

AIR EMISSION PERMIT NO. 13700013-006

IS ISSUED TO

Minnesota Power Division of ALLETE Inc

MINNESOTA POWER - LASKIN ENERGY CENTER

5699 Colby Lake Road
Hoyt Lakes, St. Louis County, MN 55750

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

Permit Type	Application Date
Total Facility Reissuance	11/14/2001
Supplemental Information No. 1	7/11/2008
Supplemental Information No. 2	8/26/2008
Administrative Amendment	4/6/2007
Administrative Amendment	5/30/2008

This permit supersedes Air Emission Permit No. 13700013-005 and authorizes the Permittee to operate the stationary source at the address listed above unless otherwise noted in Table A. The Permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: Federal; Pt 70/Major for NSR

Issue Date: November 25, 2008

Expiration: November 25, 2013
All Title I Conditions do not expire.

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

for Brad Moore
Commissioner
Minnesota Pollution Control Agency

TABLE OF CONTENTS

Notice to the Permittee

Permit Shield

Facility Description

Table A: Limits and Other Requirements

Table B: Submittals

Table C: *not used in this permit*

Appendix A: *not used in this permit*

Appendix B: Acid Rain Permit Application

Appendix C: Insignificant Activities Required to be Listed

Appendix D: Compliance Assurance Monitoring Plan

Appendix E: SO₂ Modeling Parameters

Appendix F: NO_x and PM₁₀ Modeling Parameters

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 Laskin Energy Center is an electric generating facility located near Aurora, Minnesota. This electric power facility contains two identical steam generating boilers, coal receiving, handling, and storage facilities, and ash handling and storage capabilities. Each boiler has twelve 4 mmBtu/hr natural gas/oil-fired ignitors and dry low Nitrogen Oxides (NO_x) combustors. Each boiler vents emissions to a high-efficiency wet scrubber that discharges to the atmosphere through a common stack. The scrubbers control Particulate Matter (PM), Particulate matter smaller than 10 microns (PM₁₀), Sulfur dioxide (SO₂), and lead. The net generating capacity is 110 megawatts.

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-1**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

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
MODELING REQUIREMENTS	hdr
Parameters Used in Modeling: The parameters used in the modeling performed for determining emission and/or operational limits for this facility are listed in Appendix E of this permit. If the Permittee intends to change any of these parameters, the Permittee must submit the revised parameters to the Commissioner and receive written approval before making any changes. The revised parameter information submittal must include, but is not limited to: the locations, heights and diameters of the stacks; locations and dimensions of nearby buildings; velocity and temperatures of the gases emitted; and the emission rates. The plume dispersion characteristics due to the parameter revisions must equal or exceed the dispersion characteristics modeled for this permit, and the Permittee shall demonstrate this in the proposal.	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080
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 remodel.	CONTINUED
Parameters Used in Modeling (continued): For changes that do not involve an increase in an emission rate and that do not require a permit amendment, the proposal must be submitted as soon as practicable, but no less than 60 days before making the change to any parameter. For changes involving increases in emission rates and that require a minor permit amendment, the proposal must be submitted as soon as practicable, but no less than 60 days before making the change to any parameter. For changes involving increases in emission rates and that require a permit amendment other than a minor amendment, the proposal must be submitted prior to or with the permit amendment application. This is a state only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	CONTINUED
DETERMINING IF A PROJECT/MODIFICATION IS SUBJECT TO NEW SOURCE REVIEW	hdr
These requirements apply where there is a reasonable possibility (as defined in 40 CFR Section 52.21(r)(6)(vi)) that a proposed project, analyzed using the actual-to-projected-actual (ATPA) test (either by itself or as part of the hybrid test described in Section 52.21(a)(2)(iv)(f)) and found to not be part of a major modification, may result in a significant emissions increase. If the ATPA test is not used for a particular project, or if there is not a reasonable possibility that the proposed project could result in a significant emissions increase, then these requirements do not apply to that project. Even though a particular modification is not subject to New Source Review, or where there isn't a reasonable possibility that a proposed project could result in a significant emissions increase, a permit amendment, recordkeeping, or notification may still be required under 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

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-2**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

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); Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 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); Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 4 & 5
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); Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 4 & 5
OPERATIONAL 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. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps. 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080
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, subps. 14 and 16(J)
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-3**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
PERFORMANCE TESTING	hdr
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.	Minn. R. ch. 7017
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. Rs. 7017.2030, subp. 1-4, 7017.2018 and Minn. R. 7017.2035, subp. 1-2
Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change.	Minn. R. 7017.2025, subp. 3
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: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)
When the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For expiring permits, these records shall be kept for a period of five years from the date the change was made or until permit reissuance, whichever is longer. For nonexpiring permits, these records shall be kept for a period of five years from the date that the change was made. The records shall be kept at the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format.	Minn. R. 7007.1200, subp. 4
REPORTING/SUBMITTALS	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-4**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

<p>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.</p> <p>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.</p>	Minn. R. 7019.1000, subp. 3
<p>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.</p> <p>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.</p>	Minn. R. 7019.1000, subp. 2
<p>Shutdown and Breakdown Reporting Requirement for the Dust Collector Systems for Material Handling Equipment:</p> <p>Shutdowns and breakdowns shall be reported on a quarterly basis to the Agency. The quarterly report shall include an identification of any dust collector that experienced a breakdown and/or 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.</p>	Minn. R. 7019.1000, subp. 2
<p>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.</p>	Minn. R. 7019.1000, subp. 1
<p>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:</p> <ol style="list-style-type: none"> 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
<p>Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.</p>	Minn. R. 7007.1150 through Minn. R. 7007.1500
<p>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).</p>	Minn. R. 7007.1400, subp. 1(H)
<p>Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance. The Permittee shall submit this on a form approved by the Commissioner.</p>	Minn. R. 7019.3000 through Minn. R. 7019.3100
<p>Emission Fees: due 60 days after receipt of an MPCA bill.</p>	Minn. R. 7002.0005 through Minn. R. 7002.0095

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-5**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

Subject Item: GP 001 Boilers**Associated Items:** CE 004 Low Nox Burners

CE 005 Low Nox Burners

CE 006 Overfire Air

CE 007 Overfire Air

EU 001 Boiler - Unit #1; CE 001, CE 004, CE 006

EU 002 Boiler - Unit #2; CE 002, CE 005, CE 007

SV 001 Common Boiler Stack

What to do	Why to do it
<p>The Permittee shall meet either option 1 or option 2:</p> <p>1.a. Individually validate EU 001 and EU 002 CO emissions are less than or equal to the EU 001 and EU 002 CO 0.126 lb/mmBtu emission factor, and</p> <p>1.b. Monitor, record, and report GP 001 emissions as required by 40 CFR Section 52.21(r)(6);</p> <p>OR</p> <p>2. Meet the GP 001 630 ton per year (12-month rolling sum basis) CO limit and all associated monitoring, recordkeeping, and reporting requirements in table A of this permit.</p> <p>If either EU 001 or EU 002 CO emission factor testing results in a factor greater than 0.126 lb/mmBtu, the Permittee shall follow option 2 and associated CO monitoring and recordkeeping requirements in EU 001, EU 002, and GP 001 in table A of this permit.</p>	<p>Title I Condition: 40 CFR Sections 52.21(b) & 52.21(r)(6) and Minn. R. 7007.3000</p>
<p>Reverting From Option 2 To Option 1: The Permittee may revert from option 2 to option 1 under the following conditions:</p> <p>1. a subsequent CO performance test on the same emission unit that previously tested above 0.126 lb/mmBtu measures CO emissions no greater than 0.126 lb/mmBtu;</p> <p>2. the Permittee continues to follow Section 52.21(r)(6) requirements during the five-year period following the resumption of regular operation after completion of modifications of both units, regardless if option 2 applies.</p> <p>If both units previously tested above 0.126 lb/mmBtu, subsequent CO performance tests must show CO emissions no greater than 0.126 lb/mmBtu for both units in order to revert to option 1. This permit provision expires 5 years following resumption of regular operations after completion of modifications of both units.</p>	<p>Title I Condition: 40 CFR Sections 52.21(b) & 52.21(r)(6) and Minn. R. 7007.3000</p>
<p>Carbon Monoxide: less than or equal to 630 tons/year using 12-month Rolling Sum for both boilers combined. This limit applies at the end of the twelfth month after initial startup of the first modified boiler, if the Permittee elects or is required to meet this limit.</p>	<p>Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000</p>
<p>Carbon Monoxide: If the Permittee elects to or is required to meet the GP 001 630 ton per year CO limit, the following cumulative limit as of month 'n' where n = 1, 2, 3, etc. applies after initial startup of the first modified boiler:</p> <p>Month 1: 100 tons Month 2: 200 tons Month 3: 275 tons Month 4: 350 tons Month 5: 400 tons Month 6: 450 tons Month 7: 490 tons Month 8: 520 tons Month 9: 550 tons Month 10: 580 tons Month 11: 610 tons</p> <p>Month 1 includes the month of initial startup of the first modified boiler. This requirement terminates at the end of the twelfth month following initial startup of the first modified boiler.</p>	<p>Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-6**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

