AIR EMISSION PERMIT NO. 00000424- 001

IS ISSUED TO

INTERSTATE POWER COMPANY

INTERSTATE POWER - FOX LAKE STATION
County Road 28
Sherburn, Martin County, Minnesota 56171-0367

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

Permit Type	Application Date
Total Facility Operating Permit	September 15, 1995

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 the conditions of the permit and with all general conditions listed in Minn. R. 7007.0800, subp. 16, and all standard permit requirements listed in 40 CFR pt. 70.6(a), which are incorporated by reference. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: Federal; Part 70
Issue Date: October 31, 1996
Expiration: All Title I Conditions do not expire.

Michael J. Sandusky
Acting Division Manager
Air Quality Division

for Peder A. Larson
Acting Commissioner
Minnesota Pollution Control Agency

JLR:csa

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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	(612)296-6300
Outside Metro Area	1-800-657-3864
TTY	(612)282-5332

The rule 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. 70007.1800, 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. Any requirements which have been determined not to apply are listed in Table A of this permit.

The permit shield, however, does not apply to: Minn. R. ch. 7030 (Noise Pollution Control).

FACILITY DESCRIPTION:

Emission units at the Fox Lake Station consist of three power boilers, one combustion turbine, one heating boiler, and ash and fuel handling activities and equipment. The primary fuels for Boilers No. 1, 2, and the heating boiler are oil and natural gas. The primary fuels for Boiler No. 3 are coal, oil, and natural gas. The combustion turbine is oil fired. The permit also allows for the burning of boiler cleaning agents in Boilers 1-3, and for the burning of used oil and small amounts of hazardous waste in Boiler 3.

Emissions are controlled from Boiler No. 3 by an electrostatic precipitator. Emissions from some of the materials handling equipment are controlled by baghouse.

This is a reissuance of an existing permit, and the issuance of the Air Emissions Operating Permit required by Title V of the Clean Air Act Amendments of 1990, codified in 40 CFR pt. 70.

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

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
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment.	Minn. R. 7007.0800, subp. 14 & subp. 16(J)
Shutdown. The owner or operator of an emission facility shall notify the commissioner at least 24 hours in advance of shutdown of any control equipment and, if the shutdown would cause an increase in the emission of air contaminants, of a shutdown of any process equipment. At the time of notification, the owner or operator shall also notify 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. 1
Breakdown. The owner or operator of an emission facility shall notify the commissioner immediately of a breakdown of more than one hour duration of any control equipment and, if the breakdown causes an increase in the emission of air contaminants, of a breakdown of any process equipment. At the time of notification or as soon thereafter as possible, the owner or operator shall also notify the commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.	Minn. R. 7007.0800, subp. 4(d)
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operations of Monitoring Equipment: Unless otherwise noted in Tables A,B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, such as for system breakdowns, repairs, calibration checks, and zero and span adjustments (as applicable). Monitoring records should reflect any such periods of process shutdown.	Minn. R. 7007.0800, subp. 4(D)
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
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A,B and/or C.	Minn. R. ch. 7017
Oral Notification of Deviations Endangering Human Health or the Environment: Within 24 hours of discovery, orally notify the Commissioner of any deviation from permit conditions which could endanger human health or the environment.Oral Notification of Deviations Endangering Human Health or the Environment: Within 24 hours of discovery, orally notify the Commissioner of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7007.0800, subp. 6(A)
Discovery of Deviation: due 2 days after Discovery of Deviation submit a written description of any deviation endangering human health or the environment to the Commissioner. Include the following information in this written description: cause of the deviation; exact dates of the period of the deviation; if the deviation has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent reoccurrence of the deviation.	Minn. R. 7007.0800, subp. 6(A)
Application for Permit Amendment: If you need a permit amendment, submit application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150-7007.1500
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005-7002.0095
Inspections: Upon presentation of credentials, 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 a reasonable times (which include any time the source is operating) any facilities, equipment, practices or operation, and to sample or monitor any substances or parameters at any location.	Minn. R. 7007.0800, subp. 9(A)
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

Recordkeeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp 5(A).	Minn. R. 7007.0800, subp. 5(C)
Extension Requests: The permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days provided that the proposed amendment meets the requirements of Minn. R. 7007.1400, subp 1(H).	Minn. R. 7007.1400, subp. 1(H)
Fugitive Emissions: The Permittee shall 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. The Permittee must also comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Fugitive Control Plan: The Permittee shall submit a fugitive emission control plan within 60 days of the date of permit issuance date for review and approval by the Commissioner. The plan shall identify all fugitive emission sources, primary and contingent control measures, and record keeping.	Minn. Stat. Section 116.07, subp. 4a, and Minn. R. 7007.0800, subp. 2
Comply with Fugitive Emissions Control Plan: The Permittee shall follow the actions and record keeping 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, subp. 4a, and Minn. R. 7007.0800, subp. 2
No emissions of acidic or alkaline substances in such amount that the downwind fallout rate at any place where an adverse effect could occur exceed the upwind fallout rate by five or more spots per hour, measured in accordance with Minn. R. pt. 7011.0405.	Minn. R. 7011.0400
Operating and/or production limits will be placed on emission units based on operating conditions during compliance testing. Limits set as a result of a compliance test (conducted before or after permit issuance) apply until new operating/production limits are set following formal review of a performance test as specified by Minn. R. 7017.2025.	Minn. R. 7017.2025
Comply with general conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
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)
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state requirement only and is not federally enforceable.	Minn. R. 7030.0010 - 7030.0080

