIOD (8784 HRS) RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS 7.50431	AT (450543.22, 5234704.50, 391.86, 391.86, 0.00)	DC	

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF OTHER IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS 61.66373	ON 89112024:	AT (450687.31, 5233790.50, 394.96, 394.96, 0.00)	DC	

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

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 HIGH  2ND HIGH VALUE IS      56.72338  ON 90011124: AT (  450687.31,  5233790.50,    394.96,    394.96,      0.00)  DC
 HIGH  3RD HIGH VALUE IS      52.64199c ON 86011224: AT (  450687.31,  5233790.50,    394.96,    394.96,      0.00)  DC
 HIGH  4TH HIGH VALUE IS      47.35564c ON 86011224: AT (  450677.31,  5233790.50,    395.00,    396.24,      0.00)  DC
 HIGH  5TH HIGH VALUE IS      34.63295  ON 90041624: AT (  450687.31,  5233790.50,    394.96,    394.96,      0.00)  DC
 HIGH  6TH HIGH VALUE IS      30.75789  ON 89092224: AT (  450657.31,  5233790.50,    396.03,    396.03,      0.00)  DC
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APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

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                                   ***  P12 Itr 2; INL-INL, MN Metdata 1990                                  ***        02:18:27 *
**MODELOPTs:                                                                                                            PAGE   2
CONC                          DFAULT ELEV                                        MULTYR
                                                    *** POINT SOURCE DATA ***
            NUMBER EMISSION RATE                        BASE     STACK   STACK    STACK     STACK    BLDG   URBAN  CAP/  EMIS RATE
   SOURCE     PART.  (GRAMS/SEC)     X         Y       ELEV.    HEIGHT  TEMP.   EXIT VEL. DIAMETER  EXISTS SOURCE HOR   SCALAR
     ID       CATS.                (METERS)  (METERS) (METERS) (METERS) (DEG.K)  (M/SEC)  (METERS)                       VARY BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  BEC_SV01      0   0.47250E+01  450572.1 5234322.5   394.8    76.20   394.26    10.57     2.90    YES     NO    NO
  BEC_SV03      0   0.73980E+01  450543.2 5234354.5   392.6   192.44   305.37     4.25     8.84    YES     NO    NO
  BEC_SV04      0   0.32186E+02  450653.8 5234624.5   394.6   170.31   330.37    17.92     6.10    YES     NO    NO
  BEC_SV15      0   0.27000E-01  450581.8 5234460.0   394.4    17.98   294.26     0.00     0.15    YES     NO    NO
  BEC_SV16      0   0.43000E-01  450296.8 5234813.5   396.2    46.33   294.26     0.00     0.15    YES     NO    NO
  BEC_SV17      0   0.15000E-01  450303.2 5234810.0   396.2    46.33   294.26     0.00     0.15    YES     NO    NO
  BEC_SV18      0   0.12000E-01  450298.0 5234808.0   396.2    46.33   294.26     0.00     0.15    YES     NO    NO
  BEC_SV20      0   0.18000E-01  450620.7 5234623.5   394.4    17.22   294.26     0.00     1.23    YES     NO    NO
  BEC_SV21      0   0.18000E-01  450617.9 5234627.0   394.4    17.22   294.26     0.00     1.23    YES     NO    NO
  BEC_SV23      0   0.25200E+00  450736.8 5234139.0   397.5     6.40   294.26    46.04     1.42    YES     NO    NO

                                   *** THE SUMMARY OF MAXIMUM PERIOD (  8784 HRS) RESULTS ***
                                  ** CONC OF OTHER    IN MICROGRAMS/M**3                        **
GROUP ID                      AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)   OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
ALL      1ST HIGHEST VALUE IS       7.54244 AT (  450543.22,  5234704.50,    391.86,    391.86,      0.00)  DC

                                   *** THE SUMMARY OF HIGHEST 24-HR RESULTS ***
                                  ** CONC OF OTHER    IN MICROGRAMS/M**3                        **
                                                      DATE                                                    NETWORK
GROUP ID                      AVERAGE CONC     (YYMMDDHH)          RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)     OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
ALL      HIGH  1ST HIGH VALUE IS      62.38565  ON 89112024: AT (  450687.31,  5233790.50,    394.96,    394.96,      0.00)  DC
         HIGH  2ND HIGH VALUE IS      56.71721  ON 90011124: AT (  450687.31,  5233790.50,    394.96,    394.96,      0.00)  DC
```

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

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 HIGH  3RD HIGH VALUE IS      54.43631c ON 86011224: AT (  450687.31,  5233790.50,    394.96,    394.96,      0.00)  DC
 HIGH  4TH HIGH VALUE IS      49.72771  ON 89050524: AT (  450687.31,  5233790.50,    394.96,    394.96,      0.00)  DC
 HIGH  5TH HIGH VALUE IS      34.65719  ON 90041624: AT (  450687.31,  5233790.50,    394.96,    394.96,      0.00)  DC
 HIGH  6TH HIGH VALUE IS      31.19517  ON 89092224: AT (  450667.31,  5233790.50,    395.46,    395.46,      0.00)  DC
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APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

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**MODELOPTs: PAGE 2

CONC DFAULT ELEV

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BLDG EXISTS	URBAN SOURCE	CAP/ HOR	EMIS RATE SCALAR VARY BY
BEC_SV03	0	0.79403E+03	450543.2	5234354.5	392.6	192.44	361.48	12.64	8.84	YES	NO	NO	
BEC_SV04	0	0.21243E+03	450653.8	5234624.5	394.6	170.31	343.15	35.85	6.10	YES	NO	NO	
BEC_SV09	0	0.70000E-02	450631.3	5234411.0	396.2	13.72	699.82	20.21	0.24	YES	NO	NO	
BEC_SV10	0	0.94500E+00	450683.1	5234583.0	395.4	8.23	699.82	8.80	0.64	YES	NO	NO	
BEC_SV22	0	0.20000E-02	450555.3	5234413.5	394.3	9.14	847.04	10.49	0.20	YES	NO	NO	

*** THE SUMMARY OF MAXIMUM PERIOD (8760 HRS) RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS 9.22156	AT (450572.66, 5234629.00, 392.04, 392.04, 0.00)	DC	

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

CONC DFAULT ELEV

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BLDG EXISTS	URBAN SOURCE	CAP/ HOR	EMIS RATE SCALAR VARY BY
BEC_SV03	0	0.24469E+04	450543.2	5234354.5	392.6	192.44	361.48	12.64	8.84	YES	NO	NO	
BEC_SV04	0	0.77246E+03	450653.8	5234624.5	394.6	170.31	343.15	35.85	6.10	YES	NO	NO	
BEC_SV09	0	0.12600E+00	450631.3	5234411.0	396.2	13.72	699.82	20.21	0.24	YES	NO	NO	
BEC_SV10	0	0.94500E+00	450683.1	5234583.0	395.4	8.23	699.82	8.80	0.64	YES	NO	NO	
BEC_SV22	0	0.35000E-01	450555.3	5234413.5	394.3	9.14	847.04	10.49	0.20	YES	NO	NO	

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	796.42310	ON 89032314:	AT (449175.12, 5238113.50, 392.89, 392.89, 0.00)	DC	
	HIGH 2ND HIGH VALUE IS	548.07581	ON 89032314:	AT (449935.44, 5237801.50, 392.58, 392.58, 0.00)	DC	

*** THE SUMMARY OF HIGHEST 3-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	456.37442	ON 89071812:	AT (450334.84, 5233172.50, 390.14, 390.14, 0.00)	DC	
	HIGH 2ND HIGH VALUE IS	424.45447	ON 89071412:	AT (450334.84, 5233172.50, 390.14, 390.14, 0.00)	DC	

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	179.11818c	ON 87070824:	AT (450300.12, 5232976.00, 390.40, 390.40, 0.00)	DC	
	HIGH 2ND HIGH VALUE IS	157.92535	ON 87071224:	AT (450230.66, 5232582.00, 390.14, 390.14, 0.00)	DC	

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

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                                ***  S02 Annual Itr 2; INL-INL, MN Metdata 1990                        ***        23:25:58
**MODELOPTs:                                                                                                    PAGE   2
CONC                        DFAULT ELEV
                                                  *** POINT SOURCE DATA ***
             NUMBER EMISSION RATE                      BASE     STACK   STACK    STACK     STACK    BLDG   URBAN  CAP/  EMIS RATE
   SOURCE     PART.  (GRAMS/SEC)     X         Y      ELEV.    HEIGHT  TEMP.   EXIT VEL. DIAMETER  EXISTS SOURCE HOR   SCALAR
     ID       CATS.               (METERS)  (METERS) (METERS) (METERS) (DEG.K)  (M/SEC)  (METERS)                      VARY BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  BEC_SV03      0   0.59552E+03  450543.2 5234354.5   392.6   192.44   355.37     9.48     8.84    YES     NO    NO
  BEC_SV04      0   0.15932E+03  450653.8 5234624.5   394.6   170.31   338.71    26.89     6.10    YES     NO    NO

                                     *** THE SUMMARY OF MAXIMUM PERIOD (  8760 HRS) RESULTS ***
                                   ** CONC OF SO2      IN MICROGRAMS/M**3                         **
GROUP ID                      AVERAGE CONC               RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)   OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
ALL      1ST HIGHEST VALUE IS       3.70379 AT (  452275.28,  5233354.50,    388.01,    388.01,      0.00)  DC
```

