

AIR EMISSION PERMIT NO. 13700028- 006

IS ISSUED TO

**The City of Virginia,
The Virginia Public Utilities Commission, and
Laurentian Energy Authority LLC
618 2nd Street South
Virginia, St. Louis County, MN 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	Issuance Date	Action Number
Total Facility Operating Permit	09/18/1995	02/05/1998	001
Major Amendment	02/02/1998	12/22/1998	002
Major Amendment	02/08/1999	04/06/1999	003
Major Amendment	12/24/2001	10/31/2002	004
Major Amendment/Reissuance	01/01/2004	06/30/2005	005
	08/31/2004		
Major Amendment	09/18/2006	See below	006

This permit authorizes the Permittee to operate the stationary source at the address listed above unless otherwise noted in Table A. The Permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: Federal; Pt 70/NSR

Issue Date: March 14, 2007

Expiration: 06/30/2010
Title I Conditions do not expire.

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

for Brad Moore
Commissioner
Minnesota Pollution Control Agency

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NOTICE TO THE PERMITTEE:

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

Metro Area	(651) 296-6300
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Outside Metro Area	1-800-657-3864
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TTY	(651) 282-5332
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The rules governing these programs are contained in Minn. R. chs. 7000-7105. Written questions may be sent to: Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

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

PERMIT SHIELD:

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

FACILITY DESCRIPTION:

The 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 three boilers using coal and/or natural gas as fuel. The three boilers are referred to as Boiler No. 7, 9, and No. 10. Boiler No. 10 is a natural gas fired boiler. Boiler No. 7 can burn both coal, sub-bituminous or bituminous, and natural gas. Boiler No. 9 is a coal only boiler. Boiler 8 is physically disconnected from the Utility System.

The reissuance of the total facility permit in 2005 authorized the installation of a wood fired boiler to be used for district heating and electric generation. Also authorized with this permit action was the installation of wood handling and storage equipment. This modification was subject to federal new source review.

MAJOR AMENDMENT, ACTION 006

A condition of the reissuance permit, permit No. 13700028-005, was that the Permittee was to submit pressure drop ranges for each baghouse in the form of a major amendment application. This permit incorporates those pressure drop ranges for the material handling baghouses.

This permit amendment also incorporates limits based on conditions during previous stack emission testing. Requirements are set for the operation of the electrostatic precipitators, and frequency of on-going testing is specified.

Lastly, some changes were made in the database for the facility description. Some of the stack parameters and location were changed, and some of the newly permitted equipment has been more completely described because vendors have now been chosen. Because some of the stack parameters changed, the Permittee re-performed the computer dispersion modeling done previously for the issuance of the previous permit. That dispersion modeling shows no violation of ambient standards.

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

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

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

Subject Item: Total Facility

What to do	Why to do it
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)
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. 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. In addition, the notification for the Wood Fired Boiler is due by letter within 7 days of the shutdown if the shutdown was not consistent with the startup, shutdown and malfunction plan, and any applicable emission limitation was exceeded.	Minn. R. 7019.1000, subp. 3 and Table 9 to Subp. DDDDD of Part 63
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. In addition, the notification for the Wood Fired Boiler is due by letter within 7 days of the breakdown if the breakdown was not consistent with the startup, shutdown and malfunction plan, and any applicable emission limitation was exceeded.	Minn. R. 7019.1000, subp. 2 and Table 9 to Subp. DDDDD of Part 63
Refer to the EU006 requirements table for additional reporting requirements when actions taken are not consistent with the procedures specified in the EU007 startup, shutdown, and malfunction plan, and EU006 exceeds an applicable emission limitation.	continued from above
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

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

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

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
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
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
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)
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)
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)
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

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

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

<p>Performance Test Notifications and Submittals (or Fuel Analyses for those pollutants not tested for);</p> <p>Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-Test Meeting: due 7 day before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy or CD: due 105 day after each Performance Test.</p> <p>The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.</p> <p>For the Wood Fired Boiler, the Performance Test Report or Fuel Analysis Report must include the information in 40 CFR Section 63.7545(e).</p>	<p>Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018, Minn. R. 7017.2035, subp. 1-2, 40 CFR Section 63.7(b)(1) and (3), 40 CFR Section 63.7545(e)</p>
AMBIENT STANDARDS	hdr
<p>The Permittee shall comply and demonstrate compliance with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50 and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0800.</p>	<p>40 CFR pt. 50; Minn. Stat. Sec. 116.07, subds. 4a and 9; Minn. R. 7007.0100, subps. 7A, 7L and 7M; Minn. R. 7007.0800, subps. 1, 2, and 4; Minn. R. 7009.0010-7009.0080.</p>
<p>Parameters Used in Modeling: The stack heights, emission rates, and other parameters used in the dispersion modeling are listed in the Appendix of this permit. The Permittee must submit to the Commissioner for approval any revisions of these parameters and must wait for a written approval before making such changes. The information submitted must include, at a minimum, the locations, heights and diameters of the stacks, locations and dimensions of nearby buildings, the velocity and temperatures of the gases emitted, and the emission rates. The plume dispersion characteristics due to the revisions of the information must be equivalent to or better than the dispersion characteristics modeled. The Permittee shall demonstrate this equivalency in the proposal. If the information does not demonstrate equivalent or better dispersion characteristics, or if a conclusion cannot readily be made about the dispersion, the Permittee must remodel.</p>	<p>Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000</p>
<p>For changes that do not involve an increase in an emission rate and that do not require a permit amendment, this proposal must be submitted as soon as practicable, but no less than 60 days before beginning actual construction of the stack or associated emission unit.</p> <p>For changes involving increases in emission rates and that require a minor permit amendment, the proposal must be submitted as soon as practicable, but no less than 60 days before beginning actual construction of the stack or associated emission unit.</p> <p>For changes involving increases in emission rates and that require a permit amendment other than a minor amendment, the proposal must be submitted with the permit application.</p>	<p>Title I Condition: 40 CFR Section 52.21(k); Minn. R. 7007.3000</p>

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

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Subject Item: GP 001 Boilers 7 and 9 SO2 limits**Associated Items:** EU 001 Boiler #7

EU 003 Boiler #9

MR 001 Boiler 7 CO2 (bias adjustment)

MR 002 Boiler 7 SO2

MR 003 Boiler 9 CO2 (bias adjustment)

MR 004 Boiler 9 SO2

MR 006 Boiler 7 Opacity

MR 008 Boiler 9 Opacity

SV 002 Boiler No. 7

SV 003 Boiler No. 9

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**A-5**

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Subject Item: GP 002 Boilers 7, 9, and 10 and makeup air heater NOx cap**Associated Items:** EU 001 Boiler #7

EU 003 Boiler #9

EU 004 Boiler #10

EU 005 Makeup Air Heater

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
Recordkeeping: by the 15th day of each month, the Permittee shall record the following information: 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. The Permittee shall use these fuel usage records, NOx emissions data, and Equation 1 to determine monthly facility NOx emissions.	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
By the 15th day of each month the Permittee shall calculate and record the monthly NOx emissions using Equation 1: NOx emissions = EF1c(A) + EF1ng(B) + EF3c(C) + y 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 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.	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

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-6

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Subject Item: GP 003 Material Handling Baghouses**Associated Items:** CE 010 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 011 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 012 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

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

CE 014 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

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

What to do	Why to do it
No visible emissions allowed.	Title I Condition: to ensure compliance with PM10 BACT limit
Visible Emissions: The Permittee shall check the fabric filter stacks for any visible emissions once each day of operation during daylight hours. During inclement weather, the Permittee shall read and record the pressure drop across the fabric filters, once each day of operation.	Title I Condition: to ensure compliance with PM10 BACT limit
Recordkeeping of Visible Emissions and Pressure Drop. The Permittee shall record the time and date of each visible emission inspection or pressure drop reading, and whether or not any visible emissions were observed, and whether or not the observed pressure drop was within the range specified in this permit. Pressure Drop Range for CE010: 2 to 6 inches water guage CE011: 4 to 7 inches water guage* CE012: 4 to 7 inches water guage* CE013: 2 to 6 inches water guage CE014: 2 to 6 inches water guage CE015: NA (No forced air flow) * The normal operating condition of pulse jet filters have a pressure drop across the filters of 4 to 5 inches. The timer maintains this setting. If the pressure drop reaches 7 inches, the cleaning cycle is reduced to 4 second intervals. If the pressure drop reaches 8 inches, and the timer has been adjusted, the bags should be changed.	Title I Condition: to ensure compliance with PM10 BACT limit
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation. The Permittee shall document periods of non-operation of the control equipment when the emission unit is in operation.	Title I Condition: to ensure compliance with PM10 BACT limit
Corrective Actions: The Permittee shall take corrective action as soon as possible if any of the following occur: - visible emissions are observed; - the recorded pressure drop is outside the required operating range; or - the fabric filter or any of its components are found during the inspections to need repair. Corrective actions shall return the pressure drop to within the permitted range, eliminate visible emissions, and/or include completion of necessary repairs identified during the inspection, as applicable. Corrective actions include, but are not limited to, those outlined in the O & M Plan for the fabric filter. The Permittee shall keep a record of the type and date of any corrective action taken for each filter.	Minn. R. 7007.0800, subp. 4, 5, and 14
Monitoring Equipment: The Permittee shall install and maintain the necessary monitoring equipment for measuring and recording pressure drop as required by this permit. The monitoring equipment must be installed, in use, and properly maintained when the monitored fabric filter is in operation.	Minn. R. 7007.0800, subp. 4
Periodic Inspections: At least once per calendar quarter, or more frequently as required by the manufacturing specifications, the Permittee shall inspect the control equipment components. The Permittee shall maintain a written record of these inspections.	Minn. R. 7007.0800, subp. 4, 5 and 14
The Permittee shall operate and maintain the fabric filter in accordance with the Operation and Maintenance (O & M) Plan. The Permittee shall keep copies of the O & M Plan available onsite for use by staff and MPCA staff.	Minn. R. 7007.0800, subp. 14
PERFORMANCE TESTING	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Virginia Dept of Public Utilities
Permit Number: 13700028 - 006

