AIR EMISSION PERMIT NO. 03700003-006

IS ISSUED TO

Northern States Power Company d/b/a Xcel Energy

NSP d/b/a Xcel Energy - Black Dog
1400 Black Dog Road
Burnsville, Dakota County, MN 55337

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	Issue Date	Action Number
Total Facility Operating Permit	November 6, 1995	August 13, 1998	001
Major Amendment	January 27, 2000	January 12, 2001	002
Administrative Amendment	January 30, 2002	May 14, 2002	003
Administrative Amendment	July 16, 2002	August 16, 2002	004
Major Amendment	March 3, 2004	see below	006

This permit 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 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 defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: Major Amendment to a Federal Part 70/NSR Authorization Permit
Issue Date: March 3, 2005
Expiration: Upon Reissuance of Part 70 Permit (Part 70 Permit Expired August 13, 2003)
Title I Conditions do not expire.

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

for Sheryl A. Corrigan
Commissioner
Minnesota Pollution Control Agency

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NOTICE TO THE PERMITTEE:

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

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

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

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

PERMIT SHIELD:

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. 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 Northern States Power Company's Black Dog facility has coal-fired boilers and a combined cycle gas turbine.

Major Amendment (Action 002): This permit amendment allowed for the installation and operation of a new combined cycle gas turbine. Although, the facility proposed to install the unit in the location of EU 001 (boiler 1) and to use the EU 002 (boiler 2) steam turbine for combined cycle operation, no past actual emissions from EU 001 and EU 002 were utilized for netting purposes. Therefore, the addition of the new gas turbine (EU 026) and auxiliary duct firing burners (EU 027) were subject to prevention of significant deterioration program review for nitrogen oxides (NO_x) carbon monoxide (CO), particulate matter less than 10 microns (PM_{10}), and volatile organic compound (VOC).

Administrative Amendment (Action 003): This amendment incorporated the Risk Management Program (40 CFR Part 68, Section 112(4)) into the permit.

Administrative Amendment (Action 004): This amendment extended the testing deadline for the combined cycle gas turbine for CO, VOC, and Formaldehyde.

Permit Not Issued (Action 005)

Major Amendment (Action 006):

This is a state major permit amendment to the existing Title V operating permit. No emission changes or equipment changes are authorized by this permit action. This permit revises the following conditions in the original January 2001 PSD permit:

1. Definitions of cold, warm, and hot startup, and the definition of shutdown, were replaced by a requirement specifying when emission limits exempt during startup/shutdown/malfunction become applicable;
2. A 12-month rolling sum limit on the startup and shutdown hours was added to the permit;
3. The NOx concentration limit is changed from 4.5 ppmvd @15% O_2 (excluding startup and shutdown), to a two-tier limit for normal operation and startup-shutdown operation;
4. Short-term CO limits applicability threshold are changed from 1400 mmBtu/hr to 'except during startup, shutdown, or malfunction' and block-average language was inserted into the two short-term CO limits. The VOC limit applicability threshold was changed from 1400 mmBtu/hr to 70% load;
5. Clean Unit Designation requirements for the combined cycle gas turbine are added;
6. The combined cycle turbine heat input determination requirements are revised to coincide with those in part 75 Appendix D section 3.4.1;
7. Part 60 subpart GG revisions effective July 8, 2004, are incorporated into this permit action; and
8. The language defining the boundary between startup/shutdown, and normal operation was enhanced.

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

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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
A. OPERATIONAL REQUIREMENTS NOTE: As of the date of issuance of this permit (permit action 002), EU001 (unit 1 boiler) and EU002 (unit 2 boiler) are no longer operated. Unit 1 boiler will be completely removed to provide space for the heat recovery steam generator for EU026 (combustion turbine) and Unit 2 boiler will be partially dismantled and retired from service in place. The removal of the unit 1 boiler and retirement of the unit 2 boiler will be complete by May 1, 2001.	hdr
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
Operating practices: Clean up all coal spilled on roads or access areas as soon as practicable using methods that minimize the amount of dust suspended.	Minn. R. 7011.1105 (I)
Access areas, roads, parking facilities: (1) Install asphalt or concrete surfaces or chemical agents on all active truck haul roads of the coal handling facility when the coal throughput by truck is 200,000 tons or greater. All paved roads and areas shall be cleaned to minimize the discharge to the atmosphere of fugitive particulate emissions. Such cleaning shall be accomplished in a manner which minimizes resuspension of particulate matter. Access areas surrounding coal stockpiles and parking facilities which are located within a coal handling facility shall be treated with water, oils, or chemical agents.	Minn. R. 7011.1105 (A)
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not federally enforceable.	Minn. R. 7030.0010 - 7030.0080
Comply with Fugitive Emission Control Plan: The Permittee shall follow the actions and record keeping (if applicable) specified in the control plan. The plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines the Permittee is out of compliance with Minn. R. 7011.0150 or the fugitive control plan, then the Permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors as requested by the Commissioner.	Minn. Stat. Section 116.07, subd. 4a and Minn. R. 7007.0800, subp. 2
Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises, to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location. The permittee may require MPCA staff to be accompanied by NSP staff during any inspection.	Minn. R. 7007.0800, subp. 9(A)
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
Install: due 180 days after 08/13/1998 . Install a fence or other agency approved barrier to limit public access to facility property. The location of barrier shall be determined by latest air dispersion modeling analysis.	Minn. R. 7009.0020
B. POLLUTION CONTROL EQUIPMENT REQUIREMENTS	hdr
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)
C. TESTING REQUIREMENTS	hdr
Performance Test: Conduct all performance tests in accordance with Minn. R. ch. 7017, unless otherwise noted in Tables A, B, or C.	Minn. R. ch. 7017

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

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Operating and/or production limits will be placed on emission units based on operating conditions during performance testing. Limits set as a result of a performance tests, conducted after permit issuance, apply until new operating/production limits are set following formal review of a performance test as specified by Minn. R. 7017.2025. This requirement does not apply to EU 003 and EU 004. For operating limit requirements applicable to EU 003 and EU 004, see requirements pertaining to Short Term Emergency and Testing (STET) and Boiler Operating Conditions in EU 003 and EU 004.	Minn. R. 7017.2025
D. MONITORING REQUIREMENTS	hdr
Monitoring Activities and Equipment: Where applicable, initialize monitoring activities and install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring activities are not performed or monitoring equipment is not installed and operational prior to permit issuance.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Activities and Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring of a process or of control equipment connected to that process, is not required during periods when the process is shutdown, including during system breakdowns, repairs, calibration checks, and zero and span adjustments (as applicable). Where applicable, monitoring records shall reflect any such periods of process shutdown.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment Calibration: Where applicable, annually calibrate all required monitoring equipment other than continous emission monitors (requirements applying to continuous emission monitors are listed separately in this permit), where applicable.	Minn. R. 7007.0800, subp. 4(D)
E. RECORD KEEPING	hdr
Record keeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)
Record keeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, 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)
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
F. REPORTING	hdr
Oral or Written (faxed) Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner of any deviation from the permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Discovery of Deviations Endangering Human Health or the Environment Report (written): due two working days after discovery of deviation, submit a written description of any deviation endangering human health or the environment to the Commissioner. Include the following information in this written description: cause of the deviation; exact dates of the period of the deviation (if the deviation has not been corrected); whether or not the deviation has been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
Breakdowns: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any process or control equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. Notification is not required for breakdown of electrostatic precipitator sections in CE 004, CE 005, CE 006, CE 007, CE 008, and CE 009, if the number of remaining operating sections for each electrostatic precipitator is equal to or greater than the number of operating sections during the most recent performance test during which limits for particulate matter and opacity were met, and, the opacity measured by the COM on SV 001 does not exceed the opacity limit in EU 003, and EU 004. At the time of notification or as soon as possible thereafter, the permittee shall inform the Commissioner of the cause of the breakdown and the estimated duration. Notify the Commissioner again when the breakdown is over.	Minn. R. 7019.1000, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

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Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
Application for Permit Amendment: If you need a permit amendment, submit application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Extension Requests: The permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
Emissions Inventory Report: due 91 days after end of each calender year following permit issuance (April 1). To be submitted on a form approved by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3010
The Permittee is required to submit a Risk Management Plan (RMP) under the federal rule, 40 CFR pt. 68. Each owner or operator of a stationary source, at which a regulated substance is present above a threshold quantity in a process, shall design and implement an accidental release prevention program. A complete RMP must be submitted to the RMP Reporting Center, PO Box 3346, Merrifield, VA 22116. RMP submittal information may be obtained at http://www.epa.gov/swercepp or by calling 1-800-424-9346. These requirements must be complied with no later than the latest of the following dates: (1) June 21, 1999; (2) Three years after the date on which a regulated substance is first listed under 40 CFR Section 68.130; or (3) The date on which a regulated substance is first present above a threshold quantity in a process.	40 CFR pt. 68

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **GP 001 Emergency Generators**

Associated Items: EU 024 Emergency Engine Generator EEG-61001

EU 025 Emergency Engine Generator EEG-61002

What to do	Why to do it
Operating Hours: less than or equal to 816 hours/year using 12-month Rolling Sum calculated monthly.	Title I Condition: limit to avoid classification as a major modification under 40 CFR Section 52.21
Calculate and record the monthly and the 12-month rolling sum operating hours for GP 001. Complete the calculation and recording by the end of each month, for the previous month and the previous 12-month period.	Title I Condition: recordkeeping to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
Nitrogen Oxides: less than or equal to 35.3 tons/year	Title I Condition: limit to avoid classification as a major modification under 40 CFR Section 52.21

TABLE A: LIMITS AND OTHER REQUIREMENTS

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Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **SV 001**

Associated Items: EU 001 Boiler 1 - retired, to be removed

EU 002 Boiler 2 - retired from service in place

EU 003 Boiler 3

EU 004 Boiler 4

EU 019 Units 3 and 4 Fly Ash Silo Vent

MR 003

MR 004

MR 005

MR 006

MR 007

What to do	Why to do it
A. EMISSION LIMITS	hdr
Sulfur Dioxide: less than or equal to 1.3 lbs/million Btu heat input using 1-Hour Average . This is a state only requirement and is not federally enforceable.	40 CFR Section 50.4; Minn. R. 7009.0020
Sulfur Dioxide: less than or equal to 3988 lbs/hour using 1-Hour Average . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020
Particulate Matter < 10 micron: less than or equal to 920 lbs/hour . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020
D. MONITORING REQUIREMENTS	hdr
Emissions Monitoring: The owner or operator shall use a CEMS to measure SO2, NOx, and CO2 emissions and flow rate for each affected unit or group of units in accordance with 40 CFR Section 75.10.	40 CFR pt. 75
Emissions Monitoring: The owner or operator shall use a COMS to measure opacity emissions from SV 001.	Minn. R. 7017.1006; 40 CFR Section 75
Daily Calibration Error (CE) Test: conduct daily CE testing on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B.	40 CFR pt. 75, Appendix B, Section 2.1
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 CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B.	40 CFR pt. 75, Appendix B, Section 2.2
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year following CEM Certification Test . Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B. If the RATA results indicate a relative accuracy of 7.5% or less, the next RATA is not required for twelve months.	40 CFR pt. 75, Appendix B, Section 2.3
CEMS QA/QC: The owner or operator of an affected facility shall operate, calibrate, and maintain each CEM according to the QA/QC procedure in 40 CFR pt. 75, Appendix B as amended.	40 CFR Section 75.21
CEMS and COMS Continuous Operation: Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, all CEMS and COMS shall be in continuous operation.	Minn. R. 7017.1090
COMS Daily Calibration Drift (CD) Check: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) opacity at least once daily. The COMS must be adjusted whenever the calibration drift (CD) exceeds twice the specifications of PS-1 of 40 CFR pt. 60, Appendix B.	Minn. R. 7017.1210; subp. 2
COMS Calibration Error Audit: due before end of each calendar half-year following COMS Certification Test . Conduct audits at least 3 months apart but no greater than 8 months apart.	Minn. R. 7017.1210, subp. 3
COMS Monitoring Data: Owners or operators of all COMS shall reduce all data to six (6) minute averages. Opacity averages shall be calculated from all equally spaced consecutive 10-second (or shorter) data points in the six (6) minute averaging period.	Minn. R. 7017.1200, subp. 1, 2, & 3
E. RECORD KEEPING	hdr
Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five (5) years from the date of the monitoring sample, measurement or report. Records shall be kept at the source.	Minn. R. 7007.0800, subp. 5
Recordkeeping: The owner or operator must retain records of all COMS monitoring data and support information for a period of five (5) years from the date of the monitoring sample, measurement or report. Records shall be kept at the source.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

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Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **SV 015**

Associated Items: EU 020 No. 2 Fly Ash Storage Silo

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Particulate Matter < 10 micron: less than or equal to 2.0 lbs/hour . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020; meets requirements of Minn. R. 7011.0715, subp. 1(A)
Check for visible emissions (during daylight hours) from the control equipment (CE 012) once each calendar week during every week of operation.	Minn. R. 7007.0800, subp. 4
Corrective Actions: If visible emissions (VEs) are observed, determine the cause and take corrective actions as soon as possible to eliminate the VEs.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record the time and date of each VE inspection, and whether or not any VEs were observed. If VEs were observed, also record a brief description of the type of corrective actions taken, and the date the actions were taken.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

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Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **SV 020 Combustion Turbine w/DLN & SCR; Duct Burners w/SCR**

Associated Items: EU 026 Combustion Turbine (Dry Low NOx Combustors & Selective Catalytic Reduction)

EU 027 Duct Burners (Selective Catalytic Reduction)