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

CONC DFAULT ELEV

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BLDG EXISTS	URBAN SOURCE	CAP/ HOR	EMIS RATE SCALAR VARY BY
BEC_SV03	0	0.18352E+04	450543.2	5234354.5	392.6	192.44	355.37	9.48	8.84	YES	NO	NO	
BEC_SV04	0	0.57935E+03	450653.8	5234624.5	394.6	170.31	338.71	26.89	6.10	YES	NO	NO	

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	725.31946	ON 89032314:	AT (449346.16, 5237643.50, 392.58, 392.58, 0.00)	DC	
	HIGH 2ND HIGH VALUE IS	468.49081	ON 89032713:	AT (450022.28, 5237309.00, 392.28, 392.28, 0.00)	DC	

*** THE SUMMARY OF HIGHEST 3-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	420.11865	ON 89072012:	AT (450751.59, 5233172.50, 388.01, 388.01, 0.00)	DC	
	HIGH 2ND HIGH VALUE IS	387.68100	ON 89071412:	AT (450334.84, 5233172.50, 390.14, 390.14, 0.00)	DC	

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

```
 ALL      HIGH  1ST HIGH VALUE IS     163.01523c ON 87070724: AT (  450543.22,  5232954.50,    389.84,    389.84,      0.00)  DC
          HIGH  2ND HIGH VALUE IS     139.78828c ON 87082724: AT (  450334.84,  5233172.50,    390.14,    390.14,      0.00)  DC
```

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

```
                                ***  S04 Annual Itr 2; INL-INL, MN Metdata 1987                        ***        00:21:47
**MODELOPTs:                                                                                                    PAGE   2
CONC                        DFAULT ELEV
                                                  *** POINT SOURCE DATA ***
             NUMBER EMISSION RATE                      BASE     STACK    STACK     STACK     STACK     BLDG   URBAN  CAP/  EMIS RATE
   SOURCE     PART.  (GRAMS/SEC)     X         Y       ELEV.    HEIGHT   TEMP.    EXIT VEL. DIAMETER  EXISTS SOURCE HOR   SCALAR
     ID       CATS.                (METERS)  (METERS) (METERS) (METERS) (DEG.K)   (M/SEC)   (METERS)                       VARY BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
  BEC_SV03      0   0.38045E+02  450543.2 5234354.5   392.6   192.44   329.26     8.50     8.84     YES     NO    NO
  BEC_SV04      0   0.21243E+03  450653.8 5234624.5   394.6   170.31   343.15    35.85     6.10     YES     NO    NO
  BEC_SV09      0   0.70000E-02  450631.3 5234411.0   396.2    13.72   699.82    20.21     0.24     YES     NO    NO
  BEC_SV10      0   0.94500E+00  450683.1 5234583.0   395.4     8.23   699.82     8.80     0.64     YES     NO    NO
  BEC_SV22      0   0.20000E-02  450555.3 5234413.5   394.3     9.14   847.04    10.49     0.20     YES     NO    NO

                                     *** THE SUMMARY OF MAXIMUM PERIOD (  8760 HRS) RESULTS ***
                                   ** CONC OF SO2      IN MICROGRAMS/M**3                          **
GROUP ID                      AVERAGE CONC                RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)   OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
ALL      1ST HIGHEST VALUE IS       9.22035 AT (  450572.66,  5234629.00,    392.04,    392.04,      0.00)  DC
```

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

CONC DFAULT ELEV

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BLDG EXISTS	URBAN SOURCE	CAP/ HOR	EMIS RATE SCALAR VARY BY
BEC_SV03	0	0.12555E+04	450543.2	5234354.5	392.6	192.44	329.26	8.50	8.84	YES	NO	NO	
BEC_SV04	0	0.77246E+03	450653.8	5234624.5	394.6	170.31	343.15	35.85	6.10	YES	NO	NO	
BEC_SV09	0	0.12600E+00	450631.3	5234411.0	396.2	13.72	699.82	20.21	0.24	YES	NO	NO	
BEC_SV10	0	0.94500E+00	450683.1	5234583.0	395.4	8.23	699.82	8.80	0.64	YES	NO	NO	
BEC_SV22	0	0.35000E-01	450555.3	5234413.5	394.3	9.14	847.04	10.49	0.20	YES	NO	NO	

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	688.04608	ON 87112214:	AT (450543.22, 5237354.50, 392.88, 392.88, 0.00)	DC	
	HIGH 2ND HIGH VALUE IS	427.86185	ON 87072815:	AT (449943.22, 5233315.50, 388.01, 388.01, 0.00)	DC	

*** THE SUMMARY OF HIGHEST 3-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	398.49915	ON 89072012:	AT (450716.88, 5233369.50, 388.01, 388.01, 0.00)	DC	
	HIGH 2ND HIGH VALUE IS	363.01028	ON 89071412:	AT (450369.56, 5233369.50, 388.01, 388.01, 0.00)	DC	

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF SO2 IN MICROGRAMS/M**3 **

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

GROUP ID		AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
ALL	HIGH 1ST HIGH VALUE IS	155.74730c	ON 87070724:	AT (450543.22, 5232954.50, 389.84, 389.84, 0.00)	DC	
	HIGH 2ND HIGH VALUE IS	132.83893c	ON 87082724:	AT (450334.84, 5233172.50, 390.14, 390.14, 0.00)	DC	

APPENDIX B-1
Dispersion Modeling Parameters (From modeling conducted for permit No. 06100004-004)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

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*** AERMOD - VERSION 07026 ***    ***  0959-20 MN Power - Boswell Energy Center                          ***        08/14/08
                                  ***  CO AERMOD Modeling; INL-INL, MN Metdata 1986                      ***        16:34:23
**MODELOPTs:                                                                                                      PAGE   2
CONC                        DFAULT ELEV
                                                *** POINT SOURCE DATA ***
             NUMBER EMISSION RATE                    BASE     STACK   STACK    STACK     STACK    BLDG   URBAN  CAP/  EMIS RATE
   SOURCE     PART.  (GRAMS/SEC)     X         Y      ELEV.    HEIGHT  TEMP.   EXIT VEL. DIAMETER EXISTS SOURCE HOR   SCALAR
     ID       CATS.                (METERS)  (METERS) (METERS) (METERS) (DEG.K) (M/SEC)  (METERS)                       VARY BY
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