Carbon Monoxide: less than or equal to 738.0 tons/year on a calendar year basis for both boilers combined. This limit and associated recordkeeping is suspended if CO emission factor testing of EU 001 and EU 002 demonstrates a CO emission factor less than or equal to 0.124 lb/mmBtu for each emission unit. This limit is re-instated if a subsequent EU 001 or EU 002 CO emission factor test measures CO in excess of 0.124 lb/mmBtu.	Minn. R. 7007.0800, subp. 2 to avoid 100 tpy environmental review potential emission increase threshold
GP 001 CO Emissions Monitoring and Recordkeeping: If the Permittee elects to or is required to meet the 630.0 ton per year GP 001 CO limit, by the last day of each month the Permittee shall calculate and record: 1. monthly GP 001 CO emissions for the previous calendar month by summing the EU 001 CO and EU 002 CO emissions determined according to the requirements listed under EU 001 and EU 002, respectively, from the previous calendar month; 2. GP 001 CO emissions from the previous twelve-month period by summing the monthly GP 001 CO emissions from the previous twelve months.	Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000
GP 001 CO Emissions Monitoring and Recordkeeping: The Permittee shall calculate and record the GP 001 calendar year CO emissions by January 30 of each year, for the previous calendar year.	Minn. R. 7007.0800, subp. 4 and 5 to avoid 100 tpy environmental review potential emission increase threshold
If either EU 001 or EU 002 CO emission factor testing results in a factor greater than 0.126 lb/mmBtu, the Permittee may opt to perform additional analyses to demonstrate that the CO emissions performance satisfies Prevention of Significant Deterioration requirements under 40 CFR Section 52.21, and obtain a permit according to 40 CFR Section 52.21.	40 CFR Section 52.21(a)(2)(iii)
Combustion Of Oily Cellulose-Based Sorbents (including rags): The Permittee is permitted to burn oily cellulose-based sorbent and rags in both boilers. The materials must be cellulose-based and are subject to the following limits: 1) 1.25 tons per hour; and 2) 25 tons per year (on a 12-month rolling sum basis). The Permittee shall record the quantity of sorbent materials burned on an hourly and 12-month rolling sum basis.	Title I Condition: to ensure that the emissions increase from the addition of the fuel type is less than significant as defined by 40 CFR Section 52.21 and Minn. R. 7007.3000

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-7**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

Subject Item: GP 002 Scrubbers

What to do	Why to do it
THE FOLLOWING REQUIREMENTS APPLY TO EACH SCRUBBER INDIVIDUALLY	hdr
The Permittee shall operate and maintain the scrubbers (CE 001 and CE 002) at all times that any emission unit controlled by the scrubbers (EU 001 and EU 002) is in operation. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subps. 2 and 14
The Permittee shall operate and maintain control equipment such that it achieves an overall control efficiency for Total Particulate Matter: greater than or equal to 90 percent	Minn. R. 7007.0800, subps. 2 and 14
The Permittee shall operate and maintain the scrubbers 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.	40 CFR Section 64.7(b); Minn. R. 7017.0200
Temperature: less than or equal to 175 degrees F using 3-hour Average at the common stack, unless a new limit is set pursuant to Minn. R. 7017.2025, subp. 3 based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The new limit shall be implemented upon receipt of the Notice of Compliance letter granting preliminary approval. The limit is final upon issuance of a permit amendment incorporating the change. If the 3-hour rolling average temperature is above the maximum temperature limit, the PM emitted during that time shall be considered uncontrolled until the average temperature is below the maximum temperature limit. This shall be reported as a deviation.	Minn. R. 7007.0800, subps. 2 and 14
Temperature Monitoring: The Permittee shall maintain and operate a thermocouple monitoring device that continuously indicates and records the stack temperature. The monitoring equipment must be in use and properly maintained whenever operation of the monitored control equipment is required. The monitoring device shall have a margin of error less than +/- 2.0 percent of the temperature being measured. The recording device shall also calculate the three-hour rolling average temperature. Recorded values outside the range specified in this permit are considered Deviations as defined by Minn. R. 7007.0100, subp. 8a.	Minn. R. 7007.0800, subps. 2 and 14; 40 CFR Section 64.3(b)(4)(ii); Minn. R. 7017.0200; 40 CFR Section 64.7(b); Minn. R. 7017.0200
Opacity: less than or equal to 20 percent using 3-hour average, unless a new limit is set pursuant to Minn. R. 7017.2025, subp. 3 based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The new limit shall be implemented upon receipt of the Notice of Compliance letter granting preliminary approval. The limit is final upon issuance of a permit amendment incorporating the change. If the 3-hour rolling average opacity is above the maximum opacity limit, the PM emitted during that time shall be considered uncontrolled until the average opacity is below the maximum opacity limit. This shall be reported as a deviation.	Minn. R. 7007.0800, subps. 2 and 14; 40 CFR Section 64.3(b)(4)(ii); Minn. R. 7017.0200
Opacity Monitoring: The Permittee shall maintain and operate an opacity monitoring device that continuously indicates and records the opacity of the stack. The monitoring equipment must be in use and properly maintained whenever operation of the monitored control equipment is required. The monitoring device shall have a margin of error less than +/- 2.0 percent. The recording device shall also calculate the three-hour rolling average. Recorded values outside the range specified in this permit are considered Deviations as defined by Minn. R. 7007.0100, subp. 8a.	Minn. R. 7007.0800, subps. 2 and 14; 40 CFR Section 64.3(b)(4)(ii); Minn. R. 7017.0200; 40 CFR Section 64.7(b); Minn. R. 7017.0200
Daily Monitoring: The Permittee shall physically verify the operation of the temperature recording device at least once each operating day to verify that it is working and recording properly. The Permittee shall maintain a written or electronic record of the daily verifications. The Permittee shall maintain a high temperature alarm for the boiler operator.	Minn. R. 7007.0800, subps. 2 and 14; 40 CFR Section 64.3(b); Minn. R. 7017.0200
The Permittee shall maintain a continuous hard copy readout or computer disk file of the temperature and opacity readings and calculated three hour rolling average temperatures and opacity at the common stack.	Minn. R. 7007.0800, subps. 2 and 14; 40 CFR Section 64.9(b); Minn. R. 7017.0200
Annual Calibration: The Permittee shall calibrate the temperature monitor at least annually and shall maintain a written record of the calibration and any action resulting from the calibration.	40 CFR Section 64.3; Minn. R. 7017.0200
Quarterly Inspections: At least once per calendar quarter, the Permittee shall inspect the control equipment internal and external system components. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection.	40 CFR Section 64.3; Minn. R. 7017.0200
Annual Inspection: At least once per calendar year, the Permittee shall conduct an internal inspection of the control device that includes all operating systems of the control device. The Permittee shall maintain a written record of the inspection and any action resulting from the inspection.	40 CFR Section 64.3; Minn. R. 7017.0200

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-8**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

For periods when the scrubber exhaust is below the maximum temperature and opacity, the Permittee shall use either one of the following when completing calculations as required elsewhere in this permit: a. The overall control efficiency limit specified in this permit for this equipment (90%); or b. The overall control efficiency determined during the most recent MPCA approved performance test. If the tested efficiency is less than the efficiency limit in this permit, the Permittee must use the tested value in all calculations until the efficiency is demonstrated to be above the permit limit through a new test.	Minn. R. 7007.0800, subp. 4 and 5
Corrective Actions: If the temperature and/or opacity is above the maximum specified by this permit or if the scrubber or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature and/or opacity to at least the permitted maximum 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 scrubbers. The Permittee shall keep a record of the type and date of any corrective action taken.	40 CFR Section 64.7(d); Minn. R. 7017.0200
Documentation of Need for Improved Monitoring: If the Permittee fails to achieve compliance with an emission limitation or standard for which the 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 maximum exhaust temperature, the Permittee shall promptly notify the MPCA and, if necessary, submit a permit amendment application to address the necessary monitoring changes.	40 CFR Section 64.7(e); Minn. R. 7017.0200
As required by 40 CFR Section 64.9(a)(2), for the Semi-Annual Deviations Report listed in Table B of this permit and/or the Notification of Deviations Endangering Human Health and the Environment listed earlier in Table A of this permit, as applicable, the Permittee shall include the following related to the monitoring identified as required by 40 CFR pt. 64: 1) Summary information on the number, duration, and cause of excursions or exceedances, as applicable, and the corrective action taken; and 2) Summary information on the number, duration, and cause for monitor downtime incidents.	40 CFR Section 64.9(a)(2); Minn. R. 7017.0200
The Permittee shall maintain records of monitoring data, monitor performance data, corrective actions taken, and other supporting information required to be maintained. The Permittee 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