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

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

Associated Items: SV 001

What to do	Why to do it
Particulate Matter Emissions limit met by fuel use restriction. Fuel restricted to residual fuel oil, distillate fuel oil, and natural gas which ensures compliance with the limit set by Minn. R. 7011.0510 subp 1.	Minn. R. 7007.0800, subp. 2
Sulfur Dioxide: less than or equal to 2 lbs/million BTU heat input when burning liquid fuel. When liquid fuel is burned simultaneously with natural gas, the sulfur dioxide is limited to: w = y(a)/(x+y) where: w = the emission limit, x = % heat input from gaseous fuel, y = % heat input from liquid fuel, and a = 2 lb/mmBtu.	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60-minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60-minute period.	Minn. R. 7011.0510, subp. 2
Fuel Use: limited to residual oil, distillate oil, natural gas, and boiler cleaning agents	Minn. R. 7007.0800, subp. 2
Distillate Fuel Oil: When burning distillate fuel oil, determine compliance with the sulfur dioxide emission limit by calculating the emission rate in lb/mmBtu from records of fuel oil purchasing specifications, from fuel oil analysis received from vendor or from own sampling and analysis. Analysis must be performed using accepted ASTM methods for determining sulfur content and heating value. Keep the results of the calculation on site.	Minn. R. 7007.0800, subp. 2 and 5
Residual Fuel Oil: When burning residual oil, determine compliance with the sulfur dioxide emission limit by sampling, analyzing, and calculating the sulfur dioxide emission rate in lb/mmBtu from each fuel oil delivery. Analysis must be performed using accepted ASTM methods for determining sulfur content and heating value. Keep the results of the calculation on site.	Minn. R. 7007.0800, subp. 2 and 5
Boiler cleaning agents limited to: EDTA type are generated on-site. Operating conditions that must be met when burning boiler cleaning agents are: 1) the agents may comprise a maximum of 5% of total mass or heat input, 2) oxygen must be 3% or greater, and 3) agents may only be burned while the boiler is operating at 75% of rated capacity or greater.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

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

Associated Items: SV 001

What to do	Why to do it
Particulate matter emissions limit met by fuel use restriction. Fuel restricted to residual fuel oil, distillate fuel oil, and natural gas which ensures compliance with 7011.0510 subp 1	Minn. R. 7007.0800, subp. 2
Sulfur Dioxide: less than or equal to 2 lbs/million BTU heat input when burning liquid fuel. When liquid fuel is burned simultaneously with natural gas, the sulfur dioxide is limited to: w = y(a)/(x+y) where: w = the emission limit, x = % heat input from gaseous fuel, y = % heat input from liquid fuel, and a = 2 lb/mmBtu.	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60-minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60-minute period.	Minn. R. 7011.0510, subp. 2
Fuel Use: limited to residual oil, distillate oil, natural gas, and boiler cleaning agents	Minn. R. 7007.0800, subp. 2
Boiler cleaning agents limited to: EDTA type are generated on-site. Operating conditions that must be met when burning boiler cleaning agents are: 1) the agents may comprise a maximum of 5% of total mass or heat input, 2) oxygen must be 3% or greater, and 3) agents may only be burned while the boiler is operating at 75% of rated capacity or greater.	Minn. R. 7007.0800, subp. 2
Distillate Fuel Oil: When burning distillate fuel oil, determine compliance with the sulfur dioxide emission limit by calculating the emission rate in lb/mmBtu from records of fuel oil purchasing specifications, from fuel oil analysis received from vendor or from own sampling and analysis. Analysis must be performed using accepted ASTM methods for determining sulfur content and heating value. Keep the results of the calculation on site.	Minn. R. 7007.0800, subp. 2 and 5
Residual Fuel Oil: When burning residual oil, determine compliance with the sulfur dioxide emission limit by sampling, analyzing, and calculating the sulfur dioxide emission rate in lb/mmBtu from each fuel oil delivery. Analysis must be performed using accepted ASTM methods for determining sulfur content and heating value. Keep the results of the calculation on site.	Minn. R. 7007.0800, subp. 2 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

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

Associated Items: CE 001 Electrostatic Precipitator - High Efficiency

MR 001

MR 002

MR 003

MR 004

MR 005

SV 002

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.6 lbs/million BTU heat input	Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 4 lbs/million BTU heat input for solid fuel, and less than 2.0 lb/mmBtu for liquid fuel. When fuels are burned simultaneously in any combination, the applicable sulfur dioxide standard shall be determined by the following formula; w = y(a)+z(b)/(x+y+z) Where: w = the emission limit, x = %heat input from gaseous fuel, y = %heat input from liquid fuel, z = %heat input from solid fossil fuel, a = 2 lb/mmBtu, and b = 4 lb/mmBtu	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity ; except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60-minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60-minute period.	Minn. R. 7011.0510, subp. 2
Fuel use: limited to bituminous and sub-bituminous coal, residual oil, distillate oil, natural gas, used oil, hazardous waste, and boiler cleaning agents.	Minn. R. 7007.0800, subp. 2
Burn hazardous waste in accordance with 40 CFR pt. 266.108 and Minn. R. 7045.0692. Requirements include: 1) hazardous waste burning limited to: 680 gallons per month, 2) must have a minimum heating value of 5000 Btu/lb, 3) must be generated on-site, 4) must not exceed 1 percent of total fuel requirements for the boiler on a volume basis, 5) must not contain or be derived from EPA Hazardous Waste Nos. F020, F021, F022, F023, F026 or F027 6) must not be listed for characteristics other than ignitability, 7) must not be a hazardous waste sludge, 8) must not be considered toxic under Minn. R. 7045.0131 subp. 6.	Minn. R. 7007.0800, subp. 2
Recordkeeping for Hazardous Waste Burning: Keep records of the hazardous waste firing rate and heating value in accordance with 40 CFR pt. 266.108. At a minimum these records must indicate the quantity of hazardous waste and other fuel burned per calendar month, and the heating value in Btu/lb of the hazardous waste.	Minn. R. 7007.0800, subp. 2
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)
Comply with the applicable Acid Rain emissions limitation for sulfur dioxide.	40 CFR Section 72.9(c)(1)(ii), 40 CFR Section 72.9(g)(4)
Acid Rain Program Recordkeeping: 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.	40 CFR Section 72.9(f)(l)
Certify Acid Rain Program submittals. 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 ' 72.21	40 CFR Section 72.21
Submit a complete permit application and compliance plan for NOx emissions in accordance with 40 CFR ' 76.9	40 CFR Section 76.9(b)(2)
Submit an annual compliance certification report for Acid Rain Program requirements. The designated representative shall submit within 60 days after the end of the calendar year, an annual compliance certification report for the unit in accordance with 40 CFR ' 72.90(a). The report shall include all information required by 40 CFR ' 72.90(b) and (c).	40 CFR Section 72.90