  BEC_SV03      0   0.63408E+03  450543.2 5234354.5   392.6   192.44   329.26     8.50     8.84    YES     NO     NO
  BEC_SV22      0   0.25000E+00  450519.0 5234415.0   394.3     9.14   772.59    22.92     0.25    YES     NO     NO
```

APPENDIX B-2
Dispersion Modeling Parameters For BEC4 CO Emissions (Modeling conducted for permit No. 06100004-005)
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

Air Dispersion Modeling Point Source Parameters for MN Power – Boswell Energy Center (All Ave. Times)								
SRCID	**X Coord.**	**Y Coord.**	**Elev.**	**Emis. Rate**	**Stack Height**	**Temp**	**Exit Velocity**	**Stack Diameter**
	m	m	m	g/s	m	K	m/s	m
BEC_SV04	450,653.8	5,234,624.3	394.59	1210.67	170.31	343.15	35.85	6.10

APPENDIX C
Acid Rain Program Forms and Requirements
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

Phase II NOx Compliance Plan

For more information, see instructions and refer to 40 CFR 76.9

This submission is: [X] **New (*Renewal*)** [ ] **Revised**

Step 1 **Indicate plant name, State, and ORIS code from NADB, if applicable**	Clay Boswell Plant Name	MN State	1893 ORIS Code

Step 2 Identify each affected Group 1 and Group 2 boiler using the boiler ID# from NADB, if applicable. Indicate boiler type: "CB" for cell burner, "CY" for cyclone, "DBW" for dry botton wall-fired, "T" for tangetially fired, "V" for vertically fired, and "WB" for wet bottom. Indicate the compliance option selected for each unit

	ID# 1	ID# 2	ID# 3	ID# 4	ID#	ID#
	DBW Type	DBW Type	T Type	T Type	 Type	 Type
(a) Standard annual average emission limitation of 0.50 lb/mmBtu (for Phase I dry bottom wall-fired boilers)						
(b) Standard annual average emission limitation of 0.45 lb/mmBtu (for Phase I tangentially fired boilers)						
(c) EPA-approved early election plan under 40 CFR 76.8 through 12/31/07 (also indicate above emission limit specified in plan)						
(d) Standard annual average emission limitation of 0.46 lb/mmBtu (for Phase II dry bottom wall-fired boilers)						

APPENDIX C
Acid Rain Program Forms and Requirements
Minnesota Power - Boswell Energy Center
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(e) Standard annual average emission limitation of 0.40 lb/mmBtu (for Phase II tangentially fired boilers)						
(f) Standard annual average emission limitation of 0.68 lb/mmBtu (for cell burner boilers)						
(g) Standard annual average emission limitation of 0.86 lb/mmBtu (for cyclone boilers)						
(h) Standard annual average emission limitation of 0.80 lb/mmBtu (for vertically fired boilers)						
(i) Standard annual average emission limitation of 0.84 lb/mmBtu (for wet bottom boilers)						
(j) NOx Averaging Plan (include NOx Averaging form)	X	X	X	X		
(k) Common stack pursuant to 40 CFR 75.17(a)(2)(i)(A) (check the standard emission limitation box above for most stringent limitation applicable to any unit utilizing stack						
(l) Common stack pursuant to 40 CFR 75.17(a)(2)(i)(B) with NOx Averaging (check the NOx Averaging Plan box and include NOx Averaging form)	X	X				
(m) EPA-approved common stack apportionment method pursuant to 40 CFR 75.17 (a)(2)(i)(C), (a)(2)(iii)(B), or (b)(2)						

(n) AEL (include Phase II AEL Demonstration Period, Final AEL Petition, or AEL Renewal form as appropriate)						
(o) Petition for AEL demonstration period or final AEL under review by U.S. EPA or demonstration period ongoing						
(p) Repowering extension plan approved or under review						

Standard Requirements

General. This source is subject to the standard requirements in 40 CFR 72.9 (consistent with 40 CFR 76.8(e)(1)(i)). These requirements are listed in this source's Acid Rain Permit.

Special Provisions for Early Election Units

Nitrogen Oxides. A unit that is governed by an approved early election plan shall be subject to an emissions limitation for NO_x as provided under 40 CFR 76.8(a)(2) except as provided under 40 CFR 76.8(e)(3)(iii).

Liability. The owners and operators of a unit governed by an approved early election plan shall be liable for any violation of the plan or 40 CFR 76.8 at that unit. The owners and operators shall be liable, beginning January 1, 2000, for fulfilling the obligations specified in 40 CFR Part 77.

Termination. An approved early election plan shall be in effect only until the earlier of January 1, 2008 or January 1 of the calendar year for which a termination of the plan takes effect. If the designated representative of the unit under an approved early election plan fails to demonstrate compliance with the applicable emissions limitation under 40 CFR 76.5 for any year during the period beginning January 1 of the first year the early election takes effect and ending December 31, 2007, the permitting authority will terminate the plan. The termination will take effect beginning January 1 of the year after the year for which there is a failure to demonstrate compliance, and the designated representative may not submit a new early election plan. The designated representative of the unit under an approved early election plan may terminate the plan any year prior to 2008 but may not submit a new early election plan. In order to terminate the plan, the designated representative must submit a notice under 40 CFR 72.40(d) by January 1 of the year for which the termination is to take effect. If an early election plan is terminated any year prior to 2000, the unit shall meet, beginning January 1, 2000, the applicable emissions limitation for NO_x for Phase II units with Group 1 boilers under 40 CFR 76.7. If an early election plan is terminated on or after 2000, the unit shall meet, beginning on the effective date of the termination, the applicable emissions limitation for NO_x for Phase II units with Group 1 boilers under 40 CFR 76.7.

APPENDIX C
Acid Rain Program Forms and Requirements
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

Phase II NOx Averaging Plan

For more information, see instructions and refer to 40 CFR 76.11

This submission is: **New** ☐ ☒ **Revised**

Step 1

Identify the units participating in this averaging plan by plant name, State, and boiler ID# from NADB. In column (a), fill in each unit's applicable emission limitation from 40 CFR 76.5, 76.6, or 76.7. In column (b), assign an alternative contemporaneous annual emissions limitation in lb/mmBtu to each unit. In column (c), assign an annual heat input limitation in mmBtu to each unit. Continue to page 3 if necessary.

Plant Name	State	ID#	(a) Emission Limitation	(b) Alt. Contemp. Emission Limitation	(c) Annual Heat Input Limit
Clay Boswell	MN	1	0.46	0.45	3,500,000
Clay Boswell	MN	2	0.46	0.45	3,500,000
Clay Boswell	MN	3	0.40	0.39	19,000,000
Clay Boswell	MN	4	0.40	0.35	33,000,000
Syl Laskin	MN	1	0.40	0.50	4,600,000
Syl Laskin	MN	2	0.40	0.50	4,600,000
Taconite Harbor	MN	1	0.40	0.45	5,600,000
Taconite Harbor	MN	2	0.40	0.45	5,600,000
Taconite Harbor	MN	3	0.40	0.45	5,600,000

Step 2

Use the formula to enter the Btu-weighted annual emission rate averaged over the units if they are operated in accordance with the proposed averaging plan and the Btu-weighted annual averge emission rate for the same units if they are operated in compliance with 40 CFR 76.5, 76.6, or 76.7. The former must be less than or equal to the latter.

Btu-weighted annual emission rate averaged over the units if they are operated in accordance with the proposed averaging plan

Btu-weighted annual average emission rate for same units operated in compliance with 40 CFR 76.5, 76.6, or 76.7

0.40	0.40

$$\frac{\sum_{i=1}^{n} (R_{Li} \times HI_i)}{\sum_{i=1}^{n} HI_i} \leq \frac{\sum_{i=1}^{n} [R_{li} \times HI_i]}{\sum_{i=1}^{n} HI_i}$$

Where,

R_{Li} = Alternative contemporaneous annual emission limitation unit i, in lb/mmBtu, as specified in column (b) of Step 1:

R_{li} = Applicable emission limitation for unit i, in lb/mmBtu, as specified in column (a) of Step 1:

HI_i = Annual heat input for unit i, in mmBtu, as specified in column (c) of Step 1:

n = Number of units in the averaging plan

[X] This plan is effective for calendar year _2008_ through calendar year _2011_ unless notification to terminate the plan is given.

[ ] Treat this plan as [ ] identical plans, each effective for one calendar year for the following calendar years _____, _____, _____, _____, and _____ unless notification to terminate one or more of these plans is given.

APPENDIX C
Acid Rain Program Forms and Requirements
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

Special Provisions

Emission Limitations

Each affected unit in an approved averaging plan is in compliance with the Acid Rain emission limitation for NO_x under the plan only if the following requirements are met:

(i) For each unit, the unit's actual annual average emission rate for the calendar year, in lb/mmBtu, is less than or equal to its alternative contemporaneous annual emission limitation in the averaging plan, and

(a) For each unit with an alternative contemporaneous emission limitation less stringent than the applicable emission limitation in 40 CFR 76.5, 76.6, or 76.7, the actual annual heat input for the calendar year does not exceed the annual heat input limit in the averaging plan,