MR 010

MR 011

What to do	Why to do it
EMISSION LIMITS Averaging times are specified for those emission limits where compliance is demonstrated by a continuous emission monitor. For all other emission limits, compliance will be determined, and averaging time is dictated, by the appropriate test method.	hdr
Opacity: less than or equal to 20 percent using 6-minute Average except for one 6-minute period per hour of not more than 27 percent. Applies only when EU 027 is operating.	40 CFR Section 60.42a(b)
Nitrogen Oxides: less than or equal to 4.5 parts per million by volume on a dry basis at 15% oxygen on a 3-hour average. This limit applies at all times under all operating conditions, except during startup, shutdown, and malfunction. Each calendar day is composed of eight consecutive 3-hour time blocks starting at midnight. Each 3-hour block average is determined by averaging all 1-minute averages during operation other than startup, shutdown, or malfunction, to determine the 15-minute average. The 15-minute averages are averaged to produce a 1-hour average, and the 1-hour averages are used to calculate the 3-hour block average.	Title I Condition: 40 CFR Section 52.21 BACT Limit; also meets the limit set by 40 CFR Sections 60.332 and 60.44a
Nitrogen Oxides: less than or equal to 100 parts per million by volume on a dry basis at 15% oxygen on a 1-hour average. This limit applies only during startup, shutdown, and malfunction. If the startup process ends with a failed start, then a NOx ppmvd concentration limit does not apply. However, NOx mass emissions (lb/hr) during a failed start are included in the 12-month rolling sum NOx emissions calculations.	Title I Condition: 40 CFR Section 52.21 BACT Limit
Nitrogen Oxides: less than or equal to 305 tons/year using 12-month Rolling Sum . This limit applies at all times under all operating conditions, including startup, shutdown, and malfunction.	Title I Condition: 40 CFR Section 52.21 to limit emissions increase to less than the PSD increment significant impact level
Carbon Monoxide: less than or equal to 25 parts per million by volume on a dry basis at 15% oxygen using a 3-hour block average, during operation of EU 026 (combustion turbine) except during startup, shutdown, or malfunction, and EU 027 is in operation during the same 3-hour time block. Each calendar day is composed of eight consecutive 3-hour time blocks starting at midnight. Each 3-hour block average is determined by averaging all 1-minute averages during operation other than startup, shutdown, or malfunction, to determine the 15-minute average. The 15-minute averages are averaged to produce a 1-hour average, and the 1-hour averages are used to calculate the 3-hour block average.	Title I Condition: 40 CFR Section 52.21 BACT Limit
Carbon Monoxide: less than or equal to 18 parts per million by volume on a dry basis at 15% oxygen using a 3-hour block average, during operation of EU 026 (combustion turbine) except during startup, shutdown, or malfunction, and EU 027 is not in operation during the same 3-hour time block. Each calendar day is composed of eight consecutive 3-hour time blocks starting at midnight. Each 3-hour block average is determined by averaging all 1-minute averages during operation other than startup, shutdown, or malfunction, to determine the 15-minute average. The 15-minute averages are averaged to produce a 1-hour average, and the 1-hour averages are used to calculate the 3-hour block average.	Title I Condition: 40 CFR Section 52.21 BACT Limit
Carbon Monoxide: less than or equal to 400 tons/year using 12-month Rolling Sum . This limit applies at all times under all operating conditions, except during startup and shutdown.	Title I Condition: 40 CFR Section 52.21 BACT Limit
Particulate Matter < 10 micron: less than or equal to 29.4 lbs/hour . This limit applies at all times under all operating conditions, except during startup, shutdown, or malfunction.	Title I Condition: 40 CFR Section 52.21 BACT Limit
Volatile Organic Compounds: less than or equal to 0.0073 lbs/million Btu heat input when EU 026 (combustion turbine) is operating at or above 70% load, with or without EU 027 in operation.	Title I Condition: 40 CFR Section 52.21 BACT Limit
Formaldehyde: less than or equal to 9.9 tons/year using 12-month Rolling Sum . This limit applies at all times under all operating conditions, including startup and shutdown.	Title I Condition: To limit potential single HAP emissions to less than the major source level defined by 40 CFR Section 63.2

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

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HAPs - Total: less than or equal to 24.9 tons/year using 12-month Rolling Sum . This limit applies at all times under all operating conditions, including during startup and shutdown.	Title I Condition: To limit potential total HAPs emissions to less than the major source level defined by 40 CFR Section 63.2
Operating Hours: less than or equal to 1500 hours/year using 12-month Rolling Sum for EU 027 (duct burners).	Title I Condition: 40 CFR Section 52.21 BACT Limit
Startup and Shutdown: Not to exceed 1250 hours per year on a 12-month rolling sum basis.	Title I Condition: 40 CFR Section 52.21 BACT Operating Requirement
Startup, Shutdown, and Malfunction shall have the same meanings as defined in 40 CFR Section 60.2. For any emission limit not applicable during startup and shutdown, that limit does not apply: 1. during the initial 180 minutes after fuel combustion commences in the combustion turbine if the steam turbine-generator was offline for less than 12 hours; 2. during the initial 300 minutes after fuel combustion commences in the combustion turbine if the steam turbine-generator was offline for 12 to 60 hours; 3. during the initial 480 minutes after fuel combustion commences in the combustion turbine if the steam turbine-generator was offline for more than 60 hours; 4. during the final 120 minutes of turbine fuel combustion. Steam turbine-generator online operation of less than 60 minutes duration shall be considered offline for startup determination purposes and is not included in items 1, 2, and 3 above.	Title I Condition: 40 CFR Section 52.21 BACT Operating Requirement
EU 026 Startup and Shutdown: In addition to the definition in Section 60.2, startup is defined as all EU 026 operation at less than 70% capacity (for the specific combustion turbine compressor inlet conditions during operation) prior to initially attaining 70% load. EU 026 startup ends no later than 15 minutes after EU 026 first attains 70% load after startup commences. In addition to the definition in Section 60.2, shutdown is defined as all EU 026 operation at less than 70% load that is part of the process that terminates EU 026 fuel combustion until the next EU 026 startup. Shutdown does not include temporary operating loads below 70% for up to 15 consecutive minutes, due to external factors such as changes in compressor inlet conditions. (continued below)	Minn. R. 7007.0800, subp. 2
EU 026 Startup and Shutdown (continued from above): The CEMS data acquisition and handling system monitors EU 026 load (using a signal provided by the combustion turbine generator control system) and indicates whether EU 026 is operating in normal mode or startup/shutdown mode. The percent load signal is also used by the CEMS to determine whether emissions data is categorized as normal emissions data or startup/shutdown emissions data.	Minn. R. 7007.0800, subp. 2
CLEAN UNIT DESIGNATION REQUIREMENTS	hdr
EU 026 and EU 027 Clean Unit Designation for NOx: Use of CE 032 (selective catalytic reduction with ammonia injection) and CE 033 (dry low NOx combustors operating in lean pre-mix mode) for NOx control qualifies EU 026 as a Clean Unit for NOx, and use of CE 032 (selective catalytic reduction with ammonia injection) for NOx control qualifies EU 027 as a Clean Unit for NOx provided the Permittee complies with the provisions of 40 CFR Section 52.21(x).	Title I Condition: 40 CFR Sections 52.21 (x)(3)(ii) and (x)(6)(i)
Clean Unit Designation for NOx Effective Date: March 3, 2003.	Title I Condition: 40 CFR Section 52.21(x)(4)(i)
Clean Unit Designation for NOx Expiration Date: June 20, 2012.	Title I Condition: 40 CFR Section 52.21(x)(5)(i)
Basis for Clean Unit Designation for NOx: In addition to the SV 020 NOx BACT limits contained in this permit, the following parameters formed the basis for the clean unit designation: 1. Approximate Heat Input Capacities (HHV): a. 1917.46 mmBtu/hr heat input capacity @ 45 deg. F for EU 026; b. 509.6 mmBtu/hr heat input capacity @ 45 deg. F for EU 027; 2. Startup and shutdown limited to 1250 hr/yr on a 12-month rolling sum (CE 032 does not operate); 3. Use of dry low NOx combustion (CE 033) operating in lean pre-mix mode and SCR (CE 032) for EU 026, and SCR (CE 032) for EU 027.	Title I Condition: 40 CFR Section 52.21(x)(6)(iv)
Maintaining Clean Unit Designation for NOx: To maintain the Clean Unit designation for NOx, the Permittee must conform to all the restrictions listed in 40 CFR Section 52.21(x)(7). Failure to do so results in EU 026 and EU 027 losing this Clean Unit designation.	Title I Condition: 40 CFR Section 52.21(x)(7)

Loss of CU status occurs if any of the following occur: 1. the Permittee fails to comply with the emission limit or work practice(s) specified in the permit with the CUD; 2. the Permittee makes any physical or operational change to the CU that causes the unit to operate in a manner inconsistent with any physical or operational characteristic that is part of the basis of the CUD; 3. the Permittee fails to comply with any term in the permit that is related to the CUD; 4. the Permittee replaces the emissions unit or control technology. The Permittee must use the actual-to-projected actual test (40 CFR Section 52.21(a)(2)(iv)(c)) for the pollutant for which the CUD is lost for all subsequent changes to the CU until the unit requalifies as a CU.	Title I Condition: 40 CFR Section 52.21(x)(7)
Report of loss of Clean Unit (CU) status: The Permittee shall submit written notification of a deviation to the MPCA if Clean Unit status for NOx is lost due to noncompliance with 40 CFR Section 52.21(x)(7). The Permittee shall report the deviation from CU maintenance requirements, specifying the pollutant for which the Clean Unit Designation (CUD) is lost, on the Semiannual Deviations Report (see Table B) and according to the schedule in the permit for "Deviations Endangering Human Health or the Environment" (see Table A, Total Facility Requirements) if applicable. The Permittee and the Agency shall each attach a copy of the notification to the permit. The Permittee shall submit an application for a major amendment within 30 days of discovery of loss of CU status.	Title I Condition: 40 CFR Section 52.21(x)(7)
Loss of CU status: The Permittee shall submit an application for a major amendment, including all requirements of 40 CFR Section 52.21, if a modification at a CU causes loss of CU status. The Permittee may not begin actual construction on the modification until the major amendment has been issued. Loss of CU status occurs when the major amendment is issued or if the Permittee begins actual construction on a change to the CU without obtaining a permit for the change and the change causes a need to change the BACT emission limit or work practices or changes any physical or operational characteristic that is part of the basis for the BACT determination. The Permittee must use the calculation methodologies specified in 40 CFR Section 52.21(a)(2)(iv) for the pollutant for which CU status was lost to determine applicability of 40 CFR Section 52.21 for this modification and all subsequent modifications until the CU status is renewed.	Title I Condition: 40 CFR Section 52.21(x)(2)(iii) and (iv)
MONITORING REQUIREMENTS	hdr
Measure NOx, CO, and CO2 or O2 emissions using in-stack monitors. The CO monitor shall be operated and maintained in accordance with Minn. R. 7017.1002 through 7017.1220 (and those portions of 40 CFR pt. 60, Appendix B and 40 CFR pt. 60, Appendix F referenced therein) unless an alternative is approved by the Agency. The NOx and CO2 or O2 monitor shall be operated and maintained in accordance with 40 CFR pt. 75, Subpart B and Minn. R. ch. 7017.	Title I Condition: Monitoring of emissions to demonstrate compliance with the NOx and CO BACT limits; 40 CFR sections 60.47a, 60.334(c), and 64.3(d); Minn. R. 7007.0800, subp. 4
Measure gross electrical output in megawatt-hours and flow of exhaust gases discharged to the atmosphere on a continuous basis in accordance with 40 CFR 60.47a(k)(1) and 60.47a(l), unless alternative monitoring is approved by the USEPA.	40 CFR Section 60.47a
Operating Load and Operating Conditions Monitoring: Continuously monitor (at the same frequency as the CO monitor sampling rate) and record the heat input (mmBtu/hr) for EU 026 and EU 027 using the method specified at 40 CFR Part 75, Appendix F. Calculate and record the average hourly operating load as a percent of maximum possible load for the specific compressor inlet conditions. Monitor and record the times and duration of any "off normal" operating condition (startup, shutdown, or malfunction) defined above. Record the start and stop time of all steam turbine-generator on-line and off-line operation.	Title I Condition: Monitoring of emissions to demonstrate compliance with the NOx and CO BACT limits; Minn. R. 7007.0800, subp. 4
Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. Acceptable monitor downtime is defined under Minn. R. 7017.1090, subp. 2.	Minn. R. 7017.1090, subp. 1

Fuel Monitoring: The Permittee shall follow the applicable fuel sulfur content monitoring requirements in Section 60.334(h) and shall monitor at the frequency specified in 60.334(i).	40 CFR Sections 60.334(h) and (i)
Measure or calculate SO2, NOx, and CO2 emission rates for each affected unit in accordance with 40 CFR Section 75.	40 CFR Section 75.10
Daily Startup and Shutdown Operating Hours Monitoring and Recordkeeping: Once each day the Permittee shall calculate and record EU 026 startup and shutdown operating hours for the previous calendar day. Startup and shutdown operating hours shall be determined using the electronic data produced by instrumentation that instantaneously measures EU 026 gross electric power output.	Title I Condition: Monitoring for 40 CFR Section 52.21(j) BACT operating condition; Minn. R. 7007.0800, subp. 4 and 5
Monthly Startup and Shutdown Operating Hours Monitoring and Recordkeeping: By the 15th day of each month, the Permittee shall calculate and record the total EU 026 startup and shutdown operating hours for the previous month and for the previous 12-month period.	Minn. R. 7007.0800, subp. 4 and 5
By the 15th day of each month, calculate and record monthly nitrogen oxides and carbon monoxide emissions and the annual 12-month rolling sum. The rolling sum shall be calculated by adding the current month's emission totals with those for the previous 11 months.	Title I Condition: Monitoring of emissions to demonstrate compliance with NOx and CO facility emissions cap; Minn. R. 7007.0800, subp. 4
By the 15th day of each month, calculate and record monthly and annual 12 month rolling sum formaldehyde and total HAPs emissions using emission factors from the latest stack test results. Prior to emissions testing, and for HAPs that are not stack tested, emission factors from the latest AP-42 section addressing emissions from combustion turbines and gas fired boilers shall be used. After establishing emission factors for formaldehyde at four load levels, the factor (lbs/mmBtu) established for the gas turbine (EU 026) operating between one of the three test loads shall be used for all gas turbine operation below the next higher test load range (i.e. factor established at 30-40% load shall be used for all loads under 50% of full load). The combined (EU 026 and EU 027) emission factor established at 90-100% of full load shall be used for all operation, combined or not, greater than or equal to 90% of full load.	Title I Condition: Monitoring of emissions to demonstrate compliance with formaldehyde and total HAPs emissions caps; Minn. R. 7007.0800, subp. 4
By the 15th day of each month, calculate and record the monthly and 12-month rolling sum of operating hours for EU 027.	Title I Condition: Monitoring of EU027 (duct burner) operating hours; Minn. R. 7007.0800, subp. 4
The calculation and record keeping requirement listed above shall not apply to SV 020 if the agency approved performance test for formaldehyde emissions proves that the formaldehyde emission rate is less than or equal to 2.0 lbs/hr at all four test ranges.	Title I Condition: Monitoring of emissions to demonstrate compliance with formaldehyde and total HAPs emissions caps; Minn. R. 7007.0800, subp. 4
REQUIREMENTS FOR CEMS	hdr
CEMS Certification Test: due in accordance with 40 CFR 75.4. Certify all CEMS required by the Acid Rain Program in accordance with 40 CFR 75, Appendix A. AND Not later than 90 days after the units commence commercial operation.	40 CFR Section 75.4(b)
CEMS Certification Test for CO Monitor: due within 90 days after the units commence commercial operation in accordance with 40 CFR 60 Appendix B, Performance Spec. 4 or 4A.	Minn. R. 7017.1050, subp. 1
CEM Certification Test Pretest Meeting: due 7 days before CEM Certification Test.	Minn. R. 7017.1060, subp. 3
Acid Rain CEMS QA/QC: The owner or operator of an affected facility shall operate, calibrate, and maintain each CEMS according to the procedures in 40 CFR pt. 75, Appendix B as amended.	40 CFR Section 75.21
CO CEMS QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR 60, Appendix F, section 3. Owner or operator may make a request, to the MPCA, for an alternative plan format.	Minn. R. 7017.1170, subp. 2
Daily Calibration Error (CE) Test: Conduct daily CE testing on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B.	40 CFR pt. 75, Appendix B, Section 2.1
CEMS Daily Calibration Drift (CD) Test: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) gas concentration at least once daily. The CEMS shall be adjusted whenever the CD exceeds twice the specification of 40 CFR 60, Appendix B. 40 CFR 60, Appendix F, shall be used to determine out-of-control periods for CEMS. Owner or operator may make a request, to the MPCA, for an alternative test procedure.	Minn. R. 7017.1170, subp. 3