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

Emissions Monitoring: The owner or operator shall measure opacity and all SO2, NOx, CO2, and flow emissions for each affected unit in accordance with 40 CFR ' 75.10.	40 CFR Section 75.10
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year following CEM Certification Test . Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75 app B. If the RATA results indicate a relative accuracy of 7.5% or less, the next RATA is not required for twelve months.	40 CFR Section 75.4(b)
Daily Calibration Error (CE) Test: conduct daily CE testing on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75 App B.	40 CFR pt. 75 App B, section 2.1
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 App B, section 2.2
Opacity Audit: due before end of each calendar year following COMS Certification Test . The opacity audit includes the following: optical alignment, zero compensation, stack exit correlation, and zero alignment audits.	Minn. R. 7007.0800, 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. 7007.0800, subp. 2
COMS Continuous Operation: Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, all COMS shall be in continuous operation.	Minn. R. 7007.0800, subp. 2
COMS Daily Calibration Drift (CD) Check: COMS shall be checked at least once daily and CD quantified and recorded at zero (low-level) and upscale (high-level) opacity. Whenever the calibration drift (CD) exceeds twice the specification of PS-1, the COMS is out of control.	Minn. R. 7017.1000; Minn. R. 7007.0800, subp. 2
Initial Performance Test: due 180 days after Initial Startup of resuming coal combustion to determine compliance with the particulate matter emissions limit in Minn. R. 7011.0510 subp 1.	Minn. R. 7017.2020, subp. 1
CEMS QA/QC: The owner or operator of an affected facility shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 75, Appendix B as amended.	40 CFR Section 75.21
Combust used oil in accordance with used oil regulations, Minn. R. ch. 7045, and limit to 5% of total mass or heat input on an hourly basis.	Minn. R. 7007.0800, subp. 2
Use opacity CEM to measure opacity in one-minute averages to determine compliance with the opacity limit.	Minn. R. 7007.0800, subp. 2
Performance Test: due before end of each 60 months following Initial Performance Test to determine compliance with the particulate matter emissions limit in Minn. R. 7011.0510 subp. 1. The tests shall be conducted at an interval not to exceed 60 months betweeen test dates.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before end of each 60 months following Initial Performance Test (7 days before each Performance Test)	Minn. R. 7017.2030, subp. 4
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test	Minn. R. 7017.2030, subp. 4
COMS Calibration Error Audit: due 30 days after end of each calendar half-year following COMS Calibration Error Audit .	Minn. R. 7007.0800, subp. 2
CEMS Data: All quality assured CEMS data shall be used to determine compliance with the SO2 emission limits.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Maintain 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. 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 years from the date of the monitoring sample, measurement, or report. Records shall be kept at the source.	Minn. R. 7007.0800, subp. 5
COMS Data: All quality assured COMS data shall be used to determine compliance with the opacity limit.	Minn. R. 7007.0800, subp. 2
COMS Monitoring Data: Owners or operators of all COMS shall reduce all data to six-minute averages except that a one-minute averaging period as described in part 7017.2060, subp. 6, shall be used in the event an applicable standard for a specified period of minutes in a one-hour period. Opacity averages shall be calculated from all equally spaced consecutive 10-second (or shorter) data points in the applicable averaging period.	Minn. R. 7007.0800, subp. 2
Use SO2 CEM to measure sulfur dioxide in lb/mmBtu and determine compliance with SO2 emission limit hourly, on a 3 hour average.	Minn. R. 7007.0800, subp. 2
Notify: due 30 days after Initial Startup upon resuming coal combustion. Submit a written notification of startup on coal. This requirement is necessary to initiate the performance testing requirement for PM.	Minn. Stat. 116.07, subd. 4a

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

Boiler cleaning agents limited to: EDTA type are generated on-site. Operating conditions that must be met when burning boiler cleaning agents are: 1) the agents may comprise a maximum of 5% of total mass or heat input, 2) oxygen must be 3% or greater, and 3) agents may only be burned while the boiler is operating at 75% of rated capacity or greater.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

Subject Item: **EU 004 Combustion Turbine**

Associated Items: SV 003

What to do	Why to do it
Sulfur Dioxide: less than or equal to 1.75 lbs/million BTU heat input	Minn. R. 7011.2300, subp. 2
Opacity: less than or equal to 20 percent opacity for more than 10 consecutive seconds once operating temps have been obtained.	Minn. R. 7011.2300, subp. 1
Fuel Oil: When burning fuel oil, determine compliance with the sulfur dioxide emission limit by calculating the emission rate in lb/mmBtu from records of fuel oil purchasing specifications, from fuel oil analysis received from vendor or from own sampling and analysis. Analysis must be performed using accepted ASTM methods for determining sulfur content and heating value. Keep the results of the calculation on site.	Minn. R. 7007.0800, subp. 5
Fuel use: Limited to distillate fuel oil.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

Subject Item: **EU 005 Heating Boiler**

Associated Items: SV 004

What to do	Why to do it
Particulate matter emissions limit met by fuel use restriction. Fuel restricted to fuel oil and natural gas which ensures compliance with 7011.0515 subp 1.	Minn. R. 7007.0800, subp. 2
Sulfur Dioxide: less than or equal to 1.08 lbs/million BTU heat input	Title I Condition: limit to avoid classification as a significant net emissions increase as defined by 40 CFR Section 52.21; ensures compliance with Minn. R. 7011.0515, subp. 1
Opacity: less than or equal to 20 percent opacity except that a maximum of 60 percent opacity shall be permissible for four minutes in any 60-minute period and that a maximum of 40 percent opacity shall be permissible for four additional minutes in any 60-minute period.	Minn. R. 7011.0515, subp. 2
Fuel Usage: less than or equal to 1 percent by weight maximum content sulfur in distillate oil and natural gas.	Title I Condition: limit to avoid classification as a significant net emissions increase as defined by 40 CFR Section 52.21
Fuel Oil: When burning fuel oil, determine compliance with the sulfur dioxide emission limit by calculating the emission rate in lb/mmBtu from records of fuel oil purchasing specifications, from fuel oil analysis received from vendor or from own sampling and analysis. Analysis must be performed using accepted ASTM methods for determining sulfur content and heating value. Keep the results of the calculation on site.	Title I Condition: limit to avoid classification as a significant net emissions increase as defined by 40 CFR Section 52.21