(b) For each unit with an alternative contemporaneous emission limitation more stringent than the applicable emission limitation in 40 CFR 76.5, 76.6, or 76.7, the actual annual heat input for the calendar year is not less than the annual heat input limit in the averaging plan, or

(ii) If one or more of the units does not meet the requirements of (i), the designated representative shall demonstrate, in accordance with 40 CFR 76.11(d)(1)(ii)(A) and (B), that the actual Btu-weighted annual average emission rate for the units in the plan is less than or equal to the Btu-weighted annual average rate for the same units had they each been operated, during the same period of time, in compliance with the applicable emission limitations in 40 CFR 76.5, 76.6, or 76.7.

(iii) If there is a successful group showing of compliance under 40 CFR 76.11(d)(1)(ii)(A) and (B) for a calendar year, then all units in the averaging plan shall be deemed to be in compliance for that year with their alternative contemporaneous emission limitations and annual heat input limits under (i).

Liability

The owners and operators of a unit governed by an approved averaging plan shall be liable for any violation of the plan or this section at that unit or any other unit in the plan, including liability for fulfilling the obligations specified in part 77 of this chapter and sections 113 and 411 of the Act.

Termination

The designated representative may submit a notification to terminate an approved averaging plan, in accordance with 40 CFR 72.40(d), no later than October 1 of the calendar year for which the plan is to be terminated.

APPENDIX C
Acid Rain Program Forms and Requirements
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

Phase II Permit Application

For more information, see instructions and refer to 40 CFR 72.30 and 72.31

This submission is [X] New [ ] Revised

Clay Boswell Plant Name	MN State	1893 ORIS Code

Compliance Plan

a Boiler ID#	b Unit Will Hold Allowances in Accordance with 40 CFR 72.9(c)(1)	c Repowering Plan	d New Units Commence Operation Date	e New Units Monitor Certification Deadline
1	Yes	no		
2	Yes	no		
3	Yes	no		
4	Yes	no		
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			

Standard Requirements

Permit Requirements.

APPENDIX C
Acid Rain Program Forms and Requirements
Minnesota Power - Boswell Energy Center
Permit Number: 06100004-005

(1) The designated representative of each affected source and each affected unit at the source shall:

(i) Submit a complete Acid Rain permit application (including a compliance plan) under 40 CFR part 72 in accordance with the deadlines specified in 40 CFR 72.30; and

(ii) Submit in a timely manner any supplemental information that the permitting authority determines is necessary in order to review an Acid Rain permit application and issue or deny an Acid Rain permit;

(2) The owners and operators of each affected source and each affected unit at the source shall:

(i) Operate the unit in compliance with a complete Acid Rain permit application or a superseding Acid Rain permit issued by the permitting authority; and

(ii) Have an Acid Rain Permit.

Monitoring Requirements.

(1) The owners and operators and, to the extent applicable, designated representative of each affected source and each affected unit at the source shall comply with the monitoring requirements as provided in 40 CFR parts 74, 75, and 76.

(2) The emissions measurements recorded and reported in accordance with 40 CFR part 75 shall be used to determine compliance by the unit with the Acid Rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the Acid Rain Program.

(3) The requirements of 40 CFR parts 74 and 75 shall not affect the responsibility of the owners and operators to monitor emissions of other pollutants or other emissions characteristics at the unit under other applicable requirements of the Act and other provisions of the operating permit for the source.

Sulfur Dioxide Requirements.

(1) The owners and operators of each source and each affected unit at the source shall:

(i) Hold allowances, as of the allowance transfer deadline, in the unit's compliance subaccount (after deductions under 40 CFR 73.34(c)) not less than the total annual emissions of sulfur dioxide for the previous calendar year from the unit; and

(ii) Comply with the applicable Acid Rain emissions limitations for sulfur dioxide.

(2) Each ton of sulfur dioxide emitted in excess of the Acid Rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act.

(3) An affected unit shall be subject to the requirements under paragraph (1) of the sulfur dioxide requirements as follows:

(i) Starting January 1, 2000, an affected unit under 40 CFR 72.6(a)(2); or

(ii) Starting on the later of January 1, 2000 or the deadline for monitor certification under 40 CFR part 75, an affected unit under 40 CFR 72.6(a)(3).

(4) Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.

(5) An allowance shall not be deducted in order to comply with the requirements under paragraph (1)(i) of the sulfur dioxide requirements prior to the calendar year for which the allowance was allocated.

(6) An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain permit application, the Acid Rain permit, or the written exemption under 40 CFR 72.7 and 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.

(7) An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right.

Nitrogen Oxides Requirements. The owners and operators of the source and each affected unit at the source shall comply with the applicable Acid Rain emissions limitation for nitrogen oxides.

Excess Emissions Requirements.

(1) The designated representative of an affected unit that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR part 77.

(2) The owners and operators of an affected unit that has excess emissions in any calendar year shall:

(i) Pay without demand the penalty required, and pay upon demand the interest on that penalty, as required by 40 CFR part 77; and

(ii) Comply with the terms of an approved offset plan, as required by 40 CFR part 77.

Recordkeeping and Reporting Requirements.

(1) Unless otherwise provided, the owners and operators of the source and each affected unit at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by the Administrator or permitting authority:

(i) The certificate of representation for the designated representative for the source and each affected unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period

until such documents are superseded because of the submission of a new certificate of representation changing the designated representative;
(ii) All emissions monitoring information, in accordance with 40 CFR part 75;
(iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program; and,
(iv) Copies of all documents used to complete an Acid Rain permit application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program.

(2) The designated representative of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR part 72 subpart I and 40 CFR part 75.

Liability.

(1) Any person who knowingly violates any requirement or prohibition of the Acid Rain Program, a complete Acid Rain permit application, an Acid Rain permit, or a written exemption under 40 CFR 72.7 or 72.8, including any requirement for the payment of any penalty owed to the United States, shall be subject to enforcement pursuant to section 113(c) of the Act.
(2) Any person who knowingly makes a false, material statement in any record, submission, or report under the Acid Rain Program shall be subject to criminal enforcement pursuant to section 113(c) of the Act and 18 U.S.C. 1001.
(3) No permit revision shall excuse any violation of the requirements of the Acid Rain Program that occurs prior to the date that the revision takes effect.
(4) Each affected source and each affected unit shall meet the requirements of the Acid Rain Program.
(5) Any provision of the Acid Rain Program that applies to an affected source (including a provision applicable to the designated representative of an affected source) shall also apply to the owners and operators of such source and of the affected units at the source.
(6) Any provision of the Acid Rain Program that applies to an affected unit (including a provision applicable to the designated representative of an affected unit) shall also apply to the owners and operators of such unit. Except as provided under 40 CFR 72.44 (Phase II repowering extension plans) and 40 CFR 76.11 (NO_x averaging plans), and except with regard to the requirements applicable to units with a common stack under 40 CFR part 75 (including 40 CFR 75.16, 75.17, and 75.18), the owners and operators and the designated representative of one affected unit shall not be liable for any violation by any other affected unit of which they are not owners or operators or the designated representative and that is located at a source of which they are not owners or operators or the designated representative.
(7) Each violation of a provision of 40 CFR parts 72, 73, 74, 75, 76, 77, and 78 by an affected source or affected unit, or by an owner or operator or designated representative of such source or unit, shall be a separate violation of the Act.