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-9**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

Subject Item: SV 001 Common Boiler Stack**Associated Items:** EU 001 Boiler - Unit #1; CE 001, CE 004, CE 006

EU 002 Boiler - Unit #2; CE 002, CE 005, CE 007

GP 001 Boilers

MR 002

MR 005

MR 006 Flow X-pattern

MR 007 Opacity

MR 008 SO2

MR 009 NOx

MR 010 CO2

What to do	Why to do it
ADDITIONAL MR REQUIREMENTS LOCATED AT THE INDIVIDUAL MR LEVEL	hdr
Sulfur Dioxide: less than or equal to 2.04 lbs/million Btu heat input using 1-Hour Average . Refer to EU 001 and EU 002 for the SO2 limit applicable to each emission unit.	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080
Nitrogen Oxides: less than or equal to 0.20 lbs/million Btu heat input using 365-day Rolling Average	Minn. R. 7007.0800, subp. 2; this is a state-only requirement not enforceable by the EPA administrator or citizens under the Clean Air Act
COMS Monitoring Data: Owners or operators of all COMS shall reduce all data to a one-minute averaging period. Opacity averages shall be calculated from all equally spaced consecutive 10-second (or shorter) data points in the one-minute averaging period.	Minn. R. 7017.1200, subps. 1, 2 and 3
COMS Calibration Error Audit: due before end of each calendar half-year following COMS Certification Test. 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
COMS 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
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 COMS must be adjusted whenever the calibration drift (CD) exceeds twice the specification of 40 CFR 60, Appendix B, PS-1.	Minn. R. 7017.1210, subp. 2
Recordkeeping: The owner or operator must retain records of all COMS/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
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 App B.	40 CFR pt. 75 App B, section 2.1
CEMS Relative Accuracy Test Audit (RATA): due before the end of each calendar half year following CEM Certification Test (or due each year, depending on the results of the previous test). Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75 App B. If the RATA results indicate a relative accuracy of 7.5% or less, the next RATA is not required for another year.	40 CFR pt. 75 App B, section 2.3

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-10**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

Linearity and Leak Check Test (Acid Rain Program): due before end of each calendar quarter following CEM Certification Test. Conduct a quarterly linearity test on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75 App B.	40 CFR pt. 75 App B, section 2.2
Relative Accuracy Test Audit (RATA) Notification: due 30 days before CEMS Relative Accuracy Test Audit (RATA).	Minn. R. 7017.1180, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-11**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

Subject Item: EU 001 Boiler - Unit #1; CE 001, CE 004, CE 006**Associated Items:** CE 004 Low Nox Burners

CE 006 Overfire Air

GP 001 Boilers

SV 001 Common Boiler Stack

What to do	Why to do it
LIMITS AND OPERATING REQUIREMENTS	hdr
Total Particulate Matter: less than or equal to 0.60 lbs/million Btu heat input	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
Sulfur Dioxide: less than or equal to 4.0 lbs/million Btu heat input using 1-Hour Average period for solid fuels, and 2.0 lb/mmBtu when burning liquid fuels. When 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 input from solid fossil fuels.	Minn. R. 7011.0510, subp. 1
Refer to SV 001 for additional SO2 limit applicable to the common stack.	
Nitrogen Oxides: less than or equal to 0.20 lbs/million Btu heat input using 365-day Rolling Average	Minn. R. 7007.0800, subp. 2; this is a state-only requirement not enforceable by the EPA administrator or citizens under the Clean Air Act
Carbon Monoxide: less than or equal to 0.126 lbs/million Btu heat input (this is an emission factor and not a limit). The Permittee shall validate this factor through performance testing. If performance testing shows a factor greater than 0.126 lb/mmBtu, the Permittee shall meet the GP 001 630.0 tpy limit.	Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000
Fuel use: limited to sub-bituminous and bituminous coal, distillate oil, natural gas, boiler cleaning agents, non-hazardous petroleum distillate solvents and derived fuels, used oil, oily coal (coal with oil spilled on it), and oily cellulose-based sorbents (including rags).	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Boiler cleaning agents limited to: EDTA type and Ammonium Bromate, are generated on-site, 5% of total fuel mass, 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. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Fuel Usage: less than or equal to 720 gallons/hour and less than 2,500,000 gallons annually of off-specification and on-specification used oil. Used oil shall be burned in accordance with Minn. R. ch. 7045.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
EU 001 Bituminous Coal Operations: If the Permittee combusts any bituminous coal, the Permittee shall conduct a CO performance test while burning bituminous coal. The Permittee may continue burning bituminous coal in EU 001 after completion of testing.	Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000
EU 001 CO Emissions Indicator: The Permittee shall operate EU 001 so that CO (ppm) measured by the emissions indicator does not exceed a value based on values measured during the most recent MPCA-approved performance stack test for evaluating the EU 001 CO emission factor. The current CO emission indicator is 100 ppm on a 30-day rolling average based on July 2007 test data.	Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000
ACID RAIN PROGRAM REQUIREMENTS	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)
Application for NOx limits: Submit a complete permit application and compliance plan for NOx emissions in accordance with 40 CFR Section 76.9.	40 CFR Section 76.9(b)(2)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-12**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

<p>NOx Averaging Plan</p> <p>Beginning January 1, 2000 either:</p> <p>Maintain an annual average NOx emission rate of 0.40 lbs/mmBtu and limit the annual heat input to less than or equal to 4,600,000 mmBtu per year.</p> <p>OR</p> <p>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:</p> <table border="0"> <tr> <td>Plant</td> <td>Boiler ID#</td> </tr> <tr> <td>Clay Boswell</td> <td>1, 2, 3, 4</td> </tr> <tr> <td>Syl Laskin</td> <td>1, 2</td> </tr> <tr> <td>Taconite Harbor</td> <td>1, 2, 3</td> </tr> </table>	Plant	Boiler ID#	Clay Boswell	1, 2, 3, 4	Syl Laskin	1, 2	Taconite Harbor	1, 2, 3	40 CFR Section 76.11
Plant	Boiler ID#								
Clay Boswell	1, 2, 3, 4								
Syl Laskin	1, 2								
Taconite Harbor	1, 2, 3								
<p>Recordkeeping: Keep on site at the source each of the following documents for a period of 5 years from the date the document is created: The certificate of representation, all emissions monitoring information, copies of all reports, compliance certifications, and other submissions or records made under the Acid Rain Program, copies of all documents used to complete an acid rain permit application.</p>	40 CFR Section 72.9(f)(l)								
<p>Apply for Acid Rain Program Permit reissuance: The designated representative shall submit a complete Acid Rain permit application for each source with an affected unit at least 6 months prior to the expiration of an existing Acid Rain Permit in accordance with 40 CFR Section 72.30(c).</p>	40 CFR Section 72.30(c)								
<p>Certify Acid Rain Program Submittals. Each submission under the Acid Rain Program shall be submitted, signed, and certified by the designated representative or the alternate designated representative for all sources on behalf of which the submission is made in accordance with 40 CFR Section 72.21.</p>	40 CFR Section 72.21								
<p>Hold allowances as of the allowance transfer deadline, in the unit's compliance subaccount not less than the total annual emissions of sulfur dioxide for the previous calendar year. Takes effect for years beginning January 1, 2000. Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.</p>	40 CFR Section 72.9(c)(1)(i), 40 CFR Section 72.9(g)(4)								
<p>The owner or operator shall measure opacity, and all SO₂, NO_x, and CO₂ emissions for each affected unit in accordance with 40 CFR Section 75.10.</p>	40 CFR Section 75.10								
<p>PERFORMANCE TESTING</p>	hdr								
<p>Performance Test: due before end of each calendar 60 months starting 07/25/2007 to evaluate compliance with the CO emission factor to avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000. The tests shall be conducted at an interval not to exceed 60 months between test dates. The test shall be conducted while combusting coal as a single fuel, a combination of coal and fuel oil, and a combination of coal and natural gas.</p> <p>A one-time 60-day extension was granted in 2007.</p>	Minn. R. 7017.2020, subp.1								
<p>Performance Test: due before end of each 60 months starting 06/03/1997 to determine compliance with the particulate matter emissions limit in Minn. R. 7011.0510 subp 1. The tests shall be conducted at an interval not to exceed 60 months between test dates.</p> <p>A one-time 120-day extension was granted in 2007.</p>	Minn. R. 7017.2020, subp. 1								
<p>Boiler Alternative Operating Conditions for Performance Testing:</p> <p>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.</p> <p>In no case will the new operating rate limit be higher than allowed by an existing permit condition.</p>	Minn. R. 7017.2025, subp. 2.A. and 3.B.								