Initial Performance Test: due 180 days after Initial Startup of the wood fired boiler. Testing shall be performed for PM10 from one of the material handling baghouses with the highest calculated input grain loading. Limits are set under EU007-EU012.	Title I Condition: compliance with PM10 BACT limit
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TABLE A: LIMITS AND OTHER REQUIREMENTS**A-8**

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Subject Item: GP 004 SO₂, CO, NO_x, CO₂ and O₂ Monitors**Associated Items:** MR 001 Boiler 7 CO₂ (bias adjustment)MR 002 Boiler 7 SO₂MR 003 Boiler 9 CO₂ (bias adjustment)MR 004 Boiler 9 SO₂MR 005 Boiler 10 NO_xMR 010 Boiler 10 CO₂ (bias adjustment)MR 011 Wood Boiler NO_x

MR 013 Wood Boiler CO

MR 014 Wood Boiler O₂ (bias adjustment)

What to do	Why to do it
Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. No data record is required for the diluent monitors. Acceptable monitor downtime includes reasonable periods as listed in Items A, B, C and D of Minn. R. 7017.1090, subp. 2.	Minn. R. 7017.1090, subp. 1
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. Follow the procedures in 40 CFR pt. 60, Appendix F.	Minn. R. 7017.1170, subp. 3
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following CEM Certification Test for MR001 (when a RATA is not performed).	Minn. R. 7017.1170, subp. 4;
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following CEM Certification Test for MR002 (when a RATA is not performed).	Minn. R. 7017.1170, subp. 4
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following CEM Certification Test for MR003 (when a RATA is not performed).	Minn. R. 7017.1170, subp. 4
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following CEM Certification Test for MR004 (when a RATA is not performed).	Minn. R. 7017.1170, subp. 4
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following CEM Certification Test for MR005 (when a RATA is not performed).	Minn. R. 7017.1170, subp. 4
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following CEM Certification Test for MR010 (when a RATA is not performed).	Minn. R. 7017.1170, subp. 4
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following CEM Certification Test for MR011 (when a RATA is not performed).	Minn. R. 7017.1170, subp. 4
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following CEM Certification Test for MR013 (when RATA is not performed).	Minn. R. 7017.1170, subp. 4
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following CEM Certification Test for MR014 (when RATA not performed).	Minn. R. 7017.1170, subp. 4
Relative Accuracy Test Audit (RATA) Notification: due 30 days before CEMS Relative Accuracy Test Audit (RATA).	Minn. R. 7017.1180, subp. 2
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following CEM Certification Test for MR001. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR pt. 60, Appendix F, section 5.1.1.	Minn. R. 7017.1170, subp. 5

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

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

CEMS Relative Accuracy Test Audit (RATA): due before end of each year following CEM Certification Test for MR002. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR pt. 60, Appendix F, section 5.1.1.	Minn. R. 7017.1170, subp. 5
CEMS Relative Accuracy Test Audit (RATA): due before end of each year following CEM Certification Test for MR003. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR pt. 60, Appendix F, section 5.1.1.	Minn. R. 7017.1170, subp. 5
CEMS Relative Accuracy Test Audit (RATA): due before end of each year following CEM Certification Test for MR004. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR pt. 60, Appendix F, section 5.1.1.	Minn. R. 7017.1170, subp. 5
CEMS Relative Accuracy Test Audit (RATA): due before end of each year following CEM Certification Test for MR005. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR pt. 60, Appendix F, section 5.1.1.	Minn. R. 7017.1170, subp. 5
CEMS Relative Accuracy Test Audit (RATA): due before end of each year following CEM Certification Test for MR010. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR pt. 60, Appendix F, section 5.1.1.	Minn. R. 7017.1170, subp. 5
CEMS Relative Accuracy Test Audit (RATA): due before end of each year following CEM Certification Test for MR011. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR pt. 60, Appendix F, section 5.1.1.	Minn. R. 7017.1170, subp. 5
CEMS Relative Accuracy Test Audit (RATA): due before end of each year following CEM Certification Test for MR013. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR pt. 60, Appendix F, section 5.1.1.	Minn. R. 7017.1170, subp. 5
CEMS Relative Accuracy Test Audit (RATA): due before end of each year following CEM Certification Test for MR014. A RATA is not required in any calendar year if a RATA conducted in the previous year demonstrated a relative accuracy value of less than 15 percent or if the associated emissions unit operated less than 48 hours during the calendar year. If the exception is used, the next RATA shall be conducted during the first half of the following calendar year. RATAs shall be conducted at least 3 months apart according to 40 CFR pt. 60, Appendix F, section 5.1.1.	Minn. R. 7017.1170, subp. 5
Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source.	Minn. R. 7007.1130

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

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Subject Item: GP 005 Opacity Monitors**Associated Items:** MR 006 Boiler 7 Opacity

MR 008 Boiler 9 Opacity

MR 012 Wood Boiler Opacity

What to do	Why to do it
MR012, WOOD BOILER OPACITY MONITOR ONLY REQUIREMENTS	hdr
Installation Notification: due 60 days before installing the continuous opacity monitoring system. The notification shall include plans and drawings of the system.	Minn. R. 7017.1040, subp. 1
COMS Certification Test: due 60 days after achieving maximum capacity but not later than 180 days after initial startup.	Minn. R. 7017.1050, subp. 1; 40 CFR Section 60.8(a)
COMS Certification Test Plan: due 30 days before COMS Certification Test.	Minn. R. 7017.1060, subp. 1 & 2
COMS Certification Test Pretest Meeting: due 7 days before COMS Certification Test.	Minn. R. 7017.1060, subp. 3
COMS Certification Test Report: due 45 days after COMS Certification Test.	Minn. R. 7017.1080, subp. 1, 2 & 4
COMS Certification Test Report - Microfiche or CD Copy: due 105 days after COMS Certification Test	Minn. R. 7017.1080, subp. 3
REQUIREMENTS FOR ALL OPACITY MONITORS	hdr
Continuous Operation: COMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A COMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment.	Minn. R. 7017.1090, subp. 1; 40 CFR Section 60.13(e)
Acceptable monitor downtime includes reasonable periods as listed in Items A, B, C and D of Minn. R. 7017.1090, subp. 2.	
QA Plan Required: Implement a written quality assurance plan which covers each COMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain the written procedures listed in Minn. R. 7017.1210, subp. 1.	Minn. R. 7017.1210, subp. 1
COMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR pt. 60, Appendix B and shall operate, calibrate, and maintain each COMS according to the QA/QC procedures in Minn. R. 7017.1210.	40 CFR Section 60.13(a); Minn. R. 7017.1210
COMS Daily Calibration Drift Check: The Permittee must automatically, intrinsic to the opacity monitor, check the zero and upscale (span) calibration drifts at least once daily. The acceptable range is as defined in 40 CFR pt. 60, Appendix B, PS-1. The span value shall be between 60% and 80%. For COMS without automatic zero adjustments, the optical surfaces exposed to the effluent gases shall be cleaned prior to performing the zero and span drift adjustments. For COMS with automatic zero adjustments, the optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds 4 percent opacity. Minimum procedures must include an automated method for producing a simulated zero opacity condition and an upscale opacity condition as specified in 40 CFR 60.13(d)(2).	Minn. R. 7017.1210, subp. 2; 40 CFR Section 60.13(d)(l) regarding COMS and 60.13(d)(2)
Attenuator Calibration: The Permittee shall perform an attenuator calibration in accordance with Minn. R. 7017.1210, subp. y.	Minn. R. 7017.1210, subp. y
All COMS shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data for each successive 6-minute period.	Minn. R. 7017.1200, subp. 1, 2 & 3; 40 CFR Section 60.13(e)(1); 40 CFR Section 60.13(h)
Recordkeeping: The owner or operator must retain records of all COMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source.	Minn. R. 7017.1130
COMS Calibration Error Audit: due before end of each calendar half-year following COMS Certification Test or 06/30/05. Conduct three point calibration error audits at least 3 months apart but no greater than 8 months apart. Conduct audits in accordance with Minn. R. 7017.1210, subp. 3.	Minn. R. 7017.1210, subp. 3

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

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

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

GP 002 Boilers 7, 9, and 10 and makeup air heater NOx cap

MR 001 Boiler 7 CO2 (bias adjustment)

MR 002 Boiler 7 SO2

MR 006 Boiler 7 Opacity

SV 002 Boiler No. 7

What to do	Why to do it
EMISSION AND FUEL TYPE LIMITS	hdr
See GP001 table for sulfur dioxide emission limits.	
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Particulate Matter < 10 micron: less than or equal to 0.3 lbs/million Btu heat input	Title I Condition: 40 CFR 52.21(k) Ambient Impacts Analysis
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. An exceedance of this opacity standard occurs whenever any one-hour period contains two or more six-minute periods during which the average opacity exceeds 20 percent or whenever any one-hour period contains one or more six-minute periods during which the average opacity exceeds 60 percent.	40 CFR Part 64, also meets the requirements of Minn. R. 7011.0510, subp. 2
Fuels Allowed: natural gas, subbituminous coal, and bituminous coal.	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 NOx emissions 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
PERFORMANCE TESTING	hdr
Performance Test: due before end of each 60 months starting 12/09/2005 to measure particulate matter emissions while burning coal. 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: due before end of each 60 months starting 12/09/2005 for PM10 emissions.	Title I Condition: to determine compliance with PM10 limit
Performance Test: due before end of each 24 months starting 01/01/2007 to measure NOx emissions while burning coal, and while burning natural gas. The NOx tests are for the purpose of determining the NOx emission factor (EF1) for use in Equation 1 in the GP002 section of the permit. Initial test is due prior to 1/1/2007.	Title I Condition: to limit NOx emissions increase to less than the significant level in 40 CFR 52.21
Performance Test Notifications and Submittals: Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements. Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test	Minn. R. 7017.2030, subp. 1-4 and Minn. R. 7017.2035, subp. 1-2