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

Subject Item: **EU 006 Ash Silo Bin Vent**

Associated Items: CE 002 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 005

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot if not required to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	MInn. R. 7011.0715
Opacity: less than or equal to 20 percent opacity	MInn. R. 7011.0715
Operate fabric filter when emissions from the equipment are vented to the atmosphere to ensure compliance with the opacity and particulate standards.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

Subject Item: **EU 007 Ash Transport Blower A & B**

Associated Items: CE 003 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 006

SV 007

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot if not required to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	MInn. R. 7011.0715
Opacity: less than or equal to 20 percent opacity	MInn. R. 7011.0715
Operate fabric filter when emissions from the equipment are vented to the atmosphere to ensure compliance with the opacity and particulate emission standards.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

Subject Item: **EU 008 Comb. Turbine Starting Diesel**

Associated Items: SV 003

What to do	Why to do it
Sulfur Dioxide: less than or equal to 1.75 lbs/million BTU heat input	Minn. R. 7011.2300, subp. 2
Opacity: less than or equal to 20 percent opacity for more than 10 consecutive seconds once operating temps have been obtained.	Minn. R. 7011.2300, subp. 1
Fuel Oil: When burning fuel oil, determine compliance with the sulfur dioxide emission limit by calculating the emission rate in lb/mmBtu from records of fuel oil purchasing specifications, from fuel oil analysis received from vendor or from own sampling and analysis. Analysis must be performed using accepted ASTM methods for determining sulfur content and heating value. Keep the results of the calculation on site.	Minn. R. 7007.0800, subp. 2 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

Subject Item: **CE 002 Fabric Filter - Low Temperature, i.e., T<180 Degrees F**

Associated Items: EU 006 Ash Silo Bin Vent

What to do	Why to do it
Inspect quarterly, or as required by manufacturing specifications, all components that are not subject to wear or plugging, including structural componenets, housing, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2
Inspect monthly, or as required by manufacturing specifications, all components that are subject to wear or plugging. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2
Check pressure drop once every 48 hours. Verify that pressure drop is within manufacturers recommended range. Record the results.	Minn. R. 7007.0800, subp. 2
Check visible emissions once every 48 hours. If visible emissions exist, inspect equipment for evidence of malfunction, including broken bags. Record the results of the inspection, and any corrective action taken.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

Subject Item: **CE 003 Fabric Filter - Low Temperature, i.e., T<180 Degrees F**

Associated Items: EU 007 Ash Transport Blower A & B

What to do	Why to do it
Check pressure drop once every 48 hours. Verify that pressure drop is within manufacturers recommended range. Record the results.	Minn. R. 7007.0800, subp. 2
Inspect quarterly, or as required by manufacturing specifications, all components that are not subject to wear or plugging, including structural components, housing, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2
Inspect monthly, or as required by manufacturing specifications, all components that are subject to wear or plugging. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2
Check visible emissions once every 48 hours. If visible emissions exist, inspect equipment for evidence of malfunction, including broken bags. Record the results of the inspection, and any corrective action taken.	Minn. R. 7007.0800, subp. 2

TABLE B: SUBMITTALS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

Table B lists the submittals you must send to the Commissioner. Table B is divided into two sections, for source-specific submittal requirements and for submittals required of all permittees. Source-specific submittals are further organized as either one-time only or recurrent requirements. You may also be subject to additional reporting requirements contained in the compliance schedule located in Table C of this permit. All submittals must be postmarked or received by the date specified in the table, and certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Submittals which must be provided on standardized forms approved by the Commissioner are noted in Tables B and C.

Send any application for a permit or permit amendment to: Permit Information Coordinator, Permit Section, Air Quality Division, Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4914. Also send the Permit Information Coordinator notices of: accumulated insignificant activities, installation of control equipment, replacement of an emissions unit, and changes that contravene a permit term.

Send all other submittals to: Compliance Tracking Coordinator, Compliance Determination Unit, Air Quality Division, Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Application for Permit Reissuance	due 180 days before expiration of Existing Permit for Acid Rain. The designated representative shall submit a complete Acid Rain permit application for each source with an affected unit at least 6 months prior to the expiration of an existing Acid Rain Permit in accordance with 40 CFR ' 72.30(c)	EU003
Computer Dispersion Modeling Protocol	due 1,095 days after Permit Issuance . Dispersion modeling is required for PM10, SO2, or NOx if potential emissions from your facility are in excess of 100 tons per year. The protocol will describe the proposed modeling methodology and input data in accordance with all requirements of 40 CFR pt. 51, App. W. The protocol may be based on proposed operating conditions under the next permit term.	Total Facility
Computer Dispersion Modeling Results	due 1,460 days after Permit Issuance	Total Facility
Performance Test Notification (written)	due 30 days before Initial Performance Test	EU003
Performance Test Plan	due 30 days before Initial Performance Test	EU003
Performance Test Report - Microfiche Copy	due 105 days after Initial Performance Test	EU003
Performance Test Report	due 45 days after Initial Performance Test	EU003
Relative Accuracy Test Audit (RATA) Notification	due 30 days before CEMS Relative Accuracy Test Audit (RATA) .	EU003