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-13**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

<p>Boiler Operating Conditions Not Meeting the Alternative Operating Conditions During Performance Testing:</p> <p>If performance testing is not conducted at or above the established alternative operating condition, then the boiler operating rate will be limited on an 8-hour block average based on the following:</p> <p>(1) If the results of the performance test are greater than 80% of any applicable emission limit for which compliance is demonstrated, then boiler operation will be limited to the tested operating rate.</p> <p>(2) If results are less than or equal to 80% of all applicable emission limits for which compliance is demonstrated, boiler operation will be limited to the tested operating rate.</p> <p>In no case will the new operating rate limit be higher than allowed by an existing permit condition.</p>	Minn. R. 7017.2025, subp. 3.B.
<p>STET (Short Term Emergency and Testing) Operating hours limit:</p> <p>The boiler may operate up to 40 hours per year to demonstrate the Uniform Rating of Generating Equipment (URGE) capacity and to meet emergency energy supply needs. Maintain documentation of all STET operation to demonstrate compliance with this limit. The boiler must meet emission limits during STET operation.</p>	Minn. R. 7007.0800, subp. 2
<p>STET Operation Definition that applies to Boilers that Meet or do Not Meet the Alternative Operating Condition for Performance Testing:</p> <p>If performance test results demonstrate compliance at 80% or less of any applicable emission limits for any tested pollutant, STET operation is defined as operation beyond 110% of the average operating rate achieved during that performance test.</p> <p>If performance test results demonstrate compliance at greater than 80% of any applicable emission limit for any tested pollutant, STET operation is defined as operation beyond 100% of the average operating rate achieved during that performance test.</p> <p>In no case will STET operation be higher than allowed by an existing permit condition.</p>	Minn. R. 7007.0800, subp. 2
<p>The results of a performance test are not final until issuance of a review letter by MPCA, unless specified otherwise by Minn. R. 7017.2001 - 7017.2060.</p>	Minn. R. 7017.2020, subp. 4
MONITORING AND RECORDKEEPING	hdr
<p>Recordkeeping: maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the facility including malfunction of the air pollution control equipment or any periods during which a continuous monitoring system or monitoring device is inoperative.</p>	Minn. R. 7007.0800, subp. 2
<p>Excess emissions and monitoring system performance reports shall include the information required in 40 CFR Section 60.7(c) and (d). MPCA supplied forms DRF-1 and DRF-2 may be used to meet this requirement.</p>	Minn. R. 7007.0800, subp. 2
<p>EU 001 CO Emissions Indicator Monitoring and Recordkeeping: Calculate the arithmetic average of all hourly emission rates for CO for 30 calendar days. The 30-day rolling hourly average is calculated once each calendar day by summing the hourly CO emission concentrations measured during the previous 30 calendar days, and dividing by the number of hourly data values. Downtime of greater than one hour duration shall not be included in the 30-day rolling average.</p>	Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000
<p>EU 001 CO Emissions Indicator Monitoring and Recordkeeping: The Permittee shall install, operate, and maintain a process CO monitor (ppm monitor primarily for the boiler operator) upstream of the EU 001 air heater, and record the indicator measurements. The monitoring and recordkeeping equipment shall be operated and maintained at all times during EU 001 operation.</p> <p>CO concentration will not exceed a value based on values recorded during the most recent MPCA-approved performance test. The measurement frequency and averaging period associated with this emissions indicator will be derived by the Permittee through analysis of the correlation between indicator readings and the first performance test results.</p>	Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-14**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

<p>EU 001 CO Emissions Monitoring and Recordkeeping: If the Permittee elects or is required to meet the 630 tpy (on a 12-month rolling sum basis) limit in GP 001, by the last day of each month commencing with the month of initial startup of the first boiler after LNB and OFA modifications are completed, the Permittee shall:</p> <ol style="list-style-type: none">1. calculate and record EU 001 monthly fuel usage of bituminous and sub-bituminous coal;2. calculate and record monthly EU 001 CO emissions using the following equation: $\text{EU 001 CO} = (\text{FU} * \text{HC} * \text{EF}) / 2000$ <p>where:</p> <p>EU 001 CO = monthly EU 001 CO emissions for each coal type (tons) FU = EU 001 monthly fuel consumption for each coal type (tons) HC = fuel heat content for each coal type (mmBtu/ton) EF = current EU 001 CO emission factor for each coal type (lb/mmBtu)</p>	<p>Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000</p>
<p>EU 001 Bituminous Coal CO Monitoring: If the Permittee combusts bituminous coal, the Permittee shall calculate bituminous coal CO emissions using the EU 001 subbituminous coal CO emission factor until receipt of written MPCA confirmation of the EU 001 bituminous coal CO test results.</p> <p>After receipt of written MPCA confirmation of the EU 001 bituminous coal CO test results, the Permittee shall determine EU 001 bituminous coal CO emissions using the approved EU 001 bituminous coal emission factor. The Permittee shall also recalculate EU 001 bituminous coal CO emissions that were initially determined using the subbituminous coal CO emission factor, using the approved EU 001 bituminous coal emission factor.</p>	<p>Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-15**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

Subject Item: EU 002 Boiler - Unit #2; CE 002, CE 005, CE 007**Associated Items:** CE 005 Low Nox Burners

CE 007 Overfire Air

GP 001 Boilers

SV 001 Common Boiler Stack

What to do	Why to do it
LIMITS AND OPERATING REQUIREMENTS	hdr
Total Particulate Matter: less than or equal to 0.60 lbs/million Btu heat input	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
Sulfur Dioxide: less than or equal to 4.0 lbs/million Btu heat input using 1-Hour Average period for solid fuels, and 2.0 lb/mmBtu when burning liquid fuels. When 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 input from solid fossil fuels.	Minn. R. 7011.0510, subp. 1
Refer to SV 001 for additional SO2 limit applicable to the common stack.	
Nitrogen Oxides: less than or equal to 0.20 lbs/million Btu heat input using 365-day Rolling Average	Minn. R. 7007.0800, subp. 2; this is a state-only requirement not enforceable by the EPA administrator or citizens under the Clean Air Act
Carbon Monoxide: less than or equal to 0.126 lbs/million Btu heat input (this is an emission factor and not a limit). The Permittee shall validate this factor through performance testing. If performance testing shows a factor greater than 0.126 lb/mmBtu, the Permittee shall meet the GP 001 630 tpy limit.	Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000
Fuel use: limited to sub-bituminous and bituminous coal, distillate oil, natural gas, boiler cleaning agents, non-hazardous petroleum distillate solvents and derived fuels, used oil, oily coal (coal with oil spilled on it), and oily cellulose-based sorbents (including rags).	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Boiler cleaning agents limited to: EDTA type and Ammonium Bromate, are generated on-site, 5% of total fuel mass, 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. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Fuel Usage: less than or equal to 720 gallons/hour and less than 2,500,000 gallons annually of off-specification and on-specification used oil. Used oil shall be burned in accordance with Minn. R. ch. 7045.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
EU 002 Bituminous Coal Operations: If the Permittee combusts any bituminous coal, the Permittee shall conduct a CO performance test while burning bituminous coal. The Permittee may continue burning bituminous coal in EU 002 after completion of testing.	Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000
EU 002 CO Emissions Indicator: The Permittee shall operate EU 002 so that CO (ppm) measured by the emissions indicator does not exceed a value based on values measured during the most recent MPCA-approved performance stack test for evaluating the EU 002 CO emission factor. The current CO emission indicator is 100 ppm on a 30-day rolling average based on July 2007 test data.	Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000
ACID RAIN PROGRAM REQUIREMENTS	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)
Application for NOx limits: Submit a complete permit application and compliance plan for NOx emissions in accordance with 40 CFR Section 76.9.	40 CFR Section 76.9(b)(2)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-16**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