TABLE A: LIMITS AND OTHER REQUIREMENTS
A-12

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

<p>Boiler Alternative Operating Conditions for Performance Testing:</p> <p>Alternative Operating Conditions during testing are defined as 90% to 100% of the boiler's maximum normal (continuous) operating load or the maximum permitted operating rate, whichever is lower. The basis for this number must be included in the test plan. If testing is conducted at the alternative operating condition established, an operating limit will not be established as a result of performance testing.</p> <p>In no case will the new operating rate limit be higher than allowed by an existing permit condition.</p>	Minn. R. 7017.2025, subp. 2(A) and 3(B)
<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% of any applicable emission limit for any tested pollutant, STET operation is defined as operation beyond 100% of the average operating rate achieved during that performance test.</p> <p>In no case will STET operation be higher than allowed by an existing permit condition.</p>	Minn. R. 7007.0800, subp. 2
<p>The results of a performance test are not final until issuance of a review letter by MPCA, unless specified otherwise by Minn. R. 7017.2001-7017.2060.</p>	Minn. R. 7017.2020, subp. 4
<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. 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. 7007.0800, subp. 2
<p>CONTROL EQUIPMENT OPERATING PARAMETERS</p>	hdr
<p>Collect the secondary current and voltage or total power input monitoring system data for the electrostatic precipitator according to 40 CFR Section 63.7525.</p>	40 CFR Part 64
<p>Reduce the data to 3-hour block averages with readings taken every 15 minutes of operation; and</p> <p>Maintain the 3-hour average secondary current and voltage or total power input at or above the level established during the most recent performance test that demonstrated compliance with the particulate matter and PM10 emission limits.</p> <p>Based on the results of the December 2005 testing, maintain the Secondary Current and Voltage equal to or greater than 24 kilovolts and 0.3 amperes, or total power input equal to or greater than 16 kW.</p>	continued from above
<p>NESHAP REQUIREMENTS</p>	hdr

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

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Comply with Subp. DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, as applicable, by September 13, 2007. Also comply with applicable requirements of 40 CFR Part 63, Subp. A.	40 CFR Section 63.7495 (b)
Initial Performance Test: due 180 days after 09/13/2007. Demonstrate initial compliance as required in 40 CFR Section 63.7510 (d).	40 CFR Section 63.7510 (d)

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

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

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

GP 001 Boilers 7 and 9 SO2 limits

GP 002 Boilers 7, 9, and 10 and makeup air heater NOx cap

MR 003 Boiler 9 CO2 (bias adjustment)

MR 004 Boiler 9 SO2

MR 008 Boiler 9 Opacity

SV 003 Boiler No. 9

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
Particulate Matter < 10 micron: less than or equal to 0.3 lbs/million Btu heat input	Title I Condition: 40 CFR 52.21(k) Ambient Impacts Analysis
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. An exceedance of this opacity standard occurs whenever any one-hour period contains two or more six-minute periods during which the average opacity exceeds 20 percent or whenever any one-hour period contains one or more six-minute periods during which the average opacity exceeds 60 percent.	40 CFR Part 64, also meets the requirements of 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
PERFORMANCE TESTING REQUIREMENTS	hdr
Performance Test: due before end of each 60 months starting 12/09/2005 for PM10 emissions.	Title I Condition: to determine compliance with PM10 limit
Performance Test: due before end of each 60 months starting 12/09/2005 to measure particulate matter emissions.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 24 months starting 02/07/2006 to measure NOx emissions while burning coal. The NOx tests are for the purpose of determining the NOx emission factor (EF3) for use in Equation 1 in the GP002 section of the permit.	Title I Condition: to limit NOx emissions increase to less than the significant level in 40 CFR 52.21
Performance Test Notifications and Submittals: Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements. Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test	Minn. R. 7017.2030, subp. 1-4 and Minn. R. 7017.2035, subp. 1-2
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**A-15**

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

<p>Boiler Operating Conditions Not Meeting the Alternative Operating Conditions During Performance Testing:</p> <p>If performance testing is not conducted at or above the established alternative operating condition, then the boiler operating rate will be limited on an 8-hour block average based on the following:</p> <p>(1) If the results of the performance test are greater than 80% of any applicable emission limit for which compliance is demonstrated, then boiler operation will be limited to the tested operating rate.</p> <p>(2) If results are less than or equal to 80% of all applicable emission limits for which compliance is demonstrated, boiler operation will be limited to 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% of any applicable emission limit for any tested pollutant, STET operation is defined as operation beyond 100% of the average operating rate achieved during that performance test.</p> <p>In no case will STET operation be higher than allowed by an existing permit condition.</p>	Minn. R. 7007.0800, subp. 2
<p>The results of a performance test are not final until issuance of a review letter by MPCA, unless specified otherwise by Minn. R. 7017.2001-7017.2060.</p>	Minn. R. 7017.2020, subp. 4
CONTINUOUS MONITORING REQUIREMENTS	hdr
Emission Monitoring: The Permittee shall use a COMS to measure opacity emissions from EU 003.	Minn. R. 7007.0800, subp. 2
Emissions Monitoring: The Permittee shall use a SO2 CEMS to measure SO2 emissions from EU 003.	Minn. R. 7007.0800, subp. 2
CONTROL EQUIPMENT OPERATING PARAMETERS	hdr
Collect the secondary current and voltage or total power input monitoring system data for the electrostatic precipitator according to 40 CFR Section 63.7525.	40 CFR Part 64
Reduce the data to 3-hour block averages with readings taken every 15 minutes of operation; and	continued from above
Maintain the 3-hour average secondary current and voltage or total power input at or above the level established during the most recent performance test that demonstrated compliance with the particulate matter and PM10 emission limits.	
Based on the results of the December 2005 testing, maintain the Secondary Current and Voltage equal to or greater than 48 kilovolts and 0.3 amperes, or total power input equal to or greater than 13 kW.	
NESHAP REQUIREMENTS	hdr
Comply with Subp. DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, as applicable, by September 13, 2007.	40 CFR Section 63.7495 (b)
Also comply with applicable requirements of 40 CFR Part 63, Subp. A.	
Initial Performance Test: due 180 days after 09/13/2007. Demonstrate initial compliance as required in 40 CFR Section 63.7510 (d).	40 CFR Section 63.7510 (d)

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

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

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

GP 002 Boilers 7, 9, and 10 and makeup air heater NOx cap

MR 005 Boiler 10 NOx

MR 010 Boiler 10 CO2 (bias adjustment)

SV 004 Natural Gas Boiler 10

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 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 analyzer at the location of the NOx CEMS, and record the output of the NOx CEMS.	40 CFR Section 60.47a(d)
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
NESHAP REQUIREMENTS	hdr
Comply with Subp. DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, as applicable, by September 13, 2007.	40 CFR Section 63.7495 (b)
Also comply with applicable requirements of 40 CFR Part 63, Subp. A.	
Initial Performance Test: due 180 days after 09/13/2007. Demonstrate initial compliance as required in 40 CFR Section 63.7510 (d).	40 CFR Section 63.7510 (d)

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-17

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Subject Item: EU 006 Wood Fired Boiler**Associated Items:** CE 007 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

CE 008 Selective Noncatalytic Reduction for NOX

CE 009 Electrostatic Precipitator - High Efficiency

MR 011 Wood Boiler NOx

MR 012 Wood Boiler Opacity

MR 013 Wood Boiler CO

MR 014 Wood Boiler O2 (bias adjustment)

SV 005 Wood Fired Boiler

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.025 lbs/million Btu heat input . This limit applies at all times, except during periods of startup, shutdown or malfunction.	Title I Condition: BACT limit; 40 CFR 52.21(j), also meets the requirements of 40 CFR Section 63.7500 and 40 CFR Section 60.43b(c)(1)
Particulate Matter < 10 micron: less than or equal to 0.025 lbs/million Btu heat input . This limit applies at all times except during periods of startup, shutdown or malfunction.	Title I Condition: BACT limit; 40 CFR 52.21(j)
Carbon Monoxide: less than or equal to 0.3 lbs/million Btu heat input based on a 4-hour block average. "Four-hour block average" means the average of all hourly emission rates when the emissions unit is operating over six discrete four-hour periods beginning at midnight. This limit applies at all times, except during periods of startup, shutdown, or malfunction.	Title I Condition: BACT limit; 40 CFR 52.21(j), also meets the requirements of 40 CFR Section 63.7500
Hydrochloric acid: less than or equal to 0.02 lbs/million Btu heat input . This limit applies at all times, except during periods of startup, shutdown or malfunction.	40 CFR Section 63.7500
Nitrogen Oxides: less than or equal to 0.15 lbs/million Btu heat input based on a 30-day rolling average.	Title I Condition: BACT limit; 40 CFR 52.21(j)
Mercury: less than or equal to 0.000003 lbs/million Btu heat input . This limit applies at all times, except during periods of startup, shutdown or malfunction.	40 CFR Section 63.7500
Opacity: less than or equal to 10 percent based on a 1-hour block average.	40 CFR Section 63.7500
Opacity: less than or equal to 20 percent based on a 6-minute average, except for one 6-minute period per hour of not more than 27 percent opacity. This limit applies at all times, except during periods of startup, shutdown or malfunction.	40 CFR Section 60.43b(f)
Ammonia Slip: Limited to less than or equal to 25 ppm. If the ammonia slip exceeds this level, the SNCR system shall be adjusted to reduce the ammonia slip to less than 25 ppm, or shut down until repairs are made and normal operating conditions are achieved. Compliance shall be determined by monitoring the injection temperature and reagent feed rate. The minimum temperature window and maximum feed rate shall be determined by the performance testing required below.	Minn. R. 7007.0800, subp. 2
OPERATING LIMITS	hdr
Fuel use limited to untreated wood, such as, but not limited to, logging waste, trees, brush, etc. Untreated wood is defined as any wood that has not been subject to any chemical treatment or coating. Examples are: 1) untreated residuals from manufacturing processes such as furniture, cabinet, and pallet making and other wood product manufacture; 2) construction waste; 3) urban and park tree trimming and forest residuals; 4) wood from trees downed by storms; 5) trees removed for urban development; 6) trees grown specifically to be used as fuel; and 7) trees removed as part of a timber management plan.	Minn. R. 7007.0800, subp. 2