TABLE B: RECURRENT SUBMITTALS

10/31/96

Facility Name: Interstate Power - Fox Lake Station

Permit Number: 09100007 - 001

What to send	When to send	Portion of Facility Affected
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter following CEM Certification Test . The EER consists of Form DRF-1.	EU003
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter following COMS Certification Test . The EER consists of form DRF-1.	EU003
Linearity Test Results Summary	due 30 days after end of each calendar quarter following Linearity and Leak Check Test (Acid Rain Program) if performed. This report shall consist of a results summary of the linearity and leak check tests.	EU003
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar half-year following CEM Certification Test or 30 days after the end of the calendar quarter in which the CEMS RATA was conducted. This report shall consist of a results summary of the RATA.	EU003
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance A mid-year report, covering deviations which occured during the period from January 1 through June 30, is due by July 30 of each year. An end-of-year report, covering deviations which occurred during the period from July 1 through December 31, is due by January 30 of each year. The report must be submitted even if there were no deviations for the reporting period. To be submitted on a form approved by the Commissioner.	Total Facility
Compliance Certification	due 30 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner. The Compliance Certification shall be submitted both to the Commissioner and to the U.S. EPA regional office in Chicago.	Total Facility
COMS Audit Results Summary	due 30 days after end of each calendar year following Opacity Audit . Submit on a form approved by the Commissioner. (i.e. optical alignment, zero compensation, stack exit correlation, and zero alignment audits).	EU003
Emissions Inventory Report	due 91 days after end of each calendar year following Permit Issuance (April 1st). To be submitted on a form approved by the Commissioner.	Total Facility
Performance Test Notification (written)	due 30 days before end of each 60 months following Initial Performance Test (30 days before each Performance Test)	EU003
Performance Test Plan	due 30 days before end of each 60 months following Initial Performance Test (30 days before each Performance Test)	EU003
Performance Test Report - Microfiche Copy	due 105 days after end of each 60 months following Initial Performance Test (105 days after each Performance Test)	EU003
Performance Test Report	due 45 days after end of each 60 months following Initial Performance Test (45 days after each Performance Test)	EU003

TECHNICAL SUPPORT DOCUMENT
For
DRAFT AIR EMISSION PERMIT NO. 00000424-001

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

CONTENT

1. General Information

1.1. Applicant and Stationary Source Location:

Applicant/Address	Stationary Source/Address (SIC Code: 4911)
Interstate Power Co. P.O. Box 769 Dubuque, Iowa 52004-00769	Fox Lake Station County Road 28 Sherburn, MN 56171

1.2. Description Of The Facility and The Permit Action

Emission units at the Fox Lake Station consist of three power boilers, one combustion turbine, one heating boiler, and ash and fuel handling activities and equipment. The primary fuels for Boilers 1, 2, and the heating boiler are oil and natural gas. The primary fuels for Boiler 3 are coal, oil and natural gas. The combustion turbine is oil fired. The permit also allows for the burning of boiler cleaning agents in Boilers 1-3, and for the burning of used oil and small amounts of hazardous waste in Boiler 3.

Emissions are controlled from Boiler 3 by an electrostatic precipitator. Emissions from some of the materials handling equipment are controlled by baghouse.

This is a reissuance of an existing permit, and the issuance of the air emissions operating permit required by Title V of the Clean Air Act Amendments of 1990, codified in 40 CFR pt. 70. Previously the facility operated under a state only total facility air emission permit issued by the Minnesota Pollution Control Agency (MPCA). The last total facility permit was issued on December 5, 1984. That permit expired in 1989, and since the expiration, Interstate Power has operated the plant under the conditions of the expired permit as is required by Minn. R. 7001.0160, Continuation of Expired Permit.

Since the last permit was issued in 1984, one amendment that allowed for the installation of a heating boiler has been issued for the facility. The appropriate requirements of the existing permit and the amendment are incorporated into the draft Part 70 permit being noticed now.

Most of the operating conditions of the permit will remain the same as in the existing operating permit and amendments. Some changes have been made. Changes that have been made include an expanded list of allowable fuel types, more detailed specifications for operation of pollution control equipment, and more detailed specifications for operation and maintenance of flue gas monitoring equipment. The permit also meets the requirements of Minn. R. 7007.0800, that specifies requirements for the content of Part 70 permits.

The application for issuance of the Part 70 total facility operating permit was received September 15, 1995.

1.3. Emissions of the Facility

1.3.1 Criteria Pollutants

Following is a summary of the potential emission rates, in tons per year (tpy), attributable to the facility. Emission calculation methods are discussed in the attachments.

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

Pollutant	Potential to Emit (Tons/year)	Actual Emissions (Tons/year)	Attainment or Unclassified? (Yes or No)
Particulate Matter less than 10 micron (PM10)	1363*	14.4	Yes
Sulfur Dioxide (SO_2)	14430*	412	Yes
Nitrogen Oxides (NO_x)	3803	746	Yes
Carbon Monoxide (CO)	339	47.2	Yes
Lead	0.9	0.1	Yes
Volatile Organic Compounds	137	67.4	NA

*Potential emissions based on permit limits

1.3.2 Hazardous Air Pollutants

No limits have been set in the permit for hazardous air pollutants, and currently no ambient standards exist for hazardous air pollutants. Section 112(n)(1)(A) of the Clean Air Act mandates that the EPA perform a study, to be presented in a report to congress, of the hazards to public health reasonably anticipated to occur as a result of emissions of the HAP's by fossil fuel-fired electric utility steam generating units. The report will include; an assessment of HAP emission factors and rates from fossil fuel fired utility boilers, consideration of control strategies, and a determination as to whether hazardous air pollutants emission control from these sources is warranted. The study is referred to as the "utility HAP study." EPA has received many extensions to the deadline for submittal of this report. The report was originally due to congress in November of 1993. It has not been submitted as of this writing. The Agency will amend any existing permit to be consistent with EPA's rulemaking.

The Utility HAP study will develop more accurate emission factors for various boiler types for HAPs than exist now. Currently, emission factors that are available are not considered to be highly accurate. Nonetheless, Interstate Power was required to estimate HAP emissions using available factors and submit those estimates with their Part 70 permit application. Those estimates are attached.

