

**AIR EMISSION PERMIT NO. 13700028- 002
IS ISSUED TO**

City of Virginia

City of Virginia Department of Public Utilities
620 South 2nd Street
Virginia, St. Louis County, Minnesota 55792

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 18, 1995
Major Amendment	September 2, 1998

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. pt. 7007.0800, subp. 16 and all standard permit requirements listed in 40 CFR § 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 are 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: December 22, 1998
Expiration: February 5, 2003

All Title I Conditions do not expire.

Don Smith for

Michael J. Sandusky
Division Manager
Air Quality Division

for Peder A. Larson
Commissioner
Minnesota Pollution Control Agency

BAB:yma

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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 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. 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. 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:

The City of Virginia Department of Public Utilities is a citizen-owned utility providing steam and electricity to businesses and residents of the local Virginia area. The department currently operates any combination of four boilers using coal and/or natural gas as fuel. The four boilers are referred to as Boiler Nos. 7, 8, 9, and 10. Currently, Boiler Nos. 7 and 10 are permitted as natural gas-fired boilers, Boiler No. 8 is allowed to burn both coal (subbituminous and bituminous) and natural gas, and Boiler No. 9 can burn only coal (subbituminous and bituminous). Boiler No. 7 was previously permitted to burn coal but discontinued doing so back in 1993, with the installation of Boiler No. 10.

The facility was issued a Title V total facility air emissions permit on February 5, 1998. This permit amendment (the first amendment to the Title V permit) allows the Utility to shut down Boiler No. 8, repermits coal combustion in Boiler No. 7, and permits the venting of Boiler No. 7 through the electrostatic precipitator and stack currently used by Boiler No. 8.

The permit amendment is considered a major permit amendment under Minn. R. 7007.1500, subp. 1, because the changes to the Title V permit are: 1) considered significant changes to existing monitoring, reporting, and record keeping, 2) consist of changes made to emission limitations based on a source-specific determination of ambient impacts, and 3) consist of changes made to underlying conditions set to avoid Prevention of Significant Deterioration (PSD) permitting.

It is important to note that new PSD permit requirements are not triggered by the addition of coal combustion to Boiler No. 7. Under 40 CFR § 52.21(b)(2)(iii)(e), the addition of a new fuel is exempt from PSD permitting as long as the unit was capable of accommodating this fuel prior to 1975 (which was the case for this boiler). The other requirement necessary to qualify for this PSD exemption is that the fuel handling system, necessary to accommodate this new fuel, had to remain in place and be capable of use with just minimal maintenance. This requirement was also met.

The permit amendment eliminates the applicable requirements for Boiler No. 8 and adds similar requirements for Boiler No. 7. In addition, two major changes are being made to the permit. First, the Total Facility is subject to a facility-wide Nitrogen Oxide (NO_x) emission limit. While the NO_x emission limit is not being changed, the emission data used in the compliance equation found in the Total Facility section of the permit is being amended. The compliance equation requires “emission factors” for each fuel burned in each boiler. This amendment removes the coal combustion emission factor for Boiler No. 8 and adds the appropriate coal combustion emission factor for Boiler No. 7. Second, the original Title V permit contained Sulfur Dioxide (SO₂) limits for Boiler No. 7 and Boiler No. 9. The impact of SO₂ emissions on ambient air quality have been remodeled as part of the permit application process because the exhaust gas dispersion parameters have changed. Boiler No. 7 will now vent to the existing Boiler No. 8 stack.

Since Boiler No. 7 is smaller and of different design than Boiler No. 8, both the exhaust gas flow rate through the stack and the SO₂ emission rate go down, while the stack temperature goes up. These changes affect the dispersion of pollutants in the atmosphere. As a result of the ambient air quality modeling, the permitted SO₂ limit when the two coal-fired boilers are simultaneously operated is being reduced. The new group operating limit will be 1.6 lb/MMBtu compared to the previous permit limit of 1.72 lb/MMBtu.

The existing CEM/COM requirements for Boiler No. 8 will now apply to Boiler No. 7. COM requirements have been revised only to reflect recent changes in Minnesota Rules.

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/22/98

Facility Name: City of Virginia Department of Public Utilities
 Permit Number: 13700028 - 002

Table A contains limits and other requirements with which your facility must comply. The limits are located in the first column of the table (What To do). The limits can be emission limits or operational limits. This column also contains the actions that you must take and the records you must keep to show that you are complying with the limits. The second column of Table A (Why to do it) lists the regulatory basis for these limits. Appendices included as conditions of your permit are listed in Table A under total facility requirements.