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

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

The SNCR system will be adjusted or may be shut down when the ammonia slip exceeds the limit set above, until such time as the system is returned to normal operation.	Minn. R. 7007.0800, subp. 2
At all times, including periods of startup, shutdown, and malfunction, owners or operators shall operate and maintain any affected source, including the associated air pollution control equipment in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels required by all relevant standards. Malfunctions shall be corrected as soon as practicable after their occurrence in accordance with the startup, shutdown, and malfunction plan required below and by 40 CFR Section 63.6(e)(3).	40 CFR Section 63.6(e)(1)(i) and 40 CFR Section 60.11(d)
Fuel use is limited in chlorine content to the maximum that was burned during the compliance test that demonstrated compliance with the HCl emission limit. Procedures for determining the maximum chlorine content are specified at 40 CFR Section 63.7530(c)(1)(i)-(iii).	40 CFR Section 63.7530(c)(1)
Fuel use is limited in mercury content to the maximum that was burned during the compliance test that demonstrated compliance with the mercury emission limit. Procedures for determining the maximum mercury content are specified at 40 CFR Section 63.7530(c)(3)(i)-(iii).	40 CFR Section 63.7530(c)(3)
INITIAL COMPLIANCE DEMONSTRATION	hdr
Performance Test: due 60 days after achieving maximum capacity but no later than 180 days after initial startup for particulate matter, PM10, and opacity. You must establish the minimum voltage and secondary current (or total power input) as defined in 40 CFR Section 63.7575 for the electrostatic precipitator.	40 CFR Section 63.7510(a), 40 CFR Section 60.11(e), Title I Condition, compliance with PM10 BACT limits
Determine compliance with the emission limits for hydrogen chloride and mercury through fuel analysis within 180 days of initial startup. Follow the procedures specified in 40 CFR Section 63.7521 and Table 6 to Subp. DDDDD.	40 CFR Section 63.7530(d)
CONTINUOUS MONITORING REQUIREMENTS	hdr
Install, maintain and operate a monitor to measure stack carbon monoxide emissions. The monitor shall meet the requirements of 40 CFR 63.7525(a). For more specific requirements, see the GP004 table in this permit.	40 CFR Section 63.7525(a)
Install, maintain, and operate a continuous monitor to measure the opacity of stack emissions. The monitor shall meet the requirements of 40 CFR 63.7525(b). For more specific requirements, see the MR012 table in this permit.	40 CFR Section 63.7525(b) 40 CFR Section 60.48b(a)
Install, operate and maintain a continuous monitor to measure stack nitrogen oxides emissions. Installation, operation and maintenance shall be in accordance with 40 CFR Section 60.15 and 40 CFR 60, Appendix B. For more specific requirements, see the GP004 table in this permit.	Title I Condition: Monitoring of BACT limit 40 CFR Section 64.3(d)(2)
OPERATING CONDITIONS FOR CONTROL EQUIPMENT	hdr
At all times, including periods of startup, shutdown, and malfunction, operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires you to reduce emissions from the affected source to the greatest extent which is consistent with safety and good air pollution control practices.	40 CFR Section 63.7505(b), 40 CFR Section 63.6(e)(1)(i)
The general duty to minimize emissions during a period of startup, shutdown, or malfunction does not require you to achieve emission levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices, nor does it require you to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures (including the startup, shutdown and malfunction plan required by 40 CFR Section 63.6(e)), review of operation and maintenance records, and inspection of the source.	continued from above
Collect the secondary current and Voltage or total power input monitoring system data for the electrostatic precipitator according to 40 CFR Section 63.7525 and 63.7535; and reduce the data to 3-hour block averages; and maintain the 3-hour average secondary current and voltage or total power input at or above the operating limits established during the performance test according to 40 CFR Section 63.7530(c).	40 CFR Section 63.7530, 40 CFR Section 63.7540(a)
SUBMITTALS AND REPORTING	hdr

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

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

RECORDKEEPING	hdr
Keep all records readily available and on site for a period of 5 years. Maintain relevant records of each startup, shutdown, or malfunction of operation equipment and the occurrence and duration of each malfunction of the required air pollution control and monitoring equipment.	40 CFR Section 60.7(b), 40 CFR Section 63.10(b)(1)
Maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by this part recorded in a permanent form suitable for inspection.	40 CFR Section 60.7(f)
Keep records of the type and amount of all fuels burned to demonstrate that all fuel types and mixtures of fuels burned would result in lower emissions of HCl and mercury than the applicable emission limit. If you plan to burn a new type of fuel, you must recalculate the HCl emission rate using Equation 9 of 40 CFR Section 63.7530 and 40 CFR Section 63.7540(a)(3). You must also recalculate the mercury emission rate according to 40 CFR Section 7540(a)(7) and Equation 11 of 40 CFR Section 63.7530.	40 CFR Section 63.7540(a)(2)
Keep records of carbon monoxide levels according to 40 CFR Section 63.7555(b).	40 CFR Section 63.7540(a)(10)
Full recordkeeping requirements are specified in 40 CFR Section 63.7555 and include copies of all notifications, reports, tests, fuel analyses, compliance demonstrations, performance demonstrations, CEM and COMs data, deviations, fuel use, and all calculations that demonstrate compliance with emission limits.	40 CFR Section 63.7555
STARTUP, SHUTDOWN AND MALFUNCTION PLAN	hdr
Startup, shutdown, and malfunction plan. (i) Develop and implement a written startup, shutdown, and malfunction plan that describes in detail, procedures for operating and maintaining the source during periods of startup, shutdown and malfunction, and a program of corrective action for malfunctioning process and air pollution control and monitoring equipment used to comply with the relevant standard. This plan must be developed by the compliance date (upon startup). The purpose of the startup, shutdown, and malfunction plan is to:	40 CFR Section 63.6(e)(3)(i)
(A) Ensure that, at all times, that you operate and maintain the source, including associated air pollution control and monitoring equipment, in a manner which satisfies the general duty to minimize emissions established by 40 CFR Section 63.6(e)(1)(i); (B) Ensure that you are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of hazardous air pollutants; and (C) Reduce the reporting burden associated with periods of startup, shutdown and malfunction (including corrective action taken to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation.	continued from above
During periods of startup, shutdown, and malfunction, you must operate and maintain the source (including associated air pollution control and monitoring equipment) in accordance with the procedures specified in the startup, shutdown, and malfunction plan developed under 40 CFR Section 63.6(e)(3)(i).	40 CFR Section 63.6(e)(3)(ii)
When actions taken by you during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the source's startup, shutdown and malfunction plan, you must keep records for that event which demonstrate that the procedures specified in the plan were followed. These records may take the form of a checklist, or other effective form of recordkeeping that confirms conformance with the startup, shutdown and malfunction plan for that event.	40 CFR Section 63.6(e)(3)(iii)
In addition, you must keep records of these events as specified in 40 CFR Section 63.10(b), including records of the occurrence and duration of each startup, shutdown, or malfunction of operation and each malfunction of the air pollution control and monitoring equipment. Furthermore, the owner or operator shall confirm that actions taken during the relevant reporting period during periods of startup, shutdown, and malfunction were consistent with the affected source's startup, shutdown and malfunction plan in the semiannual startup, shutdown, and malfunction report required in 40 CFR Section 63.10(d)(5).	continued from above

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-20**

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

If you take an action during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) that is not consistent with the procedures specified in the affected source's startup, shutdown and malfunction plan, and the source exceeds any applicable emission limitation in the relevant emission standard, then the owner or operator must record the actions taken for that event and must report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event, in accordance with Section 63.10(d)(5) (unless the owner or operator makes alternative reporting arrangements, in advance, with the Administrator.)	40 CFR Section 63.6(e)(3)(iv)
You must maintain at the affected source a current startup, shutdown, and malfunction plan and must make the plan available upon request for inspection and copying by the Administrator. In addition, if the startup, shutdown and malfunction plan is subsequently revised as provided in paragraph (e)(3)(viii) of this section, you must maintain at the affected source each previous (i.e., superseded) version of the startup, shutdown, and malfunction plan, and must make each such previous version available for inspection and copying by the Administrator for a period of 5 years after revision of the plan.	40 CFR Section 63.6(e)(3)(v)
If at any time after adoption of a startup, shutdown, and malfunction plan the affected source ceases operation or is otherwise no longer subject to the provisions of this part, you must retain a copy of the most recent plan for 5 years from the date the source ceases operation or is no longer subject to this part and must make the plan available upon request for inspection and copying by the Administrator. The Administrator may at any time request in writing that you submit a copy of any startup, shutdown, and malfunction plan (or a portion thereof) which is maintained at the affected source or in the possession of the owner or operator.	continued from above
Upon receipt of such a request, you must promptly submit a copy of the requested plan (or a portion thereof) to the Administrator. The Administrator must request that the you submit a particular startup, shutdown, or malfunction plan (or a portion thereof) whenever a member of the public submits a specific and reasonable request to examine or to receive a copy of that plan or portion of a plan. You may elect to submit the required copy of any startup, shutdown, and malfunction plan to the Administrator in an electronic format. If the owner or operator claims that any portion of such a startup, shutdown, and malfunction plan is confidential business information entitled to protection from disclosure under section 114(c) of the Act or 40 CFR 2.301, the material which is claimed as confidential must be clearly designated in the submission.	continued from above
To satisfy the requirements of this section to develop a startup, shutdown, and malfunction plan, you may use the affected source's standard operating procedures (SOP) manual, or an Occupational Safety and Health Administration (OSHA) or other plan, provided the alternative plans meet all the requirements of this section and are made available for inspection or submitted when requested by the Administrator.	40 CFR Section 63.6(e)(3)(vi)
Based on the results of a determination made under paragraph (e)(1)(i) of this section, the Administrator may require that you make changes to the startup, shutdown, and malfunction plan for that source. The Administrator must require appropriate revisions to a startup, shutdown, and malfunction plan, if the Administrator finds that the plan: (A) Does not address a startup, shutdown, or malfunction event that has occurred; (B) Fails to provide for the operation of the source (including associated air pollution control and monitoring equipment) during a startup, shutdown, or malfunction event in a manner consistent with the general duty to minimize emissions established by paragraph (e)(1)(i) of this section;	40 CFR Section 63.6(e)(3)(vii)
(C) Does not provide adequate procedures for correcting malfunctioning process and/or air pollution control and monitoring equipment as quickly as practicable; or (D) Includes an event that does not meet the definition of startup, shutdown, or malfunction listed in Section 63.2.	continued from above
You may periodically revise the startup, shutdown, and malfunction plan for the affected source as necessary to satisfy the requirements of this part or to reflect changes in equipment or procedures at the affected source. Unless the permitting authority provides otherwise, you may make such revisions to the startup, shutdown, and malfunction plan without prior approval by the Administrator or the permitting authority. However, each such revision to a startup, shutdown, and malfunction plan must be reported in the semiannual report required by Section 63.10(d)(5).	40 CFR Section 63.6(e)(3)(viii)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-21**