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, Appendix B.	40 CFR pt. 75, Appendix B, Section 2.2
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following CEM Certification Test. Conduct CGA for the CO monitor only at least 3 months apart and not greater than 8 months apart. If a RATA is performed during the calendar half-year the CGA is not required. Follow the procedures in 40 CFR 60, Appendix F. Owner or operator may make a request, to the MPCA, for an alternative audit procedure.	Minn. R. 7017.1170, subp. 4
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year following CEM Certification Test. Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B. If the RATA results indicate a relative accuracy of 7.5% or less, then the next RATA is not required for twelve months.	40 CFR pt. 75, Appendix B, Section 2.3
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following CEM Certification Test. Follow the procedures in 40 CFR 60, Appendix B and Appendix F. Owner or operator may make a request, to the MPCA, for an alternative test procedure.	Minn. R. 7017.1170, subp. 5
PERFORMANCE TESTING	hdr
Initial Performance Test: due 180 days after 04/27/2002 (fuel first fired), but not to exceed 60 days after achieving the maximum production rate at which the affected facility wil be operated, to measure opacity, PM10, nitrogen oxides and sulfur dioxide in accordance with the procedures specified in 40 CFR part 60, Subp. GG and 40 CFR part 60 Subp. Da as appropriate.	Title I Condition: To demonstrate compliance with NOx, PM10 and SO2 BACT emission limits; Minn. R. 7017.2020, subp. 1 and Minn. R. 7017.2030, subp. 4; 40 CFR Section 60.8
Initial Performance Test: due before 11/18/2002 CO, VOC and formaldehyde emissions and to develop emission factors for formaldehyde emissions from EU 026 and EU 027.	Title I Condition: Monitoring to demonstrate compliance with CO, VOC, single HAP (formaldehyde) and total HAP emissions limits
Formaldehyde Emission Factor/Rate Testing: Emission factors and rates shall be determined by using Agency approved stack test methods at the following loads and operating conditions: All test shall be performed with the SCR system on line. 1. EU 026 operating at 30 to 40 percent of full load. 2. EU 026 operating at 50 to 60 percent of full load. 3. EU 026 operating at 70 to 80 percent of full load. 4. EU 026 and EU 027 combined operating at 90 to 100 percent of full load.	Minn. R. 7007.0800, subp. 4
Testing Frequency to Update Formaldehyde Emission Factors: Within 60 days of calculating 12-month rolling sum formaldehyde emissions of greater than 8.9 tons, perform a stack test to redevelop emission factors for formaldehyde emissions over the previously tested load ranges.	Minn. R. 7007.0800, subp. 4
RECORDKEEPING	hdr
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.	Minn. R. 7007.0800, subp. 5
Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source.	Minn. R. 7017.1130
SUBMITTALS AND REPORTS	hdr
Excess emissions and monitoring system performance reports shall include the information required in 40 CFR Section 60.7(c) and (d), Section 60.49a and Section 60.334(j). MPCA supplied forms DRF-1 and DRF-2 may be used to meet this requirement.	Minn. R. 7007.0800, subp. 2; 40 CFR Section 60.7, Section 60.49a and Section 60.334(j)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Performance Test Notifications and Submittals; 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 day before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy or CD: due 105 day after each Performance Test The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.	Minn. R. 7017.2030, subp. 1-4, Minn. R. 7017.2018, and Minn. R. 7017.2035, subp. 1&2
Notification of any physical or operational change which may increase emissions, in accordance with 40 CFR 60.7(a)(4). The notification shall be postmarked 60 days or as soon as practicable before the change is commenced.	40 CFR Section 60.7(a)(4)

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 003 Boiler 3**

Associated Items: CE 006 Electrostatic Precipitator - High Efficiency

CE 007 Electrostatic Precipitator - High Efficiency

SV 001

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 lbs/million Btu heat input	Minn. R. 7009.0020; meets requirements of Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 1.3 lbs/million Btu heat input using 1-Hour Average	Minn. R. 7009.0020; meets requirements of Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity using 6-minute Average except that a maximum of 60 percent opacity shall be allowable for one six minute period in any 60-minute period.	Minn. R. 7011.0510, subp. 2
Comply with the applicable Acid Rain emissions limitation of sulfur dioxide.	40 CFR Section 72.9(c)(1)(ii), 40 CFR Section 72.9 (g)(4)
NOx Averaging Plan Beginning January 1, 2000 either: Maintain an annual average NOx emission rate of 0.81 lbs/MMBtu and limit the annual heat input to less than or equal to 2,094,000 MMBtu per year. OR Maintain a Btu-weighted annual average emission rate in lbs/MMBtu, averaged over the units specified in the NOx averaging plan, that is less than or equal to the Btu-weighted annual average emission rate averaged over the same units had they each been operated during the same period of time in compliance with the applicable emission limitations in 40 CFR Sections 76.5, 76.6, or 76.7. Units covered in the plan are: Plant — Boiler ID# Allen S. King — 1 Black Dog — 1,3,4 High Bridge — 3,4,5,6 Minnesota Valley — 4 Riverside — 6,7,8 Sherburne County — 1,2,3	40 CFR Section 76.11
B. OPERATIONAL REQUIREMENTS	hdr
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.	40 CFR Section 72.9(c)(1)(i), 40 CFR Section 72.9 (g)(4)
Allowed fuel types: bituminous coal, subbituminous coal, petroleum coke, distillate fuel oil, natural gas, propane, used oil, non-hazardous spill cleanup materials, and non-hazardous boiler cleaning agents.	Minn. R. 7007.0800, subp. 2
Sulfur Content of Fuel: less than or equal to 0.5 percent by weight for distillate fuel oil.	Minn. R. 7007.0800, subp 2; meets SO2 emission limit requirement in Minn. R. 7011.0510, subp. 1
Combust used oil in accordance with used oil regulations in Minn. R. ch. 7045. Limit to 5% of total fuel mass on an hourly basis.	Minn. R. 7007.0800, subp. 2; Minn. R. ch. 7045
Boiler chemical cleaning waste limited to: 8.5 gpm per 100,000 lbs/hr steam flow. Cleaning waste shall be introduced into EU 003 when the boiler is operating at a minimum of 75 percent of rated capacity.	Minn. R. 7007.0800, subp. 2
C. TESTING REQUIREMENTS	hdr
Performance Test: due before end of each 60 months starting 12/31/93 to measure particulate matter emissions. The tests shall be conducted at an interval not to exceed 60 months between test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before end of each 60 months starting 12/31/93 (7 days before each Performance Test)	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Boiler Alternative Operating Conditions for Performance Testing: Alternative Operating Conditions during testing are defined as 90% to 100% of the boiler's maximum normal (continuous) operating load or the maximum permitted operating rate, whichever is lower. The basis for this number must be included in the test plan. If testing is conducted at the alternative operating condition established, an operating limit will not be established as a result of performance testing. In no case will the new operating rate limit be higher than allowed by an existing permit condition.	Minn. R. 7007.0800, subp. 2.
Boiler Operating Conditions Not Meeting the Alternative Operating Conditions During Performance Testing: If performance testing is not conducted at or above the established alternative operating condition, then the boiler operating rate will be limited on an 8-hour block average based on the following: (1) If the results of the performance test are greater than 90% of any applicable emission limit for which emissions are measured, then boiler operation will be limited to the tested operating rate. (2) If results are less than or equal to 90% of all applicable emission limits for which emissions are measured, boiler operation will be limited to 110% of the tested operating rate. In no case will the new operating rate limit be higher than allowed by an existing permit condition.	Minn. R. 7007.0800, subp. 2.
STET (Short Term Emergency and Testing) Operating hours limit: The boiler may operate up to 40 hours per year to demonstrate the Uniform Rating of Generating Equipment (URGE) capacity and to meet emergency energy supply needs. Documentation of all STET operation shall be maintained. The boiler must meet emission limits during STET operation	Minn. R. 7007.0800, subp. 2.
STET Operation Definition that applies to Boilers that Meet or do Not Meet the Alternative Operating Condition for Performance Testing: If performance test results measure emissions at 90% or less of any applicable emission limits for any tested pollutant, STET operation is defined as operation beyond 110% of the average operating rate achieved during that performance test. If performance test results measure emissions at greater than 90% any applicable emission limit for any tested pollutant, STET operation is defined as operation beyond 100% of the average operating rate achieved during that performance test. In no case will STET operation be higher than allowed by an existing permit condition.	Minn. R. 7007.0800, subp. 2.
The results of a performance test are not final until issuance of a review letter by MPCA, unless specified otherwise by Minn. R. 7017.2001 - 7017.2060.	Minn. R. 7017.2020, subp. 4
D. RECORD KEEPING	hdr
Record keeping of Boiler Cleaning Agent incineration: the permittee shall keep records for all cleaning agent incineration including date of incineration, quantity (gallons), origin of cleaning agent, cleaning agent feed rate (in gallons per hour), and operating capacity of the boiler during incineration in lbs. of steam per hour.	Minn. R. 7007.0800, subp. 5
Keep on site at the source each of the following documents for a period of 5 years from the date of permit issuance: 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)(1)
E. REPORTING	hdr
Each submission under the Acid Rain Program shall be submitted, signed, and certified by the 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
If the unit has excess emissions, the designated representative shall submit a proposed offset plan in accordance with 40 CFR ' 72.9(e).	40 CFR Section 72.9(e)

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 004 Boiler 4**

Associated Items: CE 008 Electrostatic Precipitator - High Efficiency

CE 009 Electrostatic Precipitator - High Efficiency

SV 001

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 lbs/million Btu heat input	Minn. R. 7009.0020; meets requirements of Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 1.3 lbs/million Btu heat input using 1-Hour Average	Minn. R. 7009.0020; meets requirements of Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity using 6-minute Average except that a maximum of 60 percent opacity shall be allowable for one six minute period in any 60-minute period.	Minn. R. 7011.0510, subp. 2
Comply with the applicable Acid Rain emissions limitation of sulfur dioxide.	40 CFR Section 72.9(c)(1)(ii), 40 CFR Section 72.9 (g)(4)
NOx Averaging Plan Beginning January 1, 2000 either: Maintain an annual average NOx emission rate of 0.81 lbs/MMBtu and limit the annual heat input to less than or equal to 2,094,000 MMBtu per year. OR Maintain a Btu-weighted annual average emission rate in lbs/MMBtu, averaged over the units specified in the NOx averaging plan, that is less than or equal to the Btu-weighted annual average emission rate averaged over the same units had they each been operated during the same period of time in compliance with the applicable emission limitations in 40 CFR Sections 76.5, 76.6, or 76.7. Units covered in the plan are: Plant — Boiler ID# Allen S. King — 1 Black Dog — 1,3,4 High Bridge — 3,4,5,6 Minnesota Valley — 4 Riverside — 6,7,8 Sherburne County — 1,2,3	40 CFR Section 76.11
B. OPERATIONAL REQUIREMENTS	hdr
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.	40 CFR Section 72.9(c)(1)(i), 40 CFR Section 72.9 (g)(4)
Allowed fuel types: bituminous coal, subbituminous coal, petroleum coke, distillate fuel oil, natural gas, propane, used oil, non-hazardous spill cleanup materials, and non-hazardous boiler cleaning agents.	Minn. R. 7007.0800, subp. 2
Sulfur Content of Fuel: less than or equal to 0.5 percent by weight for distillate fuel oil.	Minn. R. 7007.0800, subp 2; meets SO2 emission limit requirement in Minn. R. 7011.0510, subp. 1
Combust used oil in accordance with used oil regulations in Minn. R. ch. 7045. Limit to 5% of total fuel mass on an hourly basis.	Minn. R. 7007.0800, subp. 2; Minn. R. ch. 7045
Boiler chemical cleaning waste limited to: 8.5 gpm per 100,000 lbs/hr steam flow. Cleaning waste shall be introduced into EU 004 when the boiler is operating at a minimum of 75 percent of rated capacity.	Minn. R. 7007.0800, subp. 2
C. TESTING REQUIREMENTS	hdr
Performance Test: due before end of each 60 months starting 12/31/93 to measure particulate matter emissions. The tests shall be conducted at an interval not to exceed 60 months between test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before end of each 60 months starting 12/31/93 (7 days before each Performance Test)	Minn. R. 7017.2030, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Boiler Alternative Operating Conditions for Performance Testing: Alternative Operating Conditions during testing are defined as 90% to 100% of the boiler's maximum normal (continuous) operating load or the maximum permitted operating rate, whichever is lower. The basis for this number must be included in the test plan. If testing is conducted at the alternative operating condition established, an operating limit will not be established as a result of performance testing. In no case will the new operating rate limit be higher than allowed by an existing permit condition.	Minn. R. 7007.0800, subp. 2.
Boiler Operating Conditions Not Meeting the Alternative Operating Conditions During Performance Testing: If performance testing is not conducted at or above the established alternative operating condition, then the boiler operating rate will be limited on an 8-hour block average based on the following: (1) If the results of the performance test are greater than 90% of any applicable emission limit for which emissions are measured, then boiler operation will be limited to the tested operating rate. (2) If results are less than or equal to 90% of all applicable emission limits for which emissions are measured, boiler operation will be limited to 110% of the tested operating rate. In no case will the new operating rate limit be higher than allowed by an existing permit condition.	Minn. R. 7007.0800, subp. 2.
STET (Short Term Emergency and Testing) Operating hours limit: The boiler may operate up to 40 hours per year to demonstrate the Uniform Rating of Generating Equipment (URGE) capacity and to meet emergency energy supply needs. Documentation of all STET operation shall be maintained. The boiler must meet emission limits during STET operation	Minn. R. 7007.0800, subp. 2.
STET Operation Definition that applies to Boilers that Meet or do Not Meet the Alternative Operating Condition for Performance Testing: If performance test results measure emissions at 90% or less of any applicable emission limits for any tested pollutant, STET operation is defined as operation beyond 110% of the average operating rate achieved during that performance test. If performance test results measure emissions at greater than 90% any applicable emission limit for any tested pollutant, STET operation is defined as operation beyond 100% of the average operating rate achieved during that performance test. In no case will STET operation be higher than allowed by an existing permit condition.	Minn. R. 7007.0800, subp. 2.
The results of a performance test are not final until issuance of a review letter by MPCA, unless specified otherwise by Minn. R. 7017.2001 - 7017.2060.	Minn. R. 7017.2020, subp. 4
D. RECORD KEEPING	hdr
Record keeping of Boiler Cleaning Agent incineration: the permittee shall keep records for all cleaning agent incineration including date of incineration, quantity (gallons), origin of cleaning agent, cleaning agent feed rate (in gallons per hour), and operating capacity of the boiler during incineration in lbs. of steam per hour.	Minn. R. 7007.0800, subp. 5
Keep on site at the source each of the following documents for a period of 5 years from the date of permit issuance: 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)(1)
E. REPORTING	hdr
Each submission under the Acid Rain Program shall be submitted, signed, and certified by the 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
If the unit has excess emissions, the designated representative shall submit a proposed offset plan in accordance with 40 CFR ' 72.9(e).	40 CFR Section 72.9(e)