<p>NOx Averaging Plan</p> <p>Beginning January 1, 2000 either:</p> <p>Maintain an annual average NOx emission rate of 0.40 lbs/MMBtu and limit the annual heat input to less than or equal to 4,600,000 MMBtu per year.</p> <p>OR</p> <p>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:</p> <table> <tr> <td>Plant</td><td>Boiler ID#</td></tr> <tr> <td>Clay Boswell</td><td>1, 2, 3, 4</td></tr> <tr> <td>Syl Laskin</td><td>1, 2</td></tr> <tr> <td>Taconite Harbor</td><td>1, 2, 3</td></tr> </table>	Plant	Boiler ID#	Clay Boswell	1, 2, 3, 4	Syl Laskin	1, 2	Taconite Harbor	1, 2, 3	40 CFR Section 76.11
Plant	Boiler ID#								
Clay Boswell	1, 2, 3, 4								
Syl Laskin	1, 2								
Taconite Harbor	1, 2, 3								
Recordkeeping: Keep on site at the source each of the following documents for a period of 5 years from the date the document is created: The certificate of representation, all emissions monitoring information, copies of all reports, compliance certifications, and other submissions or records made under the Acid Rain Program, copies of all documents used to complete an acid rain permit application.	40 CFR Section 72.9(f)(l)								
Apply for Acid Rain Program Permit reissuance: The designated representative shall submit a complete Acid Rain permit application for each source with an affected unit at least 6 months prior to the expiration of an existing Acid Rain Permit in accordance with 40 CFR Section 72.30(c).	40 CFR Section 72.30(c)								
Certify Acid Rain Program Submittals. Each submission under the Acid Rain Program shall be submitted, signed, and certified by the designated representative or the alternate designated representative for all sources on behalf of which the submission is made in accordance with 40 CFR Section 72.21.	40 CFR Section 72.21								
Hold allowances as of the allowance transfer deadline, in the unit's compliance subaccount not less than the total annual emissions of sulfur dioxide for the previous calendar year. Takes effect for years beginning January 1, 2000. Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.	40 CFR Section 72.9(c)(1)(i), 40 CFR Section 72.9(g)(4)								
The owner or operator shall measure opacity, and all SO ₂ , NO _x , and CO ₂ emissions for each affected unit in accordance with 40 CFR Section 75.10.	40 CFR Section 75.10								
PERFORMANCE TESTING	hdr								
Performance Test: due before end of each 60 months starting 06/03/1997 to determine compliance with the particulate matter emissions limit in Minn. R. 7011.0510 subp. 1. The tests shall be conducted at an interval not to exceed 60 months between test dates.	Minn. R. 7017.2020, subp. 1								
A one-time 120-day extension was granted in 2007.									
Performance Test: due before end of each calendar 36 months starting 07/25/2007 to evaluate compliance with the CO emission factor to avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000. The tests shall be conducted at an interval not to exceed 36 months between test dates while combusting coal as a single fuel or a combination of coal and fuel oil.	Minn. R. 7017.2020, subp. 1								
Performance Test: due before end of each calendar 60 months starting 07/25/2007 to determine compliance with the CO emission factor to avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000. The tests shall be conducted at an interval not to exceed 60 months between test dates while combusting a combination of natural gas and coal.	Minn. R. 7017.2020, subp.1								
<p>Boiler Alternative Operating Conditions for Performance Testing:</p> <p>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.</p> <p>In no case will the new operating rate limit be higher than allowed by an existing permit condition.</p>	Minn. R. 7017.2025, subp. 2.A. and 3.B.								

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-17**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

<p>Boiler Operating Conditions Not Meeting the Alternative Operating Conditions During Performance Testing:</p> <p>If performance testing is not conducted at or above the established alternative operating condition, then the boiler operating rate will be limited on an 8-hour block average based on the following:</p> <p>(1) If the results of the performance test are greater than 80% of any applicable emission limit for which compliance is demonstrated, then boiler operation will be limited to the tested operating rate.</p> <p>(2) If results are less than or equal to 80% of all applicable emission limits for which compliance is demonstrated, boiler operation will be limited to the tested operating rate.</p> <p>In no case will the new operating rate limit be higher than allowed by an existing permit condition.</p>	Minn. R. 7017.2025, subp. 3.B.
<p>STET (Short Term Emergency and Testing) Operating hours limit:</p> <p>The boiler may operate up to 40 hours per year to demonstrate the Uniform Rating of Generating Equipment (URGE) capacity and to meet emergency energy supply needs. Maintain documentation of all STET operation to demonstrate compliance with this limit. The boiler must meet emission limits during STET operation.</p>	Minn. R. 7007.0800, subp. 2
<p>STET Operation Definition that applies to Boilers that Meet or do Not Meet the Alternative Operating Condition for Performance Testing:</p> <p>If performance test results demonstrate compliance at 80% or less of any applicable emission limits for any tested pollutant, STET operation is defined as operation beyond 110% of the average operating rate achieved during that performance test.</p> <p>If performance test results demonstrate compliance at greater than 80% of any applicable emission limit for any tested pollutant, STET operation is defined as operation beyond 100% of the average operating rate achieved during that performance test.</p> <p>In no case will STET operation be higher than allowed by an existing permit condition.</p>	Minn. R. 7007.0800, subp. 2
<p>The results of a performance test are not final until issuance of a review letter by MPCA, unless specified otherwise by Minn. R. 7017.2001 - 7017.2060.</p>	Minn. R. 7017.2020, subp. 4
MONITORING AND RECORDKEEPING	hdr
<p>Recordkeeping: maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the facility including malfunction of the air pollution control equipment or any periods during which a continuous monitoring system or monitoring device is inoperative.</p>	Minn. R. 7007.0800, subp. 2
<p>Excess emissions and monitoring system performance reports shall include the information required in 40 CFR Sections 60.7(c) and (d). MPCA supplied forms DRF-1 and DRF-2 may be used to meet this requirement.</p>	Minn. R. 7007.0800, subp. 2
<p>EU 002 CO Emissions Indicator Monitoring and Recordkeeping: Calculate the arithmetic average of all hourly emission rates for CO for 30 calendar days. The 30-day rolling hourly average is calculated once each calendar day by summing the hourly CO emission concentrations measured during the previous 30 calendar days, and dividing by the number of hourly data values. Downtime of greater than one hour duration shall not be included in the 30-day rolling average.</p>	Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000
<p>EU 002 CO Emissions Indicator Monitoring and Recordkeeping: The Permittee shall install, operate, and maintain a process CO monitor (ppm monitor primarily for the boiler operator) upstream of the EU 002 air heater, and record the indicator measurements. The monitoring and recordkeeping equipment shall be operated and maintained at all times during EU 002 operation.</p> <p>CO concentration will not exceed a value based on values recorded during the most recent MPCA-approved performance test. The measurement frequency and averaging period associated with this emissions indicator will be derived by the Permittee through analysis of the correlation between indicator readings and the first performance test results.</p>	Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-18**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

<p>EU 002 CO Emissions Monitoring and Recordkeeping: If the Permittee elects or is required to meet the 630 tpy (on a 12-month rolling sum basis) limit in GP 001, by the last day of each month commencing with the month of initial startup of the first boiler after LNB and OFA modifications are completed, the Permittee shall:</p> <ol style="list-style-type: none">1. calculate and record EU 002 monthly fuel usage of bituminous and sub-bituminous coal;2. calculate and record monthly EU 002 CO emissions using the following equation: $\text{EU 002 CO} = (\text{FU} * \text{HC} * \text{EF}) / 2000$ <p>where:</p> <p>EU 002 CO = monthly EU 002 CO emissions for each coal type (tons) FU = EU 002 monthly fuel consumption for each coal type (tons) HC = fuel heat content for each coal type (mmBtu/ton) EF = current EU 002 CO emission factor for each coal type (lb/mmBtu)</p>	<p>Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000</p>
<p>EU 002 Bituminous Coal CO Monitoring: If the Permittee combusts bituminous coal, the Permittee shall calculate bituminous coal CO emissions using the EU 002 subbituminous coal CO emission factor until receipt of written MPCA confirmation of the EU 002 bituminous coal CO test results.</p> <p>After receipt of written MPCA confirmation of the EU 002 bituminous coal CO test results, the Permittee shall determine EU 002 bituminous coal CO emissions using the approved EU 002 bituminous coal emission factor. The Permittee shall also recalculate EU 002 bituminous coal CO emissions that were initially determined using the subbituminous coal CO emission factor, using the approved EU 002 bituminous coal emission factor.</p>	<p>Title I Condition: To avoid major modification under 40 CFR Section 52.21(b) and Minn. R. 7007.3000</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-19**

11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

Subject Item: EU 003 Coal Crusher**Associated Items:** CE 003 6% or Greater Moisture Content

SV 002 Coal Crusher

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 meet 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)

TABLE B: SUBMITTALS

B-1 11/25/08

Facility Name: Minnesota Power - Laskin Energy Center
Permit Number: 13700013 - 006

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

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.