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

If the startup, shutdown, and malfunction plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction but was not included in the startup, shutdown, and malfunction plan at the time you developed the plan, you must revise the startup, shutdown, and malfunction plan within 45 days after the event to include detailed procedures for operating and maintaining the source during similar malfunction events and a program of corrective action for similar malfunctions of process or air pollution control and monitoring equipment.	continued from above
In the event that you make any revision to the startup, shutdown, and malfunction plan which alters the scope of the activities at the source which are deemed to be a startup, shutdown, or malfunction, or otherwise modifies the applicability of any emission limit, work practice requirement, or other requirement in a standard established under this part, the revised plan shall not take effect until after the you have provided a written notice describing the revision to the permitting authority.	continued from above
The title V permit for an affected source must require that you adopt a startup, shutdown, and malfunction plan which conforms to the provisions of this part, and that you operate and maintain the source in accordance with the procedures specified in the current startup, shutdown, and malfunction plan. However, any revisions made to the startup, shutdown, and malfunction plan in accordance with the procedures established by this part shall not be deemed to constitute permit revisions under part 70 or part 71 of this chapter. Moreover, none of the procedures specified by the startup, shutdown, and malfunction plan for an affected source shall be deemed to fall within the permit shield provision in section 504(f) of the Act.	40 CFR Section 63.6(e)(3)(ix)
PERFORMANCE STACK EMISSION TESTING	hdr
Performance Test: due before end of each calendar year following Initial Startup for ammonia slip emissions. During the testing, the minimum temperature window for injection and maximum reagent feed rate shall be determined to ensure that ammonia slip emissions do not exceed 25 ppm.	Minn. R. 7007.0800, subp. 2
All performance tests and fuel analyses used for demonstrating compliance with emission limits must be conducted on an annual basis except as provided for in 40 CFR Section 63.7515. If three consecutive tests show compliance with the emission limits, you may choose to conduct the performance tests for these pollutants every third year. If a test shows noncompliance with an emission limit you must conduct annual performance tests until all performance tests over a consecutive 3 year period show compliance.	40 CFR Section 63.7515
Performance tests and procedures under 40 CFR 63.7520 and 40 CFR Section 60.46b(d) must be followed. 40 CFR Section 63.7520 calls for: -a 60 day notice of intent to test, -development and submittal of a site specific test plan, -request and use of performance audit samples (request due 30 days prior to the test), -provision of adequate testing facilities, -testing during representative operation, -specifies that methods used be consistent with those specified in Parts 51, 60, 61, and 63. The methods are specified in Table 5 to Subp. DDDDD, and -submittal of results within 60 days of the performance test (Minn. R. requires submittal within 45 days, and will take precedence.) 40 CFR Section 60.46b(d) specifies test methods for particulate and opacity. Particulate matter test methods are the same as those specified in Table 5 to subp. DDDDD.	40 CFR Section 63.7520 40 CFR Section 60b(d) and (e)
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**A-22**

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

<p>Boiler Operating Conditions Not Meeting the Alternative Operating Conditions During Performance Testing:</p> <p>If performance testing is not conducted at or above the established alternative operating condition, then the boiler operating rate will be limited on an 8-hour block average based on the following:</p> <p>(1) If the results of the performance test are greater than 80% of any applicable emission limit for which compliance is demonstrated, then boiler operation will be limited to the tested operating rate.</p> <p>(2) If results are less than or equal to 80% of all applicable emission limits for which compliance is demonstrated, boiler operation will be limited to 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
CONTROL EQUIPMENT OPERATING PARAMETERS	hdr
Collect the secondary current and voltage or total power input monitoring system data for the electrostatic precipitator according to 40 CFR Section 63.7525.	40 CFR Section 63.7540 and Table 8 to Subp. DDDDD
<p>Reduce the data to 3-hour block averages; and</p> <p>Maintain the 3-hour average secondary current and voltage or total power input at or above the level established during the most recent performance test that demonstrated compliance with the particulate matter and PM10 emission limits.</p>	continued from above

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-23**

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Subject Item: EU 007 Enclosed Wood Unloading**Associated Items:** CE 010 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 006 Enclosed Wood Unloading Area

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 0.002 grains/dry standard cubic foot	Title I Condition: BACT limit; 40 CFR 52.21(j)
Total Particulate Matter: less than or equal to 0.002 grains/dry standard cubic foot	Title I Condition: BACT limit; 40 CFR 52.21(j)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715
For compliance demonstration, see GP003 requirements table.	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-24**

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Subject Item: EU 008 Wood Storage Silo**Associated Items:** CE 011 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 012 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 007 Wood Storage Silo Vent #1

SV 008 Wood Storage Silo Vent #2

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 0.002 grains/dry standard cubic foot	Title I Condition: BACT limit; 40 CFR 52.21(j)
Total Particulate Matter: less than or equal to 0.002 grains/dry standard cubic foot	Title I Condition: BACT limit; 40 CFR 52.21(j)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715
For compliance demonstration, see GP003 requirements table.	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-25**

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Subject Item: EU 009 Wood Conveyor System**Associated Items:** CE 013 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 009 Wood Conveyor

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 0.002 grains/dry standard cubic foot	Title I Condition: BACT limit; 40 CFR 52.21(j)
Total Particulate Matter: less than or equal to 0.002 grains/dry standard cubic foot	Title I Condition: BACT limit; 40 CFR 52.21(j)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715
For compliance demonstration, see GP003 requirements table.	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-26**

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Subject Item: EU 010 Wood Transfer/Metering Bin**Associated Items:** CE 014 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 010 Wood Transfer Metering Bin

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 0.002 grains/dry standard cubic foot	Title I Condition: BACT limit; 40 CFR 52.21(j)
Total Particulate Matter: less than or equal to 0.002 grains/dry standard cubic foot	Title I Condition: BACT limit; 40 CFR 52.21(j)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715
For compliance demonstration, see GP003 requirements table.	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-27**

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Subject Item: EU 011 Emergency Generator**Associated Items:** SV 011 Emergency Generator

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.14 lbs/million Btu heat input	Title I Condition: BACT limit; 40 CFR 52.21(j)
Nitrogen Oxides: less than or equal to 2.88 lbs/million Btu heat input	Title I Condition: BACT limit; 40 CFR 52.21(j)
Carbon Monoxide: less than or equal to 0.85 lbs/million Btu heat input	Title I Condition: BACT limit; 40 CFR 52.21(j)
Opacity: less than or equal to 20 percent once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input in fuel oil.	Minn. R. 7011.2300, subp. 2
OPERATING CONDITIONS	hdr
Fuel use limited to distillate oil with a maximum of 0.5% sulfur by weight.	Minn. R. 7007.0800, subp. 2
Operating Hours: less than or equal to 500 hours/year based on a 12 month rolling sum.	40 CFR 52.21(k), Ambient Impacts Analysis
MONITORING CONDITIONS	hdr
Fuel Supplier Certification: The Permittee shall obtain and maintain a fuel supplier certification for each shipment of distillate oil, certifying that the sulfur content does not exceed 0.5% by weight.	Minn. R. 7007.0800, subps. 4 & 5
Record the previous month's hours of operation by the 15th of each month. Add to the preceeding 11 month's hours of operation and compare to the limit. Record the results.	Title I Condition to demonstrate compliance with limit on hours of operation
PERFORMANCE TESTING	hdr
Performance Test: due 180 days after Initial Startup for PM10, NOx, and CO. For performance test required notifications and submittals see the total facility requirements table.	Title I Condition: to determine compliance with BACT limits
NESHAP REQUIREMENTS	hdr
Within 120 calendar days after the source becomes subject to the relevant standard (initial startup), provide the following information: (i) The name and address of the owner or operator; (ii) The address (i.e., physical location) of the affected source; (iii) An identification of the relevant standard, or other requirement, that is the basis of the notification and the source's compliance date;	40 CFR Section 63.6590 40 CFR Section 63.6645(d) 40 CFR Section 63.9(b)(2)(i)-(v)
(iv) A brief description of the nature, size, design, and method of operation of the source and an identification of the types of emission points within the affected source subject to the relevant standard and types of hazardous air pollutants emitted; and (v) A statement of whether the affected source is a major source or an area source.	continued from above

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-28**

03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Subject Item: EU 012 Wood Ash Storage Silo**Associated Items:** CE 015 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

SV 012 Wood Ash Silo Bin Vent

What to do	Why to do it
Particulate Matter < 10 micron: less than or equal to 0.002 grains/dry standard cubic foot	Title I Condition: BACT limit; 40 CFR 52.21(j)
Total Particulate Matter: less than or equal to 0.002 grains/dry standard cubic foot	Title I Condition: BACT limit; 40 CFR 52.21(j)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715
For compliance demonstration, see GP003 requirements table.	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Virginia Dept of Public Utilities
Permit Number: 13700028 - 006

Subject Item: FS 005 Wood Ash Loadout

What to do	Why to do it
Ash shall be wetted prior to loadout.	Title I Condition: 40 CFR 52.21(k) Ambient Impacts Analysis

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Virginia Dept of Public Utilities
Permit Number: 13700028 - 006

Subject Item: FS 006 Coal Fly Ash Loadout

What to do	Why to do it
Ash shall be wetted prior to loadout.	Title I Condition: 40 CFR 52.21(k) Ambient Impacts Analysis

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Virginia Dept of Public Utilities
Permit Number: 13700028 - 006

Subject Item: FS 009 Truck Traffic

What to do	Why to do it
Under dry pavement conditions, if the temperature is less than 32 degrees F, sweeping of all traffic areas is required after every 32 trucks.	Title I Condition: 40 CFR 52.21(k), Ambient Impacts Analysis
Under dry pavement conditions, if the temperature is greater than 32 degrees F, sweeping and flushing are required after every 32 trucks.	continued from above
Sweeping and/or flushing is not required if the pavement is wet, or snow or ice covered.	continued from above

TABLE B: SUBMITTALS

B-1 03/14/07

Facility Name: Virginia Dept of Public Utilities
Permit Number: 13700028 - 006

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

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

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

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

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

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

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

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

Send any application for a permit or permit amendment to:

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

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

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.