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 005 200 Ton Stacking Hopper**

Associated Items: CE 025 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 031 Other

SV 002

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 0.6 lbs/hour . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020
If exhaust gases from any enclosed coal handling facility exceed 20 percent opacity, then the owner or operator of such facility shall select and implement one of the following further controls: (1) install exhaust air system and control exhaust gases so that particulate emissions in such gases do not exceed 0.020 gr/dscf; (2) control exhaust gases using dust suppression methods so that particulate emissions do not exhibit Opacity: greater than or equal to 20 percent opacity	Minn. R. 7011.1105 (G) and to meet Minn. R. 7009.0020
Check for visible emissions (during daylight hours) from the control equipment (CE 025) once each calendar week during every week of operation.	Minn. R. 7007.0800, subp. 4
Corrective Actions: If visible emissions (VEs) are observed, determine the cause and take corrective actions as soon as possible to eliminate the VEs.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record the time and date of each VE inspection, and whether or not any VEs were observed. If VEs were observed, also record a brief description of the type of corrective actions taken, and the date the actions were taken.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 006 Dumper Unloading Bldg**

Associated Items: CE 023 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 024 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 003

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 1.0 lbs/hour . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020
Operating Hours: less than or equal to 12.5 hours/day . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020
Railcar Unloading: When the amount of coal unloaded by rail is 200,000 tons per year or greater, unload railcars only within a permanent building or structure. If exhaust gases from such building or structure exceed 20 percent opacity, then implement one of the following further controls: install an exhaust air system and control exhaust gases so that particulate matter emissions do not exceed 0.020 gr/dscf; or control exhaust gases using dust suppresion methods so that particulate emissions do not exhibit Opacity: greater than or equal to 20 percent opacity	Minn. R. 7011.1105 (H)
Truck and Hauler Unloading Stations: Control fugitive particulate emissions from the unloading of truck or haulers by dust suppression methods so that emissions from such sources are minimized. Control emissions by unloading reclaimed coal within a partial enclosure and with fabric filters.	Minn. R. 7011.1105 (C)
Check for visible emissions (during daylight hours) from SV 003 (for CE 023 and CE 024) once each calendar week during every week of operation.	Minn. R. 7007.0800, subp. 4
Corrective Actions: If visible emissions (VEs) are observed, determine the cause and take corrective actions as soon as possible to eliminate the VEs.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record the train dumping start and stop times during every day of coal throughput operation.	Minn. R. 7007.0800, subp. 5
Recordkeeping: Record the time and date of each VE inspection, and whether or not any VEs were observed. If VEs were observed, also record a brief description of the type of corrective actions taken, and the date the actions were taken.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 007 Yard Agglomerator Silo**

Associated Items: CE 021 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 004

What to do	Why to do it
Opacity: less than 20 percent opacity	40 CFR Section 60.252(c)
Particulate Matter < 10 micron: less than or equal to 0.01 grains/actual cubic foot . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020 and to meet Minn. R. 7011.1105 (G)
Check for visible emissions (during daylight hours) from the control equipment (CE 021) once each calendar week during every week of operation.	Minn. R. 7007.0800, subp. 4
Corrective Actions: If visible emissions (VEs) are observed, determine the cause and take corrective actions as soon as possible to eliminate the VEs.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record the time and date of each VE inspection, and whether or not any VEs were observed. If VEs were observed, also record a brief description of the type of corrective actions taken, and the date the actions were taken.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 008 Breaker Building (Coal Conveying; DC-951**

Associated Items: CE 019 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 005

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.1105 (G)
Particulate Matter < 10 micron: less than or equal to 0.005 grains/dry standard cubic foot . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020 and to meet Minn. R. 7011.1105 (G)
Check for visible emissions (during daylight hours) from the control equipment (CE 019) once each calendar week during every week of operation.	Minn. R. 7007.0800, subp. 4
Corrective Actions: If visible emissions (VEs) are observed, determine the cause and take corrective actions as soon as possible to eliminate the VEs.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record the time and date of each VE inspection, and whether or not any VEs were observed. If VEs were observed, also record a brief description of the type of corrective actions taken, and the date the actions were taken.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 009 Transfer Tower (DC-952)**

Associated Items: CE 020 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 006

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.1105 (G)
Particulate Matter < 10 micron: less than or equal to 0.005 grains/dry standard cubic foot . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020; meets requirements of Minn. R. 7011.1105 (G)
Check for visible emissions (during daylight hours) from the SV 006 control equipment (CE 020) once each calendar week during every week of operation.	Minn. R. 7007.0800, subp. 4
Corrective Actions: If visible emissions (VEs) are observed, determine the cause and take corrective actions as soon as possible to eliminate the VEs.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record the time and date of each VE inspection, and whether or not any VEs were observed. If VEs were observed, also record a brief description of the type of corrective actions taken, and the date the actions were taken.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 010 Breakers (Crushing: DC-952)**

Associated Items: CE 020 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 006

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.1105 (G)
Particulate Matter < 10 micron: less than or equal to 0.005 grains/dry standard cubic foot . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020; meets requirements of Minn. R. 7011.1105 (G)
Check for visible emissions (during daylight hours) from the SV 006 control equipment (CE 020) once each calendar week during every week of operation.	Minn. R. 7007.0800, subp. 4
Corrective Actions: If visible emissions (VEs) are observed, determine the cause and take corrective actions as soon as possible to eliminate the VEs.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record the time and date of each VE inspection, and whether or not any VEs were observed. If VEs were observed, also record a brief description of the type of corrective actions taken, and the date the actions were taken.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 011 Tripper Area (Conveyors D and F; DC-961**

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

SV 007

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.1105 (G)
Particulate Matter < 10 micron: less than or equal to 0.005 grains/dry standard cubic foot . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020 and to meet Minn. R. 7011.1105 (G)
Check for visible emissions (during daylight hours) from the control equipment (CE 016) once each calendar week during every week of operation.	Minn. R. 7007.0800, subp. 4
Corrective Actions: If visible emissions (VEs) are observed, determine the cause and take corrective actions as soon as possible to eliminate the VEs.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record the time and date of each VE inspection, and whether or not any VEs were observed. If VEs were observed, also record a brief description of the type of corrective actions taken, and the date the actions were taken.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 012 Coal Silos DC-962**

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

SV 008

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.1105 (G)
Particulate Matter < 10 micron: less than or equal to 0.005 grains/dry standard cubic foot . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020 and to meet Minn. R. 7011.1105 (G)
Check for visible emissions (during daylight hours) from the control equipment (CE 017) once each calendar week during every week of operation.	Minn. R. 7007.0800, subp. 4
Corrective Actions: If visible emissions (VEs) are observed, determine the cause and take corrective actions as soon as possible to eliminate the VEs.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record the time and date of each VE inspection, and whether or not any VEs were observed. If VEs were observed, also record a brief description of the type of corrective actions taken, and the date the actions were taken.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 013 Unit 4 Coal Silo DC-963**

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

SV 009

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.1105 (G)
Particulate Matter < 10 micron: less than or equal to 0.005 grains/dry standard cubic foot . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020 and to meet Minn. R. 7011.1105 (G)
Check for visible emissions (during daylight hours) from the control equipment (CE 018) once each calendar week during every week of operation.	Minn. R. 7007.0800, subp. 4
Corrective Actions: If visible emissions (VEs) are observed, determine the cause and take corrective actions as soon as possible to eliminate the VEs.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record the time and date of each VE inspection, and whether or not any VEs were observed. If VEs were observed, also record a brief description of the type of corrective actions taken, and the date the actions were taken.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 018 Units 3 and 4 Secondary Precip. Fly Ash Collection System Venting**

Associated Items: CE 011 Centrifugal Collector - High Efficiency

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

SV 014

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Particulate Matter < 10 micron: less than or equal to 0.02 grains/dry standard cubic foot . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020 and to meet Minn. R. 7011.0715, subp. 1(A)
Check for visible emissions (during daylight hours) from the control equipment (CE 015) once each calendar week during every week of operation.	Minn. R. 7007.0800, subp. 4
Corrective Actions: If visible emissions (VEs) are observed, determine the cause and take corrective actions as soon as possible to eliminate the VEs.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record the time and date of each VE inspection, and whether or not any VEs were observed. If VEs were observed, also record a brief description of the type of corrective actions taken, and the date the actions were taken.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 019 Units 3 and 4 Fly Ash Silo Vent**

Associated Items: CE 004 Electrostatic Precipitator - High Efficiency

CE 005 Electrostatic Precipitator - High Efficiency

CE 006 Electrostatic Precipitator - High Efficiency

CE 007 Electrostatic Precipitator - High Efficiency

CE 008 Electrostatic Precipitator - High Efficiency

CE 009 Electrostatic Precipitator - High Efficiency

SV 001

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Particulate Matter < 10 micron: less than or equal to 0.02 grains/dry standard cubic foot . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020 and meets the requirements of Minn. R. 7011.0715, subp. 1(A)
Units 3 and 4 ash silo vent emissions are controlled by CE 004, 005, 006, 007, 008, and 009 and exhaust through SV 001.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 021 No. 2 Fly Ash Collection System**

Associated Items: CE 010 Centrifugal Collector - High Efficiency

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

SV 016

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Particulate Matter < 10 micron: less than or equal to 0.02 grains/dry standard cubic foot . This is a state only requirement and is not federally enforceable.	Minn. R. 7009.0020 and to meet Minn. R. 7011.0715, subp. 1(A)
Check for visible emissions (during daylight hours) from the control equipment (CE 013) once each calendar week during every week of operation.	Minn. R. 7007.0800, subp. 4
Corrective Actions: If visible emissions (VEs) are observed, determine the cause and take corrective actions as soon as possible to eliminate the VEs.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record the time and date of each VE inspection, and whether or not any VEs were observed. If VEs were observed, also record a brief description of the type of corrective actions taken, and the date the actions were taken.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 023 Temporary Emergency Engine**

Associated Items: SV 017

What to do	Why to do it
Operating Hours: less than or equal to 5000 hours/year using 12-month Rolling Sum calculated monthly. During the first 11 months of operation, the cumulative operating hours are limited as follows: Month 1: 500 hours; Month 2: 1000 hours; Month 3: 1500 hours; Month 4: 2000 hours; Month 5: 2500 hours; Month 6: 3000 hours; Month 7: 3400 hours; Month 8: 3800 hours; Month 9: 4200 hours; Month 10: 4600 hours; Month 11: 4900 hours.	Title I Condition: limit to avoid classification as a major modification under 40 CFR Section 52.21; and meets 7009.0020
Capacity: The rated continuous brake horsepower shall not exceed 300.	Title I Condition: limit to avoid classification as a major modification under 40 CFR Section 52.21; and meets 7009.0020
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Fuel type is limited to distillate fuel oil with a maximum sulfur content of 0.5% by weight.	Minn. R. 7007.0800, subp. 2
Calculate and record operating hours for each month and on a 12-month rolling sum basis. Complete the calculation and recording by the end of each month, for the previous month and for the previous 12-month period.	Title I Condition: recordkeeping to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
Fuel Supplier Receipts: Keep on site, fuel receipts for each fuel shipment. Each receipt shall specify the type of fuel oil delivered.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 024 Emergency Engine Generator EEG-61001**

Associated Items: GP 001 Emergency Generators

SV 018

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Fuel type is limited to distillate fuel oil with a maximum Sulfur Content of Fuel: less than or equal to 0.5 percent by weight	Minn. R. 7007.0800, subp. 2
Fuel Supplier Receipts: Keep on site, fuel receipts for each fuel shipment. Each receipt shall specify the type of fuel oil delivered.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 025 Emergency Engine Generator EEG-61002**

Associated Items: GP 001 Emergency Generators

SV 019

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Fuel type is limited to distillate fuel oil with a maximum sulfur content of 0.5% by weight.	Minn. R. 7007.0800, subp. 2
Fuel Supplier Receipts: Keep on site, fuel receipts for each fuel shipment. Each receipt shall specify the type of fuel oil delivered.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 026 Combustion Turbine (Dry Low NOx Combustors & Selective Catalytic Reduction)**