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

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.

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 - Laskin Energy Center
Permit Number: 13700013 - 006

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility

TABLE B: RECURRENT SUBMITTALS**B-3** 11/25/08

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013 - 006

What to send	When to send	Portion of Facility Affected
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar quarter following Permit Issuance if performed.	MR007
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter starting 05/12/1997 (Submit Deviations Reporting Form DRF-1 as amended). The EER shall indicate all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e. during startup, shutdown, and malfunctions.	SV001
Linearity Test Results Summary	due 30 days after end of each calendar quarter starting 06/26/1997 if Linearity and Leak Check is performed.	MR009, MR010
Linearity Test Results Summary	due 30 days after end of each calendar quarter starting 06/26/1997 if Linearity and Leak Check Test is performed.	MR008
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar quarter starting 06/26/1997 if RATA is performed.	MR008, MR009, MR010
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance. 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
Compliance Certification Report (Acid Rain Program)	due 60 days after end of each calendar year starting 01/01/2000 an annual compliance certification report for the unit in accordance with 40 CFR Section 72.90(a). The report shall include all information required by 40 CFR Sections 72.90(b) and (c).	EU001, EU002
Compliance Certification	due 30 days after end of each calendar year following Permit Issuance (for the previous calendar year). The Permittee shall submit this 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

APPENDIX B - Acid Rain Permit Application

Facility Name: Minnesota Power - Laskin Energy Center

Permit Number: 13700013-006



2007 NOx
Compliance and Aver:

APPENDIX C - Insignificant Activities Required to be Listed**Facility Name:** Minnesota Power – Laskin Energy Center**Permit Number:** 13700013-006**Insignificant Activities and Applicable Requirements**

Minn. R.	Rule Description of the Activity	Applicable Requirement
Minn. R. 7007.1300, subp. 4(B)	<p>Emissions units with emissions less than all the following limits but not included in subpart 2 must be listed in a part 70 permit application:</p> <p>potential emissions of 2.28 pounds per hour or actual emissions of one ton per year for particulate matter, particulate matter less than ten microns, nitrogen oxide, sulfur dioxide, and VOCs.</p> <p>The facility performs the following operations that emit less than 1 ton per year of listed pollutants.</p> <ul style="list-style-type: none">▪ Railcar unloading▪ Coal conveying to crusher house▪ Coal conveying to tripper▪ Coal conveying from tripper to bunkers▪ Coal conveying drop-off fugitives▪ Ash storage wind erosion▪ Fuel oil handling fugitives from pumps and piping.	Minn. R. 7011.0710/0715
Minn. R. 7007.1300, subp. 3(H)(3)	<p>Miscellaneous: brazing, soldering or welding equipment;</p> <p>Facility performs some welding activities.</p>	Minn. R. 7011.0710/0715
Minn. R. 7007.1300, subp. 3(J)	<p>Fugitive Emissions from roads and parking lots.</p> <p>Facility has unpaved roads.</p>	Minn. R. 7011.0150
Minn. R. 7008.4110	<p>Conditionally insignificant PM And PM10 emitting operations</p> <p>Facility has a lime bin vent for lime storage and delivery with controls that meet the requirements for conditionally insignificant.</p>	Minn. R. 7011.0710/0715

APPENDIX D - Compliance Assurance Monitoring Plan

Facility Name: Minnesota Power – Laskin Energy Center

Permit Number: 13700013-006



Laskin Energy Center
CAM Plan.pdf

APPENDIX E - SO₂ Modeling Parameters

Facility Name: Minnesota Power – Laskin Energy Center

Permit Number: 13700013-006

** MN Power - Laskin Energy Center - SO₂ Modeling *** 05/30/02

*** POINT SOURCE DATA ***										
	SOURCE ID	NO. PART. CATS.	EMISSION RATE (G/S)	COORD X (M)	COORD Y (M)	BASE ELEV. (M)	STACK HEIGHT (M)	STACK TEMP. (DEG.K)	STACK EXIT VEL (M/SEC)	STACK DIAMETER (M)
Scenario S01	LECSV001	0	3.40E+02	563085	5264402	442.2	91.4	330.8	14.5	3.2
Scenario S02	LECSV001	0	2.55E+02	563085	5264402	442.2	91.4	326.3	10.9	3.2
Scenario S03	LECSV001	0	1.70E+02	563085	5264402	442.2	91.4	321.9	7.2	3.2
Scenario S04	LECSV001	0	1.70E+02	563085	5264402	442.2	91.4	321.9	7.2	3.2
Scenario S05	LECSV001	0	1.28E+02	563085	5264402	442.2	91.4	317.4	5.4	3.2
Scenario S06	LECSV001	0	8.50E+01	563085	5264402	442.2	91.4	313	3.6	3.2

APPENDIX F - NO_x and PM₁₀ Modeling Parameters**Facility Name:** Minnesota Power – Laskin Energy Center**Permit Number:** 13700013-006**** MN Power - Laskin Energy Center - NO_x Modeling *** 06/13/02**

*** *** *** *** *** *** POINT SOURCE DATA *** *** *** ***											
	SOURCE	NUMBER	EMISSION	COORD	COORD	BASE	STACK	STACK	STACK	STACK	
	ID	PART.	RATE	X	Y	ELEV.	HEIGHT	TEMP.	EX VEL	DIA.	
		CATS.	(G/S)	(M)	(M)	(M)	(M)	(DEG.K)	(M/SEC)	(M)	
Scenario N01	LECSV001	0	8.32E+01	563085	5264402	442.2	91.4	330.8	14.5	3.2	
Scenario N02	LECSV001	0	6.24E+01	563085	5264402	442.2	91.4	326.3	10.9	3.2	
Scenario N03	LECSV001	0	4.16E+01	563085	5264402	442.2	91.4	321.9	7.2	3.2	
Scenario N04	LECSV001	0	4.16E+01	563085	5264402	442.2	91.4	321.9	7.2	3.2	
Scenario N05	LECSV001	0	3.13E+01	563085	5264402	442.2	91.4	317.4	5.4	3.2	
Scenario N06	LECSV001	0	2.08E+01	563085	5264402	442.2	91.4	313	3.6	3.2	
*** *** *** *** *** *** *** *** *** *** ***											

**** MN Power - Laskin Energy Center - PM₁₀ Modeling *** 06/09/02**

*** *** *** *** *** *** POINT SOURCE DATA *** *** *** ***											
	SOURCE	NUMBER	EMISSION	COORD	COORD	BASE	STACK	STACK	STACK	STACK	
	ID	PART.	RATE	X	Y	ELEV.	HEIGHT	TEMP.	EXIT	VEL	DIA.
		CATS.	(G/S)	(M)	(M)	(M)	(M)	(DEG.K)	(M/SEC)	(M)	
Scenario P01	LECSV001	0	9.98E+01	563085	5264402	442.2	91.4	330.8	14.5	3.2	
Scenario P02	LECSV001	0	7.48E+01	563085	5264402	442.2	91.4	326.3	10.9	3.2	
Scenario P03	LECSV001	0	4.99E+01	563085	5264402	442.2	91.4	321.9	7.2	3.2	
Scenario P04	LECSV001	0	4.99E+01	563085	5264402	442.2	91.4	321.9	7.2	3.2	
Scenario P05	LECSV001	0	3.74E+01	563085	5264402	442.2	91.4	317.4	5.4	3.2	
Scenario P06	LECSV001	0	2.50E+01	563085	5264402	442.2	91.4	313	3.6	3.2	
*** *** *** *** *** *** VOLUME SOURCE DATA *** *** *** ***											
	SOURCE	NUMBER	EMISSION	COORD	COORD	BASE	RELEASE	INIT.	INIT.		
	ID	PART.	RATE	X	Y	ELEV.	HEIGHT	SY	SZ		
		CATS.	(G/S)	(M)	(M)	(M)	(M)	(M)	(M)		
Scenario P01-P06	LECSV002	0	3.97E-03	563186.1	5264463	441.6	16.76	0.85	9.91		
Scenario P01-P06	LECSV009	0	1.19E-02	563079.9	5264381	442.2	11.9	0.14	5.52		