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS**B-2** 03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Notification of compliance status	due 60 days after Initial Performance Test.	EU001, EU003, EU004
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup. The notification shall include the design heat input capacity of the affected facility and identification of the fuels to be combusted in the affected facility.	EU006
Notification of the Date Construction Began	due 30 days after Start Of Construction. Submit the name and number of the unit and the date construction of each unit began.	EU006
Performance Test Notification (written)	due 60 days before Performance Test	EU006
Performance Test Plan	due 30 days before Performance Test that is a site-specific plan to the EPA Administrator and the Commissioner for review and approval according to the procedures and requirements in 40 CFR Section 63.7520.	EU006
Report	due 60 days before Anticipated Date of Initial Startup that is a site-specific fuel analysis plan to the EPA Administrator for review and approval according to the procedures and requirements in 40 CFR Section 63.7521.	EU006
Testing Frequency Plan	due 60 days after Initial Performance Test for PM10 emissions. The plan shall specify a testing frequency based on the test data and MPCA guidance. Future performance tests based on one-year (12 month), 36 month, and 60 month intervals, or as applicable, shall be required upon written approval of the MPCA.	GP003

TABLE B: RECURRENT SUBMITTALS**B-3** 03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

What to send	When to send	Portion of Facility Affected
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar quarter following COMS Certification Test in which the COMS calibration error audit was completed for MR006, Boiler 7 Opacity.	GP005
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar quarter following COMS Certification Test in which the COMS calibration error audit was completed for MR008, Boiler 9 Opacity.	GP005
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar quarter following COMS Certification Test in which the COMS calibration error audit was completed for MR012, Wood Boiler Opacity.	GP005
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar quarter following Cylinder Gas Audit following the end of the calendar quarter in which the Audit was performed for MR001, Boiler 7 CO ₂ .	GP004
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar quarter following end of the calendar quarter in which the Audit was performed for MR002, Boiler 7 SO ₂ .	GP004
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar quarter following end of the calendar quarter in which the Audit was performed for MR003, Boiler 9 CO ₂ .	GP004
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar quarter following end of the calendar quarter in which the Audit was performed for MR004, Boiler 9 SO ₂ .	GP004
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar quarter following end of the calendar quarter in which the Audit was performed for MR005, Boiler 10 NO _x .	GP004
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar quarter following end of the calendar quarter in which the Audit was performed for MR010, Boiler 10 CO ₂ .	GP004
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar quarter following end of the calendar quarter in which the Audit was performed for MR011, Wood Boiler NO _x .	GP004
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar quarter following end of the calendar quarter in which the Audit was performed for MR013, Wood Boiler CO.	GP004
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar quarter following end of the calendar quarter in which the Audit was performed for MR014, Wood Boiler O ₂ .	GP004
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter following Initial Startup of the Monitor	GP005
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter starting 06/30/2005 (Submit Deviations Reporting Form DRF-1 as amended). The EER shall indicate all periods of monitor bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e. during startup, shutdown, and malfunctions. This requirement does not apply to the O ₂ or CO ₂ monitors.	GP004
Relative Accuracy Test Audit (RATA) Results Summary	due 45 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA) in which the CEMS RATA was conducted for MR001, Boiler 7 CO ₂ ..	GP004

TABLE B: RECURRENT SUBMITTALS**B-4** 03/14/07

Facility Name: Virginia Dept of Public Utilities

Permit Number: 13700028 - 006

Relative Accuracy Test Audit (RATA) Results Summary	due 45 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA) in which the CEMS RATA was conducted for MR002, Boiler 7 SO2..	GP004
Relative Accuracy Test Audit (RATA) Results Summary	due 45 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA) in which the CEMS RATA was conducted for MR003, Boiler 9 CO2..	GP004
Relative Accuracy Test Audit (RATA) Results Summary	due 45 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA) in which the CEMS RATA was conducted for MR004, Boiler 9 SO2..	GP004
Relative Accuracy Test Audit (RATA) Results Summary	due 45 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA) in which the CEMS RATA was conducted for MR005, Boiler 10 NOx..	GP004
Relative Accuracy Test Audit (RATA) Results Summary	due 45 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA) in which the CEMS RATA was conducted for MR010, Boiler 10 CO2..	GP004
Relative Accuracy Test Audit (RATA) Results Summary	due 45 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA) in which the CEMS RATA was conducted for MR011, Wood Boiler NOx.	GP004
Relative Accuracy Test Audit (RATA) Results Summary	due 45 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA) in which the CEMS RATA was conducted for MR013, Wood Boiler CO.	GP004
Relative Accuracy Test Audit (RATA) Results Summary	due 45 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA) in which the CEMS RATA was conducted for MR014, Wood Boiler O2.	GP004
Semiannual Deviations Report	<p>due 30 days after end of each calendar half-year starting 06/30/2005 . The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.</p> <p>For the Wood Fired Boiler, the report must contain the information specified in Table 9 to Subpart DDDDD of Part 63, Number 1 and 40 CFR Section 63.7550.</p>	Total Facility
Semiannual Deviations Report	<p>due 30 days after end of each calendar half-year starting 06/30/2005 . The first semiannual report submitted shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, submit the report stating no deviations. The report must comply with and contain the information specified in 40 CFR Section 63.7550.</p>	EU006
Compliance Certification	due 30 days after end of each calendar year starting 06/30/2005 (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 starting 06/30/2005	Total Facility

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 13700028-006

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

1. General Information

1.1. Applicant and Stationary Source Location:

Owner/Operator Address and Phone Number	Facility Address (SIC Code: 4911)
City of Virginia Department of Public Utilities 618 South Second Street P.O. Box 1048 Virginia, MN 55792 Phone: 218-748-2102	City of Virginia Department of Public Utilities 618 South Second Street P.O. Box 1048 Virginia, MN 55792

Contact: Mr. Douglas J. Ganoe, Director of Operations

1.2. Description of the Permit Action

This is a major amendment to a Part 70 permit.

1.3 Description of the Activities Allowed by this Permit Action

A condition of the reissuance permit, permit No. 13700028-005, was that the Permittee was to submit pressure drop ranges for each baghouse in the form of a major amendment application. This permit incorporates those pressure drop ranges for the material handling baghouses.

This permit amendment also incorporates limits based on conditions during previous stack emission testing. Requirements are set for the operation of the electrostatic precipitators, and frequency of on-going testing is specified.

Lastly, some changes were made in the database for the facility description. Some of the stack parameters and location were changed, and some of the newly permitted equipment has been more completely described because vendors have now been chosen. Because some of the stack parameters changed, the Permittee re-performed the computer dispersion modeling done previously for the issuance of the previous permit. That dispersion modeling shows no violation of ambient standards. The dispersion modeling results are attached to this technical support document.

3.2 Facility Emissions:

Total Facility Potential to Emit Summary

	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	Single HAP tpy	*All HAPs tpy
Total Facility Limited Potential Emissions	1157	596.7	3003	1039	1051	29.37	151.3	175
Total Facility Actual Emissions (2004)	108	40.3	324	286	140	2.19	HAPs not reported in emission inventory	

*Haps are primarily Hydrogen Chloride

Non-Title I Emissions Increase Summary

There are no emission increases allowed by this permit issuance.

Facility Classification

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD	X		
Part 70 Permit Program	X		
Part 63 NESHAP	X		

2. Regulatory and/or Statutory Basis

New Source Review

None of the changes proposed are subject to new source review.

Part 70 Permit Program

The facility is a major source under the Part 70 Permitting Program. This permit does not change the status

New Source Performance Standards (NSPS)

None of the proposed changes are subject to new source performance standards.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The facility is an existing major source of hazardous air pollutants. This permit does not change its status.

Minnesota State Rules

There are no new units proposed with this permit application and so no Minnesota Performance Standards are newly applicable.

3. Technical Information

Computer dispersion modeling for particulate matter was completed to show that the changes to the stack parameters and building dimensions would not cause a predicted violation of ambient standards. The results of that modeling are attached.

Calculations of Potential to Emit

There are minor emissions reductions due to the changes being made. Those calculations are attached.

3.2 Permit Organization

No changes were made to the permit organization.

3.3 Comments Received

Public Notice Period: December 23, 2006 – January 22, 2007

EPA 45-day Review Period: December 23, 2006 – February 7, 2007

The only comments received were from the Lac Veaux Desert Band of Chippewa stating that they had no interest in the permit.