Effect on Other Authorities. No provision of the Acid Rain Program, an Acid Rain permit application, an Acid Rain permit, or a written exemption under 40 CFR 72.7 or 72.8 shall be construed as:

(1) Except as expressly provided in title IV of the Act, exempting or excluding the owners and operators and, to the extent applicable, the designated representative of an affected source or affected unit from compliance with any other provision of the Act, including the provisions of title I of the Act relating to applicable National Ambient Air Quality Standards or State Implementation Plans;
(2) Limiting the number of allowances a unit can hold; provided, that the number of allowances held by the unit shall not affect the source's obligation to comply with any other provisions of the Act;
(3) Requiring a change of any kind in any State law regulating electric utility rates and charges, affecting any State law regarding such State regulation, or limiting such State regulation, including any prudence review requirements under such State law;
(4) Modifying the Federal Power Act or affecting the authority of the Federal Energy Regulatory Commission under the Federal Power Act; or,
(5) Interfering with or impairing any program for competitive bidding for power supply in a State in which such program is established.

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 06100004-005

This technical support document (TSD) is intended for all parties interested in this 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 issuance of this permit.

1. General Information

1.1 Applicant and Stationary Source Location:

Table. 1 Applicant and Source Address

Applicant/Address	Stationary Source/Address (SIC Code: **4911**)
Minnesota Power Division of Allete, Inc. 30 West Superior Street Duluth MN, 55802	Minnesota Power - Boswell Energy Center 1210 Northwest 3rd Street P.O. Box 128 Cohasset, Itasca County, MN 55721
Contact: Melissa Weglarz Phone: (218) 355-3321 FAX: (218) 723-3916	

1.2 Facility Description

The Boswell Energy Center (facility) is a coal-fired electric utility steam generating plant. Emission units at the facility include four power boilers, emergency engine generators, and fuel, additive and ash handling equipment. The main fuel for all boilers is sub-bituminous coal. They may also burn pipeline natural gas, distillate oil, limited amounts of boiler cleaning agents, used oil, oily coal, oily paper-based floor dry, wastewater treatment plant sludge, and oily materials (earth substrate with petroleum product). Boilers 1 and 2 emissions are controlled by baghouses, over-fire air, and selective non-catalytic reduction. Boiler 3 emissions are controlled by low nitrogen oxide (NO_X) burners, over-fire air, selective catalytic reduction, a baghouse filter, and a flue gas desulfurization system. Boiler 4 (also referred to as Unit #4 or Power Boiler #4) emissions are controlled by a wet venturi scrubber/electrostatic precipitator, selective non-catalytic reduction, and a sulfur dioxide spray tower. The facility operates year-round.

1.3 Description of the Activities Allowed by this Permit Action

An application for a major amendment was submitted February 5, 2010 to revise the current operating permit (No. 06100004-004) for proposed changes to Power Boiler #4. Power Boiler #4 is a pulverized coal, dry-bottom, tangentially fired unit. Unit #4 was originally constructed in the late 1970s with close-coupled over-fired air (CCOFA) technology. The project will replace the original CCOFA system with an upgraded separated over-fire air (SOFA) system and low NO_X burners (LNB). No changes to Units 1, 2, or 3 or ancillary operations (coal pile, coal and ash handling, etc) at Boswell Energy Center will occur as a result of this modification. Although the LNB and SOFA will reduce NO_X emissions, there is a projected actual increase in carbon monoxide (CO) emissions. The projected CO emissions increase will trigger Prevention of Significant Deterioration (PSD) and require Best Available Control Technology

(BACT) for Power Boiler #4 CO emissions. Increases in emissions of other pollutants due to this modification are below the PSD significant emission thresholds and therefore do not trigger PSD review.

BACT for Power Boiler #4 is determined to be best combustion practices (combustion controls) and a two-tier CO limit. A limit of 0.15 lbs CO/mmBtu of heat input, with compliance determined on a 30-day rolling average basis applies at all times except during startup, shutdown, and malfunction. A 28,826 lb/hr limit on a 1-hour average applies during startup and shutdown and the boundary between startup/shutdown and normal operations is set at a turbine output of 320 gross MW (which is 50% load after completion of the LNB/OFA project). No New Source Performance Standards (NSPS) or National Emissions Standards for Hazardous Air Pollutants (NESHAP) requirements are triggered by this modification. The increase in CO emissions from this modification will not result in a violation of the National Ambient Air Quality Standards (NAAQS).

This permit action also incorporates changes to Boiler #4 continuous emissions monitors (CEMS). Specifically, CEMS MR 006, MR 007, and MR 008 (CO_2, SO_2, and NO_X, respectively) are replaced by the newly certified CEMS MR 042, MR 043, and MR 044 (SO_2, NO_X, and CO_2, respectively). Also, MR 045 is a new CO CEMS for Unit #4.

Finally, administrative corrections and revisions were made to control equipment listings in the Delta permit database and to the permit. Specifically, the Unit #3 particulate matter control device (initially listed as CE 003 ‘Alkaline Fly Ash Scrubbing’ and subsequently reclassified as CE 012 ‘Wet Scrubber - High Efficiency’ as requested by the Permittee in 2002) requirements erroneously remained in the permit even though the control device was replaced by fabric filter CE 021 as authorized by permit No. 06100004-003. The current permit action removes these CE 003 requirements, and retires CE 012. The current permit action also renames Unit #3 CE 019 from ‘modified furnace or burner design’ to ‘low NO_X burners/overfire air’ and adds activated carbon injection (CE 029) for Unit #3 that was installed under permit No. 06100004-003. The Unit #3 ‘wet limestone injection (CE 022) has been renamed to ‘wet flue gas desulfurization’. The Unit #3 PM, PM_{10}, HFl, and lead testing requirements were completed March 30 – April 1, 2010, so these requirements indicate they have been completed. However, they are retained in the permit because the related test report and test frequency plan submittal requirements for each pollutant have not been completed as of April 30, 2010. Unit #3 COMS certification requirements were removed because there were completed in later 2009. The PM_{10} testing required for EU 001 and EU 002 was completed in July 2009 and the follow-up report for the PM_{10} emissions assessment made in June 2008 for the units 1 and 2 NO_X reduction project was submitted, so this requirement was removed from each of these subject items. The current permit also associates recent permitted control equipment additions with the respective power boiler so that they are shown as associated items in the respective subject item (EU 001 through EU 004) in table A of the permit.

1.4. Facility Emissions:

Table 2. Title I Emissions Increase Summary

Pollutant	Future Projected Actual Emissions (tpy)	Baseline Actual Emissions (tpy)	Emissions Increase Prior to Excludables* (tpy)	Excludable Emissions** (tpy)	Emissions Increase (tpy)	PSD/112(g) Significant Thresholds for major sources (tpy)	NSR/ 112(g) Review Required? (Yes/No)
PM	1,260.7	1,261.8	0.56	72.3	0.56	25	No
PM_{10}	1,451.7	1,454.3	0.31	83.3	0.31	15	No
$PM_{2.5}$	765.0	766.8	0.02	43.9	0.02	10	No
NO_X	5,130.1	7,246.9	0.0	422.3	0	40	No
SO_2	2,975.4	2,807.9	167.6	150.3	17.3	40	No
CO (AEI) CO (CEMS)	3,078***	571.4 1,205	2,506.7 1,873	32.7 100	2,474 1,773	100 100	Yes Yes
Ozone (VOC)	68.4	68.6	0.0	3.9	0	40	No
Lead	0.19	0.19	0.0	0.01	0	0.6	No
Fluorides	171.1	171.4	0.0	9.8	0	3	No
Sulfuric Acid Mist (H_2SO_4)	68.2	63.6	4.6	3.5	1.2	7	No

* Emissions Increase from the Modification = Future Projected Actual (FPA) Emissions – Baseline Actual Emissions (BAE). BAE periods are pollutant specific: April 2006 – March 2008 for SO_2 and $H2SO_4$; July 2007 - June 2009 for all other PSD pollutants. Only emissions increases are shown because netting was not conducted. Increases are calculated on a unit-by-unit basis and as a result may not be arithmetic sums of BAE, FPA emissions, and excludable emissions.

** Excludable emissions were calculated using BAE period average emission factors and the difference between the heat input (mmBtu) derived from Midwest Independent Systems Operator availability data from the BAE period and the BAE period actual heat input.

*** Based on BACT limit of 0.15 lb/mmBtu.

Table 3. Facility Classification

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD	PM, PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO, VOC		
Part 70 Permit Program	PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO, VOC		
Part 63 NESHAP	Single HAP, Total HAPs		

2. Regulatory and/or Statutory Basis

New Source Review