Subject Item:	Total Facility
What to do	Why to do it
Nitrogen Oxides: less than 73.08 tons/month using 12-month Rolling Average basis.	Title I Condition: to limit NOx emissions increase to less than the significant level in 40 CFR Section 52.21
<p>Recordkeeping: by the 15th day of each month, the Permittee shall record the following information:</p> <p>1) tons of coal burned in EU 001 during the previous month; 2) tons of coal burned in EU 003 during the previous month; 3) total mmcf (million cubic feet) of natural gas burned in EU 001 during the previous month; 4) total monthly NOx emissions for EU 004 and EU 005 as measured by NOx CEMS.</p> <p>The Permittee shall use these fuel usage records, NOx emissions data, and Equation 1 to determine monthly facility NOx emissions.</p>	Title I Condition: to limit NOx emissions increase to less than the significant level in 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
<p>By the 15th day of each month the Permittee shall calculate and record the monthly NOx emissions using Equation 1:</p> $\text{NOx emissions} = \text{EF1c(A)} + \text{EF1ng(B)} + \text{EF3c(C)} + y$ <p>EF1c = 0.007 (EU 001 emission factor for coal; tons NOx/ton coal combusted) EF1ng = 0.275 (EU 001 emission factor for natural gas; tons NOx/mmcf natural gas combusted) EF3c = 0.007 (EU 003 emission factor for coal; tons NOx/ton coal combusted) A = tons of coal burned in EU 001 during the month B = mmcf natural gas burned in EU 001 during the month C = tons of coal burned in EU 003 during the month y = monthly total EU 004 and EU 005 NOx emissions determined by NOx CEMS</p> <p>By the 15th day of each month the Permittee shall calculate and record the monthly 12-month rolling average NOx emission rate. The monthly 12-month rolling average shall be determined by summing the monthly NOx emission rates (determined using the above equation) for the previous 12 months, and dividing by 12.</p>	Title I Condition: to limit NOx emissions increase to less than the significant level in 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 4.B.
Revision of Equation 1 Emission Factors: All Equation 1 emission factors shall be revised based on the results of each performance test. The Permittee shall use the most-recent performance test-revised emission factor for calculating emissions, upon receipt of written notification from the MPCA that the performance testing results were valid. For the interim period prior to receipt of any written MPCA notification, the Permittee shall use the factors defined above for Equation 1 in this permit.	Title I Condition: to limit NOx emissions increase to less than the significant level in 40 CFR Section 52.21
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
<p>Shutdowns: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3.</p> <p>At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.</p>	Minn. R. 7019.1000, subp. 3

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/22/98

Facility Name: City of Virginia Department of Public Utilities

Permit Number: 13700028 - 002

Breakdowns: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
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)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, such as for system breakdowns, repairs, calibration checks, and zero and span adjustments (as applicable). Monitoring records should reflect any such periods of process shutdown.	Minn. R. 7007.0800, subp. 4(D)
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
Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as specified by Minn. R. 7017.2025 following formal review of a subsequent performance test on the same unit.	Minn. R. 7017.2025
Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent recurrence of the deviation.	Minn. R. 7019.1000, subp. 1
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
Emission Fees: due 60 days after receipt of an MPCA bill	Minn. R. 7002.0005 through Minn. R. 7002.0095
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.	Minn. R. 7007.0800, subp. 9(A)
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)

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/22/98

Facility Name: City of Virginia Department of Public Utilities

Permit Number: 13700028 - 002

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 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 the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
Noise: The Permittee shall comply with noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during operation of any emission units. This is a state requirement only and is not federally enforceable.	Minn. R. 7030.0010-7030.0080
The Permittee may be required to submit a Risk Management Plan (RMP) under the federal rule, 40 CFR Part 68 which was promulgated on June 20, 1996. The rule will require each owner or operator of a stationary source, at which a regulated substance is present above a threshold quantity in a process, to design and implement an accidental release prevention program. The RMPs must be submitted to a centralized location as specified by US EPA. The Permittee may obtain the RMP submittal information 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 Part 68
Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/22/98

Facility Name: City of Virginia Department of Public Utilities

Permit Number: 13700028 - 002

Subject Item: GP 001 Boilers 7 and 9 SO2 limits

Associated Items: CE 001 Centrifugal Collector - Medium Efficiency
 CE 002 Electrostatic Precipitator - High Efficiency
 CE 003 Electrostatic Precipitator - High Efficiency
 EU 001 Boiler #7
 EU 003 Boiler #9
 SV 002
 SV 003

What to do	Why to do it
Sulfur Dioxide: less than or equal to 2.5 lbs/million Btu heat input using 1-Hour Average when only one of the emission units in GP 001 is combusting coal.	Minn. R. 7009.0020 to ensure facility does not cause or contribute to a violation of the sulfur dioxide ambient air standard in Minn. R. 7009.0080; meets requirements of Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 1.60 lbs/million Btu heat input using 1-Hour Average when both EU 001 and EU 003 are combusting coal. This SO2 limit applies individually to each emission unit.	Minn. R. 7009.0020 to ensure facility does not cause or contribute to a violation of the sulfur dioxide ambient air standard in Minn. R. 7009.0080; meets requirements of Minn. R. 7011.0510, subp. 1
Coal Combustion Monitoring: The Permittee shall record the start and stop dates and times of all coal combustion periods in EU 001 and EU 003. The Permittee may use the data from the SO2 CEM for EU 001 (on SV 002) and the SO2 CEM for EU 003 (on SV 003) to meet this recordkeeping requirement providing the CEM data continuously specifies the time and date. However, when either or both of the CEMs malfunction, the Permittee shall keep a written log of coal combustion in EU 001 and/or EU 003 in place of CEM data, during the CEM malfunction.	Minn. R. 7007.0800, subp. 4

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/22/98

Facility Name: City of Virginia Department of Public Utilities

Permit Number: 13700028 - 002

Subject Item: EU 001 Boiler #7**Associated Items:** CE 001 Centrifugal Collector - Medium Efficiency