4. Conclusion

Based on the information provided by the Permittee, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 13700028-006 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Jenny Reinertsen (permit writer/engineer)
 Robert Beresford (enforcement)
 Andy Place (stack testing)
 Jim Robin (peer reviewer)

Attachments: 1.1 Dispersion modeling results

2. Emission calculations

1.1 Ambient Air Quality Analysis

Air dispersion modeling has been completed to analyze how the changes at the LEA Virginia facility impact ambient air quality and is discussed in the sections that follow.

Summary of ISC-PRIME Settings

This section describes the model options selected for modeling the proposed Laurentian Energy Authority, LLC (LEA) wood-fired electric generation facility to be located at the Virginia Public Utility site. The analysis utilizes the Industrial Source Complex Short Term model with the PRIME downwash algorithm (ISC-PRIME), version 01228. The model is included within the BEEST dispersion modeling package assembled by Bowman Engineering of Asheville, North Carolina.

Terrain Option

Digitized terrain data for the project area was purchased from Micropath in the form of 30-meter DEM Quads. The Quads were stitched together and converted to NAD83 coordinates using the freeware program 3DEM.

Regulatory Default Option

The regulatory default option was used to employ the Plume Rise Model Enhancements (PRIME) algorithm for treatment building downwash. The PRIME algorithm includes enhanced dispersion coefficients due to turbulent wake, and reduced plume caused by a combination of the descending stream lines in the lee of the building and the increased entrainment in the wake.

Concentration/Deposition Option

The concentration option was used to provide maximum emission concentrations that could be compared to Ambient Air Quality Standards. The model was set to provide output in terms of receptor concentration.

Rural/Urban Option

The Auer classification scheme was used to determine land use setting for the model. Rural dispersion coefficients were selected for the area.

Model Averaging Periods

Per USEPA guidance, dispersion modeling analysis is required for those pollutants with emission increases exceeding the major modification threshold.

The changes at the facility that deviate from the original construction plan affect only the pollutant PM₁₀. The 24-hour and annual averaging periods were used for PM₁₀ modeling with this submittal.

Source Groups

For determination of significant impacts from the proposed facility a source group containing the proposed new LEA sources was employed (VPU_NEW). For PSD PM₁₀ Increment consumption modeling, the proposed LEA sources at Virginia and Hibbing were modeled, plus increment consumers at Hibbing Taconite, Potlatch-Cook, and the Laskin Energy Center.

All sources have been relocated to NAD83 coordinates by comparing coordinate locations with digital orthophotos obtained from the Minnesota DNR Data Deli.

Emission Rates

Maximum potential emissions from the new LEA facility were used for both PSD Increment and NAAQS compliance model runs. For existing LEA sources, emissions were also modeled at potential

emission rates for purposes of PSD Increment and NAAQS analysis. Sources outside of LEA were included at emission rates provided in the MPCA source inventories for PSD Increment and NAAQS.

Merging of Stacks

Merged stacks are not employed in the modeling of LEA sources. A few distant sources may be modeled such that all facility emissions are assumed to pass through a single stack, but where possible, this practice has been avoided. Stack parameters are taken from previous modeling runs identified by MPCA as a source of data.

Building Downwash Implementation

The ISC models include algorithms to model the effects of buildings downwash on emissions from nearby or adjacent point sources. The U.S. EPA Building Profile Input Program (BPIP-PRIME) version 04274 was employed to determine building downwash parameters for the LEA sources. Downwash has not been included for sources located beyond the LEA significant impact area. The BPIP model is included within the BEEST dispersion modeling package assembled by Bowman Engineering of Asheville, North Carolina.

Per guidance from MPCA, building downwash calculations should be undertaken for any sources located within 3 kilometers of the Virginia Public Utilities Site. However, none of the modeled sources lie within 3 kilometers, so building downwash is only implemented for the Virginia Public Utility – LEA site.

Meteorological Data

The meteorological data uses the most recent five years of available National Weather Service (NWS) meteorological data from the nearest site, the Hibbing surface and St. Cloud upper air observations. The information was obtained from the MPCA website and includes the years 1972-1976.

Receptor Grid Development

Significant impact modeling utilizes a large grid, extending out to 10,000 meters. Smaller grids that encompass the significant impact area of each pollutant are then used. The receptor grid employed for PM₁₀ increment and NAAQS analysis is designed to exceed the PM₁₀ worst-case significant impact radius, which extend to a maximum distance of 0.3 km (see Table 2). The grid utilizes 10 meter spacing on the fenceline, 25 meter spacing to 250 meters, 50 meter spacing to 500 meters, and 100 meter spacing to 1500 meters. This area easily accommodates the significant impact area and ensures that concentrations are decreasing on the grid edge.

Emergency Generators

A 1.5 MW emergency generator is proposed for the LEA Virginia site. The generator is provided solely for emergency use and will not be operated when other LEA and Virginia Public Utility sources (boilers) are operating. The generator is therefore not included in modeling of ambient air concentrations for prediction of PSD Increment or NAAQS standard compliance.

Model Updates

The biomass facilities were not built exactly as they were planned and permitted. To verify that the facility as it was built still meets the ambient air quality requirements, the models were rerun incorporating the changes. The building coordinates for the wood storage building, the wood receiving building, the wood boiler building, the wood ash silo and the electrostatic precipitator were updated to represent the buildings as they are today. The stack coordinates for the wood boiler stack (SV005), the truck unloading stack (SV006), the conveyor transfer stack (SV009), the metering bin feed stack (SV010), and the wood fly ash silo (SV012) were updated to their actual instead of planned locations. The base elevations were recalculated for the stacks and buildings that were relocated in the model.

The stack characteristics were also updated. The flow rates were adjusted for storage bin vents #1 and #2 (SV007 and SV008), the conveyor transfer (SV009), and the metering bin feed (SV010). With the flow rate adjustment, the PM and PM₁₀ emission rates were also adjusted for the storage bin vents #1 and #2 (SV007 and SV008) because the emission rates were based on the flow rate. The stack diameter was updated for the storage bin vents #1 and #2 (SV007, SV008), the conveyor transfer (SV009), the metering bin feed (SV010), and the wood ash silo (SV012). The stack heights were changed for the conveyor transfer emission point (SV009), the metering bin feed (SV010) and the wood ash silo (SV012). The exit velocity was changed where changes were made in flow rate and stack diameter. Model Results

Modeling was performed in accordance with PSD guidance and follows the protocols previously used in the LEA permitting process. A preliminary analysis was conducted to determine whether the changes at the facility created a significant impact on ambient air quality. This analysis was conducted for PM₁₀, the only pollutant affected by the changes at the facility and for which there was a major increase in emissions subject to PSD. The preliminary analysis determines whether in-depth modeling of PSD increment consumption and NAAQS compliance must be conducted. When a source impact is less than the significant impact threshold, the source is said to be unable to cause or contribute to an exceedance of ambient air quality standards, and the analysis goes no further. When the source is shown to have a significant impact on ambient air quality, the full impact analysis must be conducted to assess whether PSD growth increments or NAAQS might be exceeded. The discussion below provides a summary of the dispersion modeling findings for the proposed LEA wood-fired electric generation facility.

1.1.1 Significant Impact Area Determination

Particulate Matter (PM₁₀)

- **Annual Averaging Period**

Table 1 summarizes the model-predicted PM₁₀ concentrations for the annual averaging period. In all five years, the impact from the new facility is predicted to exceed the significant impact threshold of 1 microgram per cubic meter. Figure 1 shows the 0.2 km radius of impact for 1976. Full impact modeling must therefore be conducted for PM₁₀ PSD Increment and NAAQS compliance.

Table 1
ISC-PRIME Results for PM10 Impacts
Annual Averaging Period

Year	High Concentration (ug/m3)	Receptor X	Receptor Y	Impact Radius (km)**
1972	4.63344	524488.62	5263209	0.2
1973	4.47302	524488.62	5263209	0.2
1974	4.48422	524488.62	5263209	0.2
1975	4.06209	524488.62	5263209	0.2
1976	4.89435	524488.62	5263209	0.2

***Impact radius measured from 534528.8*

Figure 1
0.2 km Radius of Impact for 1976
PM10 Annual Averaging Period



- 24-Hour Averaging Period**

Table 2 summarizes the model-predicted PM₁₀ concentrations for the 24-hour averaging period and Figure 2 shows the 0.3 km impact radius for the 24-hour averaging period. In all five years, the impact from the new facility is predicted to exceed the significant impact threshold of 5 micrograms per cubic meter. Full impact modeling must therefore be conducted for PM₁₀ PSD Increment and NAAQS compliance.

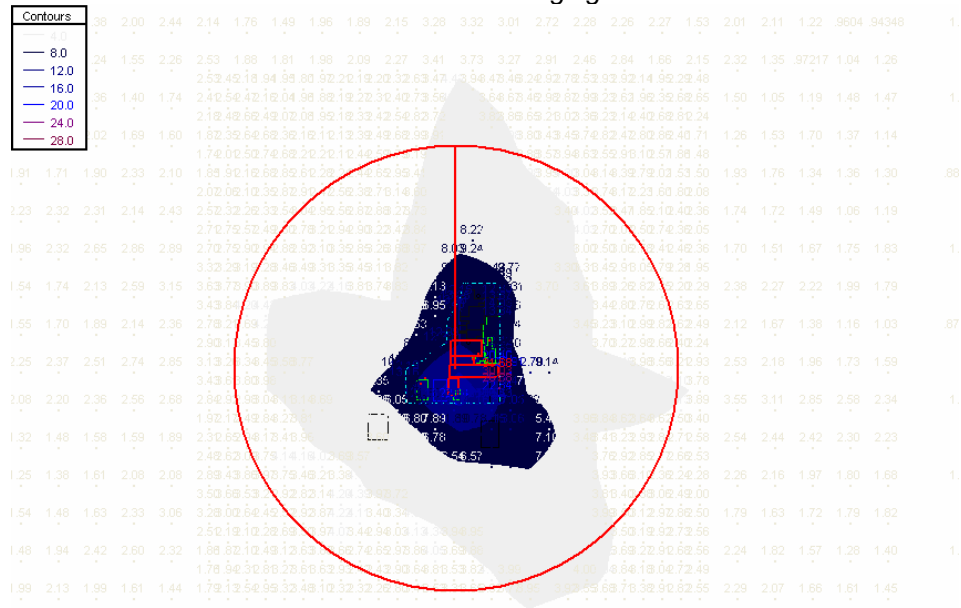
Table 2
ISC-PRIME Results for PM10 Impacts
24-Hour Averaging Period