**** MN Power - Laskin Energy Center - PM₁₀ Modeling parameters continued on next page *****

				*** AREA SOURCE DATA ***							
	SOURCE	NUMBER	EMISSION	COORD	COORD	BASE	RELEASE	X-DIM	Y-DIM	ORIENT.	
	ID	PART.	RATE	X	Y	ELEV.	HEIGHT	OF AREA	AREA	AREA	
		CATS.	(G/S/M^2)	(M)	(M)	(M)	(M)	(M)	(M)	(DEG.)	
Scenario P01-P06	LECFS101	0	6.99E-07	563210.1	5264430	440.3	7.01	79	180	8	
Scenario P01-P06	LECFS201	0	7.08E-06	563210.1	5264430	440.3	7.01	79	180	8	
Scenario P01-P06	LECFS202	0	7.11E-06	562515.9	5264566	445.2	0	20.1	20.1	0	
Scenario P01-P06	LECFS301	0	3.63E-07	563210.1	5264430	440.3	7.01	79	180	8	
Scenario P01-P06	LECFS302	0	1.62E-07	562242.8	5264649	443.1	3	50.8	10	-38	
Scenario P01-P06	LECFS303	0	1.62E-07	562282.8	5264680.5	444.3	3	72	10	-45.7	
Scenario P01-P06	LECFS304	0	1.62E-07	562333.4	5264732	446.1	3	28.5	10	-31.3	
Scenario P01-P06	LECFS305	0	1.62E-07	562357.8	5264747	447	3	43.6	10	2.5	
Scenario P01-P06	LECFS306	0	1.62E-07	562401.2	5264745	449.2	3	100	10	17.7	
Scenario P01-P06	LECFS307	0	1.62E-07	562496.1	5264714.5	450.7	3	100	10	17.1	
Scenario P01-P06	LECFS308	0	1.62E-07	562591.4	5264685.5	450.7	3	100	10	19.6	
Scenario P01-P06	LECFS309	0	1.62E-07	562685.3	5264652	451.3	3	100	10	24.6	
Scenario P01-P06	LECFS310	0	1.62E-07	562643.4	5264562	452.8	3	100	10	-57.2	
Scenario P01-P06	LECFS311	0	1.62E-07	562633.8	5264541	452.8	3	23	10	-65.7	
Scenario P01-P06	LECFS312	0	1.62E-07	562541.8	5264550.5	451.3	3	83.3	10	4.6	
Scenario P01-P06	LECFS313	0	1.62E-07	562775.8	5264610	451.3	3	100	10	21.9	
Scenario P01-P06	LECFS314	0	1.62E-07	562868.9	5264573	448.3	3	100	10	30.5	
Scenario P01-P06	LECFS315	0	1.62E-07	562955.3	5264522.5	445.2	3	80	10	-7.9	
Scenario P01-P06	LECFS316	0	1.62E-07	563034.9	5264533.5	442.2	3	100	10	-5.2	
Scenario P01-P06	LECFS317	0	1.62E-07	562212.6	5264714.5	442.2	3	495.6	227	-90	
Scenario P01-P06	LECFS318	0	1.62E-07	562016	5264454.5	445.2	3	526	157.2	-0.2	
Scenario P01-P06	LECFS319	0	1.62E-07	562238	5264658	443.1	3	10	63	-33	
Scenario P01-P06	LECFS401	0	6.31E-08	561969.4	5263083	447.3	3	53.9	10	-53.8	
Scenario P01-P06	LECFS402	0	6.31E-08	562001.2	5263126.5	449.2	3	100	10	-84.8	
Scenario P01-P06	LECFS403	0	6.31E-08	562010.8	5263226	451.6	3	100	10	-71.5	
Scenario P01-P06	LECFS404	0	6.31E-08	562044.8	5263322.5	452.2	3	100	10	-69.6	
Scenario P01-P06	LECFS405	0	6.31E-08	562079.9	5263416.5	451.3	3	100	10	-69.9	
Scenario P01-P06	LECFS406	0	6.31E-08	562114.4	5263510.5	451.3	3	100	10	-69.2	
Scenario P01-P06	LECFS407	0	6.31E-08	562150.7	5263604.5	448.3	3	45.7	10	-66.2	
Scenario P01-P06	LECFS408	0	6.31E-08	562169.1	5263646.5	446.7	3	51.2	10	-52.5	
Scenario P01-P06	LECFS409	0	6.31E-08	562199.7	5263687	445.2	3	100	10	-41.3	
Scenario P01-P06	LECFS410	0	6.31E-08	562274.9	5263753.5	446.7	3	100	10	-40	
Scenario P01-P06	LECFS411	0	6.31E-08	562351.8	5263817.5	448.3	3	100	10	-37.4	
Scenario P01-P06	LECFS412	0	6.31E-08	562431	5263878.5	446.1	3	100	10	-38.6	
Scenario P01-P06	LECFS413	0	6.31E-08	562509	5263941	446.1	3	59.4	10	-51.1	
Scenario P01-P06	LECFS414	0	6.31E-08	562546.9	5263987.5	443.7	3	100	10	-61.5	
Scenario P01-P06	LECFS415	0	6.31E-08	562594.2	5264075.5	447.3	3	100	10	-63.6	
Scenario P01-P06	LECFS416	0	6.31E-08	562638.2	5264165	446.1	3	27.2	10	-80.5	
Scenario P01-P06	LECFS417	0	6.31E-08	562642.2	5264191.5	446.1	3	84	10	-95.7	
Scenario P01-P06	LECFS418	0	6.31E-08	562633.8	5264275	447	3	28.1	10	-72.6	
Scenario P01-P06	LECFS419	0	6.31E-08	562642.7	5264301	449.2	3	34	10	-38	
Scenario P01-P06	LECFS420	0	6.31E-08	562669.6	5264322	449.2	3	92	10	-15	
Scenario P01-P06	LECFS421	0	6.31E-08	562758.5	5264346	447.3	3	100	10	-1	
Scenario P01-P06	LECFS422	0	6.31E-08	562858.6	5264347	445.2	3	100	10	-9.3	
Scenario P01-P06	LECFS423	0	6.31E-08	562957.2	5264362.5	443.7	3	100	10	-8.5	
Scenario P01-P06	LECFS424	0	6.31E-08	563055.7	5264377.5	442.2	3	62.9	10	-10.2	
Scenario P01-P06	LECFS425	0	6.31E-08	563117.6	5264389	441.6	3	44.2	10	-40.7	
Scenario P01-P06	LECFS426	0	6.31E-08	563151.6	5264418	440.9	3	42.5	10	-69.8	
Scenario P01-P06	LECFS427	0	6.31E-08	563166.3	5264458.5	440.3	3	88.9	10	-108.2	
Scenario P01-P06	LECFS428	0	6.31E-08	563043.7	5264386	442.2	3	18.7	10	-99.9	
Scenario P01-P06	LECFS429	0	6.31E-08	563039.4	5264404	442.2	3	62.3	30	-97.2	
Scenario P01-P06	LECFS501	0	2.78E-04	563195.6	5264561	442.2	1.5	4.6	12.8	8	

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 13700013-006

This Technical Support Document (TSD) is for all parties interested in the permit and meets the requirements of 40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1. This document provides the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the permit.

1 General Information

1.1 Applicant and Stationary Source Location

Applicant/Address	Stationary Source/Address (SIC Code: 4911)
Minnesota Power Division of ALLETE, Inc. 30 West Superior Street Duluth, MN 55802-2093	Laskin Energy Center 5699 Colby Lake Rd Hoyt Lakes, St. Louis County, MN 55750
Contact: Brandon Krogh Senior Engineer 218-723-3954	

1.2 Facility Description

This facility is composed of two electric utility steam boilers, each rated at 660 mmBtu/hr. Each boiler has twelve 4 mmBtu/hr gas/oil-fired ignitors and dry low NO_x combustors. Each boiler vents emissions to a high-efficiency wet scrubber that discharges to the atmosphere through a common stack. The scrubbers control PM, PM₁₀, SO₂, and lead. Net electric production is 55 MW per boiler.

Boiler ratings were previously listed as 660 mmBtu/hr for bituminous coal and 525 for sub-bituminous coal. However, the Permittee states the 525 mmBtu/hr capacity was measured in the 1980s using old wet sub-bituminous coal, and that 660 mmBtu/hr can be achieved when combusting dry sub-bituminous coal.

1.3 Description of the Current Permit Action and All Amendments Issued since the Last Total Facility Permit

This permit is a reissuance of the Part 70 operating permit. Two administrative amendments, submitted April 6, 2007 and May 30, 2008, requesting extensions for performance tests were incorporated with this permit issuance. No other changes are authorized by this permit action.