CE 002 Electrostatic Precipitator - High Efficiency

GP 001 Boilers 7 and 9 SO₂ limits

MR 001

MR 002

MR 006

MR 007

SV 002

What to do	Why to do it
EMISSION AND FUEL TYPE LIMITS	hdr
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2
Fuels Allowed: natural gas, subbituminous coal, and bituminous coal. Coal shall not be combusted in EU 001 until EU 001 emissions are vented to CE 002 and emitted through SV 002.	Minn. R. 7007.0800, subp. 2
RECORDKEEPING	hdr
Fuel Usage Recordkeeping: by the 15th day of each month, the Permittee shall record the EU 001 fuel usage (for each permitted fuel) for the previous calendar month. The monthly values shall be used in the NO _x emissions calculation equation (Equation 1) in the total facility section of this permit.	Title I Condition: to limit NO _x emissions increase to less than the significant level in 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
CONTROL EQUIPMENT REQUIREMENTS	hdr
Control Equipment Operating Parameters: operate CE 002 with at least the minimum number of fields in operation during the most recent stack test that measured PM emissions less than or equal to the limit for EU 001. If the number of on-line fields in CE 002 is less than the required minimum, take corrective action as soon as possible to restore the number of online fields to at least the required minimum. Operation of CE 002 is not required when EU 001 is combusting only natural gas.	Minn. R. 7007.0800, subp. 14
Recordkeeping: once each day of operation, record the minimum number of on-line fields for CE 002. Record any corrective action taken upon completion.	Minn. R. 7007.0800, subp. 5
PERFORMANCE TESTING	hdr
Initial Performance Test: due 30 days after Resuming Operation with coal fuel. The test shall measure PM and NO _x emissions while burning coal and a separate test shall be conducted to measure NO _x emissions while burning natural gas. The NO _x tests are for the purpose of determining the NO _x emission factor (EF ₁) for use in Equation 1 in the total facility requirements of this permit.	Title I Condition: to limit NO _x emissions increase to less than the significant level in 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test (see Table B for additional performance testing requirements).	Minn. R. 7017.2030, subp. 4
Boiler Alternative Operating Conditions for Performance Testing: Alternative Operating Conditions during testing are defined as 90% to 100% of the boiler's maximum normal (continuous) operating load or the maximum permitted operating rate, whichever is lower. The basis for this number must be included in the test plan. If testing is conducted at the alternative operating condition established, an operating limit will not be established as a result of performance testing. In no case will the new operating rate limit be higher than allowed by an existing permit condition.	Minn. R. 7017.2025, subp. 2(A) and 3(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/22/98

Facility Name: City of Virginia Department of Public Utilities

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<p>Boiler Operating Conditions Not Meeting the Alternative Operating Conditions During Performance Testing:</p> <p>If performance testing is not conducted at or above the established alternative operating condition, then the boiler operating rate will be limited on an 8-hour block average based on the following:</p> <p>(1) If the results of the performance test are greater than 80% of any applicable emission limit for which compliance is demonstrated, then boiler operation will be limited to the tested operating rate.</p> <p>(2) If results are less than or equal to 80% of all applicable emission limits for which compliance is demonstrated, boiler operation will be limited to 110% of the tested operating rate.</p> <p>In no case will the new operating rate limit be higher than allowed by an existing permit condition.</p>	Minn. R. 7017.2025, subp. 3(B)
<p>STET (Short Term Emergency and Testing) Operating hours limit:</p> <p>The boiler may operate up to 40 hours per year to demonstrate the Uniform Rating of Generating Equipment (URGE) capacity and to meet emergency energy supply needs. Maintain documentation of all STET operation to demonstrate compliance with this limit. The boiler must meet emission limits during STET operation.</p>	Minn. R. 7007.0800, subp. 2
<p>STET Operation Definition that applies to Boilers that Meet or do Not Meet the Alternative Operating Condition for Performance Testing:</p> <p>If performance test results demonstrate compliance at 80% or less of any applicable emission limits for any tested pollutant, STET operation is defined as operation beyond 110% of the average operating rate achieved during that performance test.</p> <p>If performance test results demonstrate compliance at greater than 80% any applicable emission limit for any tested pollutant, STET operation is defined as operation beyond 100% of the average operating rate achieved during that performance test.</p> <p>In no case will STET operation be higher than allowed by an existing permit condition.</p>	Minn. R. 7007.0800, subp. 2
<p>The results of a performance test are not final until issuance of a review letter by MPCA, unless specified otherwise by Minn. R. 7017.2001-7017.2060.</p>	Minn. R. 7017.2020, subp. 4
<p>CONTINUOUS MONITORING REQUIREMENTS</p>	hdr
<p>Emission Monitoring: The Permittee shall use a COMS on SV 002 to measure opacity emissions from EU 001, upon commencing coal combustion.</p>	Minn. R. 7017.1000, subp. 1; Minn. R. 7007.0800, subp. 2
<p>COMS Monitoring Data: Owners or operators of all COMS shall reduce all data to six-minute averages. Opacity averages shall be calculated from all equally spaced consecutive 10-second (or shorter) data points in the six-minute averaging period.</p>	Minn. R. 7007.0800, subp. 2
<p>COMS Continuous Operation: Except for system breakdowns, repairs, calibration checks and zero and span adjustments, all COMS shall be in continuous operation while the boiler is operating (combusting fuel).</p>	Minn. R. 7007.0800, subp. 2
<p>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 CD exceeds the twice specification of PS-1 of 40 CFR pt. 60, Appendix B.</p>	Minn. R. 7017.1000
<p>COMS Calibration Error Audit: due before end of each calendar half-year following Permit Issuance. Conduct audits at least 3 months apart but no greater than 8 months apart.</p>	Minn. R. 7007.0800, subp. 2
<p>Emissions Monitoring: The Permittee shall use a SO2 CEMS on SV 002 to measure SO2 emissions from EU 001, upon commencing coal combustion.</p>	Minn. R. 7017.1000, subp. 1; Minn. R. 7007.0800, subp. 2
<p>CEMS Continuous Operation: Except for system breakdowns, repairs, calibration checks and zero and span adjustments, all CEMS shall be in continuous operation while the boiler is operating (combusting fuel).</p>	Minn. R. 7007.0800, subp. 2
<p>CEMS Daily Calibration Drift (CD) Test: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) gas concentrations at least once daily. The CEMS shall be adjusted whenever the CD exceeds twice the specification of 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, shall be used to determine out-of-control periods for CEMS.</p>	Minn. R. 7007.0800, subp. 2; Minn. R. 7017.1000, subp. 5
<p>CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following Permit Issuance. Conduct CGA at least 3 months apart and not greater than 8 months apart. Follow the procedures in 40 CFR pt. 60, Appendix F.</p>	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