Table 2. Facility Classification

Classification (put x in appropriate box)	Major	Synthetic Minor	Minor	N/A

Prevention of Significant Deterioration	x			
Non Attainment Area (SO_2 and CO)				x
Operating Permit Program	x			

2. Applicable Rules

2.1 Federal New Source Review

The facility is classified as a major source as defined in 40 CFR 52.21. Because the facility existed prior to the effective dates of that program, and none of the facility modifications have exceeded the thresholds for significant emission increases listed in 40 CFR 52.21(b)(23), the facility has not been required to conduct a review under the New Source Review or Prevention of Significant Deterioration programs.

One emission unit was added after the effective date of the regulation, but the permit limits the sulfur content of the fuel, which in turn limits potential emissions to less than significant increase levels as defined by 40 CFR 52.21. The installation was therefore not subject to new source review.

2.2 Federal New Source Performance Standards

No New Source Performance Standards (NSPS) apply to the facility because all boilers were installed prior to 1971, the earliest applicability date for NSPS for steam generating units, or are not affected due to size. The heating boiler, EU005 was installed after 1971, but is below the minimum size (10 mmBtu/hour) regulated by NSPS.

2.3 Acid Rain Program

Title IV of the Clean Air Act Amendments of 1990 requires electric utilities to substantially reduce emissions of sulfur dioxide and nitrogen oxides, the primary pollutants that contribute to acid rain. Through the requirement that utilities hold sulfur dioxide allowances for each ton of sulfur dioxide they emit, the EPA plans to cut annual national sulfur dioxide emissions by about a factor of two. Nitrogen oxides emissions reductions will be controlled by emission limits set for each type of utility boiler, on a lb/mmBtu basis. EPA is in the process of developing rules that set the new emission limits.

The regulation takes effect in two phases. Phase I took effect in 1995 and Phase II will take effect in the year 2000. The Fox Lake plant is not subject to Phase I, but will be subject to Phase II. As such, Interstate Power will be required to hold allowances equal to the tons of sulfur dioxide emissions from the plant after January 1, 2000. Those allowances and emissions will be tracked by EPA. Though emissions and compliance are the responsibility of EPA, the MPCA is required to issue a permit that summarizes the requirements of the regulation. Boiler 3, the only boiler on site subject to Title IV, has requirements associated with it in the permit as required by 40 CFR 72.50. Additionally, Interstate Power will be required to meet nitrogen oxides emission limits, set in lb/mmBtu for the boilers, on a system wide average. 40 CFR 72

requires the MPCA to reopen the permit and add the nitrogen oxides emission limits by January 1, 1999.

2.4 National and State Ambient Air Quality Standards (40 CFR 50)

The National Ambient Air Quality Standards (NAAQS), as found in 40 CFR 50, and the Minnesota Ambient Air Quality Standards (MAAQS), set the maximum concentration of pollutants allowed in the ambient air. As such they apply to all air emissions sources. Computer dispersion modeling will be used to determine whether a facility is in compliance with these standards. The permit contains requirements for computer dispersion modeling to be submitted four years from permit issuance. This is being required by the Air Quality Division for all sources with potential emissions greater than 100 tons per year of those pollutants. If that modeling shows that lower emission limits are needed to ensure compliance with ambient standards, the lower emission limits will be incorporated into the reissuance of the Title V permit.

2.5 National Environmental Standards for Hazardous Air Pollutants

At this time, there are no promulgated or proposed standards for utility boilers, industrial boilers, combustion turbines, or diesel engines.

2.6 State Performance Standards

Boilers 1, 2, and 3 are subject to Minn. R. for Existing Indirect Heating Equipment. Boiler 4 is subject to Minn. R. for New Indirect Heating Equipment, the Combustion Turbine and its starting Diesel Engine are subject to Minn. Standards of Performance for Stationary Internal Combustion Engines, and the coal and ash handling equipment are subject to Minn. Standards for Industrial Process Equipment.

2.7 Environmental Assessment

No new construction or increases in emissions are allowed by this permit. Consequently, no environmental assessment is required.

3. Requirements

3.1 Total Facility Requirements:

All general requirements and some site specific conditions are listed at the total facility level. (See attached CD-01 forms for specific limits). Overall, the permittee will be required to submit an annual report evaluating the compliance status of the facility for the past calendar year, and to report deviations from permit conditions each six months. The total facility requirements also include requirements for recordkeeping, inspection and entry, the requirements to submit an operation and maintenance plan, deviations notifications, application for amendment, the acid and alkaline fallout limits, requirements for procedures for notifications in the event of equipment shutdown/breakdown, and submittal of a fugitive emissions control plan. Also required is the performance and submittal of computer dispersion modeling that show that the facility's operation will not result in concentrations of pollutants in the area surrounding the facility that exceed standards for sulfur dioxide, particulates, and nitrogen oxides.

3.2 CE001 for Boiler No. 3; CE 002 for Ash Bin Silo Vent; CE 003 for Ash Transport Blower A and B

The permit contains requirements for inspection and maintenance of the baghouses (CE002 and 003). These requirements were established to demonstrate compliance with the particulate and opacity limits set by Minn. R. 7011.0710 (Industrial Process Equipment Rule) that apply to the ash bin silo vent and the ash transport blowers.

The permit does not contain requirements for the electrostatic precipitator for Boiler No. 3. Boiler No. 3 has a dedicated opacity monitor, and past stack emissions testing has shown that opacity is the limiting factor. (See Attachment 6 for a discussion of setting control equipment requirements.)

3.3 Boiler 1:

Boiler 1 is a gas/oil fired boiler rated at 158 mmBtu per hour heat input. There is no control equipment.

Applicable Regulations:
Boiler 1 was installed in 1950 and is therefore considered existing indirect heating equipment under Minn. Rules pt. 7011.0510, Standards of Performance for Existing Indirect Heating Equipment. Units built at this time are not subject to federal New Source Performance Standards (NSPS) or federal New Source Review (NSR) if they have not been modified, as defined in the regulations.