The facility is an existing major source under New Source Review (NSR) regulations.

This project will modify the burners in the Power Boiler #4 by replacing the existing CCOFA system with upgraded SOFA and LNB. This modification will reduce NO_X emissions from Power Boiler #4.

This NO_X emissions reduction project does result in a significant increase in a PSD regulated pollutant. The CO increase is projected to exceed the PSD significant threshold (100 tons per year of CO) for this major source.

A Future Projected Actual to Past Actual PSD analysis was conducted for all pollutants. The criteria pollutants that have a potential to increase are PM, PM_{10}, $PM_{2.5}$, SO_2, CO, and VOC. The hazardous air pollutants of concern for PSD analysis that have a potential to increase are fluorides and sulfuric acid (H_2SO_4). The only pollutant that has an emissions increase greater than the PSD significant increase threshold is CO. The facility has submitted a PSD analysis for CO including a Best Available Control Technology (BACT) determination, CO air dispersion modeling results, and an additional impacts analysis. This permit includes new BACT requirements for Power Boiler #4. Air Dispersion Modeling was reviewed by MPCA staff. Refer to Technical Information section for more details on the PSD review and modeling results.

Part 70 Permit Program

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

New Source Performance Standards (NSPS)

Power Boiler #4 is a fossil fuel-fired steam generator subject to 40 CFR pt. 60, subp. D because it was constructed after August 17, 1971 and before September 18, 1978.

NSPS subp. Da applies to Electric Utility Steam Generating Units for which construction commenced after September 18, 1978. The regulated pollutants under subp. Da are PM, SO_2, and NO_X. The physical changes being made to Power Boiler #4 in this modification do not qualify as a "modification" pursuant to 40 CFR Section 60.14 because the modifications to this existing unit will not result in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies.

The physical changes being made to Power Boiler #4 in this modification do not qualify as a "reconstruction" pursuant to 40 CFR Section 60.15, because the fixed capital costs of the new components does not exceed 50% of the fixed capital cost that would be required to install a comparable new boiler. Minnesota Power has estimated the costs of the modifications being made to Power Boiler #4 to be 1.55% of the cost of constructing a comparable new boiler.

Since Power Boiler #4 has not been "modified" or "reconstructed" (as defined in 40 CFR Sections 60.14 and 60.15, respectively) since September 18, 1978, it is not subject to 40 CFR pt. 60, subp. Da.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The Minnesota Power - Boswell Energy Center is classified as a major source of Hazardous Air Pollutants (HAPs). Power Boiler #4, by itself, is also a major source of HAPs. Power Boiler #4 is an electric utility steam generating unit, as defined in 40 CFR Section 63.41. The physical changes being made to Power Boiler #4 in this modification do not qualify as a "reconstruction" pursuant to 40 CFR

Section 63.41 because the fixed capital costs of the new components does not exceed 50% of the fixed capital cost that would be required to comparable entirely new facility. The costs of the modifications being made to Power Boiler #4 are estimated to be 1.55% of the cost of constructing a comparable entirely new facility and therefore the physical changes being made to Power Boiler #4 do not trigger review under Section 112(g) of the Clean Air Act because the boiler is not being constructed or reconstructed. Finally, Power Boiler #4 is not subject to any NESHAPs or area source NESHAPs.

Compliance Assurance Monitoring (CAM)

CAM does not apply to the modification authorized by this permit amendment. The new SOFA system and LNB are not considered add-on control devices and do not trigger CAM. Existing CAM requirements are carried forward into this draft permit from the amended operating permit (No. 06100004-004, issued August 12, 2009) which carried forward the CAM requirements from the reissued operating permit (No. 06100004-003, issued March 28, 2007).

Environmental Review & AERA

This project does not require a mandatory Environmental Impact Statement or an Environmental Assessment Worksheet. MPCA agrees with the Permittee's determination that this modification will not result in a potential emissions increase of greater than 250 tons per year for a single pollutant. The determination was based on a comparison of the annual future emissions in tons per year of each pollutant at maximum capacity and the annual past emissions in tons per year at maximum capacity. The annual emissions data was based on hourly emissions data determined according to Minn. R. 7007.1200, subp. 3 which states in part:

> **Subp. 3. Calculation method for modifications that are not title I modifications.** Emissions changes for a modification must be calculated by comparing the hourly emission rate of the stationary source, at maximum physical capacity, before and after the proposed physical or operational change…

Past hourly CO emissions were calculated using CO data obtained from a CEMS monitor on the stack of Boiler #4, and future hourly CO emissions were calculated using the proposed CO limit of 0.15 lb/mmBtu. The proposed startup/shutdown CO limit was not used for the future potential emissions calculation because this emission rate does not occur at maximum capacity. Also, this permit action does not trigger an Air Emissions Risk Analysis (AERA).

Endangered Species Consultation

US E.P.A. Region V submitted electronic documentation to the MPCA on June 17, 2010, stating the following:

> In accordance with Steps 1 and 2 of the Section 7(a)(2) Consultation Process step-by-step instructions provided by Region 3 of the U.S. FWS, we have determined that the Minnesota Power, Boswell Energy Center project is not likely to affect on any threatened or endangered species present in Itasca County and no further consultation is required for this project…

Minnesota State Rules

Power Boiler #4 is subject to Minn. R. 7011.0510 Standards of Performance for Existing Indirect Heating Equipment.

Table 4. Regulatory Overview of Units Affected by the Modification/Permit Amendment

Subject Item	Applicable Regulations	Comments:
EU 004	NSR PSD 40 CFR § 52.21 (PSD-BACT)	A Past Actual to Future Projected Actual analysis of emissions was conducted for this modification. The increase in CO emissions will exceed 100 tons per year and BACT is required. There was no reasonable possibility of a significant emissions increase of all other PSD-regulated pollutants. Prevention of Significant Deterioration. BACT was determined using EPA's top down approach. Control alternatives for CO emissions were examined. The RACT/BACT/LAER Clearinghouse was examined for PSD-BACT requirements for modifications to utility electric steam generating units. BACT was determined to be combustion controls, consisting of a combustion optimization system, to be installed as a part of the modification, and a two-tier CO emissions limit.
EU 004	Minn. R. 7007.0800, subp. 2	Annual reporting of future actual emissions to verify there was no reasonable possibility as defined at Section 52.21(r)(6)(vi)(a) for SO_2 after accounting for excludable emissions.

3. Technical Information

3.1 Emissions Calculations and Emissions Increase Analysis

Attachment 1 to this TSD is spreadsheet containing calculations for the PTE of Unit #4 after the modification. Sub-bituminous coal was the worst-case fuel for all pollutants. The emission factors for PM and PM_{10} are based on stack test data. The emission factor for SO_2 is based on current CEMS data. The emission factor for NO_X is based on current CEMS data and assumes a 25% reduction in NO_X emissions due to the proposed modification. The CO emission factor is the proposed BACT limit. The emission factors for VOC and HAPs are from AP-42. The emission factor for sulfuric acid is estimated at 1.5% of SO_2 emissions by the applicant.

Attachment 2 to this TSD is a summary of the Past Actual to Future Projected Actual PSD emissions analysis calculations for this modification. The determination of the projected actual emission changes was based on a comparison of the projected future annual emissions minus the sum of past actual emissions from the applicable 24-month baseline period and the excludable emissions for each pollutant.

Past actuals emissions were calculated using heat input records and emission factors developed from stack testing or CEMS data, or obtained from AP-42. Heat input was determined using coal flow and coal heat content for all pollutants except SO_2 where heat input was determined using stack flow rate monitor data and an F-factor (of 1840 dscf/mmBtu). The heat input exception for

SO_2 was used so that the SO_2 emissions in the PSD analysis would align with SO_2 emission data electronically reported directly to the EPA Clean Air Market (CAM) Acid Rain Program data.