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CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following Permit Issuance. If the relative accuracy is 15% or less the next CEMS RATA is not due for 24 months. Follow the procedures in 40 CFR pt. 60, Appendix B and Appendix F.	Minn. R. 7007.0800, subp. 2
Recordkeeping: The owner or operator must retain records of all CEMS/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

12/22/98

Facility Name: City of Virginia Department of Public Utilities
Permit Number: 13700028 - 002

Subject Item: EU 002 Boiler #8

What to do	Why to do it
Cease Operation: due 1 days after Permit Issuance (shutdown EU 002 no later than 1 day after issuance of PER 002).	Title I Condition: 40 CFR Section 52.21(b)(3)(vi)

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/22/98

Facility Name: City of Virginia Department of Public Utilities

Permit Number: 13700028 - 002

Subject Item: EU 003 Boiler #9**Associated Items:** CE 003 Electrostatic Precipitator - High Efficiency

GP 001 Boilers 7 and 9 SO2 limits

MR 003

MR 004

MR 008

MR 009

SV 003

What to do	Why to do it
EMISSION AND FUEL LIMITS	hdr
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2
Fuels Allowed: subbituminous coal, bituminous coal, and oily cellulose-based sorbents (including oily rags).	Minn. R. 7007.0800, subp. 2
Fuel Usage Limit: The Permittee shall not combust more than 500 pounds per year of oily cellulose-based sorbents (oily rags) in EU 003.	Minn. R. 7007.0800, subp. 2
RECORDKEEPING	hdr
Fuel Usage Recordkeeping: by the 15th day of each month the Permittee shall record the type and quantity of fuels burned in EU 003 during the previous month. The monthly records shall be used in the NOx emission calculation equation (Equation 1) in the total facility section of this permit.	Title I Condition: to limit NOx emissions increase to less than the significant level in 40 CFR Section 52.21; Minn. R. 7007.0800, subp. 5
CONTROL EQUIPMENT REQUIREMENTS	hdr
Control Equipment Operating Parameters: operate CE 003 with at least the minimum number of fields in operation during the most recent stack test that measured PM emissions less than or equal to the limit for EU 003. If the number of on-line fields in CE 003 is less than the required minimum, take corrective action as soon as possible to restore the number of online fields to at least the required minimum.	Minn. R. 7007.0800, subp. 14
Record keeping: once each day of operation, record the minimum number of on-line fields for CE 003. Record any corrective action taken upon completion.	Minn. R. 7007.0800, subp. 5
PERFORMANCE TESTING REQUIREMENTS	hdr
Initial Performance Test: due 60 days after Permit Issuance to measure NOx emissions and determine the NOx emission factor (EF3) used in Equation 1 in the total facility requirements of this permit.	Title I Condition: to limit NOx emissions increase to less than the significant level in 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test for NOx emissions. See table B for additional performance testing requirements.	Minn. R. 7017.2030, subp. 4
Performance Test: due before end of each 60 months starting 01/31/98 to measure particulate matter emissions. The particulate matter emissions 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 01/31/98 (7 days before each Particulate Matter Performance Test).	Minn. R. 7017.2030, subp. 4
Boiler Alternative Operating Conditions for Performance Testing: Alternative Operating Conditions during testing are defined as 90% to 100% of the boiler's maximum normal (continuous) operating load or the maximum permitted operating rate, whichever is lower. The basis for this number must be included in the test plan. If testing is conducted at the alternative operating condition established, an operating limit will not be established as a result of performance testing. In no case will the new operating rate limit be higher than allowed by an existing permit condition.	Minn. R. 7017.2025, subp. 2(A) and 3(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/22/98