Fuel Use Limits: The boiler is limited by design, and by the permit to residual, distillate oil, natural gas, and boiler cleaning agents. The boiler cleaning agents that may be burned are EDTA type, which contain combinations of hydrogen, oxygen, and carbon. They should burn well in the boiler. The burning of boiler cleaning agents is discussed in detail in the attachments.

Compliance Demonstration: No stack testing is required for the boiler because past stack emissions testing has shown that gas and oil fired boilers are not likely to exceed emission limits set under Minn. Rules pt. 7011.0510. The permit requires Interstate Power to keep records of fuel oil certifications or the results of fuel analysis to show compliance with the sulfur dioxide emission limits.

3.4 Boiler 2:

Boiler 2 is a gas/oil fired boiler rated at 158 mmBtu per hour. There is no control equipment.

Applicable Regulations:
Boiler 2 was installed in 1951 and is therefore considered existing indirect heating equipment under Minn. Rules pt. 7011.0510, Standards of Performance for Existing Indirect Heating Equipment. Units built at this time are not subject to federal New Source Performance Standards (NSPS) or federal New Source Review (NSR) if they have not been modified, as defined in the regulations.

Fuel Use Limits: The boiler is limited by design, and by the permit to residual, distillate oil, natural gas, and boiler cleaning agents. The boiler cleaning agents that may be burn are EDTA type, which contain combinations of hydrogen, oxygen, and carbon. They should burn well in the boiler. The burning of boiler cleaning agents is discussed in detail in the attachments.

Compliance Demonstration: No stack testing is required for the boiler because past stack emissions testing has shown that gas and oil fired boilers are not likely to exceed emission limits set under Minn. Rules pt. 7011.0510. The permit requires Interstate Power to keep records of fuel oil certifications or the results of fuel analysis to show compliance with the sulfur dioxide emission limits.

3.5 Boiler 3:

Boiler 3 is fired by pulverized coal/oil and gas. Its rated heat input is 709 mmBtu per hour. Emissions are controlled by electrostatic precipitator. The boiler is capable of burning coal up to approximately 350 mmBtu per hour, and the remainder, 359 per hour, can be supplied by fuel oil. The boiler can also be fired at full capacity on oil or gas. Currently, the boiler is being operated primarily burning natural gas.

Applicable Regulations:
Boiler 3 was installed in 1960 and is therefore considered existing indirect heating equipment under Minn. Rules pt. 7011.0510, Standards of Performance for Existing Indirect Heating Equipment. Those standards set limits for particulate, opacity and sulfur dioxide. The compliance demonstration methods are spelled out in the rule for particulate, and by policy for opacity, but the rule is silent on averaging time and compliance demonstration for sulfur dioxide. In the absence of an averaging time specified in the rule, permit team members decided that the specified compliance demonstration method in the rule is the best indicator of the intentions of the rule's authors. The rule specifies that compliance be demonstrated using Method 6 barring a different compliance demonstration method approved by the Agency. Method 6 is a three hour test. Since the referenced compliance demonstration is based on a three hour average, the sulfur dioxide limit in the permit has been set with a three hour average.

Averaging time with the other boilers is not at issue because those boilers do not have continuous emission monitors. Compliance for the other boilers with the sulfur dioxide limits when burning oil (only boiler 3 is coal fired) is demonstrated by oil analysis (may be supplied by vendor) that shows the oil sulfur content coupled with oil heating value would not exceed the limit.

Units built at this time are not subject to federal New Source Performance Standards (NSPS) or federal New Source Review (NSR) if they have not been modified, as defined in the regulations.

Title IV, Acid Rain Program: This boiler is also subject to the Acid Rain Program, promulgated under 40 CFR 72, 73, 75, and 76. The program requires the company to hold emission allowances for each ton of sulfur dioxide effective January 1, 2000, to meet system nitrogen oxide emission limits, and to monitor emissions of sulfur dioxide, nitrogen oxides, carbon dioxide, and opacity. U.S. EPA will track the sulfur dioxide and nitrogen oxides emissions.

Fuel Use Limits: Currently, the boiler is being fired with natural gas only. The boiler is limited by design, and by the permit to coal, residual, distillate oil, natural gas, hazardous waste, and boiler cleaning agents. Heat input from coal is restricted to less than half of the total rated heat input due to limited coal milling capacity. The burning of boiler cleaning agents is discussed below. Hazardous waste burning is allowed by federal and state hazardous waste rules as cited in the attached CD-01 under the small quantity generator exemption. A copy of the small quantity burner exemption is attached to this document, and a discussion of the rules that limit types of waste that can be burned. The regulations, in general, limit the types of hazardous waste that can be burned to wastes that are hazardous due to ignitability (ability to burn), or are corrosive or reactive. If Interstate Power chose to expand the hazardous wastes that they are

allowed to burn, the permit would need to be amended, and Interstate Power would be required to have the boiler meet performance standards in the Minnesota incinerator rules. (Minn. R 7045.0542).

Compliance Demonstration: Performance testing is required within 180 days should the facility resume burning coal, and then every 5 years for particulates. The testing frequency was chosen because past stack testing has shown the boiler emission rate to be less than 60% of its limit. (See stack testing frequency justification in the attachments.) Continuous emission monitoring required under the acid rain program will also be used to demonstrate compliance with the opacity and sulfur dioxide emission limits.

Many of the QAQC requirements for the CEMs stem from the requirements set forth in the Acid Rain Program, codified under 40 CFR 75, and that citation is given for those requirements in the permit. CEMs QAQC requirements that are not based in the requirements of 40 CFR 75 have been developed by MPCA staff to ensure that the data received from continuous emission monitors is accurate and reliable. The MPCA is in the process of developing regulations that include these requirements.

3.6 Combustion Turbine:

The combustion turbine is oil fired, and has a rated heat input of 307 mmBtu per hour.

Applicable Regulations:
The combustion turbine is subject to Minn. Rules pt. 7011.2300, Standards of Performance For Stationary Internal Combustion Engines.

Fuel Use Limits: The turbine is limited by design, and by the permit to fuel oil.

Compliance Demonstration: The permittee is required to show compliance with the sulfur dioxide limit through vendor certifications.