Associated Items: CE 032 Selective Catalytic Reduction

CE 033 Dry-Low NOx combustion

SV 020 Combustion Turbine w/DLN & SCR; Duct Burners w/SCR

What to do	Why to do it
Emission Limits under 40 CFR Section 60.332 *Averaging times are specified for those emission limits where compliance is demonstrated by continuous emission monitors. For all other emission limits, compliance shall be determined, and averaging time is dictated by the appropriate test method. ** Startup for EU 026 shall not exceed 1 hour. *** Shutdown for EU 026 shall not exceed 30 minutes. **** Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.	hdr
Nitrogen Oxides: less than or equal to 110 parts per million using a 4-hour rolling average by volume at 15% O2 on a dry basis and assuming a fuel-bound content of zero. Applies at all times except during startup, shutdown, or malfunction.	40 CFR Sections 60.332(a)(1) and 60.334(j)(1)(iii)(A)
OPERATIONAL REQUIREMENTS	hdr
Sulfur Content of Fuel: less than or equal to 0.004 grains/dry standard cubic foot using 12-month Rolling Average	Title I condition: to limit potential SO2 emissions less than PSD significant net emissions increase as defined in 40 CFR Section 52.21, meets fuel sulfur requirements in 40 CFR 60.333
Fuel usage is limited to pipeline quality natural gas.	Title I condition: to limit potential SO2 emissions less than PSD significant net emissions increase as defined in 40 CFR Section 52.21
MONITORING, TESTING, RECORD KEEPING AND REPORTING REQUIREMENTS (see SV 020)	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **EU 027 Duct Burners (Selective Catalytic Reduction)**

Associated Items: CE 032 Selective Catalytic Reduction

SV 020 Combustion Turbine w/DLN & SCR; Duct Burners w/SCR

What to do	Why to do it
Emission Limits *Averaging times are specified for those emission limits where compliance is demonstrated by continuous emission monitors. For all other emission limits, compliance shall be determined, and averaging time is dictated by the appropriate test method.	hdr
Front-half Particulate Matter: less than or equal to 0.03 lbs/million Btu heat input	40 CFR 60.42a
Opacity: less than or equal to 20 percent using 6-minute Average except for one 6-minute period per hour of not more than 27 percent.	40 CFR 60.42a
Sulfur Dioxide: less than or equal to 0.20 lbs/million Btu heat input using 30-day Rolling Average	40 CFR 60.43a
Nitrogen Oxides: less than or equal 1.6 lbs/megawatt- hour (gross energy output) based on a 30-day rolling average.	40 CFR 60.44a
OPERATIONAL REQUIREMENTS	hdr
Sulfur Content of Fuel: less than or equal to 0.004 grains/dry standard cubic foot using 12-month Rolling Average	Title I condition: to limit potential SO2 emissions less than PSD significant net emissions increase as defined in 40 CFR Section 52.21, meets fuel sulfur requirements in 40 CFR 60.333
Fuel usage is limited to pipeline quality natural gas.	Title I condition: to limit potential SO2 emissions less than PSD significant net emissions increase as defined in 40 CFR Section 52.21
MONITORING, TESTING, RECORD KEEPING AND REPORTING REQUIREMENTS (see SV 020)	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **CE 004 Electrostatic Precipitator - High Efficiency**

Associated Items: EU 002 Boiler 2 - retired from service in place

EU 019 Units 3 and 4 Fly Ash Silo Vent

What to do	Why to do it
Operate control equipment when the associated boiler is operating except while burning only natural gas.	Minn. R. 7007.0800, subp. 2
The ESP must be operated with at least the minimum specific collection area (SCA) in service determined during the most-recent particulate matter emissions test with results equal to or less than the particulate matter emission limit. If the sections in the ESP are physically and electrically equivalent, the Permittee can meet this requirement by operating the ESP with no less than the number of sections that were operating during the most-recent particulate matter emissions test with results equal to or less than the particulate matter emission limit.	Minn. R. 7007.0800, subp. 14
Monitor and record the identity and minimum number of ESP sections (or SCA if sections are not equivalent) in service each day that the associated boiler is operating. Records shall indicate periods of operation on only natural gas.	Minn. R. 7007.0800, subp. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

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

Associated Items: EU 002 Boiler 2 - retired from service in place

EU 019 Units 3 and 4 Fly Ash Silo Vent

What to do	Why to do it
Operate control equipment when the associated boiler is operating except while burning only natural gas.	Minn. R. 7007.0800, subp. 2
The ESP must be operated with at least the minimum specific collection area (SCA) in service determined during the most-recent particulate matter emissions test with results equal to or less than the particulate matter emission limit. If the sections in the ESP are physically and electrically equivalent, the Permittee can meet this requirement by operating the ESP with no less than the number of sections that were operating during the most-recent particulate matter emissions test with results equal to or less than the particulate matter emission limit.	Minn. R. 7007.0800, subp. 14
Monitor and record the identity and minimum number of ESP sections (or SCA if sections are not equivalent) in service each day that the associated boiler is operating. Records shall indicate periods of operation on only natural gas.	Minn. R. 7007.0800, subp. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **CE 006 Electrostatic Precipitator - High Efficiency**

Associated Items: EU 003 Boiler 3

EU 019 Units 3 and 4 Fly Ash Silo Vent

What to do	Why to do it
Operate control equipment when the associated boiler is operating except while burning only natural gas.	Minn. R. 7007.0800, subp. 2
The ESP must be operated with at least the minimum specific collection area (SCA) in service determined during the most-recent particulate matter emissions test with results equal to or less than the particulate matter emission limit. If the sections in the ESP are physically and electrically equivalent, the Permittee can meet this requirement by operating the ESP with no less than the number of sections that were operating during the most-recent particulate matter emissions test with results equal to or less than the particulate matter emission limit.	Minn. R. 7007.0800, subp. 14
Monitor and record the identity and minimum number of ESP sections (or SCA if sections are not equivalent) in service each day that the associated boiler is operating. Records shall indicate periods of operation on only natural gas.	Minn. R. 7007.0800, subp. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **CE 007 Electrostatic Precipitator - High Efficiency**

Associated Items: EU 003 Boiler 3

EU 019 Units 3 and 4 Fly Ash Silo Vent

What to do	Why to do it
Operate control equipment when the associated boiler is operating except while burning only natural gas.	Minn. R. 7007.0800, subp. 2
The ESP must be operated with at least the minimum specific collection area (SCA) in service determined during the most-recent particulate matter emissions test with results equal to or less than the particulate matter emission limit. If the sections in the ESP are physically and electrically equivalent, the Permittee can meet this requirement by operating the ESP with no less than the number of sections that were operating during the most-recent particulate matter emissions test with results equal to or less than the particulate matter emission limit.	Minn. R. 7007.0800, subp. 14
Monitor and record the identity and minimum number of ESP sections (or SCA if sections are not equivalent) in service each day that the associated boiler is operating. Records shall indicate periods of operation on only natural gas.	Minn. R. 7007.0800, subp. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **CE 008 Electrostatic Precipitator - High Efficiency**

Associated Items: EU 004 Boiler 4

EU 019 Units 3 and 4 Fly Ash Silo Vent

What to do	Why to do it
Operate control equipment when the associated boiler is operating except while burning only natural gas.	Minn. R. 7007.0800, subp. 2
The ESP must be operated with at least the minimum specific collection area (SCA) in service determined during the most-recent particulate matter emissions test with results equal to or less than the particulate matter emission limit. If the sections in the ESP are physically and electrically equivalent, the Permittee can meet this requirement by operating the ESP with no less than the number of sections that were operating during the most-recent particulate matter emissions test with results equal to or less than the particulate matter emission limit.	Minn. R. 7007.0800, subp. 14
Monitor and record the identity and minimum number of ESP sections (or SCA if sections are not equivalent) in service each day that the associated boiler is operating. Records shall indicate periods of operation on only natural gas.	Minn. R. 7007.0800, subp. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **CE 009 Electrostatic Precipitator - High Efficiency**

Associated Items: EU 004 Boiler 4

EU 019 Units 3 and 4 Fly Ash Silo Vent

What to do	Why to do it
Operate control equipment when the associated boiler is operating except while burning only natural gas.	Minn. R. 7007.0800, subp. 2
The ESP must be operated with at least the minimum specific collection area (SCA) in service determined during the most-recent particulate matter emissions test with results equal to or less than the particulate matter emission limit. If the sections in the ESP are physically and electrically equivalent, the Permittee can meet this requirement by operating the ESP with no less than the number of sections that were operating during the most-recent particulate matter emissions test with results equal to or less than the particulate matter emission limit.	Minn. R. 7007.0800, subp. 14
Monitor and record the identity and minimum number of ESP sections (or SCA if sections are not equivalent) in service each day that the associated boiler is operating. Records shall indicate periods of operation on only natural gas.	Minn. R. 7007.0800, subp. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **FS 002 Coal Conveyors 6 and 7A**

Associated Items: CE 030 Other

What to do	Why to do it
If exhaust gases from any enclosed coal handling facility exceed 20 percent opacity, either install an exhaust air system and control exhaust gases so that particulate emissions do not exceed 0.020 gr/dscf, or control exhaust gases using dust suppression methods so that particulate emissions do not exhibit Opacity: greater than 20 percent opacity	Minn. R. 7011.1105 (G)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: FS 003 Emergency Reclaim Hopper

What to do	Why to do it
Control fugitive particulate emissions by dust suppression methods on such operations so that fugitive particulate emissions are minimized. In the alternative, use an underground bottom feed (plow) of coal to an underground conveyor system provided the exhaust gases from the enclosed spaces do not contain Total Particulate Matter: less than or equal to 0.02 grains/dry standard cubic foot	Minn. R. 7011.1105 (F)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **FS 004 All Coal Storage Piles (Erosion)**

Associated Items: CE 029 Dust Suppression by Water Spray

What to do	Why to do it
Stockpiles, Stockpile Construction, and Reclaiming: (1) Control fugitive particulate emissions by dust suppression methods on such operations so that fugitive particulate emissions are minimized. (2) In the alternative, use an underground bottom feed (plow) of coal to an underground conveyor system provided the exhaust gases from the enclosed spaces do not contain Total Particulate Matter: less than or equal to 0.02 grains/dry standard cubic foot	Minn. R. 7011.1105 (F)
Coal Pile Area: The total area of all coal piles shall be less than or equal to 14.5 acres.	Minn. R. 7009.0020

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **FS 008 Coal Outstacking**

Associated Items: CE 029 Dust Suppression by Water Spray

What to do	Why to do it
Coal Loading Stations: Control fugitive particulate emissions from the loading of trucks or haulers by dust suppression methods so that emissions from such sources are minimized.	Minn. R. 7011.1105 (B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **FS 009 Coal Reclaim**

Associated Items: CE 029 Dust Suppression by Water Spray

What to do	Why to do it
Stockpiles, Stockpile Construction, and Reclaiming: (1) Control fugitive particulate emissions by dust suppression methods on such operations so that fugitive particulate emissions are minimized. (2) In the alternative, use an underground bottom feed (plow) of coal to an underground conveyor system provided the exhaust gases from the enclosed spaces do not contain Total Particulate Matter: less than or equal to 0.02 grains/dry standard cubic foot	Minn. R. 7011.1105 (F) and Minn. R. 7009.0020

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **FS 010 Petroleum Coke Storage (Erosion)**

Associated Items: CE 029 Dust Suppression by Water Spray

What to do	Why to do it
Coke Pile Area: The total area of all coal piles shall be less than or equal to 1.0 acre.	Minn. R. 7009.0020
Stockpiles, Stockpile Construction, and Reclaiming: (1) Control fugitive particulate emissions by dust suppression methods on such operations so that fugitive particulate emissions are minimized. (2) In the alternative, use an underground bottom feed (plow) of coal to an underground conveyor system provided the exhaust gases from the enclosed spaces do not contain Total Particulate Matter: less than or equal to 0.02 grains/dry standard cubic foot	Minn. R. 7011.1105 (F)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **FS 013 Ash Hauling Traffic**

Associated Items: CE 029 Dust Suppression by Water Spray

What to do	Why to do it
Control dust by watering, achieving at least 40% efficiency.	Minn. R. 7009.0020

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **FS 014 Coal Yard Traffic**

Associated Items: CE 029 Dust Suppression by Water Spray

What to do	Why to do it
Control dust by watering, achieving at least 40% efficiency.	Minn. R. 7009.0020

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: FS 015 Coal Conveyors 7,7B,7C

What to do	Why to do it
If exhaust gases from any enclosed coal handling facility exceed 20 percent opacity, either install an exhaust air system and control exhaust gases so that particulate emissions do not exceed 0.020 gr/dscf, or control exhaust gases using dust suppression methods so that particulate emissions do not exhibit Opacity: greater than 20 percent opacity	Minn. R. 7011.1105 (G)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: FS 016 Coal Conveyor 8

What to do	Why to do it
If exhaust gases from any enclosed coal handling facility exceed 20 percent opacity, either install an exhaust air system and control exhaust gases so that particulate emissions do not exceed 0.020 gr/dscf, or control exhaust gases using dust suppression methods so that particulate emissions do not exhibit Opacity: greater than 20 percent opacity	Minn. R. 7011.1105 (G)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Subject Item: **FS 017 Dumper Unloading Bldg (fugitives from unloading railcar/scraper)**

Associated Items: CE 031 Other

What to do	Why to do it
Unload railcars only within a permanent building or structure. If exhaust gases from such building or structure exceed 20 percent opacity, then the owner or operator shall either install an exhaust air system and limit particulate emissions to 0.020 gr/dscf or control exhaust gases using dust suppression methods so that particulate emissions do not exhibit Opacity: greater than 20 percent opacity	Minn. R. 7011.1105 (H)
Truck and Hauler Unloading Stations: Control fugitive particulate emissions from the unloading of truck or haulers by dust suppression methods so that emissions from such sources are minimized. Control emissions by unloading reclaimed coal within a partial enclosure and with fabric filters.	Minn. R. 7011.1105 (C)

TABLE B: SUBMITTALS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

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

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

Send any application for a permit or permit amendment to:

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

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

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

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

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

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

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

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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