Facility Name: City of Virginia Department of Public Utilities

Permit Number: 13700028 - 002

<p>Boiler Operating Conditions Not Meeting the Alternative Operating Conditions During Performance Testing:</p> <p>If performance testing is not conducted at or above the established alternative operating condition, then the boiler operating rate will be limited on an 8-hour block average based on the following:</p> <p>(1) If the results of the performance test are greater than 80% of any applicable emission limit for which compliance is demonstrated, then boiler operation will be limited to the tested operating rate.</p> <p>(2) If results are less than or equal to 80% of all applicable emission limits for which compliance is demonstrated, boiler operation will be limited to 110% of the tested operating rate.</p> <p>In no case will the new operating rate limit be higher than allowed by an existing permit condition.</p>	Minn. R. 7017.2025, subp. 3(B)
<p>STET (Short Term Emergency and Testing) Operating hours limit:</p> <p>The boiler may operate up to 40 hours per year to demonstrate the Uniform Rating of Generating Equipment (URGE) capacity and to meet emergency energy supply needs. Maintain documentation of all STET operation to demonstrate compliance with this limit. The boiler must meet emission limits during STET operation.</p>	Minn. R. 7007.0800, subp. 2
<p>STET Operation Definition that applies to Boilers that Meet or do Not Meet the Alternative Operating Condition for Performance Testing:</p> <p>If performance test results demonstrate compliance at 80% or less of any applicable emission limits for any tested pollutant, STET operation is defined as operation beyond 110% of the average operating rate achieved during that performance test.</p> <p>If performance test results demonstrate compliance at greater than 80% any applicable emission limit for any tested pollutant, STET operation is defined as operation beyond 100% of the average operating rate achieved during that performance test.</p> <p>In no case will STET operation be higher than allowed by an existing permit condition.</p>	Minn. R. 7007.0800, subp. 2
<p>The results of a performance test are not final until issuance of a review letter by MPCA, unless specified otherwise by Minn. R. 7017.2001-7017.2060.</p>	Minn. R. 7017.2020, subp. 4
CONTINUOUS MONITORING REQUIREMENTS	hdr
Emission Monitoring: The Permittee shall use a COMS to measure opacity emissions from EU 003.	Minn. R. 7017.1000, subp. 1; Minn. R. 7007.0800, subp. 2
COMS Monitoring Data: Owners or operators of all COMS shall reduce all data to six-minute averages. Opacity averages shall be calculated from all equally spaced consecutive 10-second (or shorter) data points in the six-minute averaging period.	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 while the boiler is operating (combusting fuel).	Minn. R. 7007.0800, subp. 2
COMS Daily Calibration Drift (CD) Check: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) opacity at least once daily. The COMS must be adjusted whenever the calibration drift (CD) exceeds the twice specification of PS-1 of 40 CFR pt. 60, Appendix B.	Minn. R. 7017.1000
COMS Calibration Error Audit: due before end of each calendar half-year following Permit Issuance. Conduct audits at least 3 months apart but no greater than 8 months apart.	Minn. R. 7007.0800, subp. 2
Emissions Monitoring: The Permittee shall use a SO ₂ CEMS to measure SO ₂ emissions from EU 003.	Minn. R. 7017.1000, subp. 1; Minn. R. 7007.0800, subp. 2
CEMS Continuous Operation: Except for system breakdowns, repairs, calibration checks and zero and span adjustments, all CEMS shall be in continuous operation while the boiler is operating (combusting fuel).	Minn. R. 7007.0800, subp. 2
CEMS Daily Calibration Drift (CD) Test: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) gas concentrations at least once daily. The CEMS shall be adjusted whenever the CD exceeds twice the specification of 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, shall be used to determine out-of-control periods for CEMS.	Minn. R. 7007.0800, subp. 2; Minn. R. 7017.1000, subp. 5
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following Permit Issuance. Conduct CGA at least 3 months apart and not greater than 8 months apart. Follow the procedures in 40 CFR pt. 60, Appendix F.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

12/22/98

Facility Name: City of Virginia Department of Public Utilities

Permit Number: 13700028 - 002

CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following Permit Issuance. If the relative accuracy is 15% or less the next CEMS RATA is not due for 24 months. Follow the procedures in 40 CFR pt. 60, Appendix B and Appendix F.	Minn. R. 7007.0800, subp. 2
Recordkeeping: The owner or operator must retain records of all CEMS/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

12/22/98

Facility Name: City of Virginia Department of Public Utilities

Permit Number: 13700028 - 002

Subject Item: EU 004 Boiler #10**Associated Items:** CE 004 Modified Furnace or Burner Design

CE 005 Flue Gas Recirculation

CE 006 Low Excess - Air Firing

MR 005

MR 010

SV 004

What to do	Why to do it
EMISSION AND FUEL TYPE LIMITS	hdr
Total Particulate Matter: less than or equal to 0.03 lbs/million Btu heat input	40 CFR Section 60.42a(a)(1)
Opacity: less than or equal to 20 percent opacity using 6 Minute Average except for one 6-minute period per hour of not more than 27 percent opacity.	40 CFR Section 60.42a(b)
Sulfur Dioxide: less than or equal to 0.20 lbs/million Btu heat input using 30-day Rolling Average	40 CFR Section 60.43a(b)(2)
Nitrogen Oxides: less than or equal to 0.10 lbs/million Btu heat input using 30-day Rolling Average	Title I Condition: to limit NOx emissions increase to less than the significant level in 40 CFR Section 52.21; meets requirements of 40 CFR Section 60.44a(a)(1)
Fuels Allowed: EU 004 fuel is restricted to natural gas only.	Minn. R. 7007.0800, subp 2
CONTINUOUS EMISSIONS MONITORING	hdr
Emissions Monitoring: The Permittee shall use a NOx CEMS to measure NOx emissions from EU 004 and EU 005, and record the output of the system.	Title I Condition: to limit NOx emissions increase to less than the significant level in 40 CFR Section 52.21; ensures compliance with 40 CFR Section 60.47a(c)
Emissions Monitoring: The owner or operator shall operate and maintain a CO2 or O2 CEMS at the location of the NOx CEMS, and record the output of the system.	40 CFR Section 60.47a(d)
CEMS Continuous Operation: Except for system breakdowns, repairs, calibration checks and zero and span adjustments, all CEMS shall be in continuous operation while the boiler is operating (combusting fuel).	40 CFR Section 60.47a(e); 40 CFR Section 60.13(e)
CEMS Daily Calibration Drift (CD) Test: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) gas concentrations at least once daily. The CEMS shall be adjusted whenever the CD exceeds twice the specification of 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, shall be used to determine out-of-control periods for CEMS.	40 CFR Section 60.48a(d); 40 CFR pt. 60, Appendix F, section 4.1; 40 CFR Section 60.13(d)(1)
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following Permit Issuance. Conduct CGA at least 3 months apart and not greater than 8 months apart. Follow the procedures in 40 CFR pt. 60, Appendix F.	40 CFR Section 60.48a(d); 40 CFR pt. 60, Appendix F, section 5.1.2
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following Permit Issuance. If the relative accuracy is 15% or less the next CEMS RATA is not due for 24 months. Follow the procedures in 40 CFR pt. 60, Appendix B and Appendix F.	40 CFR Section 60.48a(d); 40 CFR pt. 60, Appendix F, section 5.1.1
RECORDKEEPING	hdr
Recordkeeping: The owner or operator must retain records of all CEMS/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.	40 CFR Section 60.7(f); Minn. R. 7007.0800, subp. 5