3.7 EU005 Heating Boiler:

The heating boiler is rated at 8.3 mmBtu per hour heat input. Fuel is oil and natural gas.

Applicable Regulations:
The heating boiler was installed in 1987 and is therefore considered new indirect heating equipment under Minn. Rules pt. 7011.0515, Standards of Performance for New Indirect Heating Equipment. Units of this size are not subject to federal New Source Performance Standards (NSPS). Potential emission increases from the installation were less than significant emission increase levels as defined by 40 CFR 52.21 due to the fuel use restrictions, and accordingly, the boiler was not subject to federal new source review.

Fuel Use Limits: The boiler is limited by the permit to oil with a sulfur content of 1%, giving an emission rate of approximately 1.08 lb/mmBtu. The limits on the sulfur content (set as a Title I condition) prevent exceedance of the sulfur dioxide limit, and also limit potential emissions from the boiler to less than significant emission increases as defined by 40 CFR 52.21.

Compliance Demonstration: The permittee is required to show compliance with the sulfur dioxide limit through vendor certifications. Past experience, and EPA emission factors predict that the emission limits for opacity and particulate will not be exceeded with the permitted fuel types.

3.8 Ash Bin Silo Vent and Ash Transport Blower A and B:

Applicable Regulations: Both units are subject to Minn. R. 7011.0710, Standards of Performance for Industrial Process Equipment.

Compliance Demonstration: The requirements for the inspection and maintenance of the baghouses are being used to support compliance demonstration for these units. Stack testing is not required by the permit because; manufacturer's guaranteed emission rates from fabric filters are less than the limits allowed under Minn. R. 7011.0710, and past stack emissions testing from similar units has shown emission rates to be much lower than the emission rate allowed by Minn. R. 7011.0710.

3.9 Combustion Turbine Starting Diesel:

Applicable Regulations:
The combustion turbine starting diesel is subject to Minn. Rules pt. 7011.2300, Standards of Performance For Stationary Internal Combustion Engines.

Fuel Use Limits: The engine is limited by design, and by the permit to fuel oil.

Compliance Demonstration: The permittee is required to show compliance with the sulfur dioxide limit through vendor certifications. Past experience predict that the emission limits for opacity will not be exceeded with the permitted fuel type.

4.0 Other Issues

Used Oil, Hazardous Waste, and Boiler Cleaning Agents:

Calculations and comparisons of HAP metals contents of boiler cleaning agents and used oil with oil and coal are shown in the Attachments. The ethylene glycol in the boiler cleaning agents should burn well and be destroyed in the boiler, and metals concentrations in the cleaning agents are comparable to oil or coal. The permit also limits the percentage of input to the boiler of these materials. Those limits on percentage are to ensure that combustion conditions within the boiler are not compromised in the event that low BTU materials are burned. Burning large amounts of low Btu materials could result in incomplete combustion of the primary fuel, leading to added hazardous air pollutant formation.

Used oil burned for energy recovery is not regulated as hazardous waste. Federal and state regulations allow the burning of used oils with higher levels of metals and halogens than found in virgin fuels, (off specification) but they must be burned in larger industrial or utility boilers.

Average levels of toxics were compared between used oil and other fuel. (See attachments.) Average weighted toxicity of used oil and coal was also compared. The fuels were compared by comparing fuel content of metals and EPA emission factors for volatile HAPs of distillate oil, along with MPCA developed weighting factors. For one analyses, the metals content of used oil was derived from Northern States Power samples of used oil that they are likely to burn. Another comparison using EPA emission factors is also included. The results show that used oil should not be a more problematic fuel than coal.

Federal and State Hazardous waste rules allow for the burning of some types of hazardous waste. A copy of the small quantity burner exemption is attached, which is the federal provision allowing for the burning of hazardous waste. Any utility boiler that burns hazardous waste (except for a list of wastes in 40 CFR 261) is subject tot he BIF rules which require that they obtain a BIF (Boilers and Industrial Furnaces) permit. A BIF permit allows for the burning of hazardous wastes in Boilers and Industrial Furnaces. The exception to this is the “small quantity on-site burner exemption”. Owners and operators that burn hazardous waste in an on-site boiler or industrial furnace are exempt from the BIF regulations if they burn a monthly quantity less than is listed in a table in 40 CFR 266.108(a), and if the waste is less than 1 percent of the fuel input, and as long as the waste has a minimum heating value of 5000 Btu/lb., and as long as the waste does not contain certain dioxin-containing waste codes.

If a facility meets all of these requirements, it is exempt from the federal BIF regulations, but is still required to meet the state rules for hazardous waste burned for energy recovery (Minn. R. 7045.0692). The regulation has requirements for record keeping and notifying the EPA of the burning activity. It further states that facilities that wish to burn 1) a hazardous waste sludge; 2) a listed waste that was listed for reasons other than ignitability; or 3) a waste that is toxic under TCLP shall comply with the Minn. R. 7045.0542 (the incinerator rules) except for the particulate standard and the continuous monitoring requirements. Interstate Power may elect to add those fuel types to the permit in the future, as may other owners and operators of utility boilers, but the

permit would need to be amended, and the facility would be subject to the requirements in the Minn. R. 7045.0542.

5. Conclusion

Based on the information provided by Interstate Power Company, the MPCA has reasonable assurance that the continued operation of the emission facility, as described in the Air Emission Permit No. 00000424-001 and this technical support document; will not cause or contribute to a violation of Minnesota or Federal Air Pollution Rules.

Attachments:

1. Small Quantity On-Site Burner Exemption

2. Pollutant Emission Calculations and Summary

3. HAP Emissions Comparison Between Waste Oil, Coal and Oil

4. HAP Content and Emission Calculations from Boiler Cleaning Agents

5. Stack Testing Frequency Justification

6. Requirements for Control Equipment

Need further information?

Permit Engineer: Jenny Reinertsen
Telephone No.: (612)282-9880

ATTACHMENT 1

ATTACHMENT 2

ATTACHMENT 3

ATTACHMENT 4

ATTACHMENT 5

ATTACHMENT 6