The Permittee initially conducted the SO_2 PSD analysis using SO_2 emissions data derived from heat input based on coal flow, and an annual average SO_2 lb/mmBtu emissions factor obtained from the Boiler #4 SO_2 CEMS. It was apparent that the past actual SO_2 emissions data based on coal flow and the average annual SO_2 emission factor did not align with the CAM SO_2 data for a given 24-month period. The CAM data is publicly available so MPCA staff requested revision of the SO_2 PSD applicability analysis based on CAM data. The same approach was not taken for NO_X because it is clear that NO_X emissions would not increase from this project.

Except for CO, projected future actual emissions estimates are based on projected Unit #4 heat input (of 4685 mmBtu/hr averaged over 8760 hr/yr) derived from anticipated Unit #4 fuel utilization, and emission factors developed from stack testing or CEMS data, or obtained from AP-42. For CO, projected actual emissions are based on the projected heat input and the proposed BACT limit. Excludable emissions are the portion of the projected future actual emissions that Unit #4 could have accommodated prior to the modification. These emissions were determined by examining the MISO availability data and actual heat input during the selected BAE 24-month period for each pollutant. For this modification, the source has chosen April 2006 through March 2008 as the baseline period for SO_2 and H_2SO_4 and July 2007 through June 2009 as the baseline period for all other PSD pollutants.

Estimates of past actual PM and PM_{10} emissions were based on stack tests. Estimates of past actual $PM_{2.5}$ emissions are based on PM_{10} data and are assumed to be 53% of PM_{10} based on AP-42 particle size distribution. Estimates of past actual CO emissions were calculated using CO data from a (uncertified) CO CEMS on the stack of Boiler #4. Estimates of future projected actual CO emissions were calculated using the CO limit of 0.15 lb/mmBtu adopted in this permit. Estimates of past actual NO_X emissions were calculated using CEMS data and are expected to decrease by approximately 25% with the installation of the low-NO_X burners. The projected increase in CO emissions is greater than the PSD significant threshold of 100 tons per year. Therefore, this modification is a major modification for PSD.

Estimated emissions of other pollutants are expected to change by small amounts as a result of this modification. However, MPCA noted that the projected increase in SO_2 emissions of 17.3 tons per year is close to the threshold (20.0 tons per year) for triggering the PSD "Reasonable Possibility" provision. Pursuant to 40 CFR Section 52.21(r)(6)(vi)(a) and (b),

> A "reasonable possibility" under paragraph (r)(6) of this section occurs when the owner or operator calculates the project to result in either a projected actual emissions increase of at least 50 percent of the amount that is a "significant emissions increase," as defined under paragraph (b)(40) of this section (without reference to the amount that is a significant net emissions increase), for the regulated NSR pollutant; or a projected actual emissions increase that, added to the amount of emissions excluded under paragraph (b)(41)(ii)(c) of this section, sums to at least 50 percent of the amount that is a "significant emissions increase," as defined under paragraph (b)(40) of this section (without reference to the amount that is a significant net emissions increase), for the regulated NSR pollutant.

While the projected increase in SO_2 emissions does not trigger the "reasonable possibility" provision under PSD, MPCA determined that, in order to avert the possibility of a future PSD

violation, an annual reporting requirement similar to Section 52.21(r)(6)(iv) has been added to the permit for Unit #4 to verify that the assumptions made were valid in the Permittee's determination that a reasonable possibility did not exist.

Attachment 3 to this TSD are calculations submitted by the applicant for the PSD modification, including the emission factor determinations; past actual emissions data; future potential to emit while burning coal, oil and natural gas; current potential to emit burning coal, oil and natural gas; future allowable emissions; current allowable emissions; and the NSR PSD analysis using the Past Actual to Future Projected Actual methodology.

3.2 BACT Analysis

Attachment 4 to this TSD contains the detailed BACT Analysis provided by the applicant as part of their permit application. BACT was determined using EPA's top-down approach.

Control alternatives for CO emissions were examined. Catalytic oxidation and SCONO$_X$ were both rejected as not technically feasible due to possible fouling and destruction of the catalyst by ash and trace elements in the emissions. The use of catalysts would also lead to an undesirable increase in production of sulfuric acid (H_2SO_4) in the exhaust. Best combustion practices were determined to be the only feasible option.

The EPA's RACT/BACT/LAER Clearinghouse database was reviewed to determine PSD-BACT limits for similar projects. Twelve permits containing PSD-BACT limits for coal-fired boilers were examined. These cases were sorted to remove projects that were dissimilar to this current project, leaving only projects that set PSD-BACT for existing pulverized coal-fired boilers.

A limit of 0.15 lb CO /mmBtu heat input, calculated using a 30-day rolling average, and good combustion practices was determined to be BACT for operations that do not occur during startup, shutdown, or malfunction.

Basis Of Limit: The 0.15 lb/mmBtu value is a vendor guaranty. Minnesota Power went out for bids to reputable vendors for the LNB/OFA project. Alstom, Babcock Power, and Babcock & Wilcox bid the project. Minnesota Power indicates that none of the vendors would guaranty CO emission rates below 0.15 lbs/mmBtu and is not aware of any reputable vendor that would guarantee CO levels below this level in an existing unit. Minnesota Power chose Alstom as the LNB/OFA vendor on the basis of "best evaluated" bid; a combination of bid price, installation cost estimates, performance guarantees, reputation, experience, schedule, as well as other performance factors.

Good Combustion Practices: Good combustion practices is defined as firing the boiler at the proper stoichiometric (fuel/air) ratio. This is accomplished through visual adjustments, monitoring and control of O_2 and CO, periodic checks on unburned carbon content in the fly ash, safety interlocks, and proper maintenance of equipment to provide the time, temperature, and turbulence to maintain complete combustion. Visual inspections and subsequent adjustments may include (though not be limited to nor necessarily always include) boiler operators conducting hourly visual inspections into the boiler through inspection ports or cameras and determining flame quality and boiler wall conditions, as well as determining soot blowing priority and necessary air register adjustments. Operators also adjust the flame position in the furnace as needed, and check for flame impingement on the walls to avoid tube erosion and slag. This is an industry standard and techniques may vary slightly from unit to unit but this is done on all large power boilers. Additional information regarding good combustion practices can be found at www.epa.gov/ttn/atw/iccr/dirss/gcp.pdf.

Startup and Shutdown: For startup and shutdown, a limit based on CO modeling was established at 28,826 lb/hr on a 1-hour average. At this emission rate, the maximum ambient CO concentrations are 87% of the 8-hour CO SIL (500 ug/m^3) and 53% of the 1-hour CO SIL (2000 ug/m^3).

The Permittee established the boundary between startup/shutdown and normal operations at 320 gross MW which is equivalent to 50% load (Unit #4 capacity will be approximately 640 MW gross after completion of turbine-generator efficiency improvements that will occur simultaneously during the major outage when the LNB/OFA project will be installed). This level was established as the startup/shutdown-normal operation boundary because when operating below 50% load it is challenging to maintain emissions for certain pollutants below applicable limits. As a result Unit #4 is not operated below 50% load unless it is in startup or shutdown mode.

30-day Rolling Average: MPCA considered requiring the non-startup/shutdown emissions be calculated using a 24-hour average, as is required for Unit 3 at the Boswell Energy Center. However, Minnesota Power indicated there are technical difficulties with Unit #4 with continuously limiting CO emissions to such a low value in the short term. Variations in coal quality, coal moisture and equipment malfunctions could lead to short-term fluctuations in CO emissions. The purpose of this modification is to limit NO_X emissions without unnecessarily increasing CO emissions. However, the combustion practices that decrease CO emissions lead to increased NO_X emissions, and the combustion practices that decrease NO_X emissions lead to increased emissions of CO.