TABLE B: SUBMITTALS

12/22/98

Facility Name: City of Virginia Department of Public Utilities
Permit Number: 13700028 - 002

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

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

Send any application for a permit or permit amendment to:

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

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:

- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

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

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

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

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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

12/22/98

Facility Name: City of Virginia Department of Public Utilities

Permit Number: 13700028 - 002

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Computer Dispersion Modeling Protocol	due 1,096 days after 02/05/1998 for PM-10 and NOx dispersion modeling. 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 if necessary.	Total Facility
Computer Dispersion Modeling Results	due 1,462 days after 02/05/1998 for PM-10 and NOx dispersion modeling.	Total Facility
Fugitive Control Plan	due 30 days after Permit Issuance (for permit number 13700028-002). The plan shall identify all fugitive emission sources, primary and contingent control measures, and records kept, if any.	Total Facility
Notification	due 15 days after Cease Operation (notification due no later than 15 days after shutdown of EU 002).	EU002
Performance Test Notification (written)	due 30 days before Initial Performance Test	EU001
Performance Test Notification (written)	due 30 days before Initial Performance Test for NOx emissions.	EU003
Performance Test Plan	due 30 days before Initial Performance Test	EU001
Performance Test Plan	due 30 days before Initial Performance Test for NOx emissions. The test plan operating scenario will include as an operating scenario coal combusted individually.	EU003
Performance Test Report - Microfiche Copy	due 105 days after Initial Performance Test	EU001
Performance Test Report - Microfiche Copy	due 105 days after Initial Performance Test for NOx emissions.	EU003
Performance Test Report	due 45 days after Initial Performance Test	EU001
Performance Test Report	due 45 days after Initial Performance Test for NOx emissions.	EU003
Relative Accuracy Test Audit (RATA) Notification	due 30 days before CEMS Relative Accuracy Test Audit (RATA)	EU001, EU003, EU004
Testing Frequency Plan	due 60 days after Initial Performance Test for NOx emissions. The plan shall specify a testing frequency using the initial NOx performance 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 on written approval by MPCA per Minn. R. 7017.2020, subp. 1.	EU003
Testing Frequency Plan	due 60 days after Initial Performance Test for PM and NOx emissions. The plan shall specify a testing frequency using the initial PM and NOx performance test data and MPCA guidance. Future performance tests based on year (12-month), 36-month, and 60-month intervals, or as applicable shall be required on written approval by MPCA per Minn. R. 7017.2020, subp. 1.	EU001

TABLE B: RECURRENT SUBMITTALS

12/22/98

Facility Name: City of Virginia Department of Public Utilities

Permit Number: 13700028 - 002

What to send	When to send	Portion of Facility Affected
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter following Permit Issuance (Submit Deviations Reporting Form DRF-1 as amended) for NOx emissions. The EERs shall indicate all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e. during startup, shutdowns, and malfunctions.	EU004
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter starting 02/05/1998 (Submit Deviations Reporting Form DRF-1 as amended) for sulfur dioxide and opacity. The EERs shall indicate all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e. during startup, shutdowns, and malfunctions.	EU001, EU003
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar half-year following COMS Calibration Error Audit.	EU001, EU003
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar half-year following CEMS Cylinder Gas Audit (CGA).	EU001, EU003, EU004
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance	Total Facility
Compliance Certification	due 30 days after end of each calendar year starting 02/05/1998 (for the previous calendar year). To be submitted on a form approved by the Commissioner, both to the Commissioner, and to the U.S. EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.	Total Facility
Emissions Inventory Report	due 91 days after end of each calendar year following Permit Issuance	Total Facility
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar year following CEMS Relative Accuracy Test Audit (RATA)	EU001
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar year following CEMS Relative Accuracy Test Audit (RATA)	EU004
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar year following CEMS Relative Accuracy Test Audit (RATA).	EU003
Performance Test Notification (written)	due 30 days before end of each 60 months starting 01/31/98 (30 days before each Particulate Matter Performance Test).	EU003
Performance Test Plan	due 30 days before end of each 60 months starting 01/31/98 (30 days before each Particulate Matter Performance Test).	EU003
Performance Test Report - Microfiche Copy	due 105 days after end of each 60 months starting 01/31/98 (105 days after each Particulate Matter Performance Test).	EU003
Performance Test Report	due 45 days after end of each 60 months starting 01/31/98 (45 days after each Particulate Matter Performance Test).	EU003

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 13700028-002

This Technical Support Document (TSD) is for all the interested parties of the permit. The purpose of this document is to set forth the legal and factual basis for the permit conditions, including references to the applicable statutory or regulatory provisions.