What to send	When to send	Portion of Facility Affected
Acid Rain Application for Permit Reissuance	due 180 days before expiration of Existing Permit	EU003, EU004
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
CEM Certification Test Plan	due 45 days before CEM Certification Test.	SV020
CEM Certification Test Report - Microfiche Copy	due 105 days after CEM Certification Test.	SV020
CEM Certification Test Report	due 30 days after CEM Certification Test.	SV020
Computer Dispersion Modeling Protocol	due 1096 days after 08/13/1998 for NOx. This protocol will describe the proposed modeling methodology and input data, in accordance with all requirements of 40 CFR pt. 51, Appendix W.	Total Facility
Computer Dispersion Modeling Protocol	due 30 days after 08/13/1998 for PM-10. This protocol will describe the proposed modeling methodology and input data, in accordance with all requirements of 40 CFR pt. 51, Appendix W.	Total Facility
Computer Dispersion Modeling Results	due 1462 days after 08/13/1998 and after the MPCA has reviewed and approved the modeling protocol.	Total Facility
Computer Dispersion Modeling Results	due 90 days after 08/13/1998 and after the MPCA has reviewed and approved the modeling protocol.	Total Facility
Fugitive Control Plan	due 60 days after 08/13/1998 for review and approval by the Commissioner. The plan shall identify all fugitive emission sources, primary and contingent control measures, and recordkeeping (if applicable). Daily recordkeeping must include, at a minimum, results of fugitive dust emissions observations, relevant meteorological data, control measures taken, and the date and time when the observations or control measures took place.	Total Facility
Relative Accuracy Test Audit (RATA) Notification	due 30 days before CEMS Relative Accuracy Test Audit (RATA)	SV020
Relative Accuracy Test Audit (RATA) Notification	due 30 days before CEMS Relative Accuracy Test Audit (RATA)	SV001
Testing Frequency Plan	due 60 days after 11/18/2002 for PM10 and VOC emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on one-year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of the MPCA.	SV020

TABLE B: RECURRENT SUBMITTALS

03/03/05

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

What to send	When to send	Portion of Facility Affected
Acid Rain Program Electronically Submitted Quarterly Report	due 30 days after end of each calendar quarter starting 01/01/96	SV001
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter starting 08/13/1998 (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
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter starting 11/18/2002 (Submit Deviations Reporting Form DRF-1 as amended). The EER shall indicate all periods of monitor bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e. during startup, shutdown, and malfunctions.	SV020
Linearity Test Results Summary	due 30 days after end of each calendar quarter following Linearity and Leak Check Test (Acid Rain Program) if performed.	SV001, SV020
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA) (in which the CEMS RATA was conducted).	SV001
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar half-year following COMS Calibration Error Audit .	SV001
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar half-year following Cylinder Gas Audit	SV020
Deviations Report	due 30 days after end of each calendar half-year starting 08/13/1998 (July 30th and January 30th). The first report covers January 1 - June 30. The second report covers July1 - December 31.	Total Facility
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar half-year following CEMS Relative Accuracy Test Audit (RATA)	SV020
Compliance Certification Report (Acid Rain Program)	due 60 days after end of each calendar year following Initial Startup. The report shall include all information required by 40 CFR Section 72.90(b) and (c).	SV020
Compliance Certification Report (Acid Rain Program)	due 60 days after end of each calendar year starting 01/01/2000 . The designated representative shall submit 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 Section 72.90(b) and (c).	EU003, EU004
Compliance Certification	due 30 days after end of each calendar year starting 08/13/1998 (January 30th).	Total Facility
Performance Test Notification (written)	due 30 days before end of each 60 months starting 12/31/93 (30 days before each Performance Test)	EU003
Performance Test Notification (written)	due 30 days before end of each 60 months starting 12/31/93 (30 days before each Performance Test)	EU004
Performance Test Plan	due 30 days before end of each 60 months starting 12/31/93 (30 days before each Performance Test)	EU003
Performance Test Plan	due 30 days before end of each 60 months starting 12/31/93 (30 days before each Performance Test)	EU004
Performance Test Report - Microfiche Copy	due 105 days after end of each 60 months starting 12/31/93 (105 days after each Performance Test)	EU003

TABLE B: RECURRENT SUBMITTALS

Facility Name: NSP dba Xcel Energy - Black Dog

Permit Number: 03700003 - 006

Performance Test Report - Microfiche Copy	due 105 days after end of each 60 months starting 12/31/93 (105 days after each Performance Test)	EU004
Performance Test Report	due 45 days after end of each 60 months starting 12/31/93 (45 days after each Performance Test)	EU003
Performance Test Report	due 45 days after end of each 60 months starting 12/31/93 (45 days after each Performance Test)	EU004

APPENDIX MATERIAL

Facility Name: NSP d/b/a Xcel Energy - Black Dog

Permit Number: 03700003-006

Phase II NOx Compliance Plan

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

This submission is: [X] **New** [ ] **Revised**

Step 1 **Indicate plant name, State, and ORIS code from NADB, if applicable**	Black Dog Plant Name	MN State	1904 ORIS Code

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

	ID# 1	ID# 3	ID# 4	ID#	ID#	ID#
	T Type	DBW Type	DBW Type	 Type	 Type	 Type
(a) Standard annual average emission limitation of 0.50 lb/mmBtu (for <u>Phase I</u> dry bottom wall-fired boilers)						
(b) Standard annual average emission limitation of 0.45 lb/mmBtu (for <u>Phase I</u> tangentially fired boilers)						

(c) EPA-approved early election plan under 40 CFR 76.8 through 12/31/07 (also indicate above emission limit specified in plan)						
(d) Standard annual average emission limitation of 0.46 lb/mmBtu (for Phase II dry bottom wall-fired boilers)						
(e) Standard annual average emission limitation of 0.40 lb/mmBtu (for Phase II tangentially fired boilers)						
(f) Standard annual average emission limitation of 0.68 lb/mmBtu (for cell burner boilers)						
(g) Standard annual average emission limitation of 0.86 lb/mmBtu (for cyclone boilers)						
(h) Standard annual average emission limitation of 0.80 lb/mmBtu (for vertically fired boilers)						
(i) Standard annual average emission limitation of 0.84 lb/mmBtu (for wet bottom boilers)						
(j) NOx Averaging Plan (include NOx Averaging form)	X	X	X			
(k) Common stack pursuant to 40 CFR 75.17(a)(2)(i)(A) (check the standard emission limitation box above for most stringent limitation applicable to any unit utilizing stack						

(l) Common stack pursuant to 40 CFR 75.17(a)(2)(i)(B) with NOx Averaging (check the NOx Averaging Plan box and include NOx Averaging form)	X	X	X			
(m) EPA-approved common stack apportionment method pursuant to 40 CFR 75.17 (a)(2)(i)(C), (a)(2)(iii)(B), or (b)(2)						
(n) AEL (include Phase II AEL Demonstration Period, Final AEL Petition, or AEL Renewal form as appropriate)						
(o) Petition for AEL demonstration period or final AEL under review by U.S. EPA or demonstration period ongoing						
(p) Repowering extension plan approved or under review						

Standard Requirements

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

Special Provisions for Early Election Units

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

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

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

Phase II NOx Averaging Plan

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

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

Step 1

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

Plant Name	State	ID#	(a) Emission Limitation	(b) Alt. Contemp. Emission Limitation	(c) Annual Heat Input Limit
Allen S. King	MN	1	0.86	1.05	34,000,000
Black Dog	MN	1	0.40	0.81	2,094,000
Black Dog	MN	3	0.46	0.81	5,685,000
Black Dog	MN	4	0.46	0.81	11,036,000
High Bridge	MN	3	0.50	0.60	1,771,500
High Bridge	MN	4	0.50	0.60	1,771,500
High Bridge	MN	5	0.50	0.60	5,037,000
High Bridge	MN	6	0.50	0.60	10,313,000
Minnesota Valley	MN	4	0.46	0.47	1,189,000
Riverside	MN	6	0.46	0.85	4,324,500
Riverside	MN	7	0.46	0.85	4,324,500
Riverside	MN	8	0.86	0.82	10,821,000
Sherburne County	MN	1	0.45	0.28	42,255,000
Sherburne County	MN	2	0.45	0.28	42,255,000
Sherburne County	MN	3	0.46	0.35	34,912,000

Step 2

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

Btu-weighted annual emission rate averaged over the units if they are operated in accordance with the proposed averaging plan	Btu-weighted annual average emission rate for same units operated in compliance with 40 CFR 76.5, 76.6, or 76.7
0.54	0.54

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

Where,

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

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

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

n = Number of units in the averaging plan

[X] This plan is effective for calendar year _2000_ through calendar year _2004_ unless notification to terminate the plan is given.

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

Special Provisions

Emission Limitations

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

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

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

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

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

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

Liability

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

Termination

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

Phase II Permit Application

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

This submission is [X] New [ ] Revised

Black Dog Plant Name	MN State	1904 ORIS Code

Compliance Plan

a Boiler ID#	b Unit Will Hold Allowances in Accordance with 40 CFR 72.9(c)(1)	c Repowering Plan	d New Units Commence Operation Date	e New Units Monitor Certification Deadline
1	Yes	no		
3	Yes	no		
4	Yes	no		
5	Yes	no	May 2002	August 2002
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			

Standard Requirements

Permit Requirements.

(1) The designated representative of each affected source and each affected unit at the source shall:
(i) Submit a complete Acid Rain permit application (including a compliance plan) under 40 CFR part 72 in accordance with the deadlines specified in 40 CFR 72.30; and
(ii) Submit in a timely manner any supplemental information that the permitting authority determines is necessary in order to review an Acid Rain permit application and issue or deny an Acid Rain permit;
(2) The owners and operators of each affected source and each affected unit at the source shall:
(i) Operate the unit in compliance with a complete Acid Rain permit application or a superseding Acid Rain permit issued by the permitting authority; and
(ii) Have an Acid Rain Permit.

Monitoring Requirements.

(1) The owners and operators and, to the extent applicable, designated representative of each affected source and each affected unit at the source shall comply with the monitoring requirements as provided in 40 CFR parts 74, 75, and 76.
(2) The emissions measurements recorded and reported in accordance with 40 CFR part 75 shall be used to determine compliance by the unit with the Acid Rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the Acid Rain Program.

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

Sulfur Dioxide Requirements.

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

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

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

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

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

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

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

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

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

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

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

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

Excess Emissions Requirements.

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

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

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

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

Recordkeeping and Reporting Requirements.

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

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

(ii) All emissions monitoring information, in accordance with 40 CFR part 75;

(iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program; and,

(iv) Copies of all documents used to complete an Acid Rain permit application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program.

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

Liability.

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

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

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

TECHNICAL SUPPORT DOCUMENT
For
DRAFT AIR EMISSION PERMIT NO. 03700003-006

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

1. General Information

1.1. Applicant and Stationary Source Location:

Applicant/Address	Stationary Source/Address (SIC Code: 4911)
Northern States Power Company d/b/a Xcel Energy 414 Nicollet Mall Minneapolis, MN 55401	Xcel Energy - Black Dog Plant 1400 East Black Dog Road Burnsville Dakota County
Contact: Nancy Stafki Phone: (612) 330-5520	Thomas Smith, Plant Director Phone: (952) 895-4219

1.2. Description of the Permit Action

This facility is an electric utility power plant. Power is produced by coal-fired steam boilers and a natural gas-fired combined cycle gas turbine. A major amendment to the 1998 title V operating permit was issued in January 2001 to construct and operate the combined cycle gas turbine. The activities authorized by the 2001 amendment were a major modification under New Source Review.

1.3 Description of the Activities Allowed by this Permit Action

This permit action is a state major amendment that revises certain conditions and requirements for the combined cycle gas turbine. There are no emission changes due to this permit action and no equipment changes are authorized by this permit action. This permit revises the following conditions in the original January 2001 PSD permit:

1. The definitions of cold, warm, and hot startup, and the definition of shutdown, were removed and a new requirement was inserted specifying when emission limits exempt during startup and shutdown become applicable. The limit applicability is based on time lengths of cold, warm, and hot startup, and length of shutdown. These time periods (based on real-time operating experience) have been revised from the original PSD permit issued in 2001 and were necessary to meet the steam turbine manufacturer's heat input guidelines (the steam turbine is an older unit originally installed to use steam generated by unit #2, a coal-fired boiler, which now is retired).

2. A 12-month rolling sum limit on the startup and shutdown hours was added to the permit to make BACT enforceable at all levels of operation. This was determined necessary based

on permits for other combined cycle gas turbine permits, and EPA Region 5 staff support of this determination.

3. The NOx concentration limit is changed from 4.5 ppmvd @15% O_2 (excluding startup, shutdown, and malfunction), to a two-tier limit for normal operation and startup/shutdown/malfunction operation. An additional limit of 100 ppmvd @15% O_2 limit on a 1-hour average basis has been added for startup/shutdown/malfunction, and the original 4.5 ppmvd limit was retained for normal operation.

4. The two short-term CO limits applicability threshold was changed from 1400 mmBtu/hr to 'except during startup, shutdown, or malfunction' and block-average language was inserted into the two short-term CO limits. The VOC limit applicability threshold was changed from 1400 mmBtu/hr to 70% load. The change was made from 1400 mmBtu/hr to 70% load because the heat input at 70% load varies with ambient conditions. VOC limit applicability exemption language is not identical to the NOx and CO exemption language because VOC emissions are measured by stack testing (unlike CO and NOx) and the Permittee wants to make it clear that VOC performance testing would not be required below 70% load.

5. Clean Unit Designation requirements for the combined cycle gas turbine are added for NOx emissions.

6. The combined cycle turbine heat input determination requirements are revised to coincide with those in part 75 Appendix F.

7. Part 60 subpart GG revisions effective July 8, 2004, are incorporated into this permit action. These revisions were the addition of §60.334(c) in the citation for the requirement to measure SV 020 NOx with a CEM; the addition of 40 CFR §§60.334(h) and (i) for monitoring of SV 020 fuel sulfur content which allows use of new methods to measure sulfur in fuel in subp. GG or continued use of previously approved custom fuel monitoring schedule (monitoring of fuel nitrogen content is not necessary because for this turbine natural gas is the only permitted fuel, and the Permittee has not elected to claim a fuel-bound nitrogen allowance); and revision of the EU 026 NOx limit from a 1-hour rolling average to a 4-hour rolling average.

8. The language defining the boundary between startup/shutdown, and normal operation (which occurs at 70% load) was enhanced. The change was the addition of a sentence indicating that EU 026 startup ends no later than 15 minutes after EU 026 first attains 70% load after startup commences. This is to account for the fact that EU 026 operating level may go above and then back below 70% for a short time as the startup process is completed.