The modeling-predicted impacts of the increased CO emissions on ambient air quality indicated that the increases would not cause ambient concentrations in excess of the 1-hour and 8-hour CO significant impact levels (SILs) and would not adversely affect local air quality. Therefore, the 0.15 lb CO per mmBtu on a 30-day averaging period, combined with the startup/shutdown CO limit was determined to be a reasonable approach for keeping long-term CO emissions low, while acknowledging the technical limitations inherent in limiting both NO_X and CO.

3.3 Air Quality Impact Analysis

Attachment 4 to this TSD contains the Air Quality Impact Analysis provided by the applicant as part of their permit application. AEROMOD-PRIME software was used to model the impacts of CO emissions from Unit #4 on the ambient air quality in the region surrounding the Boswell Energy Center. The modeling was conducted at an emissions rate of 9607 lb/hr which is approximately ten times the proposed BACT limit (0.15 lb/mmBtu which is 960 lb/hr at maximum capacity). The results indicate that PSD 1-hour and 8-hour CO SILs were not exceeded at this emission rate. Further, even if the modeled CO emission rate is increased to approximately 30 times the proposed BACT limit (28,826 lb/hr), the CO SILs would not be exceeded.

Table 5. Air Dispersion Modeling Results for MN Power – BEC4 – PSD Class II SILs

Pollutant	Averaging Time	Total Predicted Impacts (µg/m3)	SILs (µg/m3)	% of SIL	MPCA Modeling Language Tier
CO (1x BACT; 961 lb/hr)	*1-hr*	35.23	2,000	1.76%	Tier 1
	8-hr	14.42	500	2.88%	
CO (10x BACT; 9607 lb/hr)	*1-hr*	352.31	2,000	17.6%	
	8-hr	144.22	500	28.8%	
CO Startup/ Shutdown (30x BACT; 28,826 lb/hr)	*1-hr*	1056.9	2,000	52.8%	
	8-hr	432.7	500	86.5%	

The modeling results shown in Table 5 are those from the permit application (approximately 10x BACT), with additional data for comparative purposes based on emissions that approximate the BACT emission rate, and at approximately thirty times the BACT emission rate (startup and shutdown). Note these rates are approximate (as opposed to exact) due to a typographical input error into the model; however these approximate rates are slightly higher than the actual BACT rate, so re-modeling is not necessary.

Although the startup and shutdown modeling could prompt 'Tier II' permit requirements for re-modeling, the permit only contains the 'Tier 1' modeling requirement language. This is justified because the startup/shutdown operating conditions are infrequent compared to normal routine operations, and modeling at the emission rate equal to the BACT (instead of 10 times BACT) with boiler #4 operating at capacity shows very low ambient impacts. The Tier I modeling language requirement is added to the total facility portion of table A and refers to the modeling parameters in Appendix B-2. No additional requirements are imposed based on the modeling results.

3.4 Additional Impact Analysis

Attachment 4 to this TSD contains the Additional Impact Analysis provided by the applicant as part of their permit application. There are no growth-related impacts associated with the construction or operation of the project, no adverse impacts to soils and vegetation are expected to occur as a result of the proposed project, and there will be no adverse affect on visibility due to the project.

3.5 Periodic Monitoring

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

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

- The likelihood of violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limits;
- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;

- The technical and economic feasibility of possible periodic monitoring methods; and
- The kind of monitoring found on similar units elsewhere.

The table below summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate, that have been added or changed by this permit action.

Table 6. Periodic Monitoring

Subject Item	Requirement (rule basis)	Additional Monitoring	Discussion
EU 004	CO $\leq$ 0.15 lb/mmBtu 40 CFR § 52.21 BACT limit	CEMS	CO CEMS data enables real-time determination of compliance with CO BACT limit
	Minn. R. 7007.0800, subp. 2	SO_2 emissions annual report	This annual report is necessary to verify that there was no reasonable possibility of a significant emissions increase due to the Unit #4 NO_X reduction LNB/SOFA modification

3.6 Insignificant Activities

Minnesota Power Boswell Energy Center has several operations which are classified as insignificant activities. These are listed in the Appendix to the permit. No new insignificant activities are being added in this permit amendment. No changes are being made to existing requirements for existing insignificant activities in this permit amendment.

3.7 Other Changes

A correction was made to a citation reference in the permit "Total Facility" section 'Reasonable Possibility' requirements. The reference to "Section 52.2(r)(6)(vi)(a)" was corrected to "Section 52.21(r)(6)(vi)(b)".

3.8 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 permit 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.

3.9 Comments Received

Public Notice Period: May 7 – June 7, 2010
EPA 45-day Review Period: May 7 – June 21, 2010

During the comment period, it was learned that on April 14, 2010, EPA granted (in part) a petitioner's request to object to certain conditions in a Wheelabrator PSD/Title V permit (No. 24-510-01886) issued by the Maryland Department of the Environment (MDE) on June 1, 2009, and remanded the permit back to MDE. The petition pertained (in part) to emissions monitoring data reduction requirements for emissions measured with a CEMS. The petition stated that the permit did not specify how the CEMS data

(measured in parts per million) would be converted into a mass emission rate to demonstrate that Wheelabrator is meeting the permitted PSD hourly limit.

EPA agreed with this issue in the petition because it reasoned that under part 70 (MDE has a combined construction and operating permit program like Minnesota) the permit must contain adequate monitoring requirements in order to determine compliance with applicable limits (refer to 40 CFR Section 70.6). EPA approved the petitioner's request for objection of this portion of the permit because it did not contain adequate monitoring requirements that clearly specified how Wheelabrator would convert the raw CEMS data into data that is in the same units of measurement as the limit for the monitored pollutant.

In response to this monitoring issue petition approval and permit remand, an additional requirement was added to the Minnesota Power Boswell Energy Center draft permit under EU 004. The requirement prescribes how the Permittee will convert CO CEMS (MR 045) parts per million data into lb/mmBtu and lb/hr CO emission rates.

Comments were received from Minnesota Center for Environmental Advocacy (MCEA) on June 7, 2010 (during the public comment period). The comment letter and the July 13, 2010 MPCA response (Attachment 9) are attached. No comment was received from US E.P.A.

As indicated above, on July 13, 2010 MPCA sent a response to the June 7, 2010 MCEA comments letter. The draft/proposed permit was issued July 16, 2010. On that same date MPCA sent a letter to MCEA confirming permit issuance and describing their appeal rights under part 124. Based on the 30-day appeal period and three day allowance for U.S. Postal Service delivery, the last day for MCEA to appeal the issued permit was August 18, 2010.

On August 19, 2010, the permit author contacted the EPA Environmental Appeals Board Clerk at (202) 233-0122 and was informed by Ms. Annette Duncan of the Clerk's office that the EAB had not received a request for appeal of the permit. On August 19, 2010, the permit became effective and a revised permit signature page that included the August 19, 2010 effective date was sent by the MPCA to Minnesota Power.

4. Permit Fee Assessment

Attachment 7 to this TSD contains the MPCA's assessment of Application and Additional Points used to determine the permit application fee for this permit action as required by Minn. R. 7002.0019. The permit action is a major amendment and a re-opening for CEMS certification. The major amendment application was received February 5, 2010 was received after the effective date of the rule (July 1, 2009). The permit is for changes to Unit #4 that include a BACT determination and ambient air modeling. The re-opening does not play a role in the fee calculation.

5. Conclusion

Based on the information provided by Minnesota Power, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 06100004-005 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team:	Marshall Cole (permit writer/engineer) Stephen Treimel & Amanda Baynham/ERG (contractor) Steve Palzkill (enforcement) Andrew Place (stack testing) Bruce Braaten (peer reviewer) Melissa Sheffer (modeling review)

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Attachments:
1. Calculation Spreadsheet: PTE for Unit #4 After Modification (Future PTE worksheet)
2. Past actual to future actual emissions summary (ATAP worksheet)
3. Detailed PSD Analysis (SUMMARY worksheet)
4. PSD Requirements for BEC #4 CO (application ch. 4)
5. SAM Modeling Summary – March 2010 BEC4 CO
6. Application and Additional Points Fee Spreadsheet
7. Facility Description and CD-01 Forms
8. June 7, 2010 MCEA Comment Letter and July 13, 2010 MPCA Response