Permit Number and Issuance Date	Action Authorized
13700013-002 March 5, 1999	Addition of the NO _x requirements to the Phase II Acid Rain portion of the Title V operating permit
13700013-003 June 4, 2002	Replacement of the distillate oil-fired ignitors in Boilers 1 and 2 with ignitors that can burn distillate oil and natural gas
13700013-004	Permit not issued
13700013-005 September 18, 2006	Install low-NO _x burners and overfire air controls on Boilers 1 and 2

1.4 Facility Emissions

Table 1 - Total Facility Potential to Emit Summary ¹

	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	Total HAP tpy
Total Facility Limited Potential Emissions	1,488	341	2,865	997	630	18.2	353.4
Total Facility Actual Emissions (2007)	298	298	1,341	932	100	12.0	HAPs not reported in emission inventory

¹Limited emissions based on 12-month rolling sum 630 tpy CO emission limit excluding insignificant sources.

Table 2 - Facility Classification

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

1.5 Changes to Permit

No significant changes have been made to the requirements in the permit. The following changes have been made:

- the permit has been updated to reflect current MPCA policy, templates and standard citation formatting;
- completed requirements and the requirements for equipment that has been removed have been deleted;
- performance test frequency plan has been incorporated;
- Continuous Emissions Monitoring System (CEMS) Relative Accuracy Test Audit requirements have been moved from emission units to monitors;
- compliance assurance monitoring (CAM) plan requirements have been added to the permit; and
- the requirement to update the fugitive dust control plan has been removed.

2 Regulatory and/or Statutory Basis

New Source Review

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

Part 70 Permit Program

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

New Source Performance Standards (NSPS)

There are no New Source Performance Standards applicable to the operations at this facility.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

There are no NESHAPs applicable to the operations at this facility.

Acid Rain Program

Both boilers, EU 001 and EU 002, are subject to the acid rain program requirements to monitor and report SO₂, NO_x, and CO₂ emissions and to hold sufficient SO₂ allowances for SO₂ emissions. 40 CFR Part 75 offers several monitoring provisions in addition to the general operating requirements (CEMS), and alternative monitoring systems under Subpart E. The acid rain permit application is included in the permit as Appendix B.

Compliance Assurance Monitoring (CAM)

This permit action is a re-issuance of a Part 70 permit. Therefore CAM applies to any emission units with air pollution control equipment which meet the CAM applicability requirements. 40 CFR Part 64 requires CAM for emission units that meet the following criteria:

- The unit is subject to an emission limitation or standard for the applicable regulated air pollutant,
- The unit uses a control device to achieve compliance, and
- The unit has potential pre-control device emissions of the pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for the source to be classified as a major source.

The Permittee uses add-on controls (wet scrubbers) to reduce emissions from both boilers to meet emission limits for PM, NO_x and SO₂. The facility satisfies the requirements of CAM for NO_x and SO₂ through the use of CEMS to measure NO_x and SO₂. The wet scrubbers (CE 001 and CE 002) for boilers 1 and 2 (EU 001 and EU 002) are subject to CAM for PM only. The CAM plan is included in the permit as Appendix D.

To assure compliance with the PM emission limit, scrubber exhaust temperature and opacity will be monitored. Scrubber exhaust temperature was selected as an indicator because it is indicative of the scrubber operation and appropriate scrubber water flow. Opacity was selected as an indicator because performance testing has demonstrated that opacity is a limiting pollutant with respect to PM emissions; opacity will exceed the opacity limit before PM will exceed the PM limit. Monitoring systems for temperature and opacity are located in the common stack at the 150-foot stack elevation.

Minnesota State Rules

The two steam-electric boilers are subject to PM, SO₂, and opacity limits in Minn. R. 7011.0510 Standards of Performance for Existing Indirect Heating Equipment. The coal crusher is subject to the PM and opacity limits in Minn. R. 7011.0715 Standards of Performance for Industrial Process Equipment.

Table 3 - Regulatory Overview of Units

EU, GP, or SV	Applicable Regulations	Comments:
GP 001	Title I Condition: to avoid major modification under §52.21 and/or §52.21(r)(6) for CO	CO limits, monitoring, and recordkeeping to avoid PSD and Minnesota Environmental Review requirements.
GP 002	40 CFR pt. 64	CAM requirements: the scrubbers are used to comply with the Standards of Performance for Indirect Heating Equipment PM limit, and the uncontrolled potential from each of the boilers is greater than 100 tpy, so CAM applies.
EU 001 and EU 002	<p>Title I Condition: to avoid major modification under § 52.21 and/or §52.21(r)(6) for CO</p> <p>Minn. R. 7007.0800, subp. 2; this is a state-only requirement not enforceable by the EPA administrator or citizens under the Clean Air Act</p> <p>Minn. R. 7011.0510 Standards of Performance for Indirect Heating Equipment</p> <p>Acid Rain requirements</p>	<p>CO emission factor limit, monitoring, recordkeeping, and testing to avoid PSD and Minnesota Environmental Review requirements.</p> <p>NO_x limit: The Permittee secured a rate rider to pay for the NO_x controls as a part of the Arrowhead Regional Emissions Abatement (AREA) plan. This ensures the rate payer gets the reduced emissions for the additional cost of electricity.</p> <p>PM, SO₂ and Opacity standards.</p> <p>The acid rain permit application is included as an appendix to the permit. Some requirements are listed in Table A of the permit.</p>
EU 003	Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment	Opacity and PM standards.
SV 001	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps. 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080; this is a state-only requirement not enforceable by the EPA Administrator or citizens under the Act.	SO ₂ limit (lower than applicable performance standard) based on Title V modeling. The most recently modeled parameters are included in Appendix E to the permit and the Permittee must receive written approval prior to making changes to the parameters.

3 Technical Information

3.1 Emission Analysis and Calculations

Attachment 1 to this TSD contains the summary of the permitted PTE of the Facility and detailed spreadsheets with supporting information prepared by the MPCA and the Permittee.

3.2 Periodic Monitoring

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

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

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

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

Table 4 - Periodic Monitoring

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
GP 001	CO emission factor ≤ 0.126 lb/mmBtu OR CO ≤ 630 tpy on a 12-month rolling sum basis (Title I Condition to avoid major modification under §52.21)	CO stack testing to verify emission factor, CO ppm emissions indicator, and monthly calculation of 12-month CO emissions if factor > 0.126 lb/mmBtu.	The Permittee has two options for demonstrating the CO emissions increase is not significant. The first option requiring the verification of the CO factor has less recordkeeping than the second option of meeting a 12-month rolling sum CO limit. Both options restrict the CO increase to less than the 100 tpy significant level.
EU 001 and EU 002	NO _x ≤ 0.20 lb/mmBtu on a 365-day rolling average (Minn. R. 7007.0800, subp. 2)	NO _x is measured by a CEMS on the common stack	This is a state-only requirement not enforceable by the EPA administrator or citizens under the Clean Air Act. The Permittee secured a rate rider to pay for the NO _x controls. This ensures the rate payer gets the reduced emissions for the additional cost of electricity.

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
	PM \leq 0.60 lb/mmBtu (Minn. R. 7011.0510)	Control equipment has a CAM plan to ensure control efficiency.	PM limit from Standards of Performance for Existing Indirect Heating Equipment.
	Opacity \leq 20% (Minn. R. 7011.0510)	Opacity is monitored by a COMS on the common stack .	Opacity limit from Minnesota Standards of Performance for Existing Indirect Heating Equipment.
	SO ₂ \leq 4.0mmBtu - solid fuels SO ₂ \leq 2.0mmBtu – liquid fuels (Minn. R. 7011.0510)	SO ₂ is measured by a CEMS on the common stack.	SO ₂ limit for each emission unit for solid and liquid fuels from Minnesota Standards of Performance for Existing Indirect Heating Equipment.
SV 001	SO ₂ \leq 2.04 mmBtu (Minn. Stat. § 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080)	SO ₂ is measured by a CEMS on the common stack.	SO ₂ limit on the common stack (lower than applicable performance standard) is based on title V modeling. This is a state-only requirement not enforceable by the EPA Administrator or citizens under the Act.

3.3 Comments Received

Public Notice Period: October 4, 2008 – November 3, 2008

EPA 45-day Review Period: October 4, 2008 - November 18, 2008

4 Conclusion

Based on the information provided by Minnesota Power Division of ALLETE, Inc., the MPCA has reasonable assurance that the operation of the emission facility, as described in the Air Emission Permit No. 13700013-006 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Adriane Lenshek (permit writer/engineer)
 Steve Palzkill, (enforcement)
 Andy Place (stack testing)
 Chris Buntjer (peer reviewer)

Attachments: 1. PTE Summary and Calculation Spreadsheets
 2. Facility Description and CD-01 Forms

AQ File No. 73D; DQ 101, 1467, 1545; ID: 13700013

Attachment 1 - PTE Summary and Calculation Spreadsheets

Attachment 2 - Facility Description and CD-01 Forms