1.4. Facility Emissions:

No emission changes on a ton-per-year basis are allowed by this permitting action. The proposed change of the short-term NOx limit from a single limit of 4.5 ppmvd @15% O_2 excluding startup and shutdown, to a two-tiered limit of 4.5 ppmvd @15% O_2 during normal operation and 100 ppmvd @ 15% O_2 on a 1-hour average during startup, shutdown, and malfunction also does not allow a NOx increase (on a lb/hr basis). This is because the startup-shutdown-malfunction NOx that previously was not limited (except on an annual basis by the 305 tpy limit) is now limited to 100 ppmvd @15% O_2.

Table 1. Facility Classification*

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

* Facility is natural minor source for VOC however, the VOC emissions increase from combined cycle turbine installation was significant

2. Regulatory and/or Statutory Basis

New Source Review

The facility is an existing major source under New Source Review regulations. No NSR emissions changes are authorized by this permit. However, the clean unit determination provisions at 40 CFR § 52.21(x) are added to this permit in subject item SV 020 for the combined cycle gas turbine and duct burners for NOx.

Part 70 Permit Program

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

New Source Performance Standards (NSPS)

The combined cycle turbine is subject to NSPS subparts A, Da, and GG.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The combined cycle turbine is subject to HAP limits to avoid major source status under 40 CFR pt. 63. Therefore, the combustion turbine NESHAP does not apply.

Community Involvement Process: This permit action is a major amendment so it is subject to the CIP. The initial information gathering phase revealed that in the past 4 years, one complaint had been received by the MPCA in September 2000. This was prior to the construction and operation of the gas turbine. In addition, the changes proposed by this permit action will not change emissions from or operational parameters of the gas turbine. Therefore it is the opinion of the permit writer that no additional CI is warranted.

Table 2. Regulatory Overview of Units Affected by the Permit Amendment

SV#	Applicable Regulations	Comments:
SV 020	Title I Conditions: 40 CFR § 52.21(x) clean unit designation	Clean Unit designation for NOx for the gas turbine and duct burners due to use of selective catalytic reduction
	Title I Condition: 40 CFR §52.21(j)	Re-structure the NOx BACT limit from a single 4.5 ppmvd@15% O_2 limit excluding startup and shutdown, to a two-tiered limit for normal operation (4.5 ppmvd), and for startup/shutdown/malfunction (100 ppmvd)
	Title I Condition: 40 CFR §52.21(j) BACT Operating Limit	Startup and shutdown 12-month rolling sum limit to ensure BACT enforceability at all operating levels.

	40 CFR §60.334	Revise gas turbine monitoring requirements due to July 8, 2004, revisions to part 60, subpart GG

3. Technical Information

- The PSD air analysis for the installation of the combined cycle gas turbine was done using the 305 tpy NOx limit, and the CO worst case operating load emission rate (which occurs at 30% load). Therefore, no re-modeling is necessary in order to revise the short term NOx limit from a single limit to a two tier limit, because the annual 305 tpy limit still restricts emissions so that the modeled impacts are less than the NOx SIL

- An additional second short term NOx limit of 100 ppmvd on a dry basis @ 15% O2 was added to the permit. This limit is applicable only during startup, shutdown, and malfunction. This limit was added at the request of Xcel to avoid inclusion of startup/shutdown emissions in the quarterly excess emissions report that exceed the 3-hour limit of 4.5 ppmvd. This limit is less than the 110 ppmvd limit in part 60 subpart GG.

- No emissions increases are associated with or allowed by this permit action. The addition of the second short term NOx limit for startup and shutdown does not allow additional NOx emissions during startup and shutdown, because the original 4.5 ppmvd NOx BACT limit did not and still does not apply during startup and shutdown, and previously, NOx emissions from startup and shutdown were not limited. Although this permit action effectively lengthens startup/shutdown time periods (because the time period that a limit not applicable during startup/shutdown/malfunction was increased by this permit action), the original PSD permit restrictions on startup and shutdown were not enforceable limits, because they were listed as part of the Table A SV 001 'EMISSION LIMITS' header. Therefore the lengthening of the startup/shutdown is not an allowable increase in emissions because these emissions were previously not limited.

- The effective date for the clean unit determination, according to §52.21(x)(4)(i) is March 3, 2003 and was determined as follows: §52.21(x)(4)(i) states the effective date is the earlier of the date the control equipment was placed into service (June 20, 2002) or three years after NSR permit issuance (January 12, 2001), but not before March 3, 2003. The expiration date is the earlier of 10 years after the CUD effective date or the date the equipment went into service. Therefore the expiration date is June 20, 2012. The heat input capacities in the basis for the clean unit designation are listed as approximate values because these values are not finite even at a specific ambient temperature, especially for the EU 026. Xcel requested a clean unit designation for CO, VOC, and PM_{10}, as well as for NOx based on the fact that the advanced combustion controls were a capital expense, and that the controls reduced emissions of CO, VOC, and PM10. However, the MPCA and EPA concluded that the advanced controls were more for proper operation of the turbine and that emission rate deductions were a collateral benefit. Therefore, the clean unit designation was only provided for NOx. See attachments.

- Periodic Monitoring/Compliance Assurance Monitoring: Compliance with the additional second NOx limit applicable during startup and shutdown will be determined by the existing NOx CEMS. Therefore, no additional periodic monitoring is warranted. In addition, EU 026/EU 027 is a large pollutant-specific emissions unit for NOx that uses add-on control (SCR) to meet an applicable standard and therefore, §64.3(d) was added to the citation for the requirement to operate a NOx CEMs to measure emissions.

- The following information is from the Permittee, regarding the nature of the combined cycle gas turbine.

  > The combustion turbine and the heat recovery steam generator are referred to as Unit 5 and the steam turbine is referred to as Unit 2. The steam turbine used in the combined cycle turbine system is the coal boiler Unit 2 steam turbine originally put into service in 1954. In comparison to modern steam turbines for combined cycle operations, there is more mass in the Unit 2 turbine rotors. Because of this the steam turbine requires longer startup times to more slowly heat the high pressure turbine rotor and not overstress the rotor during startup. Auxiliary steam is supplied from Unit 3 (coal-fired boiler) and is used for initial condenser vacuum and gland steam supply. This reduces startup times in comparison to only using the Unit 5 HRSG when starting (no aux steam source available). However, the startup limits proposed are for the situations when Unit 3 aux steam is not available. Black Dog is not designed with an auxiliary boiler for startup. Unit 2 steam turbine does not have an auxiliary steam source available for keeping the turbine "warm".

- A 12-month rolling sum limit on the startup and shutdown hours was added to the permit to make BACT enforceable at all levels of operation. This was determined necessary based on permits for other combined cycle gas turbine permits, and EPA Region 5 staff supported this determination. See the attached RockGen determinations by the EPA Appeals Board.

3.1 Comments Received

Public Notice Period: January 12, 2005 - February 10, 2005
EPA 45-day Review Period: January 12, 2005 - February 25, 2005

No comments were received from the public or EPA.

4. Conclusion

Based on the information provided by Northern States Power d/b/a Xcel Energy, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 03700003-006 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: Marshall Cole (permit writer/engineer)
Robert Berg (enforcement)
Jenny Reinertsen (peer reviewer)

Attachments:
1. July, 20, 2004, CUD letter to EPA
2. August 13, 2004, MPCA memorandum regarding EPA response to July 20, 2004, CUD letter

3. October 6, 2004, MPCA email to EPA regarding BACT and startup/shutdown limitations
4. October 20, 2004, EPA reply to MPCA BACT email w/excerpt from RockGen.pdf

Also sent via email w/out attachment July 19, 2004, to Jennifer Darrow @ Region 5 Chicago

July 20, 2004

Ms. Pam Blakley, Chief
Permits and Grants Section (AR-18J)
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, Illinois 60604

RE: Request for Applicability Determination for Clean Unit Designation for the Northern States Power d/b/a Xcel Energy Black Dog Electric Power Plant located in Burnsville, Dakota County, Minnesota.

Dear Ms. Blakley:

The Minnesota Pollution Control Agency (MPCA) is processing a permit amendment application submitted by Xcel Energy (Xcel), and requests a determination from the U.S. Environmental Protection Agency on the following clean unit designation issue within 30 days of the date of this letter. The following is a summary of the issue.

Xcel operates a combined cycle gas turbine electric generator at its Black Dog Electric Power Plant in Burnsville, Minnesota. On January 12, 2001, a permit was issued to Xcel to install and operate a combined cycle gas turbine as a major modification under New Source Review permitting requirements. Gas turbine emissions of PM, PM_{10}, NOx, CO, and VOC were subject to BACT. The gas turbine and duct burners are restricted to combusting only natural gas. The gas turbine is a Siemens-Westinghouse model W501F.

The gas turbine uses dry low-NOx (DLN) combustion and selective catalytic reduction (SCR) with ammonia injection for NOx control. In addition, CO, VOC, PM, and PM_{10} are controlled by good combustion practices and use of clean fuel. During the permitting process, Xcel argued against installing an oxidation catalyst for additional control of CO (and VOC) emissions and accepted an annual CO emission cap to make an oxidization catalyst cost-ineffective. The type and effect of combustion controls were not used by Xcel as a basis for determining the short-term CO emission levels that could be attained without an oxidization catalyst, or as a basis for the BACT determination. In addition, the use of good combustion was considered the 'base case' (compared to an oxidization catalyst) for the CO BACT analysis.

On March 3, 2004, the MPCA received an application from Xcel Energy for a major amendment to the Black Dog operating permit. The application requested a clean unit designation for the combined cycle gas turbine for NOx due to the use of SCR and DLN combustion, for PM and PM_{10} due to the use of advanced combustion controls and natural gas, and for CO and VOC due to the use of advanced combustion controls. The MPCA informed Xcel that the clean unit designation would only be provided for NOx, and not the other pollutants.

Xcel disagreed with this determination. Xcel replied that according to Siemens-Westinghouse, the turbine was available without advanced combustion controls for a lower cost, and therefore an investment was made to lower emissions. Xcel also provided a letter (attached) from Siemens-Westinghouse stating "The W501F gas turbine includes a DLN combustor and engine controls that are integral to the DLN design". However, there is no mention in the letter of "advanced controls" being available as an option with DLN so it is not clear there is such an option, available at higher cost, let alone how this option affects emissions.

According to the federal register (FR Vol. 67, No. 251, December 31, 2002, section V.C.4) a control technology is an add-on control device, a pollution prevention technique, or a work practice. Section V.C.4 also states that an owner/operator must make an investment (a capital expense under IRS filing guidelines) in a control technology for an emissions unit to qualify as a clean unit. Combustion controls are clearly not an add-on control device or a work practice, but could be construed as a pollution prevention technique, especially when used with DLN for NOx control. So is advanced combustion control/DLN combustion a control technology for which an investment was made to reduce emissions of PM, PM_{10}, CO, and VOC and therefore eligible for the CUD for these pollutants?

The MPCA contends that advanced combustion controls are used primarily for proper turbine and DLN operation, and that any reduction in PM, PM_{10}, CO, or VOC emissions is only a collateral effect, and not the primary reason for installation of such controls. In addition, such controls are not options, but are basic equipment components for a modern combined cycle natural gas-fired electric generating gas turbine.

Your input within 30 days of the date of this letter will be most appreciated. If we do not receive your input, we will assume that you concur with our opinion regarding this clean unit designation issue and will proceed with permit issuance. If you have any questions, please contact
Marshall Cole of my staff, at (507) 280-2992.

Sincerely,

Don Smith, P.E.
Supervisor
Majors Air and Construction Section
Majors and Remediation Division

DS/MC:lh

Enclosure

cc: Jennifer Darrow, U.S, Environmental Protection Agency, Region 5
Marshall Cole, MPCA, Rochester Regional Office
AQ File No. 202E

SIEMENS
Westinghouse

Wednesday, July 07, 2004

Nancy Stafki

Northern States Power
Minneapolis, MN
United States

Dear Nancy Stafki,

Re: Emissions from DLN and Non-DLN Gas Turbines (Black Dog)

Based on the information you have provided, and reviewing our records, we can certainly comment on the applicability of the W501F gas turbine for EPA's Clean Unit Exclusion. The W501F gas turbine includes a DLN combustor and engine controls that are integral to the DLN design. The primary function of this is to reduce NOx emissions while simultaneously reducing emissions of CO, VOC, and PM10. DLN is acronym for Dry Low NOx, some manufacturers use the term DLE for Dry Low Emissions, since the ultimate objective is to reduce all emissions without requiring additional equipment.

The W501F gas turbine can produce NOx emissions between 15 and 25 ppm NOx, depending upon the exact design requirements, fuel type, and operating scenarios. Likewise CO, VOC, and other emissions are controlled to very low levels by the use of controlled combustion.

It is possible that Northern States Power could have purchased a gas turbine that did not include a DLN equipment configuration. This selection would have been less expensive since the DLN combustor hardware and engine controls increase the cost to the DLN gas turbine. However, non-DLN gas turbines are usually much more difficult to permit in the US because the emissions are greater. In addition, the primary mechanism of controlling emissions in a non-DLN design is to inject water or steam; in many parts of the country, it is difficult to obtain access to adequate supplies of water. For a water injected gas turbine, NOx emissions would be in the range of 25-42 ppm, and much greater than 200 ppm if no controls were used. In addition, water injection can reduce the life of combustor and hot section components, depending upon the water injection level (and the desired degree of emissions reduction). Similarly CO, VOC, and PM10 emissions could be higher, depending upon the degree of water (or steam) injection. But to reach the lowest NOx emissions from the gas turbine, and to minimize SCR ammonia consumption, a DLN would be the preferred gas turbine choice. Siemens Westinghouse still manufactures non-DLN gas turbine, but the US gas turbine market has been substantially dominated by DLN technology since it achieves lower NOx emissions, and usually has no additional water requirements.

Because of the tremendous investment made in developing the DLN technology, Siemens Westinghouse remains convinced that this technology qualifies as a "clean unit" design, and can be permitted via BACT in any region of the United States.

We can provide you additional details regarding to help you obtain a clean unit exclusion from the state of Minnesota. Please feel free to contact us if you need any additional help.

Bruce Rising
Regulatory Affairs
Siemens Westinghouse

cc: Jim Heller
Jeff Usem (Siemens, Minneapolis)

Date: August 13, 2004
From: Marshall Cole
To: Xcel Black Dog Delta permit file for PER 006 (major amendment)
Subject: EPA response to July 20, 2004, MPCA letter to EPA regarding Xcel Black Dog gas turbine CUD issue

Marshall Cole received a voice mail message from Jennifer Darrow of EPA region 5. Jennifer said that she had forwarded the Xcel Black Dog July 20, 2004, CUD letter to OAQPS and that EPA agrees with the determination made by the MPCA. However, because of the content of the July 20, 2004, letter (which stated that if no reply was received within 30 days of the letter, that the MPCA assumes that EPA concurs with the letter), EPA will remain silent and not provide a written reply.