1. General Information

1.1. Applicant and Stationary Source Location:

Owner/Operator Address and Phone Number (list both if different)	Facility Address (SIC Code: 4911)
City of Virginia Dept. of Public Utilities 620 South Second Street P.O. Box 1048 Virginia, Minnesota 55792	City of Virginia Dept. of Public Utilities 620 South Second Street P.O. Box 1048 Virginia, Minnesota 55792

Contact: Mr. Douglas J. Ganoe, Assistant General Manager

1.2. Description Of The Facility

The City of Virginia Department of Public Utilities is a citizen-owned utility providing steam and electricity to businesses and residents of the local Virginia area. The department currently operates any combination of four boilers using coal and/or natural gas as fuel. The four boilers are referred to as Boiler No. 7, 8, 9, and No. 10. Currently Boilers No. 7 and No. 10 are strictly natural gas-fired boilers, Boiler No. 8 can burn both coal (subbituminous and bituminous) and natural gas, and Boiler No. 9 can burn only coal (subbituminous and bituminous).

1.3 Description of the Activities Allowed By This Permit Action

The two most important changes made by this amendment to the permit are: 1) changes made to the TACWEF equation that sets the sulfur dioxide limit for the facility, and 2) changes made to the total facility equation used for showing compliance with the Nitrogen Oxide (NO_x) cap. Previously, the City of Virginia added a natural gas boiler to the plant that had potential emissions of NO_x greater than 40 tons. At that time, the company accepted a total facility NO_x cap of 39 tons plus past actual emissions in order to avoid new source review for the addition of the boiler.

A detailed discussion of the changes made to the equations, and the ramifications to the facility operation is contained in section 3 of this document.

The permit amendment is considered a major permit amendment under Minn. R. 7007.1500, subp. 1, because the changes to the Title V permit are: 1) considered significant changes to existing monitoring, reporting, and record keeping, 2) consist of changes made to emission limitations based on a source-specific determination of ambient impacts, and 3) consist of changes made to underlying conditions set to avoid Prevention of Significant Deterioration (PSD) permitting.

The permit amendment eliminates the applicable requirements for Boiler No. 8 and adds similar requirements for Boiler No. 7. In addition, two major changes are being made to the permit. First, the Total Facility is subject to a facility-wide NO_x emission limit. While the NO_x emission limit is not being changed, the emission data used in the compliance equation found in the Total Facility section of the permit is being amended. The compliance equation requires “emission factors” for each fuel burned in each boiler. This amendment removes the coal combustion emission factor for Boiler No. 8 and adds the appropriate coal combustion emission factor for Boiler No. 7. Second, the original Title V permit contained Sulfur Dioxide (SO₂) limits for Boiler No. 7 and Boiler No. 9. The impact of SO₂ emissions on ambient air quality have been remodeled as part of the permit application process because the exhaust gas dispersion parameters have changed. Boiler No. 7, will now vent to the existing Boiler No. 8 stack. Since Boiler No. 7 is smaller and of different design than Boiler No. 8, both the exhaust gas flow rate through the stack and the SO₂ emission rate go down, while the stack temperature goes up. These changes affect the dispersion of pollutants in the atmosphere. As a result of the ambient air quality modeling, the permitted SO₂ limit when the two coal-fired boilers are simultaneously operated is being reduced. The new group operating limit will be 1.6 lb/MMBtu compared to the previous permit limit of 1.72 lb/MMBtu.

The existing CEM/COM requirements for Boiler No. 8 will now apply to Boiler No. 7. COM requirements have been revised only to reflect recent changes in Minnesota Rules.

As a part of re-opening the Title V permit, the agency took the opportunity to clean up various items in the permit. Included in this list were changes made to bring rules up to their current status. These included the shutdown/breakdown rules, the Notification of Deviations Endangering Human Health and the Environment rule, and the opacity rules.

In regards to Section 112g (case-by-case MACT) applicability, this project represents a net decrease in all pollutants (including HAPs) except carbon monoxide. It is logical to have a decrease because 1) the facility is shutting down one boiler and 2) the other boiler that is now going to burn coal is a smaller boiler than the one that is going to be shutdown. Thus a case-by-case MACT evaluation is not required for this permit modification. Note that there is an exemption clause in the 112g rules that exempts electric utility steam generating units. This exemption does not apply to the City of Virginia because they do not meet the Clean Air Act definition of a electric utility; greater than 25 MW capacity of an individual boiler. The total (all boilers included) MW capacity of the Utility is 30 MW.

1.4. Facility Emissions:

Table 1. Hourly Emissions Associated With the Modification

Controlled Allowable Emissions Change

Unit	PM lb/hr	PM ₁₀ lb/hr	SO _x lb/hr	NO _x lb/hr	CO lb/hr	VOC lb/hr	Lead lb/hr
Boiler #7 Before Change	1.31	1.31	0.10	94.64	14.45	0.95	0.00
Boiler #8 Before Change	78.32	18.01	400.00	319.12	20.65	1.35	0.14
PTE Before Change	79.63	19.32	400.10	413.76	35.10	2.30	0.14
Boiler #7 After Change	23.16	4.63	280.00	141.03	51.47	0.95	0.09
Boiler #8 After Change	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PTE After Change	23.16	4.63	280.00	141.03	51.47	0.95	0.09
Change in #7	21.85	3.32	279.90	46.39	37.02	0.00	0.09
Change in #8	-78.32	-18.01	-400.00	-319.12	-20.65	-1.35	-0.14
Change In Emissions	-56.47	-14.69	-120.10	-272.73	16.37	-1.35	-0.05

There is no annual change in potential emissions except for CO, due to the total facility cap.