Year	Highest-High Concentration (ug/m3)	Period*	Receptor X	Receptor Y	Impact Radius (km)**
1972	24.38922	03/05/24	534584	5263248.50	0.3
1973	23.78247	03/19/24	534498.19	5263209	0.3
1974	20.81035	04/07/24	534517.19	5263209	0.3
1975	31.68155	04/15/24	534584	5263248.50	0.3
1976	26.64926	04/25/24	534517.19	5263209	0.3

*period notation refers to the time period during which the high value occurred (day/mo/hr)

**Impact radius measured from 534528.8, 5263259, the midpoint of PM10 sources

Figure 2
0.3 km Radius of Impact for 1975
PM10 24-Hour Averaging Period



1.1.2 PSD Increment Consumption – All Increment-Consuming Sources

Particulate Matter (PM₁₀)

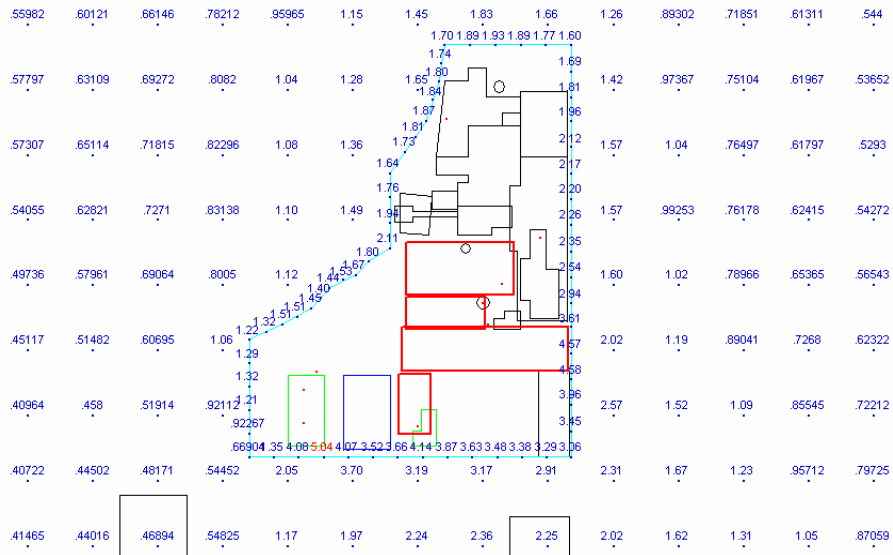
- Annual Averaging Period**

Table 3 summarizes the model-predicted PM₁₀ concentrations for all increment consuming sources. Figure 3 shows the location of the high concentration for 1976. In all five years, predicted increment consumption is less than the Class II PSD Increment standard of 17 micrograms per cubic meter.

Table 3
Summary of PM10 PSD Increment Consumption (LEA Sources Only)
Annual Averaging Period

Year	High Concentration (ug/m3)	Receptor X	Receptor Y
1972	4.78062	534488.62	5263209
1973	4.67844	534488.62	5263209
1974	4.6729	534488.62	5263209
1975	4.23012	534488.62	5263209
1976	5.04116	534488.62	5263209

Figure 3
Location of High Concentration 1976
PM₁₀ Annual Averaging Period



- **24-Hour Averaging Period**

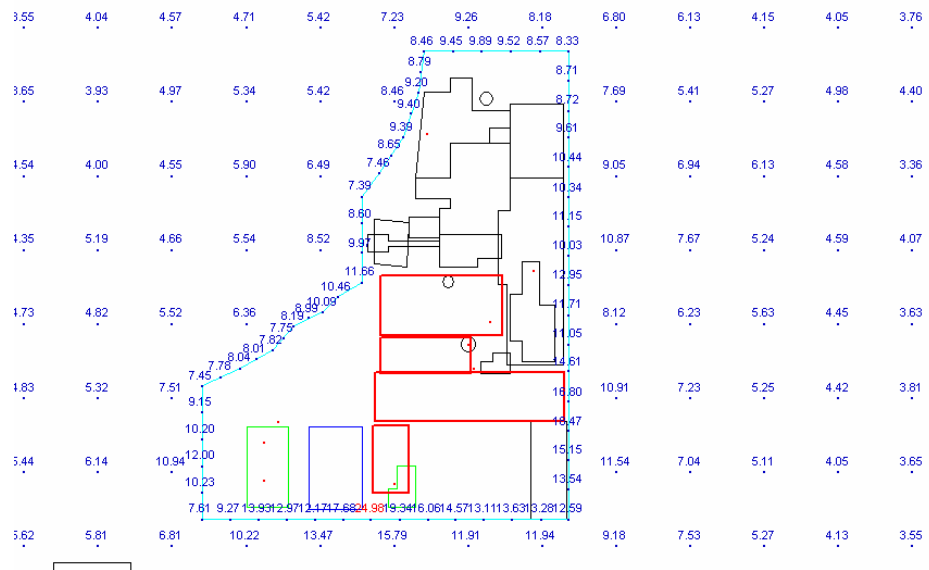
Table 4 summarizes the model-predicted PM₁₀ concentrations for all increment consuming sources and Figure 4 shows the location of the 1976 highest-high concentration. In all five years, predicted increment consumption is less than the Class II PSD Increment standard of 30 micrograms per cubic meter.

Table 4
Summary of PM₁₀ PSD Increment Consumption (LEA Sources Only)
24-Hour Averaging Period-Highest Second High

Year	Highest-High Concentration (ug/m3)	Period*	Receptor X	Receptor Y
1972	24.14196	03/02/24	534584	5263248.50
1973	22.77954	03/18/24	534507.69	5263209
1974	20.01312	04/02/24	534526.81	5263209
1975	23.96215	03/08/24	534584	5263248.50
1976	24.98007	04/26/24	534517.19	5263209

*period notation refers to the time period during which the high value occurred (day/mo/hr)

Figure 4
Location of Highest High Concentration 1976
PM10 24-Hour Averaging Period



1.1.3 NAAQS Compliance Determination

Particulate Matter (PM₁₀)

- Annual Averaging Period**

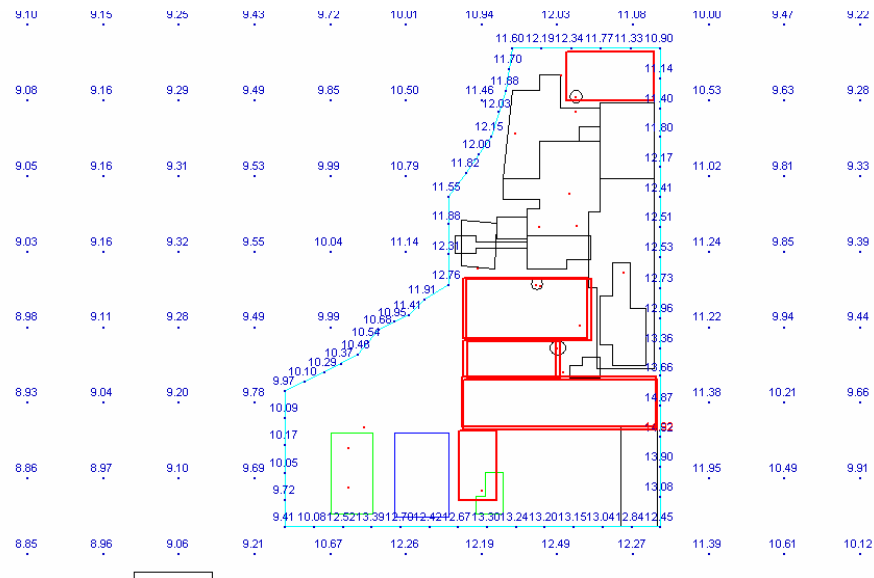
Table 5 summarizes the model-predicted PM₁₀ concentrations for the annual averaging period for NAAQS compliance by all identified sources within 50 kilometers.

Table 5
Summary of PM10 NAAQS Compliance (All Sources)
Annual Averaging Period

Year	High Concentration (ug/m3)	Receptor X	Receptor Y
1972	14.78515	534584	5263248.50
1973	14.45695	534584	5263238.50
1974	14.63689	534584	5263248.50
1975	14.71994	534584	5263238.50
1976	14.92177	534584	5263238.50

Figure 5 shows the location of the high concentration for 1976.

Figure 5
Location of High Concentration 1976
PM10 Annual Averaging Period



- Background Concentrations**

Background concentration was provided by MPCA. The MPCA-specified background concentration for annual PM10 is 23 micrograms per cubic meter. When added to the highest concentration from the NAAQS model, a value of 37.92177 micrograms per cubic meter is predicted, well below the NAAQS standard of 50 micrograms per cubic meter.

- 24-Hour Averaging Period**

Table 6 summarizes the model-predicted PM₁₀ concentrations for the 24-hour averaging period for NAAQS compliance by all identified point sources within 50 kilometers.

Table 6
Summary of PM10 NAAQS Compliance (All Sources)
24-Hour Averaging Period – High Sixth High/5 Years

Year	H6H Concentration (ug/m3)	Period*	Receptor X	Receptor Y
1976	89.9237	09/14/24	533100	5264900

**period notation refers to the time period during which the high value occurred (day/mo/hr)*

- Background Concentrations**

Background concentration was provided by MPCA. The MPCA-specified background concentration for 24-hour PM₁₀ is 37 micrograms per cubic meter. When added to the highest concentration from the NAAQS model, a value of 126.9237 micrograms per cubic meter is predicted, below the NAAQ standard of 150 micrograms per cubic meter.