-----Original Message-----
From: Darrow.Jennifer@epamail.epa.gov
[mailto:Darrow.Jennifer@epamail.epa.gov]
Sent: Wednesday, October 20, 2004 12:48 PM
To: Cole, Marshall
Subject: RE: BACT for combined cycle gas turbine

See pages 18-19 of the attachment below...(See attached file: rockgen.pdf)

"Cole, Marshall" <Marshall.Cole@state.mn.us>
10/20/2004 11:55 AM

To: Jennifer Darrow/R5/USEPA/US@EPA
cc:
bcc:
Fax to:
Subject: RE: BACT for combined cycle gas turbine

Jennifer, thanks - could you tell me what is the 'Rockgen' opinion?

-----Original Message-----
From: Darrow.Jennifer@epamail.epa.gov
[mailto:Darrow.Jennifer@epamail.epa.gov]
Sent: Wednesday, October 20, 2004 11:35 AM
To: Cole, Marshall
Subject: Re: BACT for combined cycle gas turbine

I believe your approach would work if the facility goes through a secondary BACT review for su/sd. According to the Rockgen opinion, periods of su/sd are part of a unit's normal operations and all normal operating periods must be BACT addressed. The separate analysis may not result in extra control technology, but it may result in separate operating practices, i.e. limiting duration of su/sd or number of su/sd.

You could also think about establishing separate BACT emission limits for su/sd periods.

If you have any questions, please call me or respond to this email.

"Cole, Marshall" <Marshall.Cole@state.mn.us>

10/06/2004 12:58 PM

To: Jennifer Darrow/R5/USEPA/US@EPA

cc: "Smith, Don A." <Don.A.Smith@state.mn.us>, "Smith, Don A." <Don.A.Smith@state.mn.us>

bcc:

Fax to:

Subject: BACT for combined cycle gas turbine

Jennifer, please let me know if you can provide input to this BACT issue.

The facility is Xcel/NSP Black Dog, Burnsville, MN. This is the same facility that I sent a letter to you in July 2004, regarding clean unit designation where Xcel claimed that the 'cost' of equipment to achieve good combustion in their combined cycle (CC) gas turbine, entitled them to claim clean unit status for CO, PM10, and VOC for the CC turbine.

A PSD major modification permit (No. 03700003-002 and technical support document are available at this link http://www.pca.state.mn.us/air/permits/issued/03700003-002-aqpermit.pdf) was issued in 2001 for construction of a natural gas-only fired CC gas turbine using dry low NOx combustors operating in lean pre-mix mode and SCR for NOx control, and good combustion for CO, VOC, and PM10 control. The 2001 permit defined/listed time periods for cold, warm, and hot startup, as well as for shutdown (cold startup 8 hrs, warm startup 4 hr, and hot startup 2 hrs, and shutdown of 1 hr). These were not enforceable limits; they were originally listed as a narrative as part of the header for the 'EMISSION LIMITS' for SV 020 on page A-7 (combined cycle turbine stack).

I am working on a state major amendment that Xcel applied for. Xcel requested the addition of clean unit requirements, as well as several other changes to the permit CC turbine requirements, including lengthening the time periods for warm startup from 4 to 5 hr, hot startup from 2 to 3 hr, and for shutdown from 1 to 2 hr, based on Xcel's real-time operating experience with the CC turbine.

In the draft permit amendment I took the liberty of making the time periods for startup/shutdown (SUSD) into enforceable Title I BACT limits. My reasoning was that the CC turbine is subject to BACT for NOx, CO, VOC, and PM10. The puzzle book clearly states that BACT must be enforceable at all levels of operation (pg B.56, second paragraph). The BACT limits for the turbine do not apply during SUSD because the limits can't be met during SUSD due to either poor combustion conditions or the inability for the SCR to operate due to low exhaust temp. So, a limit on the length of SUSD is appropriate to limit the time period when the BACT emission limits can't be met. The frequency of SUSD is inherently very high for CC turbines due to their rank in the utility dispatch order. During SUSD, CC turbines with dry low-NOx combustors are known to emit very large amounts of CO, and elevated levels of VOC and NOx as well. Based on information received from another permit applicant for a Seimens-Westinghouse 501F (which is the turbine used at the Black Dog Plant), the Black Dog CC turbine can emit upwards of 10 tons of CO in a 3-hr startup event. With an average of perhaps 100 SUSD events per year, the CO emissions can readily exceed 1000 tpy during startup. For VOC, the emissions are about an order of magnitude lower, through still elevated compared to emissions during base load operation.

There is a 400 tpy CO CAP (12-month sum), but the SUSD emissions are not included in determining compliance with the limit (the cap was to cost out of add-on CO control equipment). On the flip side, the technical support document for the CC turbine installation states that the CO NAAQS won't be violated even if the turbine operated continuously at the load that is worst case for CO emissions (I assume to be somewhere around 30% load). There is also a 305 tpy NOx cap (12-month sum) that includes SUSD emissions, that was included to avoid modeled exceedance of the annual NOx significant impact level of 1.0 ug/m3. However, this cap doesn't effectively limit SUSD because NOx is only slightly elevated during SUSD, unlike CO and VOC.

I recently issued two other CC turbine permits that had title I BACT SUSD limits on either a per event basis, or a 12-month rolling sum basis. I have also found permits on the internet from other states (ie Indiana and Michigan) for CC turbines that have title I BACT limits for startup and shutdown. Xcel is objecting to the addition of enforceable SUSD limits. Please let me know if you think it is appropriate to include Title I BACT limits on the length of SUSD.

Thanks,

Marshall Cole
Minnesota Pollution Control Agency
ph. 507/280-2992
fax 507/280-5513
marshall.cole@pca.state.mn.us

Relevant parts of attached file from EPA Rockgen.pdf (ROCKGEN ENERGY CENTER PSD Appeal No. 99–1 *ORDER DENYING REVIEW IN PART AND REMANDING IN PART* Decided August 25, 1999 pages 16-19)

E. *Startup/Shutdown Provisions*

Permit condition I.C.12 allows RockGen to exceed the permit's emission limitations "if the emissions are temporary and due to startup or shutdown of operations carried out in accord with a plan and schedule approved by the Department. (s. NR 436.03(2)(b) Wis. Adm. Code)."20
Permit Condition I.C.12.a.(1) (AR 981). In addition, this provision states:

> If the permittee plans to submit a startup and shutdown plan and schedule, the permittee shall submit the plan and schedule to the Department, South Central Region, no later than 4 months prior to initial operation of the facility. If the plan is approved by the Department, the permittee shall thereafter comply with the conditions, schedules, reporting, recordkeeping and all other requirements in the approved plan.

Permit Condition I.C.12.b (AR 981).

RURAL asserts that the Board should invalidate this condition because it is not federally enforceable. In particular, RURAL states:

> As drafted, the RockGen final permit allows the permittee to seek a custom startup and shutdown plan outside of the PSD permitting process. There is no indication that such a plan would be subject to federal review and approval—and, consequently, the terms of such a plan would not appear to be federally enforceable. On its face, permit condition I.C.12 violates the basic requirement that all emission limitations in a PSD permit must be federally enforceable.

Amended Petition at 25. Thus, according to RURAL, WDNR erred in including this provision in the final permit. *Id.*

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[20] The cited provision of the Wisconsin Administrative Code states, in part:

> Exceptions in excess of emission limitations set in chs. NR 400 to 499 may be allowed in the following circumstances: * * * (b) When emissions in excess of the limits are temporary and due to scheduled maintenance, startup or shutdown of operations carried out in accord with a plan and schedule approved by the department.

Wis. Admin. Code § 436.03(2)(b) (1999).

In response, WDNR states that the disputed permit condition is authorized under Wisconsin law and is necessary in the present case.
According to WDNR:

> It may not be technically feasible to comply with all of the stringent BACT emission limits during startup and shutdown of a combustion turbine. For example, all of the BACT emission limits in the Permit require that the Facility operate at not less than 50% load. Clearly, while the Facility is starting up and shutting down it cannot comply with the "50% load" BACT emission limit. Other emission limits which *may* be exceeded during startup and shutdown are the limits for CO, NOx and visible emissions. Any combustion source operating at low loads has difficulty satisfying stringent emission limitations for those emissions that are directly related to the quality of combustion, namely CO, NOx and visible emissions. In general, combustion proceeds efficiently when there is ample time for the combustion reactions to occur, when furnace temperatures are high enough throughout the furnace to get the reactions to go thermodynamically, and when there is sufficient mixing to bring reactants together and, thereby, sustain the combustion process.
>
> When a combustion source is barely operating, for example at startup and shutdown, the combustion process is not efficient. At such times, the furnace temperatures are both considerably lower than at design conditions and unevenly distributed throughout the furnace volume. Gas flow rates at these conditions are also much lower than at design conditions. Consequently, the flames are not ideal, resulting in elevated CO emissions due to incomplete combustion. For this same reason the visible emissions may also be elevated. It is also possible for NOx
> emissions to be elevated during startup and shutdown as a consequence of, for example, excessive combustion air levels in the furnace.

WDNR Response at 17–18. With regard to the enforceability of any startup/
shutdown plan approved by the state, WDNR states that because the permit provides that RockGen must comply with the approved plan, the plan would be enforceable by both the state and EPA. *Id.* at 19. Upon consideration, we conclude that the permit must be remanded on this issue.

While it may be true that emission limitations are likely to be exceeded during startup and shutdown, EPA guidance indicates that such exceedances are common and can be reduced or eliminated with careful planning.[21] In particular, EPA guidance states, in part, that:

> Startup and shutdown of process equipment are part of the normal operation of a source and should be accounted for in the planning, design and implementation of operating procedures for the process and control equipment. Accordingly, it is reasonable to expect that careful and prudent planning and design will eliminate violations of emission limitations during such periods.

Rasnic Memo at 2; *see also* 1983 Bennett Memo at 1; 1982 Bennett Memo attachment at 1.

WDNR, citing the Rasnic Memo, acknowledges that "normal operations [of the facility] necessarily include startup and shutdown." WDNR Response at 18. In addition, WDNR has acknowledged that during startup and shutdown, emissions may exceed permit requirements. Nevertheless, it does not appear from the record before us that WDNR gave sufficient consideration to design or other possible changes to the proposed facility to address this issue. On the contrary, it appears as if the disputed permit provision was added as an afterthought in response to language suggested by RockGen four days before the permit was issued. *See* AR 989.

Although RockGen is required to comply with the provisions of a plan to be approved by WDNR at a later date, there is no provision for the plan itself to be subject to the public notice and review requirements of 40 C.F.R. § 52.21 and part 124. The provision authorizing the plan does not specify what conditions might be included in a plan or indicate what criteria the State will use in approving the plan. Thus, although the permit appears to contemplate that emissions in excess of the limits established in the permit may well occur during startup and shutdown, it does not appear as if WDNR gave sufficient consideration to appropriate measures to minimize or eliminate such emissions. As currently drafted, the

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[21] *See*, e.g., Memorandum from John B. Rasnic, Director, Stationary Source Compliance Division, Office of Air Quality Planning and Standards, U.S. EPA, to Linda M. Murphy, Director, Air, Pesticides and Toxics Management Division, U.S. EPA Region I (Jan. 28, 1993) ("Rasnic Memo"); Memorandum from Kathleen M. Bennett, Assistant Administrator for Air, Noise, and Radiation, U.S. EPA, to Regional Administrators, Regions I–X (Feb. 15, 1983) ("1983 Bennett Memo"); Memorandum from Kathleen M. Bennett, Assistant Administrator for Air, Noise, and Radiation, U.S. EPA, to Regional Administrators, Regions I–X (Sept. 28, 1982) ("1982 Bennett Memo").

permit "could effectively shield excess emissions arising from poor operation and maintenance or design, thus precluding attainment." Rasnic Memo at 2.22

Under these circumstances, we conclude that the permit provision must be remanded to WDNR. On remand WDNR must reconsider and revise this provision. In particular, if WDNR intends to include such a provision, it must make an on-the-record determination as to whether compliance with existing permit limitations is infeasible during startup and shutdown, and, if so, what design, control, methodological or other changes are appropriate for inclusion in the permit to minimize the excess emissions during these periods.23 In so doing, the State may also require that once the facility is operational any permit provisions designed to reduce emissions during startup and shutdown be refined over time so as to increase their efficiency and effectiveness. *See*, e.g., *In re Hadson Power 14—Buena Vista*, 4 E.A.D. 258, 291 (EAB 1992) (acknowledging permit provision requiring review of NOx emission limitation prior to issuance and each renewal of an operating permit, and stating that "[w]e would expect that if the performance of [the facility]
* * * demonstrates the achievability of a more stringent emission limitation, the current limit will be reconsidered and adjusted appropriately."); *In re Pennsauken County, N.J. Resource Recovery Facility*, 2 E.A.D. 768, 771 (Adm'r 1989) (noting the addition of an optimization clause in the permit requiring the State to minimize emissions of NOx and ammonia based on tests conducted after permit issuance). If WDNR determines that compliance with the permit cannot be achieved during startup and shutdown despite best efforts, it should specify and carefully circumscribe in the permit the conditions under which RockGen would be permitted to exceed otherwise applicable emissions limits and establish that such conditions are nonetheless in compliance with applicable requirements, including NAAQS and increment provisions. Under such circumstances, a secondary PSD limit may also be considered, provided it is made part of the PSD permit and justified as BACT. In its revision of this permit condition (unless the revision merely strikes I.C.12 from the permit), WDNR

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[22] We also note, as the Agency states in its Amicus Brief, that "there is no assurance that the establishment of [a startup and shutdown plan] will be subject to the public notice and review requirements of 40 C.F.R. §§ 52.21 and 124." Amicus Brief at 13. The Agency states further, and we agree, that the permit provision improperly allows for modification outside of the PSD permitting process. *Id.*

[23] Mandating the consideration of such design and other changes to address excess emissions is consistent with the definition of BACT in the PSD regulations, which requires, among other things, an emissions limitations that the Administrator determines is achievable "through application of production processes or available methods, systems, and techniques * * * for control of such pollutant." 40 C.F.R. § 52.21(b)(12).

must provide the public with an opportunity to submit comments and file a petition for review with the Board in accordance with the procedures of 40 C.F.R part 124.