Table 2. Total Facility Potential to Emit Summary:

EU No .	SV No.	Emission Unit Description	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	Pb tpy	All HAPs tpy
00	002	Boiler No. 7	20	20	1,22	617	225	4	0.4	25
00	002	Boiler No. 8	0	0	0	0	0	0	0	0
00	003	Boiler No. 9	33	33	1,74	877	321	3	0.6	39
00	004	Boiler No. 10	35	35	233	58	98	6	0	----

	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	Pb tpy	All HAPs tpy
Total Facility Limited Potential Emissions	449	449	3,208	877	645	14	0.7	----
Total Facility Actual Emissions*	76	22	892	600	181	2	0.1	----

* Actual emissions are from the 1996 emissions inventory

Table 3. Permit Action Classification

Classification (put x in appropriate box)	Major/Affected Source	*Synthetic Minor	*Minor
PSD (list pollutant)	X		
NAAR (list pollutant) Not Applicable			
Part 70 Permit Program (list pollutant)	X		

* Refers to potential emissions that are less than those specified as major by 40 CFR § 52.21, 40 CFR pt. 51 Appendix S, and 40 CFR pt. 70.

2. Regulatory and/or Statutory Basis

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

Regulatory Overview of Units Affected by the Modification

Table 4. Regulatory Overview

EU, GRP, or SV No.	Applicable Regulations	Comments
EU001, EU 003	Minn. R. 7011.0510	Standards of Performance for Existing Indirect Heating Equipment
EU004	40 CFR pt. 60, Subp. Da	Standards of Performance for Electric Utility Steam Generating Units for which Construction is Commenced After September 18, 1978.
EU 001, EU 003	Minn. R. 7007.0510 Minn. R. 7009.0020	Limits for sulfur dioxide set lower than that allowed by the applicable performance standard to ensure emissions do not cause a violation of ambient standards.
Total Facility	40 CFR § 52.21	Limit set previously for NO _x to keep increase in emissions from boiler 10 below past actual plus 40 TPY

3. Technical Information

Ambient Air Quality Analysis:

The previous air quality analysis was performed assuming that no coal would be burned in Boiler No. 7. For numerous reasons including, the City of Virginia preferred to utilize Boiler No. 8 for coal burning. Because that was the scenario under which they would be operating, the dispersion modeling was performed that way, and the TACWEF limit (total ambient culpability weighted emission factor) was set accordingly.

Due to opacity problems that occur when coal is burned in Boiler No. 8, the utility plans to retire the boiler. Boiler No. 8 is being shut down as a means of complying with a stipulation agreement addressing opacity violations that was issued on February 11, 1998. Instead of burning coal in Boiler No. 8, Boiler No. 7 will be used for coal burning. The City of Virginia has completed dispersion modeling that demonstrates compliance with the sulfur dioxide ambient standards under this scenario, and the TACWEF equation has been modified in this amendment accordingly. Dennis Becker (MPCA staff) has approved the new equation for compliance demonstration, and the dispersion modeling.

New Source Review

This permit amendment (the first amendment to the Title V permit) requires the Utility to shut down Boiler No. 8, and permits the venting of Boiler No. 7 through the electrostatic precipitator and stack currently used by Boiler No. 8. Currently, the control equipment on Boiler No. 7 is a multiclone. After making these changes the Utility will not physically be capable of utilizing Boiler No. 8. This unit will be disconnected from its discharge breaching and stack and thus would vent inside the building if it were operated. The obvious health and safety issues associated with this activity would prohibit its operation.

No modifications to Boiler No. 7 are required for the resumption of coal burning. This project is a physical change as noted by the changes made to the breaching and the pollution control equipment but it is exempt from PSD review under the July 1, 1994, memo from John Seitz (EPA) entitled Pollution Control Project and New Source Review Applicability. The project represents a net decrease in plant capacity. The boiler being shut down is larger than the one with coal being add to it. Thus the overall affect is to reduce emissions by adding the ESP to the boiler.

New Source Performance Standards

Modifications are being made to the breaching and control equipment for Boiler No. 7 that could potentially subject the unit to federal new source performance standards. There are no increases of any regulated pollutants that will result from this change, and because the boiler's emissions will be routed through an electrostatic precipitator vs the current control equipment, there is a reduction of particulate and opacity emissions. This is due to the multiclone having a collection efficiency of 50 percent and the ESP having a collection efficiency of 95 percent.

NESHAPs and 112(g)

The boilers are not currently subject to any regulations promulgated under Part 63, although may be subject to the NESHAP scheduled to be promulgated for industrial boilers in the year 2000. No changes are being made to the boiler so there is no construction or reconstruction of a major source of hazardous air pollutants triggering 112(g) regulations.

4. Conclusion

Based on the information provided by the City of Virginia Department of Public Utilities, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 13700028-002 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Brett Ballavance, Jenny Reinertsen , Marshall Cole, Dennis Becker, Tom Kosevich, and Bob Beresford

Attachment: CD-01 Forms
Results from dispersion modeling analysis
Emission Calculations